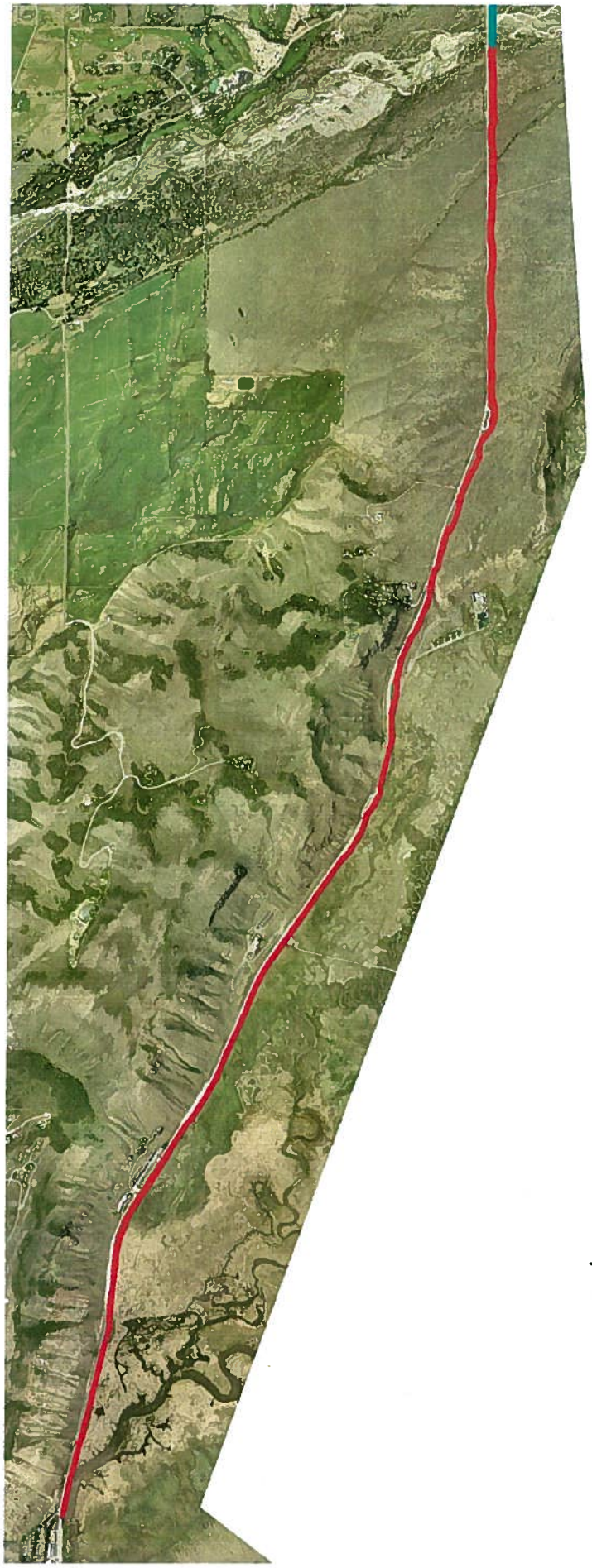

PROJECT MANUAL

JACKSON HOLE COMMUNITY PATHWAYS

PHASE 3B
NORTH HIGHWAY 89
PATHWAY BRIDGE
INSTALLATION PROJECT

TETON COUNTY, WYOMING

OWNER:

TETON COUNTY /
JACKSON HOLE COMMUNITY
PATHWAYS
PO BOX 3594 - 320 SOUTH KING STREET
JACKSON, WYOMING 83001
PHONE: 307.732.8573

ENGINEER:

JORGENSEN ASSOCIATES, PC
Engineering • Land Surveying • Planning

PO BOX 9550 - 270 EAST SIMPSON AVENUE
JACKSON, WYOMING 83001
PHONE: 307.733.5150

JA PROJECT NO. 09019
NOVEMBER, 2010

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ADVERTISEMENT FOR BIDS

ADVERTISEMENT FOR BIDS

JACKSON HOLE COMMUNITY PATHWAYS
PHASE 3B - N89 PATHWAY BRIDGE INSTALLATION PROJECT

Notice is hereby given that Teton County, Wyoming, hereinafter referred to as the "Owner" will receive sealed bids at the office of the Jackson Hole Community Pathway Office, 320 South King Street, Jackson, Wyoming 83001 up to but no later than **2:00 PM MST on Tuesday, December 14, 2010**, for the Jackson Hole Community Pathways Phase 3B - North Highway 89 Pathway Bridge Installation Project.

The Jackson Hole Community Pathways Phase 3B - North Highway 89 Pathway Bridge Installation Project consists of construction of approximately 260 linear feet of multi-use pathway and installation of an approximately 250 lineal foot owner supplied bridge crossing over the Gros Ventre River along Highway 89 from the National Elk Refuge access road to approximately 100 feet north of the Gros Ventre River. Procurement of the bridge, including delivery to the site, will be completed under a separate contract.

Bidders may purchase one (1) Set of Contract Documents (includes one (1) set of plans and one (1) Project Manual) from the office of the Jackson Hole Community Pathways, located at 320 South King, Jackson, Wyoming for a non-refundable deposit of $70.00. Plan sets will be available at **8:00 AM Wednesday, November 17, 2010**. Questions regarding obtaining a set of the Contract Documents should be directed to Brian Schilling, the Pathways Coordinator at 307.732.8573.

A mandatory pre-bid conference will be held at the Office of Jorgensen Associates, 270 East Simpson Avenue, Jackson, WY 83001, 307-733-5150, on **Tuesday, November 30, 2010 at 9:00 AM MST**. Bids from general contractors not present at the pre-bid conference will not be accepted.

The envelope containing the sealed bids shall be clearly marked to indicate that it is a proposal for the above-named project and shall show the name and address of the bidder. Such proposals will be received by the Owner and will be opened and publicly read aloud at the above-stated time. Each proposal must conform and be responsive to all pertinent Project Manual/Project Drawing requirements and acknowledge receipt of all addendums to the project.

All proposals must be accompanied by a Cashier's Check, Irrevocable Letter of Credit or a Bid Bond, executed by the bidder, as Principal, and a satisfactory surety company, executed in favor of the Owner in the amount of five percent (5%) of the maximum amount of the proposals. The Bid Bond shall be accompanied by a certified copy of Power of Attorney and signed or countersigned by an agent of the bonding company. The Cashier's Check, Irrevocable Letter of Credit or Bid Bond will be retained by the Owner as liquidated damages if the successful bidder refuses or fails to enter into a contract or to furnish a Contractor's Payment and Performance Bond, and meet the other required provisions including insurance, within ten (10) days after being notified of the award of the Contract.

Performance and Payment Bonds, or other collateral or surety acceptable to the Owner, shall be furnished by the successful bidder each in the amount of one hundred percent (100%) of the contract price. Such Performance and Payment Bonds shall be accompanied by a certified copy of Power of Attorney and shall be signed or countersigned by a Wyoming resident agent of the bonding company.

All Bidders are advised that certain Federal regulations apply, including the Davis - Bacon Wage Determination.

The Owner reserves the right to reject any or all bids, and to waive any irregularities or formalities in the proposals.

Publish: Jackson Hole News and Guide – November 17, 24, and December 1, 2010.
Casper Star Tribune – November 14, 21, and 28, 2010.

INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

JACKSON HOLE COMMUNITY PATHWAYS
PHASE 3B - N89 PATHWAY BRIDGE INSTALLATION PROJECT

ARTICLE 1 - DEFINED TERMS

1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office*--The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement or Invitation to Bid may be obtained from the Issuing Office.

2.02 Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 OWNER and ENGINEER in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

2.04 Copies of Bidding Documents that may be relied upon by the CONTRACTOR are limited to the printed copies (also known as hard copies) that are signed and sealed by the ENGINEER. Files in electronic media format of text, data, graphics, or of other types that are furnished by ENGINEER are only for convenience of the CONTRACTOR. Any conclusion or information obtained or derived from such electronic files will be at the sole risk of the CONTRACTOR. If there is a discrepancy between the electronic files and the hard copies, the hard copies shall govern.

ARTICLE 3 - QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, within five days of OWNER's request Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be requested by OWNER.

ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

4.01 *Subsurface and Physical Conditions*

A. The General Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Bidding Documents.

2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in paragraph 4.01.A will be made available by ENGINEER to any Bidder on request for a non-refundable fee of $50.00. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in paragraph 4.02 of the General Conditions has been identified and established in paragraph 4.02 of the General Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings.

4.02 *Underground Facilities*

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to OWNER and ENGINEER by owners of such Underground Facilities, including Lower Valley Energy, Qwest, Bresnan Communications, or others.

4.03 *Hazardous Environmental Condition*

A. The General Conditions identify those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that ENGINEER has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in paragraph 4.03.A will be made available by OWNER to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in paragraph 4.06 of the General Conditions has been identified and established in paragraph 4.06 of the General Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work appear in paragraph 4.06 of the General Conditions.

4.05 On request, OWNER will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. As the site is located on National Elk Refuge and National Park Service lands, Bidder shall coordinate with NER and GTNP for access, traffic control, and reclamation requirements.

4.06 Reference is made to Article 7 of the General Conditions for the identification of the general nature of other work that is to be performed at the Site by OWNER or others (such as utilities and other prime contractors) that relates to the Work for which a Bid is to be submitted. On request, OWNER will provide to each Bidder for examination, access to or copies of Contract Documents (other than portions thereof related to price) for such other work.

4.07 It is the responsibility of each Bidder before submitting a Bid to:

A. Examine and carefully study the Bidding Documents, including any Addenda and the other related data identified in the Bidding Documents;

B. Visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. Become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, or performance of the Work;

D. Carefully study all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in paragraph 4.02 of the General Conditions, and carefully study all reports and drawings of a Hazardous Environmental Condition, if any, at the Site which have been identified in paragraph 4.06 of the General Conditions;

E. Obtain and carefully study (or assume responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;

F. Agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;

G. Become aware of the general nature of the work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents;

H. Correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;

I. Promptly give ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by ENGINEER is acceptable to Bidder; and

J. Determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.08 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by ENGINEER are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 - PRE-BID CONFERENCE

5.01 A **mandatory** pre-bid conference will be held at the Office of Jorgensen Associates, P.C., located at 270 East Simpson Avenue, Jackson, Wyoming, on **Tuesday, November 30, 2010 at 9:00 a.m. MST**. Bids from general contractors not present at the pre-bid conference will not be accepted.

ARTICLE 6 - SITE AND OTHER AREAS

6.01 The project site, material storage area, and roadway easement are identified in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by OWNER unless otherwise provided in the Bidding Documents.

ARTICLE 7 - INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to ENGINEER in writing. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by ENGINEER as having received the Bidding Documents. Questions received less than six days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by OWNER or ENGINEER.

ARTICLE 8 - BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to OWNER in an amount of five percent (5%) of Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond issued by a surety meeting the requirements of paragraphs 5.01 and 5.02 of the General Conditions.

8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, OWNER may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of seven days after the Effective Date of the Agreement or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.

8.03 Bid security of other Bidders whom OWNER believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

ARTICLE 9 - CONTRACT TIMES

9.01 The number of days within which, or the dates by which, Milestones are to be achieved and the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 - LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages, if any, are set forth in the Agreement.

ARTICLE 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement.

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 If the General Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to OWNER in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful

Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to OWNER a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by OWNER. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, OWNER may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid.

12.02 If apparent Successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which OWNER or ENGINEER makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the Agreement as provided in paragraph 6.06 of the General Conditions.

12.03 CONTRACTOR shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom CONTRACTOR has reasonable objection.

ARTICLE 13 - PREPARATION OF BID

13.01 The Bid form is included with the Bidding Documents. Additional copies may be obtained from ENGINEER.

13.02 All blanks on the Bid form shall be completed by printing in ink or by typewriter and the Bid signed.

13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown below the signature.

13.06 A Bid by an individual shall show the Bidder's name and official address.

13.07 A Bid by a joint venture shall be executed by each joint venture in the manner indicated on the Bid form. The official address of the joint venture must be shown below the signature.

13.08 All names shall be typed or printed in ink below the signatures.

13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid form.

13.10 The address and telephone number for communications regarding the Bid shall be shown.

13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder's state contractor license number for the state of the Project, if any, shall also be shown on the Bid form.

ARTICLE 14 - BASIS OF BID; COMPARISON OF BIDS

14.01 *Unit Price*

A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid Schedule.

B. The total of all estimated prices will be determined as the sum of the products of the estimated quantity of each item and the unit price Bid for the item. The final quantities and Contract Price will be determined in accordance with paragraph 11.03 of the General Conditions.

C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

14.02 The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances, if any, named in the Contract Documents as provided in paragraph 11.02 of the General Conditions.

ARTICLE 15 - SUBMITTAL OF BID

15.01 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security.

15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to Bid and shall be enclosed in an opaque sealed envelope plainly marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by another delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A courier delivered Bid shall be addressed to Jackson Hole Community Pathways; 320 South King Street; Jackson, Wyoming 83001.

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

16.02 A Bid may not be withdrawn after Bids are opened.

ARTICLE 17 - OPENING OF BIDS

17.01 Bids will be opened publicly. Tabulations of the bids will be provided after issuance of the Notice to Proceed.

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 - AWARD OF CONTRACT

19.01 OWNER shall award the project based upon the base bid. OWNER reserves the right to reject any or all nonconforming, nonresponsive, unbalanced, or conditional Bids. OWNER further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsible. Owner reserves the right to reject any or all bids, and to waive any irregularities or formalities in the proposals.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 In evaluating Bids, OWNER will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

19.04 In evaluating Bidders, OWNER will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the General Conditions.

19.05 OWNER may conduct such investigations as OWNER deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.

19.06 If the Contract is to be awarded, OWNER will award the Contract to the qualified Bidder making the apparent lowest responsive Bid that complies with all requirements.

ARTICLE 20 - CONTRACT SECURITY AND INSURANCE

20.01 Article 5 of the General Conditions sets forth OWNER's requirements as to performance and payment Bonds and insurance. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by such Bonds.

ARTICLE 21 - SIGNING OF AGREEMENT

21.01 When OWNER gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER. Within ten days thereafter, OWNER shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

ARTICLE 22 - RETAINAGE

22.01 Provisions concerning CONTRACTOR's rights to deposit securities in lieu of retainage are set forth in the Agreement.

BID FORM

BID FORM

JACKSON HOLE COMMUNITY PATHWAYS
PHASE 3B - N89 PATHWAY BRIDGE INSTALLATION PROJECT

PROJECT IDENTIFICATION:

Jackson Hole Community Pathways
Phase 3B - N89 Pathway Bridge Installation Project

THIS BID IS SUBMITTED TO:

Jackson Hole Community Pathways
320 South King Street
Jackson, Wyoming 83001

1.01 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

2.01 Bidder accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. The Bid will remain subject to acceptance for 30 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER.

3.01 In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all which is hereby acknowledged.

Addendum No.	Addendum Date

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified as provided in paragraph 4.02 of the General Conditions, and (2) reports and drawings of a Hazardous Environmental Condition, if any, which has been identified as provided in paragraph 4.06 of the General Conditions.

E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.

F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.

I. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.

J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

4.01 Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

5.01 A. Bidder will complete the Work in accordance with the Contract Documents for the prices listed on the Bid Schedule.

B. Unit Prices have been computed in accordance with paragraph 11.03.B of the General Conditions.

C. Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities provided, determined as provided in the Contract Documents.

6.01 Bidder agrees that the Work will be substantially completed and completed and ready for final payment in accordance with paragraph 14.07.B of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified above, which shall be stated in the Agreement.

7.01 The following documents are attached to and made a condition of this Bid:

A. <u>Proposed Project Schedule.</u>

7.02 Communications concerning this bid shall be addressed to the following individual:

Name: Brian Shilling - Jackson Hole Community Pathways Coordinator

Phone No. 307-732-8573 FAX No. 307-734-3864

8.01 The terms used in this Bid with initial capital letters have the meanings indicated in the Instructions to Bidders, and the General Conditions.

SUBMITTED on _____, 2010.

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____ (SEAL)
(Individual's signature)

Doing business as: _____
Business address: _____
_____
Phone No.: _____ FAX No.: _____

A Partnership

Partnership Name: _____ (SEAL)

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Business address: _____
_____
Phone No.: _____ FAX No.: _____

A Corporation

Corporation Name: _____ (SEAL)
State of Incorporation: _____
Type (General Business, Professional, Service, Limited Liability):_____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(CORPORATE SEAL)

Attest _____
(Signature of Corporate Secretary)

Business address: _____
_____
Phone No.: _____ FAX No.: _____

Date of Qualification to do business is _____.

A Joint Venture

Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____
_____
Phone No.: _____ FAX No.: _____

Joint Venturer Name: _____ (SEAL)

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____
Title: _____
Business address: _____
_____
Phone No.: _____ FAX No.: _____
Phone and FAX Number, and Address for receipt of official communications:
_____
_____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

BID SCHEDULE

Bidding Company

ITEM NO.	SPEC SECTION	ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL EXTENSION
PROJECT PREPARATION						
1	01000	Mobilization	LS	1		
2	02025	Force Account	LS	1	$50,000.00	$50,000.00
3	02110	Clearing and Grubbing	LS	1		
4	02015	Locating Utilities	LS	1	$5,000.00	$5,000.00
5	01505	Traffic Control	LS	1		
EARTHWORK & PATHWAY SECTION						
6	02210	Imported Borrow Excavation	TON	1,500		
7	02210	Imported Borrow Excavation - Owner Provided	TON	1,000		
8	02231	Pit Run Base	TON	125		
9	02231	Crushed Gravel Base; Grading H	TON	40		
10	02512	Plant Mix Bituminous Pathway Pavement	TON	25		
11	02280	Topsoil Stripping	SF	7,800		
12	02280	Topsoil Placement	SF	4,000		
13	02280	Import Topsoil	TON	100		
14	02820	Silt Fence Installation and Maintenance	LF	250		
15	02820	Straw Wattle Installation and Maintenance	LF	100		
16	02900	Seeding; Complete	SF	4,000		
BRIDGE COMPONENTS						
17	03505	Prefabricated Steel Truss Bridge Installation	LS	1		
18	03505	Bridge Abutment 1 and Retaining Walls, South Bank - Complete	LS	1		
19	03505	Bridge Abutment 2 and Retaining Walls, North Bank - Complete	LS	1		
20	03505	Bridge Abutment Piles	LF	325		
21	03505	Bridge Pier 1, South - Complete	LS	1		
22	03505	Bridge Pier 2, North - Complete	LS	1		
23	03505	Bridge Pier Piles	LF	360		
24	03505	Concrete Bridge Deck	CY	53		
25	02900	Post and Rail Fence	LF	161		
26	02900	Elk Refuge Fence Removal	LF	100		
27	02900	Elk Refuge Fence End Treatment	EA	2		
28	03505	River Bank Rip Rap Removal and Restoration	LS	1		
29	03505	Import Rip Rap Material	TON	300		
SIGNAGE & STRIPING						
30	02810	Sign; Complete - Type R1-2, Yield	EA	1		
31	02810	Striping; Lane Centerline Solid	LF	370		
32	02810	Striping Symbol; Yield Bar	EA	1		

Total Phase 3B Base Bid

(numerals)

Total Phase 3B Base Bid _____

(words)

ADDITIONAL BID FORMS
REQUIRED TO BE COMPLETED

PROPOSAL EXECUTION CHECKLIST

BIDDERS ARE ENCOURAGED TO USE THE FOLLOWING CHECKLIST WHEN PREPARING THEIR PROPOSAL.

ITEMS TO COMPLETE	COMPLETED
Included Bid Proposal Price	( )
IS PROPOSAL SIGNED AND DATED?	( )
If this is a JOINT BID, have BOTH PARTIES signed the PROPOSAL?	( )
IS PROPOSAL NOTARIZED?	( )

BID BOND EXECUTION CHECKLIST (If applicable)

ITEMS TO COMPLETE	COMPLETED
Is your surety company's name on it?	( )
Is the bond made out for 5% of the amount bid?	( )
Is the project number or description filled out	( )
Is it dated, signed, sealed and witnessed?	( )
Is the power-of-attorney attached to it?	

MISCELLANEOUS ITEMS

ITEMS TO COMPLETE	COMPLETED
Indicate YES or NO on the CERTIFICATION OF SUSPENSION OR DISBARMENT.	( )
IF YES is indicated on the above, have exceptions been included?	( )
Complete CERTIFICATION FOR FREE BIDDING form	( )
Complete REGISTRATION WITH WYOMING SECRETARY OF STATE form	( )
Complete SUBCONTRACTORS AND SUPPLIERS form	( )

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION CERTIFICATION

A.	Indicated that the Bidder is 100% DBE	( )
B.	Listed name and address of DBE Firms contacted	( )
C.	Listed contact and follow-up date	( )
D.	Listed type of contact	( )
E.	Indicated (yes or no) showing response	( )
F.	Listed unadjusted bid quotation	( )
G	Indicated (yes or no) if unadjusted quotation will be used	( )
H.	Show DBE as Subcontract, Manufacturer, or Supplier	( )
I.	Show specific Subcontract work or materials	( )
J.	Does total of Subcontract work, Manufacturer work, Or 60% of supplier work meet the DBE goal?	( )

DISADVANTAGED BUSINESS ENTERPRISE SUBCONTRACTING

DISADVANTAGED BUSINESS ENTERPRISE CONTACTED	BID RESPONSE	BID QUOTATION	WILL USE QUOTATION
Name _____ Address _____ Contact date _____ Follow-up date _____ Type of contact _____	Yes ( ) No ( )	$_____ Specific Subcontract Work	Yes ( ) No ( )
Name _____ Address _____ Contact date _____ Follow-up date _____ Type of contact _____	Yes ( ) No ( )	$_____ Specific Subcontract Work	Yes ( ) No ( )
Name _____ Address _____ Contact date _____ Follow-up date _____ Type of contact _____	Yes ( ) No ( )	$_____ Specific Subcontract Work	Yes ( ) No ( )
Name _____ Address _____ Contact date _____ Follow-up date _____ Type of contact _____	Yes ( ) No ( )	$_____ Specific Subcontract Work	Yes ( ) No ( )
Name _____ Address _____ Contact date _____ Follow-up date _____ Type of contact _____	Yes ( ) No ( )	$_____ Specific Subcontract Work	Yes ( ) No ( )
Name _____ Address _____ Contact date _____ Follow-up date _____ Type of contact _____	Yes ( ) No ( )	$_____ Specific Subcontract Work	Yes ( ) No ( )
Name _____ Address _____ Contact date _____ Follow-up date _____ Type of contact _____	Yes ( ) No ( )	$_____ Specific Subcontract Work	Yes ( ) No ( )
Name _____ Address _____ Contact date _____ Follow-up date _____ Type of contact _____	Yes ( ) No ( )	$_____ Specific Subcontract Work	Yes ( ) No ( )

SUSPENSION OR DEBARMENT

Or any person or persons associated therewith in the capacity of owner, partner, director or officer authorized to sign contracts:

Is currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency?

Has been suspended, debarred, voluntarily excluded, or ineligible by any federal agency within the past three years?

Does have a proposed debarment pending?

Has been indicted, convicted, or had a civil judgment rendered against (it) by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three years?

Applicable: If answer is YES to any of the following four items above, insert Suspension of Debarment actions below:

Suspension or Debarment actions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any Suspension or Debarment noted, indicate below to whom it applies, initiating agency, and dates of action.

SUSPENSION OR DEBARMENT LISTING

APPLIES TO WHOM	INITIATING AGENCY	DATES OF ACTION

The person or persons signing this Proposal do hereby certify, under penalty of perjury, that this CERTIFICATION OF SUSPENSION OR DEBARMENT is a true and accurate statement.

CERTIFICATION FOR FREE COMPETITIVE BIDDING

The person, or persons, by signing this Bid certify that:

_____

_

BIDDER NAME

has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with submission of said Bid.

This Certification of Free Competitive bidding is made subject to the penalty of perjury in accordance with the laws of the U.S. Government and the State of Wyoming.

This Certification is made pursuant to the provisions of Title 23, United States Code, Section 112(c).

REGISTRATION WITH THE WYOMING SECRETARY OF STATE

The person, or persons, by signing this proposal certify that:

1. _____

   _____
   (Name of Person, Firm, Association or Corp.)
   is a corporation or limited liability company? **YES ( ) NO ( )**

2. Has the above-mentioned corporation or limited liability company filed its annual report with the Wyoming Secretary of State to do business in the State of Wyoming?

   YES ( ) NO ( )

Reference Wyoming Statutes 17-15-112 and 17-16-1630.

CERTIFICATION OF NON-DISCRIMINATION

The contractor, sub-recipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT/FTA assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

CERTIFICATION OF PREVIOUS EEO PERFORMANCE

Certification with regard to the Performance of Previous Contracts or Subcontracts subject to the Equal Opportunity Clause and the filing of Required Reports.

- Does the Bidder hereby certify that they have participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246?

- Has the bidder filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements?

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1), and must be submitted by bidders and proposed Subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5 (Generally only contracts or subcontracts of $10,000 or under are exempt).

Currently, Standard Form-100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime Contractors and Subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such Contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

By signing this Proposal, the bidder signifies that he has complied with the provisions of "CERTIFICATION OF SUSPENSION OR DEBARMENT, CERTIFICATION OF NON-COLLUSIVE BIDDING, CERTIFICATION OF NON-DISCRIMINATION, AND CERTIFICATION OF PREVIOUS EEO PERFORMANCE", as they apply to this project.

FEDERAL / STATE CONTRACT REQUIREMENTS
DISADVANTAGED BUSINESS ENTERPRISES

Contractors shall provide opportunities for participation by Disadvantaged Business Enterprises for work under this contract.

Failure to document good-faith affirmative action in securing Disadvantaged Business Enterprise participation for subcontract work may be cause for rejection of the Bid or Proposal.

A list of pre-qualified Disadvantaged Business Enterprises may be obtained by contacting the Wyoming Department of Transportation, Construction Staff (Phone: 307-777-4457)

FEDERAL TRANSIT ADMINISTRATION CIVIL RIGHTS ASSURANCE

Teton County, WY HEREBY CERTIFIES THAT, as a condition of receiving Federal financial assistance under the Federal Transit Act of 1964, as amended, it will ensure that:

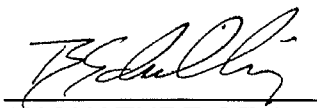
1. No person on the basis of race, color, or national origin will be subjected to discrimination in the level and quality of transportation services and transit-related benefits.

2. Teton County, WY will compile, maintain, and submit in a timely manner Title VI information required by FTA Circular 4702.1 and in compliance with the Department of Transportation's Title VI regulation, 49 CFR Part 21.9.

3. Teton County, WY will make it known to the public that those person or persons alleging discrimination on the basis of race, color, or national origin as it relates to the provision of transportation services and transit-related benefits may file a complaint with the Federal Transit Administration and/or the U.S. Department of Transportation.

The person or persons whose signature appears below are authorized to sign this assurance on behalf of the grant applicant or recipient.

Brian Schilling / Jackson Hole Community Pathways Program Coordinator
(NAME AND TITLE OF AUTHORIZED OFFICER)



(SIGNATURE OF AUTHORIZED OFFICER)

LIST OF PROPOSED
SUBCONTRACTORS AND SUPPLIERS

Subcontractor/Supplier Name and Address	Work Performed / Item(s) Supplied	Amount
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		

CONTRACT AGREEMENT

CONTRACT AGREEMENT

JACKSON HOLE COMMUNITY PATHWAYS
PHASE 3B - N89 PATHWAY BRIDGE INSTALLATION PROJECT

THIS AGREEMENT is by and between **TETON COUNTY, WYOMING**

(Owner) and _____

(Contractor).

Owner and Contractor, in consideration of the mutual covenants set forth herein, agree as follows:

ARTICLE 1 - WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

The Jackson Hole Community Pathways Phase 3B - North Highway 89 Pathway Bridge Installation Project consists of construction of approximately 260 linear feet of multi-use pathway and installation of an approximately 250 lineal foot bridge crossing the Gros Ventre River along Highway 89 from the National Elk Refuge access road to approximately 100 feet north of the Gros Ventre River.

ARTICLE 2 - THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

Phase 3B - N89 Pathway Bridge Installation Project

ARTICLE 3 - ENGINEER

3.01 The Project has been designed by

Jorgensen Associates, P.C., P.O. Box 9550, 270 East Simpson, Jackson, Wyoming 83002, Ph: 307-733-5150

(Engineer), who is to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents. Reference General Conditions for further information.

ARTICLE 4 - CONTRACT TIMES

4.01 Time of the Essence

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 Dates for Substantial Completion and Final Payment

A. The Work will be substantially completed on or before **September 30, 2011**, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before **October 29, 2011**.

Substantial Completion is defined as completion of all work items except for "seeding".

4.03 Liquidated Damages

A. Contractor and Owner recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner **$500.00** for each day that expires after the time specified in Paragraph 4.02 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner **$500.00** for each day that expires after the time specified in Paragraph 4.02 for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 5 - CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A, 5.01.B, and 5.01.C below:

A. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated in this paragraph 5.01.B:

As provided in Paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 9.07 of the General Conditions. Unit prices have been computed as provided in Paragraph 11.03 of the General Conditions.

UNIT PRICE WORK

Item No.	Description	Unit	Estimated Quantity	Unit Price	Estimated
	SEE ATTACHED BID SCHEDULE DATED		**FROM**		

TOTAL OF ALL ESTIMATED PRICES _____ $_____
(words) (numerals)

B. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

ARTICLE 6 - PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 Progress Payments; Retainage

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the _____ day of each month during performance of the Work as provided in Paragraphs 6.02.A.1 and 6.02.A.2 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements:

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions:

a. **90** percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, Owner, on recommendation of Engineer, may determine that as long as the character and progress of the Work remain satisfactory to them, there will be no additional retainage; and

b. **100** percent of cost of materials and equipment delivered and suitably stored at the site but not incorporated in the Work (with the balance being retainage).

2. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to **90** percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less **100** percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

6.03 Final Payment

A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.

ARTICLE 7 - INTEREST

7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the rate of **5%** percent per annum.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Agreement Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which has been identified in the Supplementary Conditions as provided in Paragraph 4.06 of the General Conditions.

E. Contractor has obtained and carefully studied (or assumes responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto.

F. Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

H. Contractor has correlated the information known to Contractor, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

I. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 - CONTRACT DOCUMENTS

9.01 Contents

A. The Contract Documents consist of the following:

1. This Agreement (pages 1 to 6, inclusive).
2. Performance bond (pages _____ to _____, inclusive).
3. Payment bond (pages _____ to _____, inclusive).
4. Power of Attorney
5. General Conditions (pages 1 to 46, inclusive).
6. Supplementary Conditions (pages NA to NA, inclusive).
7. Specifications as listed in the table of contents of the Project Manual.
8. Drawings consisting of 11 sheets with each sheet bearing the following general title:

JH Community Pathways North Highway 89 Pathway Phase 3B [or] the Drawings listed on attached sheet index.

9. Addenda (numbers _____ to _____, inclusive).
10. Exhibits to this Agreement (enumerated as follows):
    a. Contractor's Bid (pages _____ to _____, inclusive).
    b. Documentation submitted by Contractor prior to Notice of Award (pages _____ to _____, inclusive).
    c. Insurance Certificate
    d. Workers Compensation Certificate
    e. Schedule of Rates
    f. List of Suppliers and Subcontractors
    g. Projected Construction Schedule

11. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:

a. Notice of Award (pages _____ to _____, inclusive).

b. Notice to Proceed (pages _____ to _____, inclusive).

c. Work Change Directives.

d. Change Order(s).

B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 10 - MISCELLANEOUS

10.01 Terms

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 Assignment of Contract

A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 Successors and Assigns

A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 Severability

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 Other Provisions

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement in duplicate. One counterpart each has been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or identified by Owner and Contractor or on their behalf.

This Agreement will be effective on _____, _____ (which is the Effective Date of the Agreement).

OWNER:	CONTRACTOR:
Teton County, Wyoming	
By: Hank Phibbs	By:
Title: Chairman / Board of County Commissioners	Title:
	[CORPORATE SEAL]
Attest:	Attest:
Title:	Title:
Address for giving notices:	Address for giving notices:
P.O. Box 3594	
Jackson, WY 83001	
	License No.: (Where applicable)
	Agent for service or process:
	(If Contractor is a corporation or a partnership, attach evidence of authority to sign.)

GENERAL CONDITIONS

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By

ACEC
AMERICAN COUNCIL OF ENGINEERING COMPANIES

National Society of Professional Engineers
Professional Engineers in Private Practice

ASCE American Society of Civil Engineers

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AMERICAN COUNCIL OF ENGINEERING COMPANIES

AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by

The Associated General Contractors of America

Knowledge for Creating and Sustaining the Built Environment

Construction Specifications Institute

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These Standard General Conditions of the Construction Contract (No. C-700, 2002 Edition) are amended or supplemented as indicated below:

A. Deleted language is shown with a ~~strike through~~ of the original words.

B. New language is indicated by the use of **bold** lettering.

All provisions which are not so amended or supplemented remain in full force and effect.

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National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314

American Council of Engineering Companies
1015 15th Street, N.W., Washington, DC 20005

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*--The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*--The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*--A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*-- Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*--The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*--The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*--See Paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*--The individual or entity named as such in the Agreement.

20. *Field Order*--A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

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21. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

22. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

23. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*--The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*--A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*--The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*--Polychlorinated biphenyls.

31. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*--A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

37. *Resident Project Representative*--The authorized representative of Engineer who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Schedule of Submittals*--A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

40. *Schedule of Values*--A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

41. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

42. *Site*--Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

43. *Specifications*--That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain

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administrative requirements and procedural matters applicable thereto.

44. *Subcontractor*--An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

45. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

~~47. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.~~

48. *Supplier*--A manufacturer, fabricator, supplier, distributor, material man, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

49. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

50. *Unit Price Work*--Work to be paid for on the basis of unit prices.

51. *Work*--The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

52. *Work Change Directive*--A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following meaning.

B. *Intent of Certain Terms or Adjectives*

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered", "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day*

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents, or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or

c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

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E. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the ~~Supplementary~~ **General** Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ~~ten~~ **five (5)** printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule; indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; ~~and~~

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work~~.~~;

4. the name and phone number of the designated responsible person to be contacted at any hour in the event of a critical condition requiring immediate attention;

5. the name and phone number of Contractor's on-site "Competent Person", as defined by OSHA 1962.650(b), responsible for safety issues related to Contractor's means and methods of constructing the Work;

6. a list of hourly labor and equipment rental rates for all Contractor's forces and also for its Subcontractors. These rates shall be utilized for Change Orders as described in Article 11. These rates shall include Contractor's fees for overhead and profit; and

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7. a preliminary schedule of materials and equipment procurement.

2.06 *Preconstruction Conference*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

1. *Contractor's Review of Contract Documents Before Starting Work*: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work*: If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor

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shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.

B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification **and / or as directed by the ENGINEER or as directed by the OWNER's Resident Project Representative.**

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's consultants, including electronic media editions; or

2. reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaption by Engineer.

B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

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A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* ~~The Supplementary Conditions~~ **Sections 4.02.C** identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the ~~Supplementary~~ **General** Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

C. In the preparation of Drawings and Specifications, ENGINEER or ENGINEER's Consultants relied upon the following reports of explorations and tests of subsurface conditions at the site:

1. Report dated June 10, 2009, prepared by Womack and Associates, INC. entitled: Geotechnical Investigation Report – New Pathway along North Highway 89 – Jackson, Wyoming consisting of 30 pages plus exhibits. The "technical data" contained in such report upon which Contractor may rely is geotechnical soils and groundwater data.

D. Copies of report described in 4.02.C.1 that are not included with Bidding Documents may be examined at Jorgensen Associates, P.C., 270 East Simpson Avenue, Jackson, Wyoming during regular business hours. These reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Contractor may rely as identified and established above are incorporated therein by reference. Contractor is not entitled to rely upon other information and data utilized by ENGINEER and ENGINEER's Consultants in the preparation of Drawings and Specifications.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connec-

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tion therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so. **Contractor's failure to give notice of differing site conditions within 15 days of their discovery or before they are disturbed shall constitute a waiver of all claims in connection therewith, whether direct or consequential in nature.**

B. *Engineer's Review*: After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the ~~Supplementary~~ **General** Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the

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Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* ~~Reference is made to the Supplementary Conditions for the identification of those~~**There are no** reports and drawings relating to a Hazardous Environmental Condition identified at the Site, ~~if any,~~ that have been utilized by the Engineer in the preparation of the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the ~~Supplementary~~ **General** Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the

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Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06. G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. **All bonds and insurance shall be signed by a registered Wyoming agent having legal authority to act on behalf of the surety or insurance company.** Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the ~~Supplementary~~ **General** Conditions.

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured identified in the ~~Supplementary~~ **General** Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

~~B. Owner shall deliver to Contractor, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.~~

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5.04 *Contractor's Liability Insurance*

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the ~~Supplementary~~ **General** Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the ~~Supplementary~~ **General** Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the ~~Supplementary~~ **General** Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.

a. Contractor shall furnish Owner and each other additional insured identified in the ~~Supplementary~~ **General** Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

C. The limits of liability for the insurance required by paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Worker's Compensation, and related coverages under paragraphs 5.04.A.1 and A.2 of the General Conditions:

a.	**State:**	**Statutory**
b.	**Applicable Federal (e.g., Longshoreman's):**	**Statutory**
c.	**Employer's Liability:**	**$ N.A.**

2. Contractor's General Liability under paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include completed operations and product liability coverages and

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eliminate the exclusion with respect to property under the care, custody and control of Contractor:

a. General Aggregate $ 2,000,000.00
b. Products - Completed Operations Aggregate $ 1,000,000.00
c. Personal and Advertising Injury $ 1,000,000.00
d. Each Occurrence (Bodily Injury and Property Damage) $ 1,000,000.00
e. Property Damage liability insurance will provide Explosion, Collapse, and Underground coverages where applicable.
f. Excess or Umbrella Liability

1) General Aggregate $ N.A.
2) Each Occurrence $ N.A.

3. Automobile Liability under paragraph 5.04.A.6 of the General Conditions:

a. Bodily Injury
Each Person $ 1,000,000.00
Each Accident $ 2,000,000.00
b. Property Damage:
Each Accident $ 1,000,000.00
c. Combined Single Limit of $ 3,000,000.00

4. The Contractual Liability coverage required by paragraph 5.04.B.4 of the General Conditions shall provide coverage for not less than the following amounts:

a. Bodily Injury:
Each Accident $ 1,000,000.00
Annual Aggregate $ 2,000,000.00
b. Property Damage:
Each Accident $ 1,000,000.00
Annual Aggregate $ 2,000,000.00

5. {Here list additional types and amounts of insurance that may be required by Owner.] N.A.

6. The following list of persons or entities shall be listed as additional insureds:

OWNER:

Teton County, WY
PO Box 3594
Jackson, WY 83001

ENGINEER:

Jorgensen Associates, P.C.
P.O. Box 9550
Jackson, WY 83002

ENGINEER'S CONSULTANTS:

Womack and Associates, INC.
P.O. Box 12650
Jackson, WY 83002

5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

~~A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:~~

~~1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;~~

~~2. be written on a Builder's Risk "all-risk" or open-peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, (other than caused by flood) and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;~~

~~3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);~~

~~4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;~~

~~5. allow for partial utilization of the Work by Owner;~~

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~~6. include testing and startup; and~~

~~7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.~~

~~B. Owner shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.~~

A. Owner shall not be responsible for purchasing and maintaining any property insurance to protect the interests of the Contractor, Subcontractors or others in the work. The risk of loss will be borne by Contractor, Subcontractors, or others suffering any such loss and if any of them wishes property insurance coverage, each may purchase and maintain it at the purchaser's own expense.

B. Contractor shall be responsible for any deductible or self-insured retention.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the ~~Supplementary~~ **General** Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the ~~Supplementary~~ **General** Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, and Engineer, and all other individuals or entities identified in the ~~Supplementary~~ **General** Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

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C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order .

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction, which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the

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Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole,

3) it has a proven record of performance and availability of responsive service; and

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times, and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests

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for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;

b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified , and

b) available engineering, sales, maintenance, repair, and replacement services;

4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. *Engineer's Cost Reimbursement*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor

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shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. ~~If the Supplementary Conditions require the~~**The** identity of ~~certain~~ **all** Subcontractors, Suppliers, or other individuals or entities **(including those who are to furnish the principal items of material and equipment)** ~~to~~ **shall** be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the ~~Supplementary~~ **General** Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued . No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor

2. shall anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

3. Owner or Engineer may furnish to any such Subcontractor, Supplier, or other individual or entity, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by a particular Subcontractor, Supplier, or other individual or entity.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer, and all other individuals or entities identified in the ~~Supplementary~~ **General** Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against

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all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the ~~Supplementary~~ **General** Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

B. The following permits shall be provided by the Owner:

1. **Wyoming State Engineer's Construction Water Permit.**
2. **Teton County Bridge Permit.**
3. **Teton County Flood Plain Permit.**
4. **ACOE 404 Permit.**

C. Contractor shall comply with all conditions, regulations, and requirements applicable to all permits provided by Owner.

1. Contractor shall be responsible for the DEQ Temporary Turbidity Increase.

6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. Limitation on Use of Site and Other Areas

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

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C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or , or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs. **Contractor shall provide an on-site "competent person", as defined by OSHA 1926.650(b) to monitor and regulate safety related issues associated with Contractor's means and methods of constructing the Work.**

6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an

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emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. Shop Drawings

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:* Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. Engineer's Review

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written

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notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. Resubmittal Procedures

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

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2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

D. Contractor shall cooperate and coordinate with the performance and scheduling of the Work to facilitate other work related to the project. Contractor shall be bound to the duties and responsibilities of paragraph 7.01.B although comparable provisions may not be provided in direct contracts between Owner and other such utility owners and other contractors. Contractor may make a claim therefore as provided in Article 10.05 if Contractor believes that such performance will involve additional expense to Contractor or requires additional time and the parties are unable to agree as to the amount or extent thereof.

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7.02 *Coordination*

~~A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:~~

~~1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;~~

~~2. the specific matters to be covered by such authority and responsibility will be itemized; and~~

~~3. the extent of such authority and responsibilities will be provided.~~

~~B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.~~

A. Each contractor or utility will be responsible for the coordination, sequencing, and scheduling for the performance of its work with other work on the project site.

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

7.04 *Claims Between Contractors*

A. Should Contractor cause damage to the work or property of any separate contractor at the Site, or should any claim arising out of Contractor's performance of the Work at the Site be made by any separate contractor against Contractor, Owner, Engineer, Engineer's Consultants, or the construction coordinator, Contractor shall promptly attempt to settle with such separate contractor by agreement, or to otherwise resolve the dispute by arbitration or at law.

B. Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner, Engineer, Engineer's Consultants, the construction coordinator and the officers, directors, partners, employees, agents and other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages (including, but not limited to, fees and charges of engineers, architects, attorneys, and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any separate contractor against Owner, Engineer, Engineer's Consultants, or the construction coordinator or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from Owner, Engineer, Engineer's Consultants or the construction coordinator on account of any such damage or Claim.

C. If Contractor is delayed at any time in performing or furnishing Work by any act or neglect of a separate contractor, and Owner and Contractor are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, Contractor may make a Claim for an extension of times in accordance with Article 12. An extension of the Contract Times shall be Contractor's exclusive remedy with respect to Owner, Engineer, Engineer's Consultants and construction coordinator for any delay, disruption, interference, or hindrance caused by any separate contractor. This paragraph does not prevent recovery from Owner, Engineer, Engineer's Consultant, or construction coordinator for activities that are their respective responsibilities.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

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8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

8.06 *Insurance*

A. Owner's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility in respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. If and to the extent Owner has agreed to furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents, Owner's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

B. On request of Contractor prior to the execution of any Change Order involving a significant increase in the Contract Price, Owner shall furnish to Contractor reasonable evidence that adequate financial arrangements have been made by Owner to enable Owner to fulfill the increased financial obligations to be undertaken by Owner as a result of such Change Order.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. ~~Engineer will be Owner's~~ **OWNER will provide a** representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents and will not be changed without written consent of Owner and Engineer.

9.02 *Visits to Site*

A. Engineer will **rely upon communication, information, and documentation provided by OWNER's Resident Project Representative and may** make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information **provided by the OWNER's Resident Project Representative and** obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such **OWNER provided information and ENGINEER's** visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

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9.03 *Project Representative*

A. ~~If~~ Owner ~~and Engineer agree, Engineer~~ will furnish a Resident Project Representative to assist Engineer ~~in providing~~ **to provide** more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the ~~Supplementary~~ **General** Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph ~~9.09~~ **8.09 and in the General Conditions.** ~~If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.~~

B. ~~Engineer~~ *OWNER* shall furnish a Resident Project Representative (RPR), assistants and other field staff to assist Engineer in observing performance of the work of Contractor. Through more extensive on-site observations of the work in progress and field checks of materials and equipment by the RPR and assistants, Engineer shall endeavor to provide further protection for Owner against defects and deficiencies in the work of Contractor; but, the furnishing of such services will not make Engineer or *OWNER* responsible for or give Engineer *or OWNER* control over construction means, methods, techniques, sequences or procedures or for safety precautions or programs, or responsibility for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. The duties and responsibilities of the RPR are described as follows:

1. *General:* RPR will confer with Engineer regarding RPR's actions. RPR's dealings in matters pertaining to the Contractor's work in progress shall in general be with Engineer and Contractor, keeping Owner advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and approval of Contractor.

2. *Schedules:* Review the progress schedule, schedule of Shop Drawing and Sample submittals, and schedule of values prepared by Contractor and consult with Engineer concerning acceptability.

3. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.

4. *Liaison:*

a. Serve as *OWNER's RPR* with Contractor, working principally through Contractor's superintendent and assist in understanding the intent of the Contract Documents.

b. Assist in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.

c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.

5. *Interpretation of Contract Documents:* Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.

6. *Shop Drawings and Samples:*

a. Record date of receipt of Samples and approved Shop Drawings.

b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.

c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.

7. *Modifications:* Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report with RPR's recommendations to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.

8. *Review of Work and Rejection of Defective Work:*

a. Conduct on-Site observations of Contractor's work in progress to inform Engineer whether the Work is in general proceeding in accordance with the Contract Documents.

b. Report to Engineer whenever RPR believes that any part of Contractor's work in progress will not produce a completed Project that conforms generally to the Contract Documents or will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be

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made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

c. *OWNER's Resident Project Representative may provide specific instructions to CONTRACTOR regarding the Work only when the Contract Documents specifically indicate "as directed by ENGINEER" or "as directed by OWNER's Resident Project Representative".*

9. *Inspections, Tests, and System Startups:*

a. Consult with Engineer in advance of scheduled major inspections, tests, and systems startups of important phases of the Work.

b. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.

c. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems startups.

d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections, and report to Engineer.

10. *Records:*

a. Maintain at the Site orderly files for correspondence, reports of job conferences, reproductions of original Contract Documents including all Change Orders, Field Orders, Work Change Directives, Addenda, additional Drawings issued subsequent to the execution of the Contract, Engineer's clarifications and interpretations of the Contract Documents, progress reports, Shop Drawing and Sample submittals received from and delivered to Contractor, and other Project related documents.

b. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.

c. Record names, addresses and telephone numbers of all Contractors, subcontractors, and major suppliers of materials and equipment.

d. Maintain records for use in preparing Project documentation.

e. Upon completion of the Work, furnish original set of all RPR Project documentation to Engineer.

11. *Reports:*

a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawing and Sample submittals.

b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.

c. Furnish to Engineer and Owner copies of all inspection, test, and system startup reports.

d. Report immediately to Engineer the occurrence of any Site accidents, any Hazardous Environmental Conditions, emergencies, or acts of God endangering the Work, and property damaged by fire or other causes.

12. *Payment Requests:* Review Applications for Payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the schedule of values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

13. *Certificates, Operation and Maintenance Manuals:* During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Specifications to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.

14. *Completion:*

a. Before Engineer issues a Certificate

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of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.

b. Observe whether Contractor has arranged for inspections required by Laws and Regulations, including but not limited to those to be performed by public agencies having jurisdiction over the Work.

c. Participate in a final inspection in the company of Engineer, Owner, and Contractor and prepare a final list of items to be completed or corrected.

d. Observe whether all items on final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the Notice of Acceptability of the Work.

D. Resident Project Representative shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).

2. Undertake any of the responsibilities of Contractor, subcontractors, suppliers, or Contractor's superintendent.

3. Advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work unless such advice or directions are specifically required by the Contract Documents.

4. Advise on, issue directions regarding, or assume control over safety precautions and programs in connection with the activities or operations of ~~Owner or~~ Contractor.

5. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.

6. Accept Shop Drawing or Sample submittals from anyone other than Contractor.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment , a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the

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performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to, the Resident Project Representative~~, if any, and~~ assistants, if any.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A.Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

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3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any bond to be given to a surety, the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

A. *Engineer's Decision Required*: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim, shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action*: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part,

2. approve the Claim, or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment,

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excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to Engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expresses, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by

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Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A and 11.01.B.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. Cash Allowances

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation , overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. Contingency Allowance

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

~~D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:~~

~~1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and~~

~~2. there is no corresponding adjustment with respect any other item of Work; and~~

~~3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.~~

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C. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:

1. if the total cost of a particular item of Unit Price Work amounts to 10% or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than 25% from the estimated quantity of such item indicated in the Agreement; and

2. if there is no corresponding adjustment with respect to any other item of Work; and

3. if Contractor believes that contractor has incurred additional expense as a result thereof; or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, either Owner or Contractor may make a claim for an adjustment in the Contract Price in accordance with Article 10 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an

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adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times , or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in said Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials,

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mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or

2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

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B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, 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, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, 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 days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or 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, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, 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. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Applica-

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tion for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. Applications for Payments

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment. **Contractor shall provide receipts or other evidence that suppliers and subcontractors have received payment from previous progress payments.**

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Site of the executed Work as an experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's

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opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

e. Owner has been required to pay Engineer additional compensation because of Contractor delays or rejection of defective Work.

C. *Payment Becomes Due*

1. ~~Ten~~ **Twenty** days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

c. there are other items entitling Owner to a set-off against the amount recommended; or

d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner's satisfaction the reasons for such action.

3. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1.

14.03 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, , Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within 14 days after submission of the tentative certificate to Owner notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will within said 14 days execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate

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as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions.

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. Application for Payment

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;

b. consent of the surety, if any, to final payment;

c. a list of all Claims against Owner that Contractor believes are unsettled; and

d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner

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or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. Engineer's Review of Application and Acceptance

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

1. ~~Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and, will be paid by Owner to Contractor.~~ **The OWNER shall not be required to make final payment to the CONTRACTOR until such time as Wyoming Statues 16-6-116 and 16-6-117 have been fulfilled. If no claims or liens have been filed within a forty-one (41) day period after the advertised completion and acceptance of the project, final payment shall be due and will be paid by the OWNER to the CONTRACTOR.**

14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner ~~other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled~~.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

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3. Contractor's disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined

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to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or

2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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FEDERAL AND STATE REGULATIONS

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

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ATTACHMENTS

A. Employment Preference for Appalachian Contracts (included in Appalachian contracts only)

I. GENERAL

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

Section I, paragraph 2;
Section IV, paragraphs 1, 2, 3, 4, and 7;
Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. **Selection of Labor:** During the performance of this contract, the contractor shall not:

a. discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or

b. employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

II. NONDISCRIMINATION

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

1. **Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

b. The contractor will accept as his operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the--job training."

2. **EEO Officer:** The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

3. **Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contract-or's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. **Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

5. **Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

6. **Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

7. **Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the SHA and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

8. **Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. **Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

(4) The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. The contractors will submit an annual report to the SHA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on-the job training is being required by special provision, the contractor will be required to collect and report training data.

III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of $10,000 or more and that it will retain such certifications in its files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. **General:**

a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. **Classification:**

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

(1) the work to be performed by the additional classification requested is not performed by a classification in the wage determination;

(2) the additional classification is utilized in the area by the construction industry;

(3) the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. **Payment of Fringe Benefits:**

a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

4. **Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:**

a. Apprentices:

(1) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

(1) Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which case such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Helpers:

Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV.2. Any worker listed on a payroll at a helper wage rate, who is not a helper under a approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. **Apprentices and Trainees (Programs of the U.S. DOT):**

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. **Withholding:**

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

7. **Overtime Requirements:**

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. **Violation:**

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of $10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. **Withholding for Unpaid Wages and Liquidated Damages:**

The SHA shall upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

V. STATEMENTS AND PAYROLLS

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. **Compliance with Copeland Regulations (29 CFR 3):**

The contractor shall comply with the Copeland Regulations of the Secretary of Labor, which are herein incorporated by reference.

2. **Payrolls and Payroll Records:**

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices, trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

(2) that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;

(3) that each laborer or mechanic has been paid not less that the applicable wage rate and fringe benefits or cash equivalent for the classification of worked performed, as specified in the applicable wage determination incorporated into the contract.

e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all Federal-aid contracts on the National Highway System, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than $1,000,000 (23 CFR 635) the contractor shall:

a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.

b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.

c. Furnish, upon the completion of the contract, to the SHA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. SUBLETTING OR ASSIGNING THE CONTRACT

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).

a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined not more that $10,000 or imprisoned not more than 5 years or both."

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $100,000 or more.)

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

1. **Instructions for Certification - Primary Covered Transactions:**

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and

d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

2. **Instructions for Certification - Lower Tier Covered Transactions:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions of $25,000 or more - 49 CFR 29)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Covered Transactions:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

(Applicable to all Federal-aid construction contracts and to all related subcontracts, which exceed $100,000 - 49 CFR 20).

WYOMING DEPARTMENT OF TRANSPORTATION
FEDERAL WAGE DETERMINATION DECISION **WAGE DISTRICT THREE**

The following schedule of predetermined minimum wage rates as set forth by the U.S. Secretary of Labor, is made part of the contract documents of this project. The Contractor shall pay not less than these rates:

Project No.		State	Wyoming **(Statewide excluding Laramie & Natrona Counties)**
Road		Decision	**WY 2010-8**
County		Decision Date	April 23, 2010

Code No.	Craft	Basic Hourly Rate	Hourly Fringe Benefit	Total Wage & Fringe
0401	Structure Carpenter	$19.75	$1.46	$21.21
0501	Concrete Finisher	$19.06	$2.77	$21.83
0601	Ironworker	$19.87	$2.36	$22.23
0701	Painter (brush & spray)	$13.00	$2.61	$15.61

LINE CONSTRUCTION

Underground communications work, and all motor traffic controlling, street and highway lighting.

Code No.	Craft	Basic Hourly Rate	Hourly Fringe Benefit	Total Wage & Fringe
0901	Electrician (Inside-wireman, Outside-Lineman, signal and lighting work).	$37.53	$8.83	$46.36
0902	Groundman	$22.24	$9.35	$31.59
0903	Equipment Operator	$20.00	$4.01	$24.01

LABORERS: (Group 1)

Code No.	Craft	Basic Hourly Rate	Hourly Fringe Benefit	Total Wage & Fringe
0101	Axman and hand faller	$14.52	$0.00	$14.52
	Bin wall installer laborer			
	Concrete worker (wet or dry)			
	Concrete worker (curing and drying)			
	Dumpman			
	Erector & Installer (includes the installation and erection of fences, snow fences, guardrails, median rails, median posts, signs and right-of-way marker)			
	Flag person (Traffic Control)			
	Form stripper			
	Form setter laborer (paving)			
	General laborer			
	Gunite laborer			
	Heater tender			
	Landscaper laborer			
	Material handler (lumber, rods, cement, concrete)			
	Nozzleman, air and water			
	Pilot Car Driver			
	Pipe setter laborer (non-metallic)			
	Pipe setter laborer (corrugated)			
	Pre-watering, presetting and pre-irrigation (all work)			
	Riprap man			
	Sandblaster pot tender			
	Signal man, grade concrete, etc.			
	Scissor man or hopper man			
	Stake jumper for equipment			
	Tar and asphalt pot tender			
	Wrecking and demolition crew			

LABORERS: (Group 2)

Code No.	Craft	Basic Hourly Rate	Hourly Fringe Benefit	Total Wage & Fringe
0125	Asphalt raker and tamper	$15.92	$2.48	$18.40
	Bin wall installer			
	Cement mason tender			
	Chuck tender			
	Concrete saw			
	Form setter (paving)			
	Gunite nozzleman			
	Hand operated vibratory roller			
	High scaler (using air tools from bos'n chair, swing stage lift belt, or block and tackle shall receive $0.20 per hour more than the classified rate)			
	Maintainer (Traffic Control)			
	Landscaper			
	Mortar man on stone riprap			
	Operator of pneumatic, electric gas tamper and similar mechanical tools			
	Pipe setter (corrugated, culvert pipe, sect. multi-plate and similar type)			
	Pipe setter, pipelayer (non-metallic)			
	Pipe wrapper			
	Powderman tender			
	Power type concrete buggy (push ride)			
	Power saw operator (clearing)			
	Vibrator-concrete			
	Jackhammer and pavement breaker			
	Sandblaster nozzleman			
	Sewer pipe installer (non-metallic), clay concrete, etc. (caulker, collarman, jointer, mortarman, rigger, jacker)			

LABORERS: (Group 3)
TUNNEL AND UNDERGROUND WORK

Code No.	Craft	Basic Hourly Rate	Hourly Fringe Benefit	Total Wage & Fringe
0148	Powderman and blaster Wagon drill, air-trac, diamond and other drills for blasting powder or grouting	$15.32	$0.00	$15.32
0152	Miner (Driller), Machineman, Timberman, Steelman, Drill Doctor, Form Setter and Mover, Spader, Tuggers, Spilling and/or Caisson Worker, Powderman, Jackhammerman, Finisher	$33.40	$9.28	$42.68

TRUCK DRIVERS: (Group 1)

Code No.	Craft	Basic Hourly Rate	Hourly Fringe Benefit	Total Wage & Fringe
0201	Pick-up Truck Driver (When used for hauling)	$17.37	$4.01	$21.38
	Dump Truck Driver (to and including 7 cu. yds.)			
	Snow Plow Truck Driver (the cu. yd. rate of the truck)			
	Gravel Spreader			
	Flat Rack Material Truck Driver (less than 2 tons)			
	Gang Truck Driver			

TRUCK DRIVERS: (Group 1)

Code No.	Craft	Basic Hourly Rate	Hourly Fringe Benefit	Total Wage & Fringe
0201 cont.	Stringing Truck Driver (single axle type)	$17.37	$4.01	$21.38
	Water Truck Driver (2,500 gal. or less)			
	Fuel Service Truck Driver			
	Greaseman, Tireman, Serviceman			
	Oil Distributor Truck Driver (2,500 gal. or less)			

TRUCK DRIVERS: (Group 2)

Code No.	Craft	Basic Hourly Rate	Hourly Fringe Benefit	Total Wage & Fringe
0203	Dump Truck Driver (over 7 cu. yds. to and including 13 cu. yds.)	$17.37	$4.01	$21.38
	Flat Rack Material Truck Driver (over 2tons to 5 tons)			
	Utility Winch Truck Driver			
	"A" Frame Truck Driver			
	Material Checker			
	Transit Mix or Wet Mix Truck Driver			
	Power Broom Driver			
	Water Truck Driver (over 2,500 gal. to and including 3,600 gal.)			
	Oil Distributor Truck Driver (over 2,500 gal. to and including 3,600 gal.)			

TRUCK DRIVERS: (Group 3)

Code No.	Craft	Basic Hourly Rate	Hourly Fringe Benefit	Total Wage & Fringe
0205	Dump Truck Driver (over 13 cu. yds. to and including 45 cu. yds.)	$17.37	$4.01	$21.38
	Low Boy and Tandem Axle Float Driver			
	Multiple Axle Type Truck: Semi			
	Winch Trailer Truck Driver			
	Water Truck Driver (over 3,600 gal.)			
	Oil Distributor Truck Driver (over 3,600 gal.)			
	Truck Mechanics			
	Flat Rack Material Truck Driver (over 5 tons)			

POWER EQUIPMENT OPERATORS: (Group 1)

Code No.	Craft	Basic Hourly Rate	Hourly Fringe Benefit	Total Wage & Fringe
0301	Auger Machine Operator (post holes, etc.) **(Excludes Electrical Work) (For Electrical, use 0903 Equip. Operator Classification)**	$19.34	$3.71	$23.05
	Air Compressor (over 315 cu. ft. cap.)			
	Backhoe (to 1.5 cu. yds.)			
	Batch Bin Weighman, Sissorman or Hopperman			
	Brakeman			
	Broom Operator (self-propelled)			
	Cableway Signalman (Bellboy)			
	Chip Spreader Operator			
	Concrete Saw (self-propelled)			
	Conveyor Belt Operator			
	Crusher Oiler			
	Front End Loader (to 1.5 cu. yds.)			
	Form Grader Operator			
	Fork Lift and Lumber Stacker			

POWER EQUIPMENT OPERATORS: (Group 1)

Code No.	Craft	Basic Hourly Rate	Hourly Fringe Benefit	Total Wage & Fringe
0301 cont.	Joint Machine Operator	$19.34	$3.71	$23.05
	Longitudinal Float Operator			
	Mixer, Operator Concrete (under 1 yard)			
	Oiler, Utility			
	Power Loader, belt and bucket type			
	Pump Operator			
	Roller Operator, self-propelled, (pneumatic, rubber tired, sheep foot, vibratory or combination type)			
	Screed Operator			
	Screening Plant Operator			
	Tire Repairman			
	Tractor Operator: Farm, crawler or wheel type (60hp. drawbar or less) with or without use of power attachments			

POWER EQUIPMENT OPERATORS: (Group 2)

Code No.	Craft	Basic Hourly Rate	Hourly Fringe Benefit	Total Wage & Fringe
0304	Air Compressor, two or more machines or tunnels, shafts, raises, or Plant Operator	$24.64	$2.50	$27.14
	Asphalt Plant Operator			
	Backhoe (1.5 cu. yds. to 3.5 cu. yds.)			
	Bituminous Laydown Machine Operator			
	CMI Machine (auto grader)			
	Concrete Batch Plant Operator			
	Concrete Finish Machine Operator			
	Concrete Multi Blade Span Saw (Hunt process or similar)			
	Concrete Spreader and Paver Operator			
	Crusher Operator			
	Drilling Machine, Intergrated (core, rotary, caisson, diamond)			
	Elevating Grader Operator			
	Front End Loader (1.5 cu. yds. to 3.5 cu. yds.)			
	Hydro-type crane to 50 tons			
	Mixer Operator, Base Course pugmill Type I			
	Mixer Operator, Concrete (over one yard)			
	Motor Patrol Operator (all, excluding finish)			
	Mucking Machine Operator (all types)			
	Mulching Machine Operator			
	Oiler, (crane and shovels)			
	Pavement Breaker, Hydro-Tamper & similar type machines			
	Pumpcrete Operator			
	Roller Operators (tandem steel wheel, three axle or three wheel)			
	Scraper Equipment (all types)			
	Scraper Equipment, (Multiple units, 0.15 cents per hour additional per unit)			
	Shovels, Draglines, Cranes, Piledrivers and Truck			
	Mounted Cranes (Mfg. rating: up to 3.5 cy., or 50 tons, all attachments)			
	Shuttle Car Operator			
	Subgrade Machine Operator (power)			

POWER EQUIPMENT OPERATORS: (Group 2)

Code No.	Craft	Basic Hourly Rate	Hourly Fringe Benefit	Total Wage & Fringe
0304 cont.	Tractor Operators: Cold Milling; all with use of power attachments and including, pushcat, dozer, tournadozer, etc. (the use of power attachments shall not include disking, pulling of rollers or similar unskilled actions)	$24.64	$2.50	$27.14
	Trenching Machine Operator **(Excludes Electrical Work) (For Electrical, use 0903 Equipment Operator Classification)**			
	Wash Plant Operator			
	Welder			

POWER EQUIPMENT OPERATORS: (Group 4)

Code No.	Craft	Basic Hourly Rate	Hourly Fringe Benefit	Total Wage & Fringe
0311	Cableway Operator	$28.50	$0.00	$28.50
	Crane, 90 tons and over, (whirley, gantry, stiffleg, overhead and traveling type)			
	Mixer Operator, (Dual Drum)			
	Shovels, Draglines, Piledrivers and Truck Mounted Cranes (Mfg. rating: 7 cy and over, or 90 tons and over, all attachments)			

POWER EQUIPMENT OPERATORS: (Group 3)

Code No.	Craft	Basic Hourly Rate	Hourly Fringe Benefit	Total Wage & Fringe
0333	Front End Loader (3.5 c.y. to 7 c.y.)	$23.56	$4.57	$28.13
	Heavy Duty Mechanic, Machine Doctor			
	Hoist Operator (two or more drums, shafts, or raises)			
	Motor Patrol Operator (finish)			
	Shovels, Draglines, Cranes, Piledrivers and Truck Mounted Cranes (Mfg. rating: 3.5 c.y. to 7 c.y. or 50 to 90 tons, all attachments)			
	Wheel Excavator Operator			

(Rates for machines not listed shall be subject to negotiation.)

WYOMING DEPARTMENT OF TRANSPORTATION

SUPPLEMENTARY SPECIFICATION FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION

This supplementary specification supplements, amends, and where in conflict with, supersedes various sections of the 2003 edition of the Wyoming Department of Transportation's *Standard Specifications for Road and Bridge Construction.*

I. DESCRIPTION

The Department's Disadvantaged Business Enterprise (DBE) program is a federally required equal opportunity program designed to ensure that small businesses owned by women, minorities, and other disadvantaged individuals have a fair opportunity to compete for federal aid highway construction contracts and subcontracts.

II. AUTHORITY

Authority for this supplementary specification is set forth and imposed pursuant to the required contract provisions for all federal aid construction contracts and Code of Federal Regulations Part 49, Section 26 (49 CFR 26).

III. DEFINITIONS

Disadvantaged Business Enterprise (DBE), Minority Business Enterprise (MBE), or Woman Business Enterprise (WBE):

For the purposes of this supplementary specification, MBE and WBE are collectively defined as disadvantaged business enterprise (DBE).

A minority business enterprise (MBE), by definition, is a small business concern, as defined pursuant to Sections 3 and 8(d)of the Small Business Act and implementing regulations, that is at least 51 percent owned and controlled by socially and economically disadvantaged Black Americans, Hispanic Americans, Asian-Pacific Americans, Native Americans, and Subcontinent Asian Americans.

A woman business enterprise (WBE), by definition, is a small business concern, as defined by Section 1101(b)(2)(B) of the 1998 Transportation Equity Act for the 21st Century (TEA-21), that is at least 51 percent owned by one or more women, or in the case of a publicly owned business, 51 percent of the stock is owned by women,

and the management and daily business operations are controlled by one or more of the women who own the firm.

"Socially and Economically Disadvantaged Individuals" means those individuals who are citizens of the United States (or lawfully admitted permanent residents) and who are Black Americans, Hispanic Americans, Asian-Pacific Americans, Native Americans, and Subcontinent Asian Americans, females, and any other minorities or individuals found to be disadvantaged by the Small Business Administration pursuant to Section 8(a) of the Small Business Act.

IV. CONDITIONS

As a condition of this contract, do not discriminate or allow subcontractors to discriminate on the basis of race, color, national origin, or sex in the performance of this contract. Carry out applicable requirements of 49 CFR part 26 in the award and administration of this USDOT assisted contract. Failure to carry out these requirements is a material breach of this contract, which may result in termination of this contractor or such other remedy as the department deems appropriate.

Take reasonable steps, and make certain all subcontractors do the same, to ensure that DBE small businesses have fair opportunity to compete for and perform work provided in this Contract.

V. GOOD-FAITH EFFORTS

Provide, and ensure all subcontractors provide, documented good-faith affirmative action in securing DBE participation for subcontract work. That documentation includes but is not limited to the following:

A. E-91 Documentation of DBE Participation Good-Faith Efforts:

1. List each DBE firm contacted for quotes and each DBE firm that supplied quotes although not solicited, not just those firms that will be utilized.

2. Complete all portions of the information, including those pertaining to quote received, whether quote will be used or not, and the specific types of work quoted. If DBE quote will not be used, list the name and amount of quote for the non-DBE firm that will be used to do that same work.

3. Between time of bid and time of award, WYDOT may require the contractor to submit copies of any or all of the quotes received from DBE and non-DBE firms.

4. Failure to meet the previous requirements will be grounds for a determination of lack of good-faith effort, and the Contract may be awarded to the next lowest responsive bidder who has exhibited good-faith efforts.

B. Good-faith affirmative action includes but is not necessarily limited to the following:

1. Advertising in general circulation, trade association, and minority focus media concerning the DBE subcontracting opportunities;

2. Providing written notice to a reasonable number of specific DBEs that their interest in the Contract is being solicited, in sufficient time to allow them to participate effectively;

3. Following up the initial solicitations of interest by contacting DBEs to determine with certainty whether they are interested;

4. Selecting portions of the work of the Contract that could be performed by DBEs.

5. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the Contract;

6. Negotiating in good faith with interested DBEs and not rejecting any DBE's as unqualified;

7. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance required by the contractor;

8. Effectively using the services of available minority community organizations, minority contractor groups, local, state, and federal minority business assistance offices and other organizations that provide assistance in the recruitment and placement of DBEs; and

9. Use documented good-faith effort actions when securing replacements for each DBE that has provided written documentation to the contractor, as to why he or she is unable to honor a commitment to do subcontract work or supply materials.

For information concerning the counting of DBE participation, refer to WYDOT's Disadvantaged Business Enterprise Program Plan. The WYDOT's DBE Program Plan and a current DBE certification listing are available on the WYDOT web page.

VI. COMMERCIALLY USEFUL FUNCTION

Ensure the DBE performs a commercially useful function (CUF) in the work of a contract. A DBE is considered to perform a CUF when it is solely responsible for execution of a distinct element of the work of a contract and carrying out its responsibilities by actually performing, managing, and supervising the work involved, consistent with industry practices. In determining whether a DBE has performed a CUF in the work of a contract, the amount of work subcontracted, industry practices, and other relevant factors will be evaluated. Only expenditures to a DBE that performs a CUF in the work of a contract will be counted toward DBE participation. It is not consistent with industry practices if a DBE enters into a subcontract to perform certain elements of the work of a contract if it does not own, lease, or operate the necessary equipment to perform the work.

A DBE may lease equipment from the contractor, provided a rental agreement, separate from the subcontract, specifying the terms of the lease arrangement is approved by the State Construction Engineer prior to the DBE starting the work. Bill the DBE as specified in the equipment lease. Do not deduct lease payments from the DBE's progress payments.

Ensure a DBE contractor or subcontractor performs a minimum of 50 percent of the work, as required of all prime contractors and subcontractors.

The DBE will perform the work with its own forces. If the DBE only purchases materials and supplies required for performance of the contract, it is not performing a CUF.

VII. CONTRACTOR ASSISTANCE

Provide direct assistance to DBE subcontractors and DBE materials suppliers in analyzing plans and specifications, securing bonding, and in the planning and management of the subcontract work. Ensure such assistance is on a limited basis and is designed to enhance the growth and competitiveness of the DBE. Long term, continual, or repetitive assistance by a contractor to the same DBE may be construed as disproportionate dependence upon the contractor. In all instances, ensure a DBE maintains its managerial and operational responsibilities for compliance with the CUF requirement. Do not prepare bids for a DBE.

METHOD OF MEASUREMENT and BASIS OF PAYMENT: Work related to the provisions of this specification, including but not limited to pursuit of DBE participation, providing assistance to DBE subcontractors or DBE materials suppliers in analyzing plans and

specifications, securing bonding in the planning and management of the subcontract work, and in meeting the requirements of this specification, will not be measured or paid for separately but is considered subsidiary to the Contract.

1-06-04

106.10 Requirements for Steel and Iron

1 The department requires the use of domestic iron and steel in the permanent components of a project. "Domestic" means all manufacturing processes occur within the United States. Such processes include, but are not limited to, rolling, extruding, machining, bending, grinding, drilling, and coating or similar processes to manufacture or modify the physical properties or chemical composition of iron or steel. Coatings include any protective or value-enhancing process. The department will, however, accept:

1. Foreign iron or steel components whose total combined value, including the cost of delivery to the project, does not exceed 0.1 percent of the total contract amount, or $2,500, whichever is greater.

2. The use of the following nondomestic raw materials: scrap, pig iron, and processed, pelletized, and reduced iron ore.

3. Nondomestic items that are used temporarily then abandoned in place at the contractor's convenience.

2 For iron and steel components, obtain from the manufacturer and provide to the engineer a material test report or certification that states clearly the country of manufacture. Include two copies of the itemized invoices for materials used and transportation costs for shipment to the project.

3 Ensure that foreign-made bolts, fasteners, and associated hardware are tested and certified by an independent domestic testing laboratory in accordance with Division 800, Materials. Submit the test data and certifications to the engineer before use.

4 The contractor may seek a waiver of these provisions by submitting a written request to the engineer. Accompany the request with supporting information showing that the specified steel or iron products are not manufactured in the United States in sufficient, available quantities of satisfactory quality. The department will not grant time extensions or pay compensation for delays resulting from processing such a request.

~~**106.11 Stockpiling Aggregate**~~

~~1 Clear and grub aggregate stockpile sites in accordance with Section 201, Clearing and Grubbing. Ensure that sites are firm, smooth, and well-drained. Do~~

WYOMING PUBLIC WORKS
STANDARD SPECIFICATIONS

SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY

A. Apply for, obtain, and pay for permits required to perform the work.
B. Comply with applicable codes and regulations of authorities having jurisdiction.
C. Field-verify dimensions indicated on drawings before fabricating or ordering materials. Do not scale drawings.
D. Notify OWNER of existing conditions differing from those indicated on the drawings. Verify the existence and location of underground utilities along the route of proposed work. Omission of an existing utility location on the Drawings is not to be considered as its nonexistence. Inclusion of existing utility locations on the Drawings is not to be considered as its definite location. Do not remove or alter existing utilities without prior written approval.
E. The Contract Documents are intended to provide the basis for proper completion of the work suitable for the intended use of OWNER. Anything not expressly set forth but which is reasonably implied or necessary for proper performance of the project shall be included.
F. Portions of the Contract Documents are written in the imperative mode. Except where specifically intended otherwise, the subject of all imperative statements is CONTRACTOR. For example, "Furnish..." means "CONTRACTOR shall furnish...", "Provide..." means "CONTRACTOR shall provide...".

SECTION 01041

PROJECT COORDINATION

PART 1 GENERAL

1.01 SUMMARY

A. Schedule a preconstruction conference to be held within twenty (20) days of the Notice of Award. CONTRACTOR's assigned supervisory personnel shall attend this conference.
B. Conduct all construction activities between the hours of 7:00 a.m. and 6:00 p.m., Monday through Friday, except for emergencies. No work will be allowed on Saturdays without OWNER's permission, and no work, except for emergencies, will be allowed on Sundays.
C. Water for use during construction will be obtained by CONTRACTOR at his expense. If he elects to obtain water from the public water utility, he will make all arrangements, comply with their regulations, and pay all fees and charges.

1.02 COORDINATION WITH PUBLIC AND PRIVATE AGENCIES

A. If other utility companies elect to repair or replace their lines in the project area, their crews will be permitted access to the area to accomplish their work.
B. Contact all utility companies for location of their facilities. Call at least 48 hours prior to excavation.
C. CONTRACTOR is responsible for dust control, and shall provide all equipment and personnel necessary to meet the requirements of this responsibility. CONTRACTOR shall provide ENGINEER with the name(s) and telephone number(s) of the person(s) designated to maintain dust control during evenings and weekends. If this person cannot be contacted, OWNER may use its equipment to correct a dust problem. In this case, CONTRACTOR shall pay all costs incurred by OWNER.
D. Do not park vehicles or equipment on private property without written permission from the property owner.

1.03 COORDINATION WITH OWNER AND ENGINEER

A. OWNER will provide engineering surveys to establish reference points as necessary. Construct all work in accordance with the lines and grades shown on the Drawings, and as designated by ENGINEER. These lines and grades may be modified by ENGINEER as provided in the General Conditions. Notify ENGINEER a minimum of 24 hours in advance to request surveying. All survey work shall be done by or under the direct supervision of a licensed Wyoming professional land surveyor.
B. Unless otherwise provided for in the Contract, the OWNER shall employ and pay for the services of an independent testing laboratory to perform all tests required by the Contract Documents. Notify ENGINEER a minimum of 24 hours in advance to request testing.

SECTION 01090

REFERENCES

PART 1 GENERAL

1.01 COORDINATION OF CONTRACT DOCUMENTS

A. The various portions of the Contract Documents, of which these specifications are a part, are essential parts of the Agreement, and a requirement occurring in any portion or part is as binding as though occurring in all. All portions are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, the following hierarchy shall be observed:
   1. Special Provisions will govern over
   2. Supplementary Specifications, which will govern over
   3. Project Drawings, which will govern over
   4. These specifications and Standard Drawings.

B. CONTRACTOR shall not take advantage of any apparent error or omission in the Contract Documents. If CONTRACTOR discovers an error or omission, CONTRACTOR shall immediately notify ENGINEER. ENGINEER will pursue such corrections and interpretations as may be necessary for fulfilling the intent of the Contract Documents.

1.02 DEFINITIONS

A. These specifications use "Article 1 – Definitions" of the Standard General Conditions of the Construction Contract, Form No. 1910-8, prepared and issued by the Engineers Joint Contract Documents Committee (EJCDC, 1990), as the basis for the definition of the terms herein. Changes in these definitions shall be made either by substitution for that article or as Supplementary Conditions.

B. Additional definitions and clarification of terms:
   1. Provide: Furnish and install, complete with all necessary ancillary items, ready for intended use. Pay for all related costs.
   2. Approved: Acceptance of an item submitted for approval. Not a limitation or release for compliance with the Contract Documents or any regulatory requirements. Refer to limitations of 'Approved' in the EJCDC General Conditions, Paragraph 3.4, if used.
   3. Match Existing: Construct new work to conform to the existing lines and grades of the site and facilities as acceptable to OWNER.
   4. Supplementary Specifications: Permanent additions to and revisions of these specifications, covering conditions which are not unique to any one project. Supplementary Specifications will govern over these specifications, including the Standard Drawings, when in conflict therewith.
   5. Special Provisions: Additions and revisions to these specifications covering special conditions on an individual project. Special Provisions will govern over project Drawings and supplementary documents, Supplementary Specifications, standard Drawings, and these specifications when in conflict therewith.

SECTION 01340

SUBMITTALS

PART 1 GENERAL

1.01 SUMMARY

A. Comply with Submittal format requirements as specified in the Contract Documents.

B. Provide the numbers and types of submittals listed in individual sections of the Contract Documents. If not specified elsewhere, provide the following as a minimum:

1. Shop drawings: One reproducible and two blueline or photocopy prints. Reviewed and annotated by CONTRACTOR.
2. Product data: Four copies.
3. Samples: Two each plus extra samples as required to indicate range of color, finish, and texture.
4. Mock-ups: Number as required in the individual sections.
5. Warranties: Four copies.
6. Closeout submittals: Four copies.

C. Provide required resubmittals in the appropriate distribution if original submittals are not approved.

D. Samples and shop drawings shall be prepared specifically for this project. Shop drawings shall include dimensions and details, including adjacent construction and related work. Note any special coordination required. Note any deviations from requirements of the Contract Documents.

E. Provide warranties as specified. Warranties shall not limit length of time for remedy of damages OWNER may have by legal statute. Warranties shall be signed by CONTRACTOR, Supplier or Installer responsible for performance of warranty.

SECTION 01505

TEMPORARY FACILITIES

PART 1 GENERAL

1.01 SUMMARY

A. Furnish temporary services and utilities, including use fees and operation costs:
   1. Potable and non-potable water
   2. Lighting and power
   3. Materials storage
B. Furnish construction facilities, including utility costs:
   1. Construction equipment
   2. Dewatering and pumping
C. Furnish security and protection requirements:
   1. Fire extinguishers
   2. Site enclosure fence, barricades, warning signs, and lights
   3. Snow and ice removal, if applicable
D. Furnish personnel support facilities:
   1. Sanitary facilities
   2. Drinking water
   3. First aid facilities
   4. Coordinate emergency medical services
   5. Trash removal

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. No separate measurement will be made for items under this section. Full compensation shall be considered as included in the prices paid for the various contract items and no additional compensation will be allowed therefore.

4.02 BASIS OF PAYMENT

A. No separate payment will be made for items under this section. Full compensation shall be considered as included in the prices paid for the various contract items and no additional compensation will be allowed therefore.

SECTION 02110

CLEARING AND GRUBBING

PART 1 GENERAL

1.01 SUMMARY

A. This work shall consist of clearing, grubbing, removing, and disposing of all vegetation and debris within the limits of the construction area. Vegetation and objects designated to remain shall be preserved from injury or defacement.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 CONSTRUCTION

A. Unless otherwise established by the ENGINEER, all areas between lines 2.0 feet (600 mm) outside the back of sidewalk, curb and/or curb and gutter, or within the neat lines of cut or fill areas shall constitute the clearing and grubbing limits. Where sidewalk, curb and/or curb and gutter is not required, the clearing limits shall be 2.0 feet (600 mm) outside the edge of pavement or within the neat lines of cut or fill areas.

B. All stumps, roots, logs or other timber more than three inches (3" (75 mm) in diameter, and all brush, matted roots and other debris within the grubbing limits not suitable for street foundation shall be pulled or otherwise removed to a depth of not less than six inches (6") (150 mm) below the original ground or twelve inches (12") (300 mm) below street subgrade.

C. The refuse resulting from the clearing and grubbing operation may be hauled to an available waste site approved by the OWNER and shall be disposed of in such a manner as to meet all requirements of State, county and municipal regulations regarding health, safety, and public welfare. When authorized by the proper fire authorities, the Contractor may dispose of such refuse by burning on the site of the project provided all requirements set forth by the authorities are met.

D. On easements through private property, the Contractor shall not burn on the site unless specifically permitted by the Property Owner in which case he shall obtain permission as previously stated.

E. In all cases, the authority to burn shall not relieve the CONTRACTOR in any way from damages which may result from his operations. In no case shall any material be left on the project, shoved onto abutting private properties, or be buried in embankments or trenches on the project.

F. The CONTRACTOR shall avoid, as far as practicable, injury to shrubbery, vines, plants, grasses and other vegetation growing on areas outside of the grading area, or on parking strips or adjacent lots.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Measurement will be by one or more of the following alternate methods:

1. Area Basis. the work to be paid for will be the number of acres (hectares) and fractions thereof acceptably cleared or grubbed, or both, within the limits shown on the plans or staked for clearing and grubbing by the ENGINEER. Areas not shown on the plans, or not staked for clearing and grubbing, will not be measured for payment.

2. Lump Sum Basis. When the bid schedule contains a clearing and grubbing lump sum item, no measurement will be made.
3. Individual Unit Basis.
   a. The diameter of trees will be measured at a height of 24 inches (600 mm) above the ground. Trees less than four inches (100 mm) in diameter will be classed as brush.
   b. When the bid schedule indicates measurement by individual unit basis, the units will be designated and measured in accordance with the following schedule of size:

Diameter of a Tree at Height of 24 inches		Pay Items Designation
Inches	Millimeters	
4 to 8	100 to 205	6-inch size each
Over 8 to 12	Over 205 to 305	10-inch size each
Over 12 to 24	Over 305 to 610	18-inch size each
Over 24 to 36	Over 610 to 910	30-inch size each
Over 36 to 60	Over 910 to 1520	48-inch size each
Over 60	Over 1520	60-inch size each

   c. Stumps will be measured by taking the average diameter at the cutoff.

4.02 BASIS OF PAYMENT

A. The accepted quantities of clearing and grubbing will be paid for at the contract unit prices as follows:
   1. Area Basis. The quantities determined will be paid for at the contract unit bid price per acre (hectares) for each of the particular pay items listed on an area basis under this Subsection.
   2. Lump Sum Basis. When the bid schedule contains a lump sum item, the lump sum price shall be full compensation for all clearing, grubbing, or clearing and grubbing required.
   3. Individual Unit Basis. When individual unit quantities are shown on the bid schedule, the accepted quantities will be paid for at the contract unit price for the respective items.
   4. Exclusions. When the bid schedule does not contain an estimated quantity or lump sum item for clearing and grubbing, the work will not be paid for directly, but will be considered as a subsidiary obligation of the CONTRACTOR under other contract items.

PAYMENT WILL BE MADE UNDER:

Pay Item	Pay Unit
Clearing	Acre (Hectares), LS
Grubbing	Acre (Hectares), LS
Clearing and Grubbing	Acre (Hectares), LS
Clearing Trees Diameter	Each

Range from Table, page 2 of 3

SECTION 02190

AGGREGATES

PART 1 GENERAL

1.01 SUMMARY

A. This section includes the preparation and stockpiling of aggregates for Portland cement concrete, bases, bituminous pavements and surface treatments, cover coats, bed coarses, drains, pervious backfill and riprap.

B. This section is a material specification only and is subsidiary to other sections which address placement of the materials prepared under same.

1.02 RELATED WORK

A. Section 02231, Aggregate Sub-base and Base Coarses.

B. Section 02273, Riprap.

C. Section 03304, Portland Cement Concrete.

D. Section 02511, Road Mix Bituminous Pavements.

E. Section 02512, Plant Mix Pavements.

F. Section 02550, Prime Coat.

G. Section 02552, Seal Coat.

H. Section 02553, Bituminous Surface Treatment.

1.03 QUALITY ASSURANCE

A. AASHTO M 6: Fine Aggregate for Portland Cement Concrete.

B. AASHTO M 80: Coarse Aggregate for Portland Cement Concrete.

C. AASHTO M 92: Wire-cloth Sieve for Testing Purposes.

D. AASHTO T 2: Sampling Aggregates.

E. AASHTO T 27: Wyoming Modified Sieve Analysis of Fine and Coarse Aggregates.

F. AASHTO T 96: Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine.

G. AASHTO T 104: Soundness of Aggregate by use of Sodium Sulfate or Magnesium Sulfate.

H. ASTM C 33: Concrete Aggregates.

I. ASTM C 127: Specific Gravity and Moisture Absorption of Coarse Aggregate.

J. ASTM C 136: Sieve or Screen Analysis of Fine and Coarse Aggregate.

1.04 SUBMITTALS

A. Sampling and testing of aggregates for flexible pavements shall be in accordance with the following standard methods of the American Association of State Highway Transportation Officials (AASHTO):

1.	Sampling	T 2
2.	Percentage of Wear	T 96
3.	Soundness	T 104
4.	Sieve Analysis	T 27, Wyoming Modified
5.	Sieve Analysis	ASTM C 136

B. Sampling and testing of aggregates for Portland cement concrete shall be in accordance with the following standard methods of the American Association of State Highway Transportation Officials (AASHTO):

1.	Fine Aggregate	M 6
2.	Coarse Aggregate	M 80
3.	Sieve Analysis	T 27, Wyoming Modified
4.	Percentage of Wear	T 96
5.	Soundness	T 104

1.05 DEFINITIONS

A. Coarse aggregate shall mean materials retained on a #4 sieve.

B. Fine aggregate shall mean materials passing a #4 sieve.

C. Sub-base shall be crushed sub-base unless otherwise specified.

D. Base shall be crushed base unless otherwise specified.

E. Gradation requirements, as listed herein, shall be the percentage of material by weight passing laboratory sieves having square openings. Sieve sizes or designations will be in accordance with AASHTO M 92 and ASTM C 33.

PART 2 PRODUCTS

2.01 MATERIALS

A. When crushed aggregate for sub-base, bases, surfacing or bituminous pavements is specified, all boulders in the pit up 6" in diameter shall be crushed to meet the required specifications and shall be uniformly distributed in the remainder of the material, unless otherwise specified.

B. Before production of any of the following materials, all vegetation and stripping material shall be removed from the pit. Only designated portions of the pit will be used. The composite materials shall be free from clay balls, vegetable matter, and other deleterious substances, and shall not contain an excess of thin or elongated pieces.

2.02 AGGREGATE FOR PORTLAND CEMENT CONCRETE

A. FINE AGGREGATE

1. Fine aggregate for concrete shall conform to the requirements of AASHTO M 6 with the following exceptions:

	Max. % by Weight
Clay Lumps	1.0
Coal, Lignite, or Shale	1.0
Material Passing No. 200 Sieve	4.0

The sum of the above materials and other deleterious substances such as shale, alkali, mica, coated grains, or soft and flaky particles shall not exceed 4% by weight.

2. Fine aggregate shall be well graded from coarse to fine and shall conform to the following gradation requirements:

SIEVE DESIGNATION	PERCENTAGE PASSING
3/8"	100
#4	95 – 100
#16	45 – 80
#50	10 – 30
#100	2 – 10

B. COARSE AGGREGATE

1. Coarse aggregates shall consist of crushed stone, gravel, or other approved inert materials of similar characteristics, or combinations thereof, having strong and durable pieces. The aggregate shall be free from vegetable matter, lumps or balls of clay, adherent films of clay, or other matter that would prevent thorough bonding in accordance with Paragraph 2.
2. Coarse aggregate shall conform the requirements of AASHTO M 80 with the following exceptions:
   a. The amount of deleterious substances shall not exceed the following limits:

	Max. % by Weight
Clay Lumps	0.5
Coal, Lignite, or Shale	1.0
Material Passing #200 Sieve	4.0
Other deleterious substances such as friable, thin, elongated or laminated pieces	3.0

   The sum of the above material and other deleterious substances shall not exceed 5% by weight.

   b. Coarse aggregates shall have a percentage of wear of not more than 40 when tested in accordance with AASHTO T 96 or show a sodium sulfate loss not to exceed 12% when tested in accordance with AASHTO T 104. The wear and soundness requirements may be waived, or modified, by ENGINEER provided that the coarse aggregate has a proven service record for similar conditions.

   c. Coarse aggregate shall meet the following gradation limits for the concrete class specified. Other sizes or combinations of sizes may be used when otherwise specified. If not specified, Type No. 57 shall be the gradation used.

SIEVE DESIGNATION		TYPE NO. 57	TYPE NO. 67
1 1/2"	38.1 mm	100	—
1"	25.0 mm	95 - 100	100
3/4"	19.0 mm	—	90 - 100
1/2"	12.5 mm	25 - 60	—
3/8"	9.5 mm	—	20 - 55
*4	4.75 mm	2 - 15	0 - 15

* Not more than five percent (5%) shall pass the #8 Sieve.

2.03 AGGREGATE FOR UNTREATED SUB-BASE AND BASE

A. The composite materials shall be free from clay balls, vegetable matter, and other deleterious substances, and shall not contain an excess of thin or elongated pieces.

B. Crushed sub-base and crushed base shall be crushed stone or crushed gravel and an approved soil binder or natural filler, where required, conforming to the following requirements, unless otherwise designated in the Contract Documents.

1. Coarse aggregate shall consist of hard, durable particles or fragments of stone or gravel. Materials that break up when alternately frozen and thawed or wetted and dried shall not be used. Unless otherwise specified, the coarse aggregate shall have a percentage of wear of not more than 50.
2. Fine aggregate shall consist of crushed stone, crushed gravel, or natural sand. The fraction passing the #200 (75 mm) sieve shall not be greater than two-thirds of the fraction passing the #40 (425 mm) sieve. The fraction passing the #40 (425 mm) sieve shall have a liquid limit not greater than 25 and a plasticity index not greater than 6 except that, when the plasticity index is nonplastic (NP), the liquid limit shall not be more than 30.

3. Crushed base and crushed sub-base shall meet one of the following gradation requirements as specified in the Contract Documents:

SIEVE DESIGNATION	GRADING D	GRADING G	GRADING H	GRADING J	GRADING K	GRADING W
2"	100	100	-	100	-	-
1 1/2"	95 - 100	95 - 100	-	95 - 100	100	100
1"	-	-	100	-	95 - 100	95 - 100
3/ 4"	-	-	95 - 100	-	-	-
#4	50 - 85	-	45 - 65	35 - 53	40 - 65	45 - 65
#8	40 - 70	-	33 - 53	-	30 - 55	33 - 53
#200	2 - 5	0 - 15	3 - 12	0 - 15	3 - 15	3 - 12

C. Crusher run sub-base and crusher run base shall be crusher run material of the maximum size as called for in the Contract Documents, not to exceed 3" (75 mm).

D. Pit run or screened sub-base and base shall be pit run or screened material of the maximum size called for in the Contract Documents, not to exceed 3" (75 mm).

E. Placement of sub-base materials with aggregates greater than 3" (75 mm) shall not be allowed unless otherwise specified by ENGINEER in the Special Provisions.

2.04 AGGREGATE FOR PLANT MIX BITUMINOUS BASE

A. GENERAL - Aggregate shall be composed of coarse and fine aggregates combined in the proper proportions to meet the grading requirements for Grading W of Subsection 2.03 herein, AGGREGATE FOR UNTREATED SUB-BASE AND BASE, unless otherwise noted in the Contract Documents. Aggregates shall be composed of clean, tough, durable fragments free from an excess of flat, elongated, soft, or disintegrated pieces and free from fragments coated with dirt or other objectionable matter.

B. COARSE AGGREGATE - Coarse aggregate shall be crushed stone, crushed gravel, or natural gravel. Unless otherwise shown noted in the Contract Documents, the material shall have a percentage of wear of not more than 50 when tested in accordance with AASHTO T 96. The sodium sulfate soundness loss shall not exceed 12% in accordance with AASHTO T 104.

C. FINE AGGREGATE - Fine aggregate shall consist of crushed stone, crushed gravel, or natural sand. The fraction passing the #200 (75 mm) sieve shall not be greater than two-thirds of the fraction passing the #40 (425 mm) sieve. The fraction passing the #40 (425 mm) sieve shall have a liquid limit not greater than 25 and a plasticity index not greater than 3, except that when the plasticity index is nonplastic (NP), the liquid limit shall be not more than 30.

2.05 AGGREGATE FOR ROAD MIX BITUMINOUS BASE

A. Aggregates for road mix bituminous base shall meet the requirements for Crushed Base of Subsection 2.03 herein, AGGREGATE FOR UNTREATED SUB-BASE AND BASE and unless otherwise specified by ENGINEER in the Special Provisions, the combined aggregate and natural filler, where required, shall meet the gradation requirements for Grading W.

2.06 AGGREGATE FOR FLEXIBLE PAVEMENTS

A. GENERAL - Aggregates shall be of uniform quality, crushed to size as necessary, and shall be composed of sound, tough, durable pebbles or fragments with or without natural or mineral fillers, as required. The aggregate shall be free from vegetable matter, lumps or balls of clay, adherent films of clay

or other matter that would prevent thorough coating with bituminous material and shall be free of an excess of flat or elongated pieces. The crushed aggregate shall have a percentage of wear of not more than 40, show a sodium sulfate loss of not more than 12%, and the plasticity index shall not exceed 3 unless otherwise provided for in the Contract Documents or as approved by ENGINEER.

B. COARSE AGGREGATE - Coarse aggregate shall be crushed stone or crushed gravel of such gradation that when combined with other required aggregate fractions and fillers in proper proportion, the resultant mixture shall meet the gradation requirements under the composition of mixture for the specific material type. Only one kind shall be used on the Project except as approved by ENGINEER.

C. FINE AGGREGATE - Fine aggregate shall consist of crushed stone, crushed gravel, or natural sand. Fine aggregate shall be of such gradation that when combined with other required aggregate fractions in proper proportion, the resultant mixture shall meet the gradation requirements under the composition of mixture for the specific material type. Only one kind shall be used on the Project except as approved by ENGINEER.

2.07 AGGREGATE FOR HOT PLANT MIX BITUMINOUS PAVEMENT

A. Type I Pavement aggregate shall be composed of coarse and fine aggregates combined as shown and in conformance with Subsection 2.04 herein, AGGREGATE FOR PLANT MIX BITUMINOUS BASE.

B. Type II Pavement aggregate material, prior to crushing, shall be of such size that not less than 95% shall be retained on a sieve with square openings 1/4" (6.3 mm) larger than the maximum size mineral aggregate being produced, unless otherwise specified by ENGINEER in the Special Provisions.

C. Type III Pavement aggregate shall have not less than 50% of the materials by weight retained on the #4 (4.75 mm) sieve with at least one fractured face, unless a different percentage of fractured faces is otherwise specified in the Contract Documents.

D. The several aggregate fractions for the mixture shall be sized, graded, and combined in such proportions that the resulting composite blend meets one of the grading requirements in the following table as specified in the Contract Documents. If not specified, CONTRACTOR shall use the 3/4" (19.0 mm) maximum material grading specification.

SIEVE DESIGNATION		% BY WEIGHT PASSING	
Inches	Millimeters	3/4" MAX. (19 MM)	1/2" MAX. (12.5 MM)
1"	25 mm	100	-
3/4"	19 mm	97 - 100	100
1/2"	12.5 mm	-	97 - 100
3/8"	9.5 mm	60 - 85	-
#4	4.75 mm	40 - 65	45 - 70
#8	2.36 mm	25 - 55	25 - 55
#30	600 mm	10 - 35	15 - 40
#200	75 mm	2 - 10	2 - 11

2.08 AGGREGATE FOR PLANT MIX WEARING COARSE

A. The aggregate for plant mix wearing coarse shall be crushed stone or gravel composed of hard, durable pebbles or fragments and a filler of finely crushed stone, gravel, or sand, where required, to provide a composition of aggregates meeting the following requirements for the type specified:

SIEVE DESIGNATION		% BY WEIGHT PASSING	
Inches	Millimeters	TYPE A	TYPE B
1/2"	12.5 mm	100	100
3/8"	9.5 mm	97 - 100	97 - 100
#4	4.75 mm	25 - 45	20 - 40
#8	2.36 mm	60 - 85	10 - 20
#200	75 mm	40 - 65	2 - 7

B. The aggregate shall be free from vegetable matter, lumps or balls of clay, adherent films of clay, or other matter that would prevent thorough coating with bituminous material. Unless otherwise shown on the plans, at least 75% of the material by weight retained on the #4 (4.75 mm) sieve shall be particles having at least one fractured face and shall have a percentage of wear of not more than 35.

C. When either Type A or Type B wearing coarse is specified, the aggregate material, prior to crushing, shall be of such size that not less than 95% shall be retained on a sieve with square openings of 3/8" (9.5 mm).

2.09 AGGREGATE FOR ROAD MIX BITUMINOUS PAVEMENT

A. Aggregates shall be composed of clean, tough, durable fragments of crushed stone, or crushed or natural gravel free from an excess of flat, elongated, soft, or disintegrated pieces. The aggregate shall be free from vegetable matter, lumps or balls of clay, adherent films or other matter that would prevent thorough coating with bituminous material.

B. Unless otherwise specified, the coarse aggregate shall have a percentage of wear of not more than 50. The sodium sulfate soundness loss shall not exceed 12% and the plasticity index shall not exceed 3. The combined coarse and fine aggregate shall meet the following gradation requirements:

SIEVE DESIGNATION		% BY WEIGHT PASSING
1"	25 mm	100
3/4"	19 mm	95 - 100
#4	4.75 mm	45 - 65
#8	2.36 mm	33 - 53
#200	75 mm	3 - 12

10 AGGREGATE FOR COVER COAT

A. Only one type of aggregate shall be used on the project unless alternate types are approved.

B. Cover aggregate for seal coats shall be crushed stone, crushed ledge rock, crushed or natural gravel, or sand.

C. Cover aggregate material for bituminous surface treatment shall consist of clean, tough, durable fragments free from an excess of flat, elongated, soft or disintegrated pieces and free from coatings of dirt or other objectionable matter. The aggregate shall have neither a percentage of wear of more than 40 nor a plasticity index in excess of 3. The aggregate material shall be well graded from coarse to fine within the following limits:

SIEVE DESIGNATION		% BY WEIGHT PASSING
3/4"	19 mm	100
1/2"	12.5 mm	95 - 100
#4	4.75 mm	50 - 70
#8	2.36 mm	33 - 63
#200	75 mm	3 - 10

D. Type A, B, C, D, E and S aggregate material produced shall be well graded from coarse to fine within the following limits:

SIEVE DESIGNATION		% BY WEIGHT PASSING					
Inches	Millimeters	Type A	Type B	Type C	Type D	Type E	Type S
1"	25 mm	100	-	-	-	-	-
3/4"	19 mm	95 - 100	100	-	100	100	-
1/2"	12.5 mm	30 - 60	95 - 100	100	95 - 100	95 - 100	100
3/8"	9.5 mm	-	-	95 - 100	-	-	95 - 100
#4	4.75 mm	0 - 15	0 - 15	0 - 20	0 - 15	35 - 70	85 - 100
#8	2.36 mm	0 - 7	0 - 7	0 - 12	0 - 7	-	-
#200	75 mm	0 - 2	0 - 2	0 - 2	0 - 2	0 - 10	0 - 5

E. Material used for the production of Type A, B, or C cover aggregate shall be stone, ledge rock, or boulders of such size that prior to crushing not more than 5% will pass a 3/4" (19 mm) screen for Type A or a 1/2" (12.5 mm) screen for Type B and Type C.

F. Type D cover aggregate shall be crushed stone, crushed gravel, or clean pea gravel.

G. Types A, B, C, or D shall have a percentage of wear of not more than 35, unless a Different percentage of wear is specified by ENGINEER in the Special Provisions.

H. Type E cover aggregate shall be crushed sand-gravel. Type S cover aggregate shall be screened or pit-run sand. The plasticity index of either Type E or Type S shall not exceed 3.

2.11 AGGREGATE FOR BLOTTER

A. Blotter material shall be either sand or screenings, free from vegetable matter, clay, or other deleterious matter. The material shall be of such size that 100% of the material will pass through a 3/8" (9.5 mm) sieve, the fraction passing the #4 (4.75 mm) sieve shall be from 85% to 100% and the fraction passing the #200 (75mm) sieve shall not be greater than 20%. The plastic index shall not exceed 6.

2.12 AGGREGATE FOR FILLER

A. Filler shall consist of clean, hard, durable grains of naturally occurring granular material taken either from locations shown on the Drawings or from approved sources as otherwise specified in the Contract Documents.

2.13 AGGREGATE FOR BED COARSE MATERIAL

A. Bed coarse material for sidewalks and curbing shall consist of graded gravel, crushed stone, or other approved material of such that all particles will pass through a sieve having 1/2" (12.5 mm) square openings.

2.14 AGGREGATE FOR DRAINS

A. Gravel for drains shall be crushed or natural sand and gravel or other approved free-draining material. The material shall be uniformly graded from coarse to fine within the following gradation requirements for the material type indicated in the Contract Documents. When the grading is not indicated in the Contract Documents, Grading B shall be used.

SIEVE DESIGNATION		% BY WEIGHT PASSING		
Inches	Millimeters	Grading A	Grading B	Grading C
2"	50 mm	100	-	-
1 1/2"	12.5 mm	95 - 100	100	-
1"	25 mm	-	95 - 100	-
3/4"	19 mm	35 - 70	-	100
3/8"	9.5 mm	10 - 30	-	95 - 100
#4	4.75 mm	0 - 5	0 - 10	-
#8	2.36 mm	-	-	65 - 95
#16	1.18 mm	-	-	5 - 30
#100	150 mm	-	-	0 - 10

2.15 AGGREGATE FOR MAINTENANCE STOCKPILES

A. Type A aggregate shall consist of clean, hard, durable particles of crushed gravel or stone free from soft, thin, elongated, or laminated pieces or organic material, and shall show a percentage of wear of not more than 50. The fraction passing the #40 (425 mm) sieve shall have a liquid limit not greater than 25 and a plasticity index not greater than 3, except that, when the plasticity index is nonplastic (NP), the liquid limit shall not be more than 30. The material placed in the stockpile shall meet the following gradation requirements for the maximum size specified:

SIEVE DESIGNATION		% BY WEIGHT PASSING	
Inches	Millimeters	1/2" MAX. (12.5 MM)	3/8" MAX. (9.5 MM)
3/4"	19 mm	100	-
1/2"	12.5 mm	95 - 100	100
3/8"	9.5 mm	-	95 - 100
#4	4.75 mm	45 - 65	50 - 70
#8	2.36 mm	37 - 57	33 - 63
#200	75 mm	3 - 12	3 - 12

B. Type B aggregate shall consist of clean, hard, durable particles of crusher-run gravel or stone free from soft, thin, elongated, or laminated pieces or organic material. Material shall be obtained from designated portions of the pit. The plasticity index shall not be greater than 6. The material placed in the stockpile shall meet the following gradation requirements for the maximum size specified:

SIEVE DESIGNATION	% BY WEIGHT PASSING
Maximum Designated	95 - 100
#4 (4.75 mm)	0 - 75
#200 (75 mm)	0 - 15

C. Type C aggregate shall consist of crusher-run scoria. Not less than 95% of the material placed in the stockpile shall pass a 1/2" (12.5 mm) sieve.

D. Type D aggregate shall consist of clean, hard, durable particles of screened sand free from soft, thin, elongated or laminated pieces, or organic material. The plasticity index shall not be greater than 6. The material placed in the stockpile shall meet the following gradation requirements:

SIEVE DESIGNATION	% BY WEIGHT PASSING
1/2" (12.5 mm)	100
3/8" (9.5 mm)	95 - 100
#4 (4.75 mm)	85 - 100
#200 (75 mm)	3 - 12

2.16 AGGREGATE FOR PERVIOUS BACKFILL MATERIAL

A. Pervious Backfill Material shall consist of gravel, crushed gravel, crushed rock, natural sands, manufactured sands, or combinations thereof, and shall meet the following gradation requirements:

SIEVE DESIGNATION	% BY WEIGHT PASSING
2" (50 mm)	100
#4 (4.75 mm)	0 - 30
#100 (150 mm)	0 - 100
#200 (75 mm)	0 - 4

B. In addition, the fraction passing the #40 (425 mm) sieve shall be nonplastic (NP) and shall have a liquid limit not greater than 30.

2.17 AGGREGATE FOR RIPRAP

A. Aggregate for riprap shall be hard, durable, crushed, quarried, or natural stone, or broken concrete having an apparent specific gravity of 2.4 or greater. The absorption shall not exceed 4 % unless otherwise approved by ENGINEER in the Special Provisions. The stone shall be free of weak laminations and cleavages, and shall be of a quality that will not disintegrate on exposure to water or weathering. The aggregate for the various types of riprap shall meet the following additional requirements:

1. Class l Riprap aggregate shall consist of two sizes of stone.
   a. Primary stones shall be not less than 3" (75 mm) thick and shall weigh not less than 50 pounds (22.7 kilograms). At least 60 percent of the stones shall weigh more than 80 pounds (36.3 kilograms) each.
   b. Choke stones shall be fragments or spalls of the proper size to satisfactorily wedge between the primary stones as placed.
2. Class 2 Riprap aggregate shall be graded with a sufficient amount of smaller stones uniformly distributed throughout. At least 60 percent of the stones shall weigh more than 80 pounds (36.3 kilograms) each.
3. Grouted Riprap aggregate shall conform to the specifications for Class 1 or Class 2 Riprap. If not specified, Class 1 Riprap shall be used.
4. Wire Enclosed Riprap aggregate shall be round or angular stones. Not less than 95% of the stone shall be retained on a screen or wire having 2" (50 mm) square openings.
5. Sacked Concrete Riprap aggregate shall consist of either a sandy or gravelly pit-run material. This material shall be clean and free from roots, vegetable matter, or other deleterious substances. The aggregate shall meet the following gradation requirements:

SIEVE DESIGNATION	% BY WEIGHT PASSING
2"	80 - 100
#200	0 - 4

2.18 AGGREGATE FOR RIPRAP FILTER

A. Filter aggregates for riprap shall be hard, durable particles or fragments of crushed stone or natural gravel, screened or crushed to meet the following gradation requirements:

SIEVE DESIGNATION		% BY WEIGHT PASSING
3"	(75 mm)	100
#4	(4.75 mm)	20 - 50
#200	(75 mm)	0 - 10

PART 3 EXECUTION

3.01 STOCKPILED AGGREGATE

A. This work shall consist of storing aggregate material which will be used in construction projects in accordance with these specifications at locations shown on the Drawings, noted in the Contract Documents, or as otherwise designated by ENGINEER.

B. The aggregates shall meet applicable parts of this section for the type of material required.

C. Sites for aggregate stockpiles shall be grubbed and cleaned prior to storing aggregates, and the site shall be firm and smooth and well drained. A bed of aggregate suitable to avoid the inclusion of soil or foreign material shall be maintained.

D. The stockpiles shall be built in layers not exceeding four feet (1200 mm) in height, and each layer shall be completely in place before the next layer is started so as to prevent segregation. The material shall be deposited in such manner as to prevent coning, except in the case of fine aggregate composed of material approximately 90% finer than a #4 (4.75 mm) sieve.

E. Dumping, casting, or pushing over sides of stockpiles is prohibited except in the case of fine aggregate materials.

F. Stockpiles of different types or sizes of aggregates shall be spaced far enough apart or separated by suitable walls or partitions to prevent the mixing of the aggregates.

G. Any stockpiling of materials derived by wet pit or dredging operations, other than those stockpiles previously mentioned, are subject to prior approval of ENGINEER and must be specified and submitted in the CONTRACTOR's plan of operations.

H. When it is necessary to operate trucks or other equipment on the stockpile in the process of building that stockpile, it should be done in a manner approved by ENGINEER. Any method of stockpiling aggregate which allows the stockpile to become contaminated with foreign matter or causes excessive degradation of the aggregate will not be permitted. Excessive degradation will be determined by sieve tests of samples taken from any portion of the stockpile over which equipment has operated. Failure of such samples to meet all grading requirements for the aggregate shall be considered cause for discontinuance of such stockpiling procedures.

I. The aggregate shall be transferred from the stockpiles in such a way as to obtain a material having a uniform grading.

3.02 PROTECTION FOR AGGREGATE

A. The equipment and methods utilized in the production, storage, transportation and final placement of aggregate materials shall be such as to provide in-place materials meeting all requirements as specified.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Unless otherwise noted in the Special Provisions, no separate measurement will be made for items under this section. Full compensation shall be considered as included in the prices paid for the various contract items and no additional compensation will be allowed therefore.

4.02 BASIS OF PAYMENT

A. Unless otherwise noted in the Special Provisions, no separate payment will be made for items under this section. Full compensation shall be considered as included in the prices paid for the various contract items and no additional compensation will be allowed therefore.

SECTION 02210

EXCAVATION AND EMBANKMENT

PART 1 GENERAL

1.01 SUMMARY

A. This work shall consist of excavation, disposal, or compaction of all materials not being removed under some other item, which is encountered within the limits of the work necessary for the construction of the roadway in accordance with the specifications and in conformity with the lines, grades, thicknesses, and typical cross sections shown in the plans. All excavation will be denoted as borrow special excavation, rock excavation, muck excavation, or unclassified excavation as hereafter described.

PART 2 PRODUCTS

2.01 BORROW EXCAVATION

A. Borrow Excavation shall consist of excavation made from borrow areas within the project limits and outside the normal grading limits for the completion of embankments. Borrow areas or areas within the project limits from which the borrow may be obtained will be designated on the Plans.

B. Borrow excavation shall be made only at those designated locations and within the horizontal and vertical limits as stated or directed. On completion of borrow operations, the borrow area will be adequately drained and finished to a neat and uniform grade acceptable to the ENGINEER. Borrow excavation, if required, shall be paid for at the contract unit price bid for "Unclassified Excavation."

2.02 IMPORTED BORROW EXCAVATION

A. Imported Borrow Excavation shall consist of excavation made from borrow areas outside the project limits and outside the normal grading limits for the completion of the embankments. Borrow areas or areas outside the project pits from which the imported borrow may be obtained will be designated. However, any source chosen by the CONTRACTOR will be subject to the approval of the ENGINEER.

B. Imported Borrow Excavation, if required, shall be paid for at the contract unit price bid for "Imported Borrow."

2.03 ROCK EXCAVATION

A. Rock excavation shall consist of the removal and disposal of igneous, metamorphic, and sedimentary rock which cannot be excavated without blasting or using rippers, and all boulders or other detached stones each having a volume of one-half cubic yard (0.4 m3) or more.

2.04 MUCK EXCAVATION

A. Muck excavation shall consist of the removal and disposal of saturated organic mixtures of soils or organic matter from within the roadway, not associated with culvert installations, which requires additional work or equipment which would not normally be required for unclassified excavation. When it is necessary that the muck excavation be stockpiled prior to final placement, classification of the material for the second handling shall be determined by the ENGINEER.

2.05 UNCLASSIFIED EXCAVATION

A. Unclassified excavation shall consist of the excavation and disposal of all material encountered in the work, including excavation obtained from borrow sources, not classified under other items of the contract.

PART 3 EXECUTION

3.01 CONSTRUCTION

A. All excavation and embankment work shall be constructed to the neat lines and elevations staked by the ENGINEER or shown on the plans. No materials shall be wasted without permission from the ENGINEER. All grading and related operations shall be conducted so that the terrain outside of the limits of slopes will not be disturbed. Prior to the commencement of grading operations, all necessary clearing and grubbing in the area shall have been performed in accordance with Section 02110, CLEARING AND GRUBBING.

B. When embankments are to be placed on a hillside, or where new fill is to be placed against existing embankment, the slope of the original hillside, or old fill respectively, shall be benched or stepped by cutting into it horizontally, for a minimum distance of twelve inches (12") (610 mm) to provide for secure bonding of the embankment while it is being brought up in layers. Each bench shall be cut as close to the one below as the slope of the ground will permit. Material thus cut out of the benches shall be incorporated into the new fill at the CONTRACTOR's expense.

C. If it should become necessary, because of weather or other conditions, to suspend grading operations, the entire area worked upon shall be bladed until smooth, free of depressions and ruts, and crowned so that no water can collect or be impounded.

D. Embankment placed adjacent to structures shall be brought up in equal layers on all sides to prevent distortion of any of these parts. If it is necessary to deposit embankment on only one side of abutments, wing walls, piers, or culvert headwalls, compaction shall be accomplished without causing overturning of or excessive pressure against the structure. Areas inaccessible to tamping rollers or power rollers shall be compacted by hand or mechanical tampers or other means until the density conforms to adjacent embankment, compacted in accordance with these specifications.

E. Embankment material shall be placed in uniform approximate horizontal layers not exceeding eight inches (8") (200 mm) in loose thickness, for the entire width of the embankment. Each layer of embankment shall be completed, leveled and compacted before the succeeding layer is placed.

F. Embankment which has been subjected to freezing shall be refinished to grade, cross-section and compaction requirements after the frost is out of the ground and the embankment is in suitable condition of work.

3.02 MOISTURE AND DENSITY CONTROL

A. The CONTRACTOR shall provide watering and rolling as required to obtain the density of 90% of maximum dry density for all the embankment placed and no separate pay compensation shall be allowed for rolling and watering other than the earthwork bid item or items listed on the Proposal. In the case of embankment material with Plasticity Indexes greater than zero, as determined by ASTM D-424, the amount of water required for rolling shall be within plus two or minus four percentage points of optimum moisture content as determined by AASHTO T-180, Modified Proctor Density, Maximum densities will be determined by AASHTO T-180, Modified Proctor Density.

B. Within the areas indicated on the plans or as directed by the ENGINEER, earth shall be removed to the designated depth below subgrade, except for the lower six-inch (6") (150 mm) layer. This six-inch (6") (150 mm) layer shall be thoroughly scarified, the moisture content increased or reduced as necessary, and then compacted to not less than 85 percent of the maximum density. The remainder of the area up to subgrade elevation shall be constructed of suitable material compacted to not less than 90 percent of maximum density.

3.03 HAUL

A. When constructing embankments as specified, or wasting, as the case may be, no haul will be allowed on excavated material as a haul item but shall be included in the contract unit price bid for earthwork item or items listed on the Proposal.

3.04 FINE GRADING

A. After the earthwork has been substantially completed and after all underground utilities, manholes, catch basins, valve boxes, etc., have been installed or adjusted to grade, the subgrade shall be brought to the lines, grades, and cross-sections shown on the plans, and compacted to the required density.

B. All soft and unstable material and other portions of the subgrade which, in the opinion of the ENGINEER, cannot be compacted satisfactorily shall be removed to lines and grades as directed by the ENGINEER.

C. All boulders appearing in the earth excavation shall be removed or broken off to a depth of not less than four inches (4") (100 mm) below subgrade. All rock sections shall be brought to grade by depositing a satisfactory cushion material to a depth authorized by the ENGINEER.

D. If the surface of an old stone or gravel roadbed conforms approximately to the surface of the finished subgrade, such sections shall be scarified superficially for the full width of the subgrade to a depth sufficient to eliminate all depressions and to permit uniform reshaping and compaction.

E. At all times, ditches and drains along the subgrade shall be so maintained as to drain effectively. When ruts of two inches (2") (50 mm) or more in depth are formed, the subgrade shall be brought to grade and if necessary be reshaped and rerolled. In no case shall any surface coarse or pavement be placed on a frozen or muddy subgrade. The top six inches (6") (150 mm) of the subgrade shall have a minimum compacted density as specified for embankment.

F. In addition, the finish grade shall not deviate more than one-tenth foot (1/10') (2.5 mm) at any point from the staked elevation. Until the subgrade has been checked and approved, no surface coarse or pavement shall be laid thereon. Under the square yard method of measurement and payment the CONTRACTOR has the option of deviating from the above tolerances as long as the specified base coarse section and profile is maintained.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. AREA BASIS - UNCLASSIFIED EXCAVATION ABOVE SUBGRADE. This item shall be measured by the square yards (square meters) of asphalt pavement surface area.

B. VOLUMETRIC BASIS - UNCLASSIFIED EXCAVATION ABOVE SUBGRADE. This item shall be measured by the number of cubic yards (cubic meters), measured in its original position, computed to the neat lines and grades shown on the plans, except as these lines and grades may be modified in the field by the ENGINEER during construction, with measurement to be made by the method of average end area of material acceptably excavated as herein specified. It shall be specifically understood that the top limit of cross sections for determining end area shall be the top of the existing surface.

C. EXCAVATION BELOW SUBGRADE. This item shall be measured by the average end area method of calculating cubic yards (cubic meters) of material removed.

D. BORROW EXCAVATION. Borrow Excavation shall be measured by the same method as "Unclassified Excavation Above Subgrade - Cubic Yard (Cubic Meter) Basis."

E. IMPORTED BORROW EXCAVATION. Imported Borrow Excavation shall be measured by the same method as "Borrow Excavation."

F. ROCK EXCAVATION. When the plans call for payment to be made under the item rock excavation by volume, the quantity will be computed by the average end area method.

G. MUCK EXCAVATION. Measurement for muck excavation, when set up on the contract, will be by cross-section. If the material does not meet the requirements for muck excavation, it shall be measured as unclassified excavation.

4.02 BASIS OF PAYMENT

A. AREA BASIS - UNCLASSIFIED EXCAVATION ABOVE SUBGRADE. This item shall be paid for at the contract unit price bid multiplied by the number of units (square yards) (square meters) measured as excavated, which price and payment shall constitute full compensation for all labor, equipment, tools and incidentals necessary to accomplish all clearing, grubbing, street and drainage excavation, including excavation for sidewalk, curb and/or combined curb and gutter and grading behind sidewalk, curb and/ or combined curb and gutter as shown on the plans; to construct, shape and slope embankments, cuts, subgrades, shoulders, gutters, ditches, street and alley intersections, approaches and private driveway entrances in the locations, to the elevations and according to details shown on the plans; to backfill ditches, depressions and behind sidewalk, curb and/or combined curb and gutter; to remove and to make satisfactory disposal of all unsuitable and surplus materials occurring within the limits of the work; to compact, water and fine grade embankment, backfill and compact areas where unstable material has been removed and all other incidental items and operations to complete this item.

B. VOLUMETRIC BASIS - UNCLASSIFIED EXCAVATION ABOVE SUBGRADE. This item shall be paid for at the contract unit price bid multiplied by the number of units (cubic yards) (cubic meters) measured as excavated, which price and payment shall constitute full compensation full compensation for all labor, equipment, tools and incidentals necessary to accomplish all clearing, grubbing, street and drainage excavation, including excavation for sidewalk, curb and/or combined curb and gutter as shown on the plans; to construct, shape and slope embankments, cuts, subgrades, shoulders, gutters, ditches, street and alley intersections, approaches and private driveway entrances in the locations, to the elevations and according to details shown on the plans; to backfill ditches, depressions and behind sidewalk, curb and/or combined curb and gutters; to remove and to make satisfactory disposal of all unsuitable and surplus materials occurring within the limits of the work; to compact, water and fine grade embankment, backfill and compact areas where unstable material has been removed and all other incidental items and operations to complete this item.

C. EXCAVATION BELOW SUBGRADE. This item shall be paid for by the cubic yards (cubic meters) of material removed at the contract unit price bid for "Excavation Below Subgrade" which price and payment shall constitute full compensation for all labor, equipment, tools and incidentals necessary to complete the excavation and disposal of unstable material in embankment foundations and soft or unstable material in the subgrade. The cost of backfilling and compacting holes created by the removal of unstable material shall be included in "Unclassified Excavation Above Subgrade."

D. BORROW EXCAVATION. This item shall be paid for by the same method as "Unclassified Excavation Above Subgrade - Cubic Yard Basis".

E. IMPORTED BORROW EXCAVATION. This item shall be paid for by the same method as "Unclassified Excavation Above Subgrade - Cubic Yard Basis (Cubic Meter)".

F. ROCK EXCAVATION. This item shall be paid for by the same method as "Unclassified Excavation Above Subgrade - Cubic Yard Basis (Cubic Meter)".

G. MUCK EXCAVATION. This item shall be paid for at the contract unit price bid multiplied by the number of units (cubic yards) (cubic meter) measured as excavated.

SECTION 02231

AGGREGATE SUB-BASE AND BASE COARSES

PART 1 GENERAL

1.01 SUMMARY

A. This work shall consist of furnishing and placing one or more coarses of aggregate and additives, if required, on a prepared surface in accordance with these specifications and in reasonably close conformity with the lines, grades, thickness, and typical cross sections shown on the plans or established by ENGINEER.

1.02 RELATED WORK

A. Section 02190, Aggregates.

B. Section 02210, Excavation and Embankment.

C. Section 02227, Backfilling for Pavement.

D. Section 02895, Engineering Fabric.

1.03 REFERENCES

A. ASTM C 911: Quick Lime, Hydrated Lime and Limestone for Chemical Uses.

B. AASHTO M 85: Portland Cement.

C. AASHTO T 180: Modified Proctor Moisture Density Relations of Soils using a 10 lb (4.54 kg) Rammer and an 18 in (457mm) Drop.

D. AASHTO T 191: Wyoming Modified. Density of Soil in Place (Sand Cone Method).

E. AASHTO T 99: Standard Proctor Moisture Density Relations of Soils using a 5.5 lb (2.5 kg) Rammer and an 12 in (305 mm) drop.

1.04 SUBMITTALS

A. When the stationary plant method is used, the aggregate will be accepted immediately before mixing and prior to the addition of water based on periodic samples taken from the pugmill input.

B. When a road mix method is used, the aggregate will be accepted after necessary blending and before laying, based on samples taken from the combined windrow for each lift.

PART 2 MATERIALS

2.01 MATERIALS

A. The aggregates shall meet the requirements of Section 02190, AGGREGATES.

B. Stockpiled materials shall meet the requirements of Section 02190, Subsection 3.01, STOCKPILED AGGREGATE.

C. Commercial additives, when required, shall meet the following requirements:

1. HYDRATED LIME - Hydrated lime shall conform to the requirements of ASTM C 415.

2. PORTLAND CEMENT - Portland Cement shall conform to the requirements of AASHTO M 85. Unless otherwise designated or permitted, Types I or II shall be used.
3. FLY ASH - Fly ash shall conform to the requirements of ASTM C 311 and ASTM C 618 (including Table 1A) for either Class C or Class F, as specified in the Contract Documents. Aggregates determined to be reactive shall require the use of ASTM C 618, Table 2A, Supplementary Optional Physical Requirements.

D. Unless otherwise permitted by ENGINEER, the product of only one mill for any one brand and type of portland cement shall be used on the project.

E. CONTRACTOR shall provide suitable means for storing and protecting the additives against dampness and other forms of damage. Cement additives which, for any reason, have become partially set or which contain lumps of caked cement shall be rejected. Cement additives may not be salvaged from discarded or used bags.

F. Other additives, when specified, shall meet the requirements set forth in the Special Provisions.

PART 3 EXECUTION

3.01 PREPARATION

A. CONTRACTOR shall mix the aggregate, water, and commercial additive by the Stationary Plant Method unless otherwise specified by ENGINEER in the Special Provisions.

B. The Stationary Plant Method shall meet the following requirements:
1. The aggregate and water shall be mixed in an approved pugmill mixer. Water shall be added during the mixing operation in the amount necessary to maintain the required moisture content for compacting.
2. The mixer shall be capable of uniformly distributing the aggregate, additives, and water throughout the mixture without evidence of over-wet or dry pockets of material when the equipment is operated at CONTRACTOR's desired capacity.

3.02 APPLICATION

A. Stationary Plant Method - Materials mixed by the stationary plant method shall be transported to the job site while it contains the proper moisture content, and shall be placed on the roadbed by means of an approved method.

B. Travel Plant Method - After the material for each layer has been placed through an aggregate spreader, windrow sizing device or aggregate hopper, the material shall be uniformly mixed by a traveling mixing plant. During mixing, water shall be added in an amount sufficient to maintain the required moisture content for compacting.

C. Road Mix Method - After material for each layer of the coarse has been placed, the materials shall be mixed while in the range of plus 2% or minus 4% of optimum moisture content, by means of motor graders or other approved equipment until the mixture is uniform throughout.

D. Stockpile Method - Commercial additives, if required, will be introduced into the aggregate during stockpiling operations. Water will be introduced by prewetting the stockpile of aggregate and additive. Additional water may have to be introduced during the placing of the aggregate coarses.

3.03 SHAPING AND COMPACTION

A. The moisture content of the material at the time of compaction shall be within plus two or minus four percentage points of optimum.

B. If the required compacted depth of sub-base coarse exceeds 6" (150 mm), the coarse shall be constructed in 2 or more layers of approximately equal thickness. The maximum compacted

thickness of any one layer shall not exceed 6" (150 mm). When vibrating or other approved types of special compacting equipment are used, the depth of a single layer of the coarse may be increased upon approval by ENGINEER.

C. Each layer shall be compacted to a density of not less than 95% of maximum density as determined in accordance with AASHTO T 180, unless otherwise noted in the Special Provisions. Compactions or in place field densities will be determined by AASHTO T 191 (Wyoming Modified), or by other approved methods. The surface of each layer shall be maintained during the compaction operations in such a manner that a uniform texture and surface is produced and the aggregates firmly keyed. Water shall be uniformly applied over the materials during compaction in the amount necessary for proper consolidation.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Aggregate base and sub-base coarses will be measured by the ton (megagram). Natural moisture and water added to the material prior to the material being weighed will be measured as the material and will not be deducted from the weight measurement. Water added to the material prior to the material being weighed will not be measured separately for payment.

4.02 BASIS OF PAYMENT

A. The accepted quantities of Aggregate Sub-base and Base Coarse of size specified will be paid for at the contract prices per ton (megagram) for aggregate sub-base, base coarse, and additives, complete in place. Payment will be made under:

PAY ITEM	PAY UNIT
Crushed Base	Ton (megagram)
Pit Run Sub-base	Ton (megagram)
Crusher Run Sub-base	Ton (megagram)
Crushed Sub-base	Ton (megagram)
Sub-base	Ton (megagram)
Pit Run Base	Ton (megagram)
Crusher Run Base	Ton (megagram)
Commercial Additives	Ton (megagram)

SECTION 02280

TOPSOIL

PART 1 GENERAL

1.01 SUMMARY

A. This work shall consist of excavating and depositing topsoil in accordance with the specifications and in reasonably close conformity with the lines, grades, thicknesses, and typical cross- section shown on the plans or established. Removing and stockpiling topsoil prior to grading operations shall be classified as "Unclassified Excavation."

B. "Unclassified Excavation" shall consist of the excavation and disposal of all materials encountered in the work, including excavation obtained from borrow sources, not classified under other items of the contract.

C. The item "Topsoil Borrow" will apply only to borrow material obtained from borrow areas and placed directly in its final location. When topsoil is obtained from borrow areas and stockpiled for later use in the work the first handling will be classed as "Unclassified Excavation" and measured and paid for in accordance with Section 02210, EXCAVATION AND EMBANKMENT.

PART 2 PRODUCTS

2.01 TOPSOIL

A. Topsoil shall consist of any soil suitable for the growth of grass or other cover crops reasonably free from hard dirt, clay, rocks, or other materials with would inhibit the germination of seeds or the growth of the cover crop. Classification of soils suitable for topsoil will be at the discretion of the ENGINEER.

PART 3 EXECUTION

3.01 STRIPPING AND STORING TOPSOIL

A. Prior to stripping topsoil from the designated areas, brush, grass, agricultural crops, or other suitable material shall be conserved as mulch and incorporated into the topsoil. The material shall be chopped through a brush chopper, shredded by means of a commercial- sized rotary blade mower, or reduced by other approved methods.

B. Unless it can be placed directly on the prepared slopes, topsoil shall be stockpiled for later incorporation into the work. Stockpiles shall be placed at the location and to the dimensions designated by the ENGINEER.

3.02 PREPARATION OF AREAS

A. The embankment or cut slope areas to be covered with topsoil shall be completed to the designated lines and grades. Areas that have become crusted or hardpacked shall be scarified to a depth of approximately three inches (3") (75 mm), prior to placement of the topsoil.

3.03 PLACING TOPSOIL

A. Topsoil shall be placed in a uniform manner to a depth commensurate with the quantity of topsoil available and the area to be covered.

B. After the topsoil has been spread, large stiff clods, stones, or other foreign material that would seriously affect the effectiveness or appearance of the topsoil, shall be raked up and removed from the area. Topsoil shall be keyed to the underlying material by scarifying.

C. Water shall be applied to the topsoil at the locations and in the amounts designated. Water shall be applied in a fine spray by nozzles or spray bars in such a manner that it will not wash or erode the topsoil areas.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. When topsoil is taken from stockpiles, the measurement will be made as the difference, in cubic yards (cubic meter), between the quantity in the stockpile and that remaining after the topsoil required under the contract has been removed.

B. Topsoil borrow will be measured by the cubic yard (cubic meter). The volume will be determined by preliminary and final cross-sections of the borrow area or by other approve methods of determining actual volumes removed from the borrow area and agreed to prior to the work by the ENGINEER and the CONTRACTOR.

C. The item "Topsoil Borrow" will include all work required for stripping the material from its original position and placing the material in its final position.

4.02 BASIS OF PAYMENT

A. The accepted quantities of topsoil will be paid for at the contract price per cubic yard (cubic meter), complete in place. Payment will be made under:

PAY ITEM	PAY UNIT
Topsoil	C.Y. (C.M.)
Topsoil Borrow	C.Y. (C.M.)

SECTION 02290

WATERING

PART 1 GENERAL

1.01 SUMMARY

A. This item shall consist of furnishing and applying water required in the compaction of embankments, subgrades, base coarses and surface coarse, or for the control of dust for the safety and convenience of the public, for the reduction of the dust nuisance with adjacent property, or for other purpose as directed by the ENGINEER, in accordance with the requirements of these specifications.

PART 2 MATERIALS

2.01 WATER SOURCE

A. Water required for compaction, dust control or other purposes shall be the responsibility of the CONTRACTOR to obtain. Water quality shall meet or exceed that required by Federal, State or local government agencies of authority.

PART 3 EXECUTION

3.01 WATER ADDED

A. Deficiencies in moisture content of embankment materials, aggregate sub-base, base, or surfacing coarses shall be corrected by the addition of water by approved water distribution equipment. Water for dust control, finishing operations, and seeding shall be applied by approved distributor equipment.
   1. Grading Operations. Prewetting does not guarantee that additional water will not be required. Water added to embankment material during grading operations shall be distributed in a manner that will avoid ponding or overwetting materials for the full width of each layer of material placed.
   2. Aggregate Coarses. Water added to aggregate coarses shall be applied to the material immediately prior to mixing and placing the material.
   3. Finishing Operations. Water added during finishing operations shall be uniformly applied in a fine spray across the full width of the coarse by means of controllable pressures and spray bars or nozzles.
   4. Seeding. Water added to seeded areas shall be applied in a spray that will not wash or erode the seeded area.
   5. Dust Control. Water ordered for dust control measures for the protection and safety of traffic, for abatement of air pollution, or for other purposes, shall be applied in a manner that will best accomplish the elimination of dust.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. No method of measurement is required except that agreed upon by the CONTRACTOR and the entity from which he receives water.

4.02 BASIS OF PAYMENT

A. This item shall be considered subsidiary to other work with no additional pay necessary.

SECTION 02512

PLANT MIX PAVEMENTS

PART 1 GENERAL

1.01 SUMMARY

A. These specifications include general requirements that are applicable to all types of bituminous pavements of the plant mix type irrespective of gradation of aggregate, kind, and amount of bituminous material or pavement use. Deviations from these general requirements will be indicated in the specific requirements for each type.

B. This work shall consist of one or more coarses of bituminous mixture constructed on the prepared foundation in accordance with these specifications and the specific requirements of the type under contract, and in reasonably close conformity with the lines, grades, thickness and typical cross sections shown on the plans or established by ENGINEER.

1.02 RELATED WORK

A. Section 02190, Aggregates.

B. Section 02545, Bituminous Materials.

C. Section 02550, Prime Coat.

D. Section 02551, Tack Coat.

E. Section 02552, Seal Coat.

1.03 REFERENCES

A. ASTM C 150: Portland Cement.

B. AASHTO M 303: Hydrated Lime for Asphalt Mixtures.

C. AASHTO T 230: Density of Bituminous Aggregate Mixtures.

1.04 SUBMITTALS

A. CONTRACTOR shall submit for ENGINEER's approval a job-mix formula for each mixture to be supplied for the project. The job-mix formula with the allowable tolerances shall be within the master range specified. The job-mix formula for each mixture shall establish a single percentage of aggregate passing each required sieve size and a single mixing temperature. Should a change in sources of material be made, a new job-mix formula shall be established before the new material is used. When unsatisfactory results or other conditions make it necessary, ENGINEER may establish a new job-mix formula.

B. Mixing plant scales shall be checked as often as deemed necessary to assure their continued accuracy. CONTRACTOR shall have on hand not less than ten 50-pound (22.6 kilogram) weights for checking of the scales.

1.05 DEFINITIONS

A. Plant mix pavement is considered a surface coarse in all cases.

B. Plant mix bituminous base is considered a sub-surface coarse.

PART 2 PRODUCTS

2.01 MATERIALS

A. BITUMINOUS MATERIALS

1. The percentage of bituminous material to be added to the job-mix formula will be designated by ENGINEER and specified in the Contract Documents.
2. The type and grade of bituminous material will be specified in the Contract Documents. The grade may be changed one step by ENGINEER during construction at no change in unit price.
3. The bituminous material shall meet the applicable requirements of Section 02545, BITUMINOUS MATERIALS.

B. AGGREGATE MATERIALS

1. Aggregates shall meet the applicable requirements of Section 02190, AGGREGATES.
2. During crushing operations, the coarse and fine aggregates shall be stockpiled in separate piles in such manner that they can later be combined to meet the required specifications.
3. Stockpiled material shall meet the requirements of Section 02190, AGGREGATES, Subsection 3.01.
4. Natural filler, when required, shall be stockpiled separately. The plans may limit or prohibit the use of crusher rejects or material from the same source as the aggregate material.

C. COMMERCIAL ADDITIVES

1. The type of commercial additive to be used will either be designated on the plans, or when no specific type is designated, any of the Commercial Additives conforming to either of the following requirements may be used:
   a. PORTLAND CEMENT - Portland cement shall conform to the requirements of ASTM C 150.
      (1) Unless otherwise permitted by ENGINEER, the product of only one mill of any one brand and type of Portland cement shall be used on the project.
      (2) CONTRACTOR shall provide suitable means for storing and protecting the cement against dampness. Cement which, for any reason, has become partially set or which contains lumps of caked cement shall be rejected. Cement salvaged from discarded or used bags shall not be used.
   b. HYDRATED LIME - Hydrated lime shall conform to the requirements of AASHTO M 303, except that not less than 93% of the hydrated lime shall consist of calcium and magnesium oxides.

D. COMPOSITION OF MIXTURES

1. The bituminous plant mix shall be composed of a mixture of aggregate, natural filler or commercial additive, if required, and bituminous material. The several aggregate fractions shall be sized, uniformly graded, and combined in such proportions that the resultant composite blend meets the job-mix formula.
2. After the job-mix formula is established, all mixtures furnished for the project shall conform thereto within the following ranges of tolerances:

Passing #4 and Larger Sieves	-7 to +7 percent
Passing #8 to #100 Sieves	-5 to +5 percent
Passing #200 Sieve	-3 to +3 percent
Bituminous Material	-0.5 to +0.5 percent
Mixing Temperature	-20 to +20 degrees F (-16 to -7 degrees C)

3. In general, the point of acceptance for the aggregate will be after the material has passed through the gradation unit and prior to the addition of bituminous material. If this point of acceptance proves unsatisfactory, an alternate point of acceptance may be selected by ENGINEER. The bituminous material will be conditionally accepted at the source. The plant-mixed material will be accepted after blending and mixing at the plant.

PART 3 EXECUTION

3.01 PREPARATION

A. CONDITIONING OF EXISTING SURFACE

1. Irregular surfaces of existing pavements or bases shall be brought to uniform grade and cross section as directed.
2. When specified in the Contract Documents, all longitudinal and transverse joints and all cracks shall be sealed by the application of an approved joint sealing compound before the mixture is spread upon a pavement surface. All excessive bituminous material shall be removed from joints and cracks prior to placement of the mixture.

B. PREPARATION OF BITUMINOUS MATERIAL

1. The bituminous material shall be heated to the specified temperature in a manner that will avoid local overheating and provide a continuous supply of the bituminous material to the mixer at a uniform temperature at all times. Charts showing specified temperature range for each source of supply are available from the Headquarters Laboratory of the Wyoming Department of Transportation.

C. PREPARATION OF AGGREGATE

1. The aggregates for the mixture shall be dried and heated to the required temperature. Flames used for drying and heating shall be properly adjusted to avoid damage to the aggregate or coating the aggregate with soot, oil, or other contaminants. Burner fuels may be specified by ENGINEER in the Special Provisions.
2. The aggregates, immediately after heating and drying, shall be screened into two or more fractions and conveyed into separate compartments ready for batching and mixing with bituminous materials. Screening shall be at such rate and in such manner that the coarse aggregate bin or bins shall contain less than 10% of minus #4 (4.75 mm) sieve material and the fine bin shall contain less than 10% of plus #4 (4.75 mm) sieve material.

D. MIXING

1. The dried aggregate shall be combined in the mixer in the amount of each fraction of aggregates required to meet the job-mix formula. The bituminous material shall be measured or gauged and introduced into the mixer in the amount specified by the job-mix formula.
2. After the required amounts of aggregate and bituminous material have been introduced into the mixer, unless otherwise specified, the materials shall be mixed until a complete and uniform coating of the particles and a thorough distribution of the bituminous material throughout the aggregate is secured.
3. For hot mix bituminous pavement, the mixture shall be produced at the lowest possible temperature that will produce a workable mix within the application temperatures specified under Section 02545, BITUMINOUS MATERIALS, Subsection 3.02. The bituminous material and aggregate shall be introduced into the mixer within the specified temperature range and shall be within 25°F (-4° C) of each other.

E. BITUMINOUS MIXING PLANT - GENERAL

1. Sufficient storage space shall be provided for each size of aggregate, and the different aggregate sizes shall be kept separated until they have been delivered to the cold elevator feeding the drier.
2. Plants used for preparation of bituminous mixtures shall conform to all requirements under Subsection 3.01(F) below, except that scale requirements shall apply only where weight proportioning is used. In addition, batch mixing plants shall conform to the requirements under Subsection 3.01(G) herein, continuous mixing plants shall conform to the requirements under Subsection 3.01(H) herein, and dryer-drum mixers shall conform to the requirements under Subsection 3.01(I) herein.
3. Mixing plants shall be of sufficient capacity and coordinated to adequately handle the proposed bituminous construction.

F. REQUIREMENTS FOR ALL PLANTS

1. Plant Scales - Scales shall be accurate to 0.5% of the maximum load that may be required. Poises shall be designed to be secured in any position to prevent inadvertent change of position. CONTRACTOR may provide an approved automatic printer system which will print the weights of the material delivered, provided the system is used in conjunction with an approved automatic batching and mixing control system. Such weights shall be evidenced by a weigh ticket for each load.
2. Equipment for Preparation of Bituminous Material - Tanks for the storage of bituminous material shall be equipped to heat and hold the material at the required temperatures. The heating shall be accomplished by steam coils, electricity, or other approved means so that no flame shall be in contact with the tank. The circulating system for the bituminous material shall be designed to assure proper and continuous circulation during the operating period. Provision shall be made for measuring and sampling storage tanks.
3. Feeder for Drier - The plant shall be provided with accurate mechanical means for uniformly feeding the aggregate into the drier so that uniform production and uniform temperature will be obtained.
4. Drier - The plant shall include a drier or driers which continuously agitate the aggregate during the heating and drying process. For cold-type bituminous mix, equipment for mechanical cooling of the dried aggregate to the temperature prescribed for cold mixtures shall be provided and shall be capable of supplying prepared material for the mixer to operate at full capacity.
5. Screens - Plant screens, capable of screening all aggregates to the specified sizes and proportions and having normal capacities in excess of the full capacity of the mixer, shall be provided.
6. Bins - The plant shall include storage bins of sufficient capacity to supply the mixer when it is operating at full capacity. Bins shall be arranged to assure separate and adequate storage of appropriate fractions of the mineral aggregates. Separate dry storage shall be provided for commercial additives when used, and the plant shall be equipped to feed such material into the mixer. Each bin shall be provided with overflow pipes of such size and at such location as to prevent backing up of material into other compartments or bins. Each compartment shall be provided with its individual outlet gate, constructed so that when closed, there shall be no leakage. The gates shall cut off quickly and completely. Bins shall be so constructed that samples can be readily obtained. Bins shall be equipped with adequate telltale devices to indicate the position of the aggregates in the bins at the lower quarter points.
7. Sampling Facilities - The plant shall be equipped with suitable sampling devices or facilities to insure representative samples. If ENGINEER is unable to obtain samples which represent the material being accepted for incorporation into the project, CONTRACTOR shall make necessary adjustments or revisions to the plant before any further mixing is done.
8. Bituminous Control Unit - Satisfactory means, either by weighing or metering, shall be provided to obtain the proper amount of bituminous material in the mix. The accuracy of bituminous content measured either by weighing or metering may be checked by computing the daily yield of total material being processed.
9. Thermometric Equipment
    a. An armored thermometer of adequate range in temperature reading shall be fixed in the bituminous feed line at a suitable location near the charging valve at the mixer unit.
    b. The plant shall also be equipped with an approved temperature recording device so placed at the discharge chute of the drier as to register automatically or indicate the temperature of the heated aggregates. The printed temperature recordings shall be furnished to ENGINEER after each day's run.
10. Dust Collector - The plant shall be equipped with a dust collector constructed to waste or return uniformly to the hot elevator all or any part of the material collected as directed.
11. Truck Scales - The bituminous mixture shall be weighed on approved scales. Such scales shall be inspected as often as ENGINEER deems necessary to assure their accuracy.

G. REQUIREMENTS FOR BATCHING PLANTS

1. Weigh Box or Hopper - The equipment shall include a means for accurately weighing each size of aggregate in a weigh box or hopper suspended on scales and of ample size to hold a full batch without running over. The gate shall close tightly so that no material is allowed to leak into the mixer while a batch is being weighed.
2. Bituminous Control
   a. The equipment used to measure the bituminous material shall be accurate to plus or minus 0.5%.
   b. The bituminous material bucket shall be nontilting type with a loose sheet metal cover. The capacity of the bituminous material bucket shall be at least 15% in excess of the weight of bituminous material required in any batch. The length of the discharge opening or spray bar shall be not less than three-quarters of the length of the mixer, and it shall discharge directly into the mixer. The size and spacing of the spray bar openings shall provide a uniform application of bituminous material the full length of the mixer.
   c. The bituminous material bucket, its discharge valve or valves, and spray bar shall be adequately heated. Steam jackets, if used, shall be efficiently drained, and all connections shall be so constructed that they will not interfere with the efficient operation of the bituminous scales. The plant shall have an adequately heated quick-acting, nondrip, charging valve located directly over the bituminous material bucket.
   d. The indicator dial shall have a capacity of at least 15% in excess of the quantity of bituminous material used in a batch. The controls shall be constructed so that they may be secured at any dial setting and will automatically reset to that reading after the addition of bituminous material to each batch. The dial shall be in full view of the mixer operator. The flow of bituminous material shall be automatically controlled so that it will begin when the dry mixing period is over and all of the bituminous material required for one batch will be discharged in not more than 15 seconds after the flow has started.
3. Mixer
   a. The batch mixer shall be an approved twin pugmill type capable of producing a uniform mixture within the job-mix tolerances. If not enclosed, the mixer box shall be equipped with a dust hood to prevent loss of dust.
   b. The clearance of blades from all fixed and moving parts shall not exceed 1" (25 mm).
   c. The mixer shall be equipped with an accurate time lock to control the operations of a complete mixing cycle. It shall lock the weigh box gate after the charging of the mixer until the closing of the mixer gate at the completion of the cycle. It shall lock the bituminous material bucket throughout the dry mixing period and shall lock the mixer gate throughout the dry and wet mixing periods. The dry mixing period is defined as the interval of time between the opening of the weigh box gate and the start of introduction of bituminous material. The wet mixing period is the interval of time between the start of introduction of bituminous material and the opening of the mixing gate.
   d. The control of the timing shall be flexible and capable of being set at intervals of 5 seconds or less throughout a total cycle of up to 3 minutes.
   e. The setting of time intervals shall be performed in the presence of ENGINEER, who shall then lock the case covering the timing device until such time as a change is to be made in the timing periods.

H. REQUIREMENTS FOR CONTINUOUS MIXING PLANTS

1. Aggregate Proportioning
   a. The plant shall include means for accurately proportioning each size of aggregate.
   b. The plant shall have a feeder mounted under each compartment bin. Each compartment bin shall have an accurately controlled, individual gate to form an orifice for volumetrically measuring the material drawn from each compartment. The feeding orifice shall be rectangular with one dimension adjustable by positive mechanical means and secured against inadvertent movement.
   c. Indicators shall be provided for each gate to show the respective opening in inches (millimeters).

2. Weight Calibration of Aggregate Feed - The plant shall include a means for calibration of gate openings by weighing test samples. Provision shall be made so that materials fed out of individual orifices may be bypassed to individual test boxes. The plant shall be equipped to conveniently handle individual test samples weighing not less than 200 pounds (90.5 kilograms, and accurate scales shall be provided by CONTRACTOR to weigh such test samples.
3. Synchronization of Aggregate Feed and Bituminous Material Feed Satisfactory means shall be provided to afford positive interlocking control between the flow of aggregate from the bins and the flow of bituminous material from the meter or other proportioning device. This control shall be accomplished by interlocking mechanical means or by any other positive, satisfactory method.
4. Mixer
   a. The plant shall include a continuous mixer of an approved twin pugmill type, adequately heated and capable of producing a uniform mixture within the job-mix tolerances.
   b. It shall be equipped with a discharge hopper with dump gates which will permit rapid and complete discharge of the mixture. The paddles shall be adjustable for angular position on the shafts and reversible to retard the flow of the mix. The mixer shall have a manufacturer's plate giving the net volumetric contents of the mixer at the several heights inscribed on a permanent gauge. Charts shall be provided showing the rate of feed of aggregate per minute for the aggregate being used.
   c. The clearance of blades from all fixed and moving parts shall not exceed 1" (25 mm).

I. REQUIREMENTS FOR DRYER-DRUM MIXER
1. The plant shall be equipped to control aggregate gradation as described for cold feed control. The total cold aggregate feed shall be weighed continuously by an approved belt scale. When tested for accuracy, the weighing system shall register within plus and minus 0.5%. Provisions shall be made for determining the moisture content of the cold feed and correcting the aggregate weight to a dry weight.
2. An automatic digital record of the dry aggregate and the asphalt shall be displayed, recorded and totaled in appropriate units of weight and time. A positive interlock shall be provided between the dry weight of the aggregate and the bituminous material. The flow of the bituminous material shall be adjusted to compensate for the changes in the dry weight of the aggregate.
3. The dryer-drum mixer shall be capable of drying and heating the aggregate to the moisture and temperature requirements. A uniform mixture of aggregates and bituminous material shall be produced. The plant shall have a temperature recording device at the discharge chute of the dryer.

3.02 APPLICATION

A. The temperature of the mixture prior to laydown shall not be more than 25°F (-4°) less than the mixing temperature.

B. Plant mix wearing coarse shall be placed between the dates of June 1st and September 15th unless otherwise specified by ENGINEER in the Special Provisions.

C. Bituminous plant mix shall not be placed on any wet surface; when the atmospheric temperatures are less than those specified in the following table; or, when weather conditions otherwise prevent the proper handling or finishing of the bituminous mixtures:

* Minimum Ambient Temperature (°F) (°C)

COMPACTED THICKNESS	SURFACE COARSE	SUBSURFACE COARSE
Less than 1"	60 (16)	55 (13)
1" to and including 2"	40 (4)	40 (4)
More than 2"	40 (4)	35 (2)

* May 1 to October 15 or as specified in the Contract Documents.

D. Spot leveling or the bottom lift of a leveling coarse may be placed at 50°F (10°C) if additional coarses are placed on the same contract.

E. HAULING EQUIPMENT

1. Trucks used for hauling bituminous mixtures shall have tight, clean, smooth, metal beds which have been thinly coated with a minimum amount of paraffin oil or other approved material to prevent the mixture from adhering to the beds. This material shall not be used in amounts which will contaminate the mixture. When required, each truck shall have a cover of canvas or other suitable material of such size as to protect the mixture from the weather. When necessary, so that the mixture will be delivered on the road at the specified temperature, truck beds shall be insulated and covers shall be securely fastened.
2. Railroad cars used for transportation of cold-laid bituminous mixtures shall be in good condition and without pockets. All projecting spikes, nails, foreign material, and other obstructions likely to interfere with efficient unloading shall be removed from the cars. The bottoms of the cars shall be covered with a thin layer of clean sand or screenings, and the top of the load shall be protected from contamination by moisture or foreign materials, and from the loss of volatile material.

F. SPREADING AND FINISHING

1. The mixture shall be laid upon an approved surface, spread, and struck off to the grade and elevation established. Bituminous pavers shall be used to distribute the mixture either over the entire width or over such partial width as may be practicable.
2. When the total compacted thickness of the mat is to be in excess of 2" (50 mm), it shall be placed in two or more lifts. The compacted thickness of any one lift in multiple-lift construction shall not exceed 2" (50mm).
3. Except on tapers, narrow median areas, shoulders, and other such areas of irregular shape, limited length or restrictive width, or such other areas as directed, the paver screed shall be controlled by the automatic screed control described under Subsection 3.02(G) herein.
4. ENGINEER will perform such engineering as may be required to establish controls for the work and will set references for line and grade controls at reasonable intervals along the work.
5. CONTRACTOR shall furnish, place, and maintain such materials, devices, and equipment as may be required to provide specified independent line and grade control references and other controls which may be required for proper execution of the work.
6. Line and grade control for use with automatic paver control systems shall be an independent control reference consisting of:
   a. A tightly stretched wire or string line offset and paralleling true line for pavement edge and established grade for pavement surface;
   b. A floating beam of not less than 20' (6.1 meters) in length attached to the paver and riding on previously placed base or pavement material. The beam shall be equipped with a floating string or other device that will actuate the automatic screed control in reference to the base on which it is riding. Unless otherwise permitted by ENGINEER, the first ribbon of the first coarse of pavement material shall be controlled by the independent control wire. Subsequent ribbons may be controlled by the beam reference system.
7. The longitudinal joint in one layer shall offset that in the layer immediately below, by at least 6" (150 mm). Longitudinal joint locations may be otherwise specified in the Contract Documents.
8. Defects caused by trucks bumping into the laydown machine or by unnecessary stopping due to lack of coordination between mixing, hauling, and laydown shall be removed and replaced in accordance with Subsection 3.04.
9. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impracticable, the mixture shall be spread, raked and luted by hand tools. For such areas the mixture shall be dumped, spread, and screeded to give the required compacted thickness.
10. Plant mix surfacing ribbons shall be brought up approximately even at the end of each shift on those projects being constructed under traffic.

G. BITUMINOUS PAVERS

1. Bituminous pavers shall be self-contained, power-propelled units, provided with an activated screed or strikeoff assembly, heated if necessary, and capable of spreading and finishing coarses

of bituminous plant mix material in lane widths applicable to the specified typical section and thickness shown on the plans. Pavers used for shoulders and similar construction shall be capable of spreading and finishing coarses of bituminous plant mix material in widths shown on the plans.

2. The paver shall be equipped with a receiving hopper having sufficient capacity for a uniform spreading operation. The hopper shall be equipped with a distribution system to place the mixture uniformly in front of the screed.
3. The screed or strikeoff assembly shall effectively produce a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture.
4. Pavers shall be equipped with a paver control system which will automatically control the laying of the mixture to specified transverse slope and established longitudinal grade. The paver control system shall be automatically actuated from an independent line and grade control reference and through a system of mechanical sensors and sensor directed devices which shall maintain the paver screed at the proper transverse slope and at proper height to establish the top surface of the finally compacted mixture at specified slope and grade. In case of failure of the control system, the paver shall be operated by mechanical control only until the material under production at the time of breakdown is laid.
5. The paver shall be capable of being operated, when laying mixtures, at forward speeds consistent with satisfactory laying of the mixture.
6. A paving leveler shall be used when specified as shall be described in the Special Provisions.

H. ROLLERS

1. All rollers shall be in good condition, capable of reversing without backlash, and shall be operated at speeds slow enough to avoid displacement of the bituminous mixture. The number and weight of rollers shall be sufficient to compact the mixture to the required density while it is still in a workable condition. The use of equipment which results in excessive crushing of the aggregate will not be permitted.
2. The pneumatic-tired roller shall be self propelled with a total weight, including ballast, not greater than 30 tons 27.2 megagram). The roller shall be constructed so contact pressure may be varied between 40 psi (276 mm) and 90 psi (621 mm).
3. Wobble wheel rollers are not permitted. Each roller shall be equipped with not less than 7 wheels with tires of equal size and ply and having a smooth tread design. The wheels shall be staggered on the front and rear axles to provide complete coverage, have a system for uniformly moistening each wheel without an excess of water, and have close-fitting scrapers for each wheel. The tire pressures shall not vary by more than 5 psi (34.5 mm) between individual tires from the designated pressure.

I. COMPACTION

1. Immediately after the bituminous mixture has been spread and struck off and the surface irregularities adjusted, it shall be thoroughly and uniformly compacted by rolling. Rolling shall be continued while the mixture is in a workable condition until all roller marks are eliminated and, unless otherwise designated on the plans, until a minimum of 95% of the maximum density, as established by Marshall Test Results as determined by an approved laboratory, has been obtained. Samples will be taken in accordance with AASHTO T 230, or density will be determined by the use of properly calibrated Nuclear Density Gauge.
2. The number, weight, and type of rollers furnished shall be sufficient to obtain the required compaction without undue displacement, cracking, or shoving. Pneumatic tires shall be inflated to obtain the contact area pressures designated by ENGINEER.
3. Unless otherwise directed, rolling shall begin at the sides and proceed longitudinally parallel to the road centerline, each trip overlapping one-half of the roller width. Roller shall move at a slow, uniform speed with the drive wheels or rolls nearest the paver except on steep grades.
4. When the pavement is placed by machines in echelon or abutted against a previously placed lane, the longitudinal joint shall be rolled first, followed by the regular rolling procedure. On

5. superelevated curves, the rolling shall begin at the low side and progress to the high side by overlapping of longitudinal trips parallel to the centerline.
6. Any displacement occurring as a result of the reversing of the direction of a roller, or from other causes, shall be corrected at once by the use of rakes and addition of fresh mixture when required. Care should be exercised in rolling not to displace the line and grade of the edges of the bituminous mixture.
7. To prevent adhesion of the mixture to the rollers, the wheels shall be kept properly moistened with water or water mixed with very small quantities of detergent or other approved material. Excess liquid will not be permitted.
8. Along forms, curbs, headers, walls, and other places not accessible to the rollers, the mixture shall be thoroughly compacted with hot hand tampers, smoothing irons, or mechanical tampers. On depressed areas, a trench roller may be used, or cleated compression strips may be used under the roller to transmit compression to the depressed area.
9. Any mixture that becomes loose and broken, mixed with dirt, or is in any way defective shall be removed and replaced with fresh hot mixture, which shall be compacted to conform with the surrounding area. Any area showing an excess or deficiency of bituminous material shall be removed and replaced.

J. JOINTS

1. Placing of the bituminous paving shall be as continuous as possible. Rollers shall not pass over the unprotected end of a freshly laid mixture unless authorized by ENGINEER. Transverse joints shall be formed by cutting back on the previous run to expose the full depth of the coarse. When directed by ENGINEER, a brush of bituminous material shall be used on contact surfaces of transverse joints just before additional mixture is placed against the previously rolled material.

3.03 PROTECTION

A. During any delays or suspensions of work, as outlined in the Contract Documents, CONTRACTOR shall be responsible for maintaining the quality of all leveling coarses until the placement of additional coarses. Maintenance of leveling coarses because of delays or suspension of work will be done at CONTRACTOR'S expense unless otherwise specified in the Contract Documents.

3.04 ACCEPTANCE

A. The surface will be tested by ENGINEER using a 10' (3 meters) straightedge at selected locations. The variation of the surface from the testing edge of the straightedge between any two contacts with the surface shall at no point exceed three-sixteenths inch (4.8 mm). All humps or depressions exceeding the specified tolerance shall be corrected by removing defective work and replacing it with new material, or as directed.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Plant mix bituminous pavement will be measured by the ton (megagram). In lieu of truck scales, batch weights will be permitted.

B. Weigh tickets shall be issued for each load either by an automatic printer system as described under Subsection 3.01(F) herein, or by a weighman who witnesses the batches loaded into the hauling vehicles. In the case of a nonautomatic plant, an inspector will be assigned to check the scales and metering devices during the batching process.

C. The accumulative weight of all batches incorporated in the work will be used for payment. No deduction will be made for the weight of bituminous material in the mixture.

D. When specified in the contract as pay items, the quantity of bituminous materials and commercial additive will be the number of tons of each used in the accepted work.

4.02 BASIS OF PAYMENT

A. All work performed and measured as prescribed above will be paid for as provided in the respective sections for each type specified.

B. Work prescribed in Subsection 3.01(A) herein will be paid for at the contract unit prices for the material used. Payment will be made under:

PAY ITEM	PAY UNIT
Plant Mix Bituminous Base	Ton or Square Yard (Megagram or Square Meter)
Plant Mix Bituminous Pavement	Ton or Square Yard (Megagram or Square Meter)
Plant Mix Wearing Coarse	Ton or Square Yard (Megagram or Square Meter)

SECTION 02545

BITUMINOUS MATERIALS

PART 1 GENERAL

1.01 SUMMARY

A. These specifications include general requirements applicable to all types of bases or pavements that require the application of bituminous materials by spray or mix. Deviations from these general requirements will be indicated in the specific requirements for each type.

1.02 RELATED WORK

A. Section 02511, Road Mix Bituminous Pavements.
B. Section 02512, Plant Mix Pavements.
C. Section 02550, Prime Coat.
D. Section 02551, Tack Coat.
E. Section 02552, Seal Coat.

1.03 REFERENCES

A. AASHTO M 81: Cut-Back Asphalt (Rapid Curing Type).
B. AASHTO M 82: Cut-Back Asphalt (Medium Curing Type).
C. AASHTO M 140: Emulsified Asphalt.
D. AASHTO M 141: -70 Slow Curing Liquid Road Material.
E. AASHTO M 208: Cationic Emulsified Asphalt.
F. AASHTO M 226: Table 1, Viscosity Graded Asphalt Cement.
G. AASHTO T 40: Sampling Bituminous Materials.

1.04 SUBMITTALS

A. Bituminous material may be conditionally accepted at the source based on test reports furnished by CONTRACTOR for each 40 tons (36 megagrams) or 10,000 gallons (37,850 liters) loaded.
B. A sample of each load of Asphaltic Materials is to be obtained at the time of conveyance loading, and the Certificate of Compliance, together with this sample, shall be surrendered to ENGINEER on the project. Sampling shall be accomplished using methods described and outlined in AASHTO T 40.
C. Tank trucks delivering bituminous material to the project shall be equipped with a sampling cock on the discharge pipe.
D. Bituminous materials used on the project which do not meet the specification requirements for the type and grade specified may, at the direction of ENGINEER:
   1. Be rejected and CONTRACTOR required to remove and replace all materials affected by the out-of-specification material at his expense;
   2. Be accepted and left in place and the contract price of the bituminous material deducted, or be accepted at a reduced unit price as directed by ENGINEER.

PART 2 PRODUCTS

2.01 MATERIALS

A. Bituminous materials shall meet all applicable requirements. No materials or products other than those designated in this Section will be added to bituminous material without the express permission of ENGINEER.

2.02 ASPHALT CEMENTS

A. The grades shown on the plans shall conform to the specifications of AASHTO M 226, Table 1, with the following modifications:

Test	AC-2.5	AC-5	AC-10	AC-20
Penetration, 25°C (77°F), 100g., 5 sec. (minimum)	175	100	60	35

B. The spot test shall be negative for all grades when tested with naphtha xylene solvent using 15% xylene.

2.03 LIQUID CUTBACK ASPHALTS

A. Liquid cutback asphalts shall conform to the requirements of AASHTO M 81, AASHTO M 82, and AASHTO M 141. The spot test shall be negative for all grades when tested with naphtha xylene solvent using 15% xylene. The Saybolt-Furol viscosity alternate will not apply.

2.04 EMULSIFIED ASPHALTS

A. Emulsified asphalts shall conform to the following requirements:
   1. Emulsified Asphalt (Anionic) AASHTO M 140
   2. Emulsified Asphalt (Cationic) AASHTO M 208

B. The designation "h" added to any grade of Emulsified Asphalt requires the residue from distillation to have a penetration from 40 to 90.

C. The following exceptions apply to grade CMS-2 only:
   1. Viscosity: Seconds Saybolt-Furol at 122°F (50°C) 50 Min.-500 Max.
   2. Distillation: % Residue 60 Min.
   3. Distillation: Oil Distillate, by volume of emulsion - to be determined by independent laboratory from produced materials, not to exceed 20%.

D. The letter "F" following the bituminous material type designation shall require a satisfactory antistripping agent be added to the material at the refinery.

E. The presence of antistripping agents will be determined in accordance with the Wyoming Quick Bottle Test or other approved means.

PART 3 EXECUTION

3.01 PREPARATION

A. The water used for the dilution shall be free of sediment and other deleterious matter.

3.02 APPLICATION

A. The emulsified asphalt used for fog seal or tack shown in the Contract Documents is the rate of Emulsified Asphalt as received from the refinery.

B. The emulsified asphalt used for tack may be diluted in the field at a rate of 50% emulsified asphalt and 50% additional water.

C. The emulsified asphalt used for fog seal may be diluted in the field at a rate of 33% emulsified asphalt and 67% additional water.

D. Both the dilution water and the emulsion shall be heated to approximately 110°F (43°) prior to mixing, and this approximate temperature shall be maintained during the application. Dilution shall be made by introducing the water into the emulsified asphalt.

E. Bituminous materials for the various types of applications shall be loaded and applied within the temperatures indicated in the following table:

Type and Grade of Material	Application - Spray		Mixing Temperature	
	F°	C°	F°	C°
RT 1, 2 & 3	60-130	16-54	60-130	16-54
RT 5 & 6	85-150	29-66	85-150	29-66
RT 7, 8 & 9	150-225	66-107	150-225	66-107
RT 10, 11 & 12	175-250	79-121	175-250	79-121
RC 70	100-180	38-82	90-140	32-60
250	160-220	71-104	140-175	60-79
800	175-250	79-121	170-210	77-99
3000	220-175	104-135	200-240	93-116
MC 30	90-180	32-82	60-120	16-49
70	120-200	49-93	95-140	35-60
250	160-220	71-104	140-200	60-93
800	175-250	79-121	175-240	79-116
3000	200-290	93-143	200-250	93-121
SC 70	120-200	49-93	95-140	35-60
250	160-220	71-104	140-220	60-93
800	175-250	79-121	175-210	79-99
3000	200-290	93-143	200-250	93-121
SC 70	120-200	49-93	95-140	35-60
250	160-220	71-104	140-210	79-99
800	175-250	79-121	175-210	79-99
3000	200-290	93-143	200-250	93-121
All Emulsions	50-140	(10-60)	50-140	(10-60)
All Penetration Grades	350 Max.	(177)	As required to achieve viscosity of 75-150 Seconds Saybolt-Furol	

F. The maximum loading temperature for asphalt cements shall be 350°F (177°C).

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Bituminous material will be measured by the ton (megagram). When volumetric measurements are used to determine the amount of bituminous material furnished to the project, stored, or returned to the plant, the volume will be converted to weight by calculation of gallons per ton at 60°F (16° C).

B. The weight of asphalt emulsions will include the weight of water specified to be mixed at the refinery as a part of the type of emulsified asphalt designated. Water added on the road or at the mixing plant will not be measured for payment as emulsified asphalt.

4.02 BASIS OF PAYMENT

A. All work performed and measured as provided above will be paid for as provided in the respective sections for each type of bituminous materials specified.

B. All water, labor, and equipment necessary to make the field dilution will not be measured for payment, but will be considered subsidiary to other pay items of the contract.

SECTION 02551

TACK COAT

PART 1 GENERAL

1.01 SUMMARY

A. This work shall consist of preparing and treating an existing bituminous or concrete surface with bituminous material in accordance with these specifications and in reasonably close conformity with the lines shown on the plans or established by the ENGINEER.

1.02 RELATED WORK

A. Section 02545, Bituminous Materials.

B. Section 02511, Road Mix Bituminous Pavements.

C. Section 02512, Plant Mix Pavements.

1.03 REFERENCES

A. AASHTO M 140: Emulsified Asphalt.

B. AASHTO M 141: -70 Slow Curing Liquid Road Material.

C. AASHTO M 208: Cationic Emulsified Asphalt.

D. AASHTO M 226: Table 1, Viscosity Graded Asphalt Cement.

E. AASHTO M 81: Cut-Back Asphalt (Rapid Curing Type).

F. AASHTO M 82: Cut-Back Asphalt (Medium Curing Type).

G. AASHTO T 40: Sampling Bituminous Materials.

PART 2 PRODUCTS

2.01 MATERIALS

A. The type of bituminous material will be specified in the contract, and the grade will be designated by ENGINEER.

B. The bituminous material shall meet the applicable requirements of Section 02545, BITUMINOUS MATERIALS.

PART 3 EXECUTION

3.01 PREPARATION

A. The existing surface shall be patched and cleaned and shall be free of irregularities to provide a reasonably smooth and uniform surface to receive the treatment. Unstable corrugated areas shall be removed and replaced with suitable patching materials. Payment for the patching will be made at the contract unit price for the various items used unless a reconditioning item is included in the contract. The edges of existing pavements which are to be adjacent to new pavement shall be cleaned to permit the adhesion of bituminous materials.

3.02 APPLICATION

A. APPLICATION OF BITUMINOUS MATERIAL

1. The bituminous material shall be uniformly applied with a pressure distributor.
2. The tack coat shall be applied in such manner as to offer the least inconvenience to traffic and to permit one-way traffic without pickup or tracking of the bituminous material.
3. Tack coat shall not be applied during wet or cold weather, after sunset, or to a wet surface. The quantity, rate of application and areas to be treated shall be approved prior to application. Application temperatures shall be in accordance with Section 02545, Subsection 3.02 APPLICATION.

B. EQUIPMENT

1. The CONTRACTOR shall provide equipment for heating and applying the bituminous material.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. The bituminous material for tack coat will be measured by the ton (megagram).

4.02 BASIS OF PAYMENT

A. The accepted quantities of tack coat will be paid for at the contract price per ton (megagram) for bituminous material complete in place. Payment will be made under:

PAY ITEM	PAY UNIT
Asphalt Cement	Ton (Megagram)
Liquid Asphalt (Tack)	Ton (Megagram)
Emulsified Asphalt (Tack)	Ton (Megagram)

SECTION 02895

ENGINEERING FABRIC

PART 1 GENERAL

1.01 SUMMARY

A. This section covers materials and work associated with providing engineering fabric for drainage and filtration, erosion control, separation and stabilization, embankment, and retaining wall reinforcement, and asphalt paving. The fabrics covered in this section shall be woven or non-woven fabric consisting only of long chain polymeric filaments or yarns such as polyethylene, polyester, polyamide, or polyvinilidene-chloride formed into a stable network such that the filaments or yarns retain their relative positions to each other.

1.02 SUBMITTALS

A. Submit for approval name of fabric and installation procedures.

1.03 QUALITY ASSURANCE

A. Provide products of acceptable manufacturers which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions. All test methods shall be in accordance with latest ASTM procedures.

PART 2 PRODUCTS

2.01 MATERIALS

A. Drainage and filtration fabric shall be continuous filament non-woven needlepunched engineering fabric and meet the following minimum performance and strength requirements listed in Table No. 1 during its service life.

B. Paving fabric shall meet the following minimum performance and strength requirements listed in Table No. 1 during its service life.

C. Separation and Stabilization Erosion Control Fabric shall meet the following minimum performance and strength requirements listed in Table No. 1 during its service life.

PART 3 EXECUTION

3.01 PACKAGING AND ON SITE STORAGE

A. Engineering fabric shall be uniformly rolled onto a cardboard core, and shall be wrapped in plastic to protect the material from moisture and damage during shipment. Protective wrapping shall be left on the fabric until installation. The product must not be allowed to get wet prior to installation to prevent weakening of the cardboard core. Rolls shall be externally tagged for easy field identification. External tagging shall include the following: 1) Name of Manufacturer; 2) Product type; 3) Product grade; 4) Lot number; and, 5) Physical dimensions.

3.02 INSTALLATION

A. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction. Coordinate with work of other sections.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Engineering fabric shall be measured by the square yard (square meter) excluding overlaps and seam allowances.

4.02 BASIS OF PAYMENT

A. Engineering fabric shall be paid for at bid schedule unit prices in place. Price quoted for fabric shall include all installation charges for placing fabric as shown on drawings. CONTRACTOR shall be responsible for any damage that occurs to the fabric during installation and will replace the damaged fabric at no additional cost.

TABLE NO. 1
GEOTEXTILE SPECIFICATIONS

Fabric Property	Test Method	Fabric Requirements (Minimum Roll Averages) Drainage & Filtration	Erosion Control	Separation & Stabilization	Paving
PERFORMANCE CRITERIA DURING SERVICE LIFE					
★ Equivalent or Apparent	CS 002215 (1)				
Opening Size U.S. Standard Sieve					
★★ Water Permeability k, cm/sec	ASTM D-4491				
Retention Efficiency, %	VTM-51-79(2)				
Secant Modulus @ 10% elongation lbs./in					
Asphalt Retention	ASTM D-4595 (3)				0.2
Melting Point °F (°C)					300 (149)
STRENGTH REQUIREMENTS					
Wide Width strip tensile	ASTM D-4595	40	65	90	
Strength lbs./in.	(3)				
Elongation at failure % (3)	ASTM D-4594	20	20	20	50
Burst strength, psi (kPa)	ASTM D-3786 (diaphragm method)	130 (900)	210 (1450)	290 (2000)	
Trapezoid tear strength, lbs.	ASTM D-4533 (any directionO	25 (11.3)	40 (18.1)	50 (22.6)	
Puncture strength, lbs. (kg)	ASTM D-751 (4)	25 (11.3)	50 (22.6)	75 (33.9)	
Seam strength, lbs./in.	ASTM D-4595	02895 – 3 of 4 40	65	65	
Grab strength					
ENVIRONMENTAL REQUIREMENTS					
Mildew, rot resistance %	AATCC-30	100	100	100	
Insect rodent resistance %	AATCC-24	100	100	100	
Ultraviolet resistance % strength retention	ASTM D-4355	(5)	90	(5)	

NOTES: ★ Piping Resistance B EOS No fabric ≥ sieve (300 µm)

A (Soil Retention – all applications) ★★ Water Permeability

EOS No fabric ≥ 30 sieve (600 µm) Critical/Severe Applications – k fabric ≥ 10 k soil

(<50% soil passing #200 sieve) (75 µm) Normal Applications – k fabric ≥ k soil

SECTION 02900

LANDSCAPING

PART 1 GENERAL

1.01 SUMMARY

A. Provide topsoil and lawns.

B. Provide trees and shrubs.

C. Provide soil amendments and fertilizer.

D. Provide seeding and mulching.

1.02 SUBMITTALS

A. Submit for approval product and maintenance data, and dryland seed mixture.

1.03 QUALITY ASSURANCE

A. Trees and shrubs shall be nursery-grown, with botanical and common names of plants true to the approved names given in the latest edition of "Hortus," and shall meet the requirements of American Standard for Nursery Stock adopted by the American Association of Nurserymen. Plants shall be sound, healthy, vigorous, symmetrically proportioned, well-branched, densely foliated when in leaf, free of diseases and insect pests, eggs, larvae, and have well-developed root systems.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver fertilizer in unopened containers bearing the manufacturer's statement of analysis.

B. Adequately protect root balls at all times from sun, drying winds and frost. Do not prune plants prior to delivery. If balled and burlapped plants are not installed immediately upon delivery, set on the ground and protect well with moist soil or wet mulch.

C. Deliver, store and handle other materials in accordance with manufacturer's instructions.

1.05 WARRANTY

A. Warrant trees and shrubs for a period of one (1) year after Substantial Completion, against defects including death and unsatisfactory growth, except for defects resulting from OWNER's neglect, abuse by others, or natural phenomena. Replace unsatisfactory plant material at end of warranty period. One replacement is required.

PART 2 PRODUCTS

2.01 MATERIALS

A. Topsoil: Obtain from local source(s) having similar soil characteristics to that at the site. Obtain from well-drained site(s) where topsoil occurs in a depth of not less than four inches (4") (100 mm). Do not obtain from bogs or marshes. Topsoil shall be fertile, friable, natural loam, reasonably free of subsoil, clay lumps, brush, weeds, litter, roots, stumps, stones larger than two inches (2") (50 mm) in any dimension, or any other material which would inhibit the germination of seeds or the growth of the cover crop.

B. Lawns, seed: New crop seed mixture, composed principally of common Kentucky Bluegrass or as

approved. Other acceptable varieties include Merion, Baron and Fylking.

C. Lawns, sod: Vigorous, viable, strongly rooted sod, not dormant or less than two (2) years old, free of weeks and undesirable native grasses, insect infestations and fungus, and machine cut to a pad thickness of one inch (1") (25 mm)± ¼". Sod shall be composed principally of Kentucky Bluegrass (Poa pratensis), testing 99.9% pure, or as approved. Other acceptable varieties include Tall Fescue and Brome.

D. Trees and shrubs: See schedule on Drawings.

E. Soil amendments: Organic matter such as pine needles, leaf mold, or peat.

1. Shredded peat moss shall be commercial grade of either sphagnum moss, reed, or sedge peat, taken from fresh water site, free of lumps, roots and stones, with texture and pH range suitable for intended use.
2. Well-rotted and shredded manure.
3. Treble superphosphate.

F. Fertilizer: Commercial grade of neutral character, with some elements derived from organic sources.

1. Lawns: Farm-type, such as 18-46-0, applied at 5 pounds per 100 square feet (SF) 2.44 kilograms per 100 sq. meters) of lawn area, or 16-20-0, at 7 pounds per 1000 SF (3.4 kilograms per 100 sq. meters). Provide nitrogen in a form that will be available to lawns during initial growth period. Established lawns shall not receive more than 1½ pounds of soluble nitrogen per 1000 SF (1.6 kilograms per 100 sq. meters), applied four (4) times annually.
2. Trees and shrubs: Not less than 5% total nitrogen, 10% available phosphoric acid, and 5% soluble potash.
3. Dryland seeding: Not less than a 2:1:1 ratio of nitrogen, phosphorous and potassium.

G. Dryland seed: With guaranteed 95% pure live seed. The following is only a suggestion and may not be applicable or available statewide. Consult the local Soil Conservation Service for appropriate seed species and application rates.

Nardan Crested Wheatgrass	30%
Russian Wild Rye	20%
Y.B. Sweet Clover	15%
Slender Wheatgrass	10%
Oahe Intermediate Wheatgrass	10%
Fairway Crested Wheatgrass	5%
Western Wheatgrass	4%
Other	6%

H. Mulch

1. Trees and shrubs: Well-aged fibrous or shredded bark, old sawdust, pine needles, or leaf mold.
2. Dryland seeding: Certified week free small grain straw or native hay.
3. Pigmented wood cellulose fibers or paper pulp for hydraulic seeding. Mulch shall form a blotter-like ground cover with moisture absorption and percolation properties, and the ability to cover and hold the seed in contact with the topsoil, yet not inhibit the penetration of seedlings through it.

PART 3 EXECUTION

3.01 INSTALLATION

A. Topsoil: Spread topsoil to a uniform depth of 6" (150mm) over all areas scheduled to receive lawns. Fertilize proposed lawns at rate specified herein. Fine grade areas to a firm even surface, free from lumps or stones. Installation of sod may be done immediately after fine grading, provided the bed is in good condition and not muddy or hard. If it is hard, scarify to a friable condition again.

B. Lawns, seed

1. If soils are predominantly clayey or sandy, peat moss o r manure shall be spread uniformly at a rate of 3 cubic yards per 1000 SF (2.46 m^3/100 sq. meter), and worked into the soil
2. Apply superphosphate at a rate of 100 pounds per 1000 SF (48.8 kilograms per 1000 sq. meter).
3. Apply seed, at rate of 2 pounds per 1000 SF (9.75 kilograms per 1000 sq. meter), using a drop (band) type spreader. Divide seed into two halves and distribute one half in the north-south direction, and the other half from east to west.
4. Rake seed into the soil and commence light watering, at least four times per day for two weeks, or until seed germinates.

C. Lawns, sod

1. Lay sod parallel to the direction of the slope and in a manner permitting butt joints to alternate. Fit sod pieces tightly together so that no joint is visible and tamp sod firmly and evenly by hand.
2. Roll sod with a 150-pound (68.1 kilograms) roller to level and seal the seams. After rolling, water sod until water soaks through into topsoil to a depth of not more than 3 inches (75 mm).
3. Water, week and replace sod, if required, until Substantial Completion. Erect and maintain temporary protection devices where deemed necessary.
4. Mow sod at least twice before Substantial Completion. At the time of the first mowing, set mower blades to produce 2½" (63 mm) mowed height.

D. Trees and shrubs

1. Mark planting area for tree and shrub pits that is five times the diameter of the root ball. Do not proceed with planting until the bed and pit locations are approved by the ENGINEER.
2. Loosen soil with rototiller or shovels to a depth of twelve inches (12") (300 mm). Add organic matter, distributed uniformly within planting bed.
3. In the center of the prepared area, excavate a shallow hole for the root ball, so that it sits on solid subsoil. Apply fertilizer directly to bottom of pit.
4. Set plant in center of pit. plumb and straight, and at such a level that, after settlement, the top of the root collar is even with adjacent finished grade. Remove burlap, ropes, and all wire. Gently pack soil around plant and lightly water, to promote further soil consolidation.
5. Apply two inches (2") (50 mm) thick layer of mulch.
6. Prune each plant with clean, sharp tools to remove suckers, and broken, badly bruised or dead branches. Wrap tree trunks with TUBEX, or equivalent translucent material.
7. Guy trees with two (2) wires anchored securely to steel posts, Directly opposite each other, not less than five feet (5') (1.53 meters) from the trunk. Protect the tree from direct contact with the wires. Remove posts and wires after one year.
8. Commence watering and maintenance of plantings until Substantial Completion.
9. Correct defective work as soon as it becomes apparent and as weather and season permit.

E. Seeding: Broadcasting will not be allowed.

1. Prior to seeding, areas that have become muddy or hard shall be scarified to a depth of four inches (4") (100 mm), and left in a friable condition. Fertilize at a fate of forty pounds (40 lbs.) (18.2 kilograms) of available nitrogen per acre.
2. Drilling: Drills shall be set for uniform rows with spacing not to exceed eight inches (8") (200 mm), and depth for the type of seed being drilled, for a distribution rate of 10 pounds per acre (22.4 kilograms per hectare), or as recommended by the local Soil Conservation Service.
3. Dry mulching: Spread mulch uniformly over the seeded area at a rate of two (2) tons per acre (4.48 megagrams per hectare). Anchor mulch in the soil with a smooth or serrated coulter disc.
4. Hydraulic methods: Use equipment designed for such work. Seed and water shall be uniformly applied to the areas scheduled to be seeded. Fertilizer, water and approximately 1 ton per acre (2.24 megagrams per hectare) of hydraulic mulch shall be homogeneously mixed and uniformly applied to seeded areas.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Measurement shall not become necessary if landscaping is bid as lump sum.

B. If unit prices are called for in the Bid Schedule, measurement of each item will be made as the number of units used or installed.

4.02 BASIS OF PAYMENT

A. Unless otherwise called out in the contract, payment for landscaping shall be lump sum.

B. When unit prices are called for in the Bid Schedule, payment shall be made at unit prices for each of the various items multiplied by the number of units installed or incorporated in the work.

SECTION 03100

CONCRETE FORMWORK

PART 1 GENERAL

1.01 SUMMARY

A. Formwork for cast-in-place concrete.

B. Openings in formwork for other affected work.

C. Form accessories such as snap ties, bracing, etc.

D. Stripping formwork.

1.02 SUBMITTALS

A. Shop Drawings: Fabrication and erection drawings of forms for specific finished concrete surfaces, as indicated. Show general construction of forms, jointing, special joints or reveals, location and pattern of form tie placement, and other items affecting exposed concrete visibility.

B. Form Release Agent: Where concrete surfaces are scheduled to receive special finishes or applied coverings which may be affected by agent submit manufacturer's instructions for use of agent.

1.03 QUALITY ASSURANCE

A. Design, engineering, and construction of formwork is the CONTRACTOR'S responsibility.

B. Standards: Comply with all pertinent provisions of the ACI 347.

C. Qualification of Workmen: Provide at least one person who shall be present at all times during the work of this section and who shall be thoroughly familiar with the type of materials being installed, the reference standards, and the requirements of this work.

D. Design Forms

1. With sufficient strength to maintain finished tolerances indicated in Section 03345, to support loads, pressures, and allowable stresses as outlined in ACI 347.
2. To permit easy removal.
3. For required finishes.

E. Product Handling

1. Take all means necessary to protect formwork materials before during, and after installation and to protect the installed work of other trades. In the event of damage, immediately make all repairs and replacements necessary to the approval of the ENGINEER and at no additional cost to the OWNER.

1.04 DEFINITIONS

A. Shoring: The activity to support formwork.

B. Reshoring: The activity to reduce the amount of formwork supporting concrete elements. As concrete sets and strength increases, less need for formwork occurs gradually until concrete becomes free standing.

1.05 REFERENCES

A. ACI 347: Recommended Practice for Concrete Formwork.

1.06 JOB CONDITIONS

A. For reference purposes, establish and maintain sufficient control points and bench marks to check tolerances. Maintain in an undisturbed condition and until final completion and acceptance of Work.

B. Regardless of tolerances specified, allow no portion of Work to extend beyond legal boundaries

1.07 FIELD SAMPLES

A. Prepare field samples and submit in accordance with Section 01340.

PART 2 PRODUCTS

2.01 FORM MATERIALS

A. Construct formwork for concrete concealed from view with plywood sawn boards of sound grade or steel forms as approved by the ENGINEER.

B. Provide form material with sufficient thickness to withstand pressure of newly placed concrete without excessive and objectionable bow or deflection.

C. Do not use material with raised grain, patches, or other defects which will impair texture of concrete surface.

2.02 FORMWORK ACCESSORIES

A. Form ties and spreaders.

1. Provide factory-fabricated, removable or snapoff metal form ties, designed to prevent form deflection and to prevent spalling concrete surfaces upon removal.
2. Provide ties so that portion remaining within concrete after removal of exterior parts is at least (1-1/2") (3.8 cm) from the outer concrete surface. Provide form ties which will not leave a hole larger than (1") (2.5 cm) diameter in the concrete surface. The portion of the tie remaining in the concrete after removal of the exterior parts shall not project beyond surface of the concrete.
3. Wire ties will be permitted where surfaces on either side of a formed member will not be exposed to view or painted. Projecting of ends of wire ties shall be cut off flush with the concrete surfaces. Job fabricated ties will not be acceptable.

B. Premolded Expansion Joint Filler: Unless indicated otherwise, provide Type F1, in accordance with Section 03251.

C. Form Release Agent

1. Provide commercial formulation form release agent compounds that will not bond with, stain, nor adversely affect concrete surfaces requiring bond or adhesion, nor impede the wetting of surfaces to be cured with water or curing compounds.
2. Surplus oil on forms and form oil on reinforcing steel and construction joints shall be removed before concrete is placed.

D. Fillets for Chamfered Corners: Wood strips 3/4 inch x 3/4 inch (19.1 mm x 19.1 mm) size; maximum possible length.

2.03 DESIGN OF FORMWORK

A. General

1. Design, erect, support, brace, and maintain formwork so that it will safely support vertical and lateral loads that might be applied, until such loads can be supported by the concrete structure.

2. Carry vertical and lateral loads to ground by formwork system and in-place construction that has attained adequate strength for that purpose.
3. Construct formwork so that concrete members and structures are of correct size, shape, alignment elevation, and position.
4. Design forms and falsework to include assumed values of live load, dead load, weight of moving equipment operated on formwork, concrete mix, height of concrete drop, vibrator frequency, ambient temperatures, foundation pressures, stresses, lateral stability, and other factors pertinent to safety of structure during construction.
5. Support form facing materials by structural members spaced sufficiently close to prevent objectionable deflection.
6. Fit forms placed in successive units for continuous surfaces to accurate alignment, free from irregularities, and within allowable tolerances.
7. Provide formwork sufficiently tight to prevent leakage of cement paste during concrete placement. Solidly butt joints and provide backup material at joints as required to prevent leakage and fins.

PART 3 EXECUTION

3.01 SURFACE CONDITIONS

A. Examine the substrata and conditions under which work of this Section is to be performed, and correct unsatisfactory conditions which would prevent proper and timely completion of the Work. Do not proceed until satisfactory conditions have been corrected.

3.02 FORM CONSTRUCTION

A. Construct forms complying with ACI 347, to the exact sizes, shapes, lines, and dimensions shown, and as required to obtain accurate alignment, location, grade, level, and plumb work in finished structures.

B. Provide for openings, offsets, keyways, recesses, moldings, reglets, chamfers, blocking, screed, bulkheads, anchorages, inserts, and other features required. Use selected materials to obtain required finishes.

C. Forms for openings and construction which accommodates installation by other trades whose materials and products must be fabricated before the opportunity exists to verify the measurements of adjacent construction which affects such installations, shall be accurately sized and located as dimensioned on the Drawings. In the event that deviation from the Drawings dimensions results in problems in the field, the CONTRACTOR shall be responsible for resolution of the conditions as approved by the ENGINEER without additional expense to the OWNER.

D. Fabrication: Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and assure ease of removal.

E. Provision for other trades: Provide openings in concrete formwork to accommodate work of other trades. Verify size and location of openings, recesses, and chases with the trade requiring such items. Accurately place and securely support items to be built into forms.

F. Cleaning: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, an d other debris just before concrete is places.

3.03 FORM COATINGS

A. Coat form contact surfaces with form-coating compound before reinforcement is placed. Do not allow excess form coating material to accumulate in the forms or to come into contact with surfaces which will be bonded to fresh concrete. Apply in compliance with manufacturer's instructions.

3.04 INSTALLATION OF EMBEDDED ITEMS

A. General: Set and build into the work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of the items to be attached hereto.

B. Edge forms and screed strips for slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in the finished slab surface. Provide and secure units to support types of screed required.

3.05 REMOVAL OF FORMS

A. Forms shall be removed in a manner to insure complete safety of the structure. Forms shall not be removed until concrete has sufficient strength to carry its own weight and the loads upon it with safety. Due to weather conditions or for other reasons, the forms shall remain in place for longer periods than stated above, when directed by ENGINEER.

B. Do no pry against face of concrete. Use only wooded wedges.

C. When repair of surface defects or finishing is required at an early age, remove forms as soon as concrete has hardened sufficiently to resist damage from removal operations.

D. Formwork for columns, walls, sides of beams, and other members not supporting the weight of concrete may be removed as soon as the concrete has hardened sufficiently to resist damage from removal.

E. Where no Reshoring is planned, leave forms and Shoring used to support weight of concrete in beams, slabs, and other concrete members in place until concrete has attained its specified strength.

F. Where Reshoring is planned, supporting formwork may be removed when concrete has reached 70 percent of specified strength, provided Reshoring is installed immediately.

3.06 RESHORING

A. When Reshoring is permitted or required, plan operations in advance and obtain approval.

B. During Reshoring, do not subject concrete in beam, slab, column, or any other structural member to combined dead and construction loads and live loads in excess of loads permitted for developed concrete strength at time of Reshoring.

C. Place Reshores as soon as practical after stripping operations are complete, but in no case later than end of working day on which stripping occurs.

D. Tighten Reshores to carry required loads without overstressing.

E. Leave Reshores in place until the concrete being supported has reached its specified strength.

F. For floors supporting Shores under newly placed concrete, level original supporting Shore or Reshore.

1. Reshoring system shall have a capacity to resist anticipated loads in all cases equal to at least 1/2 the capacity of the Shoring system.
2. Unless otherwise specified, locate Reshores directly under a Shore.
3. In multistory buildings, extend Reshoring through a sufficient number of stories to distribute the weight of newly placed concrete, forms, and construction live loads in such a manner that design loads of floors and supporting Shores are not exceeded.

G. Design, engineering, and construction of Shoring and Reshoring is the responsibility of the CONTRACTOR.

3.07 REMOVAL STRENGTH

A. When removal of formwork or Reshoring is based on concrete reaching a specified strength, it shall be assumed that concrete has reached this strength when either of the following conditions have been met:

1. When test cylinders, field cured along with the concrete they represent, have reached the specified strength.
2. When concrete has been cured in accordance with provisions of Section 03370 for the same length of time as the site-cured cylinders which reached specified strength. Determine the length of time the concrete has been cured in the structure by cumulative number of days or fractions thereof, not necessarily consecutive, during which the air temperature is above 50 degrees F (10° C) and concrete has been damp or sealed from evaporation and loss of moisture.

3.08 RE-USE OF FORMS

A. Clean and repair surfaces of forms to be re-used in the Work. Split, frayed, delaminated, or otherwise damaged formfacing material will not be acceptable. Apply new form coating compound material to concrete contact surfaces as specified for new formwork. When forms are re-used for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close all joints. Align and secure joints to avoid offsets.

3.09 FIELD QUALITY CONTROL

A. Before commencing a placement, verify conditions, form alignment, ties, inserts, and shoring are placed and secure.

B. Observe formwork continuously while concrete is being placed to verify that the forms are plumb and there are no deviations from desired elevation, alignment, or camber.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Unless otherwise noted in the special provisions, no separate measurement will be made for items under this section. Full compensation shall be considered as included in the prices paid for the various contract items and no additional compensation will be allowed therefore.

4.02 BASIS OF PAYMENT

A. Unless otherwise noted in the special provisions, no separate payment will be made for items under this section. Full compensation shall be considered as included in the prices paid for the various contract items and no additional compensation will be allowed therefore.

SECTION 03200

CONCRETE REINFORCEMENT

PART 1 GENERAL

1.01 SUMMARY

A. Reinforcing steel bars, wire fabric, or rod mats for cast-in-place concrete.

B. Support chairs, bolsters, bar supports, and spacers for supporting reinforcement.

C. Fiber reinforced concrete.

1.02 REFERENCES

A. AASHTO M 254: Standard Specification for Corrosion Resistant Coated Dowel Bars.

B. ACI 301: Specifications for Structural Concrete for Buildings.

C. ACI 315: Details and Detailing of Concrete for Buildings.

D. ASTM A 82: Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.

E. ASTM A 185: Standard Specification for Steel Welded Wire, Fabric, Plain, for Concrete Reinforcement

F. ASTM A 615: Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

G. ASTM A 706: Standard Specification for Low-Alloy Steel Deformed Bars for Concrete Reinforcement.

H. AWS D1.1: Structural Welding Code Steel.

I. AWS D1.4: Structural Welding Code Reinforcing Steel.

J. CRSI Document: Manual of Standard Practice.

1.03 SUBMITTALS

A. Manufacturer's Certificate: Submit mill test certificates of supplied concrete reinforcement, indicating physical and chemical analysis.

B. Welder's certification.

C. Shop Drawings.

1. Indicate sizes, spacings, locations, and quantities of reinforcing steel, wire fabric, bending and cutting schedules, splicing, stirrup spacing, supporting, and spacing devices.
2. When required, Shop Drawings shall be prepared under the direction of a Wyoming licensed professional engineer acceptable to the agency having jurisdiction.

1.04 PRODUCT HANDLING

A. Delivery: Deliver reinforcement to the job site bundled, tagged, and marked. Use metal tags indicating bar size, lengths, and other information corresponding to markings shown on placement diagrams.

B. Storage: Take all means necessary to protect reinforcement materials before, during, and after installation and to protect the installed work of other trades. Store all reinforcement materials in a manner to prevent excessive rusting and fouling with grease, dirt, and other bond-breaking coatings. Take all necessary precautions to maintain identification after bundles are broken. In the event of damage or errors, immediately make all repairs or replacements necessary at no additional cost to the OWNER.

1.05 FIBER REINFORCED CONCRETE

A. Submit one (1) copy of manufacturer's printed product data, clearly marked, indicating proposed fibrous concrete reinforcement materials. Printed data should state 1.5 lbs. of fiber to be added to each cubic yard (0.88 kg per m^3) of each type of concrete.

B. Submit one (1) copy of a manufacturer's printed batching and mixing instructions.

C. Submit one (1) copy of a certificate prepared by the Concrete supplier stating that the approved fibrous concrete reinforcement materials at the arte of 1.5 lbs. per cubic yard (0.88 kg per m3) were added to each batch of concrete delivered to the project site. Each certificate shall be accompanied by one (1) copy of each batch delivery ticket indicating amount of fibrous concrete reinforcement material added to each batch of concrete.

PART 2 PRODUCTS

2.01 CONCRETE REINFORCEMENT MATERIALS

A. Reinforcing Steel: In accordance with ASTM A 615 deformed bars, grade, and type as indicated, including supplementary requirements S1, either uncoated or as indicated. When no grade is indicated, us 60 ksi (414 Mpa) yield grade steel. Use ASTM A 706 steel if welding is indicated or allowed.

B. Welded Steel Wire Fabric: In accordance with ASTM A 185 plain type; in flat sheets or coiled rolls either uncoated or as indicated.

C. Stirrup Steel: In accordance with ASTM A 82.

D. Plain Dowel Bars for Expansion Joints: In accordance with ASTM A 615, 60 ksi (414 Mpa) yield grade steel.

1. Epoxy coated in roadway pavements.
2. Provide metal dowel can at one end of dowel to permit longitudinal movement of dowel within concrete section. Design caps with 1 end closed.
3. Provide for movement equal to joint width plus 1/2 inch (12.5 mm).
4. For load transfer bars, paint with 1 coat of paint conforming to AASHTO M 254 and coat 1/2 with grease.

E. Fibrous Concrete Reinforcement Material

1. 100 percent virgin polypropylene, fibrillated fibers containing no reprocessed olefin materials and specifically manufactured to an optimum gradation for use as concrete secondary reinforcement. Volume per cubic yard shall equal a minimum of 0.1% (1.5 pounds) (0.68 kg).
2. Fibrous concrete reinforcement (fibermesh) shall be as manufactured by Fibermesh Company, 4019 Industry Drive, Chattanooga, TN 37416; Grade MD or equal.
3. Physical Characteristics:
    1) Specific gravity: 0.91
    2) Tensil strength: 50 To 110 ksi (345 to 759 Mpa).
    3) Fiber length: graded per manufacturer; or, as specified by project engineer.
4. Fibrous concrete reinforcement materials provided in this Section shall produce concrete conforming to the requirements for each type and class of concrete required, as indicated on the drawings and specified in section 501 WPWSS where the concrete is tested in accordance with ASTM C-94 and ASTM C-1116 Type III 4.1.3 and ASTM C-1116 (Ref: ASTM C-1018) Performance Level 15 outlined in Section 21 Note 17.

2.02 ACCESSORY MATERIALS

A. Tie Wire: Minimum 16 gage steel wire shall be plain, cold drawn and shall comply with ASTM A 82.

B. Supports for reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcement in place:

1. Use wire bar type supports complying with CRSI recommendations unless otherwise indicated. Do not use wood, brick, and other unacceptable materials.
2. For slabs on grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
3. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with either hot-dip galvanized for plastic protected legs.

2.03 FABRICATION

A. Fabricate reinforcement in accordance with ACI 315, providing for the concrete cover specified in Section 03304.

B. Locate reinforcing splices not indicated on drawings at points of minimum stress. Indicate location of splices on Shop Drawings.

C. Weld reinforcing bars in accordance with AWS D1.4.

D. Unacceptable materials: Reinforcement with any of the following defects will not be permitted in the Work:

1. Bar lengths, depths, and bends exceeding specified fabrication tolerances.
2. Bends or kinks not indicated on Drawings or final Shop Drawings.
3. Bars with reduced cross-section due to excessive rusting or other cause.

PART 3 EXECUTION

3.01 PLACING

A. All reinforcement to be free of loose mill scale, loose or thick rust, dirt, paint, oil or grease.

B. Place all reinforcement in the exact position indicated. With tie wire, tie bars together at all intersections.

C. Maintain the distance from vertical forms and between layers of reinforcement by means of prefabricated chairs, ties, hangers, or other approved devices. Placing and fastening of reinforcement in each section of the Work must be approved before concrete is placed.

D. Overlap sheets of metal mesh one square plus 6 inches (150 mm) to maintain a uniform strength. Securely fasten at the ends, edges and supports to maintain clearances.

3.02 SPLICING

A. Furnish all reinforcement in the full lengths indicated unless otherwise permitted. Splicing of bars, except where indicated is not permitted without written approval. Stagger splices where possible.

B. Unless indicated otherwise, overlap reinforcing bars a minimum of 30 diameters to make the splice. In lapped splices, place the bars and wire to maintain the minimum distance for clear spacing to the surface of the concrete.

C. Do not use lap splices on bars greater in diameter than No. 11 (35) unless approved.

D. Weld reinforcing steel only if indicated or if authorized in writing. Weld in conformance to AWS D1.4.

E. Do not bend reinforcement after embedding in hardened concrete.

F. Do not permit reinforcement or other embedded metal items bonded to the concrete, to extend continuously through any expansion joint, except dowels in floors bonded on only one side of joints.

3.03 PLACING EMBEDDED ITEMS

A. Place all sleeves, inserts, anchors, and embedded items prior to concrete placement. Temporarily fill voids in embedded items to prevent entry of concrete.

B. Give all trades whose work is related to the concrete section ample notice and opportunity to introduce or finish embedded items before concrete placement.

3.04 CONSTRUCTION METHODS FOR FIBER REINFORCED CONCRETE

A. Add fibrous concrete reinforcement to concrete materials at the time concrete is batched in amounts in accord with approved submittals for each type of concrete required.

B. Mix batched concrete in strict accord with fibrous concrete reinforcement manufacturer's instructions and recommendations for uniform and complete dispersion.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. The cost of the fibrous concrete reinforcing is to be included as a part of the appropriate item in which it is being used. There will be no separate measurement or payment for this item.

B. Reinforcing steel will be measured by the pound (kilogram), based on the theoretical number of pounds (kilograms), excluding splice bars to replace test samples, complete in place as shown on plans or placed as ordered.

C. The quantities of materials furnished and placed shall be based upon the calculated weights of the reinforcing steel actually placed in accordance with these specifications. No deductions will be made for any bends except for hooks. The length of the bar to be added to out-to-out dimensions of hooked bars will be shown on the plans. The weights calculated shall be based upon the following table:

Metric Designation	Size	Weight per L.F. in lbs.	kg/m	Metric Designation	Size	Weight per L.F. in lbs.	kg/m
				25	#8	2.670	3.973
10	#3	0.376	0.559	30	#9	3.400	5.059
10	#4	0.668	0.994	35	#10	4.303	6.403
10	#5	1.043	1.552	35	#11	5.313	7.906
15	#6	1.502	2.235	45	#14	7.650	11.383
20	#7	2.044	3.041	55	#16	13.600	20.237

D. The weights estimated for spiral spacers will be based on 3/4 pound per linear foot (1.116 Kg/m). The weight of the spiral will be computed using the core diameter shown on the plans. Wire mesh, when included as a pay item, will be based on the weights shown on the plans for the type of mesh designated.

4.02 BASIS OF PAYMENT

A. The accepted quantities of reinforcing steel will be paid for at the contract unit price per pound complete in place. No allowance will be made for clips, wires, or other material used for fastening reinforcement in place.

Payment shall be made under:

PAY ITEM	PAY PER UNIT
Reinforcing Steel	Lb. (kg)

SECTION 03251

EXPANSION AND CONTRACTION JOINTS

PART 1 GENERAL

1.01 SUMMARY

A. Joints and joint sealants in horizontal traffic surfaces for cast-in-place concrete sidewalks, curb, gutter, and pavement slabs.

1.02 SUBMITTALS

A. Manufacturer's certification that product was manufactured, tested, and supplied in accordance with source quality control requirements specified herein, together with a report of the test results and the date each test was completed.

B. Manufacturer's instruction for joint preparation, type of cleaning, and installation.

C. Manufacturer's Product Data and Samples for each joint sealant product required.

D. Safety data sheets.

1.03 REFERENCES

A. ASTM C 920: Standard Specification for Elastomeric Joint Sealants.

B. ASTM C 545: Standard Methods of Testing Preformed Expansion Joint Filler for Concrete Construction (Non-extruding and Resilient Types).

C. ASTM C 994: Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).

D. ASTM D 1056: Standard Specification for Flexible Cellular Materials – Sponge or Expanded Rubber.

E. ASTM D 1190: Standard Specification for Concrete Joint Sealer, Hot-Poured Elastic Type.

F. ASTM D 1191: Standard Method for Testing Concrete Joint Sealers.

G. ASTM D 1751: Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (non-extruding and Resilient Bituminous Types).

H. ASTM D 1752: Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.

I. ASTM D 1850: Standard Specification for Concrete Joint Sealer, Cold-Application Type.

J. ASTM D 1851: Standard Methods of Testing Concrete Joint Sealers, Cold-Application Type.

K. ASTM D 2240: Standard Test Method for Rubber Property – Durometer Hardness.

L. ASTM D 2628: Standard Specification for Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements.

M. ASTM D 3405: Standard Specification for Joint Sealants, Hot-Poured, for Concrete and Asphalt Pavements.

N. ASTM D 3406: Standard Specification for Joint Sealant, Hot-Applied, Elastomeric-Type, for Portland Cement Concrete Pavements.

O. ASTM D 3407: Standard Methods of Testing Joint Sealants, Hot-Poured, for Concrete and Asphalt Pavements.

P. ASTM D 3408: Standard Methods of Testing Joint Sealants, Hot-Poured, Elastomeric-Type, for Portland Cement Concrete Pavements.

Q. ASTM D 3542: Standard Specification for Preformed Polychloroprene Elastomeric Joint Seals for Bridges.

R. ASTM D 3569: Standard Specification for Joint Sealant, Hot-Applied Elastomeric, Jet-Fuel-Resistant-Type for Portland Cement Concrete Pavements.

S. ASTM D3581: Standard Specification for Joint Sealant, Hot-Poured, Jet-Fuel-Resistant-Type, for Portland Cement Concrete and Tar-Concrete Pavements.

T. ASTM D 3582: Standard Methods for Testing Joint Sealant, Hot-Poured, Jet-Fuel-Resistant-Type, for Portland Cement Concrete and Tar-Concrete Pavements.

U. ASTM D 3583: Standard Methods of Testing Joint Sealant, Hot-Applied, Elastomeric-Type, for Portland Cement Concrete Pavements, or Joint Sealant, Hot-Applied, Elastomeric, Jet-Fuel-Resistant-Type for Portland Cement Concrete Pavements.

V. FS SS-S-200: Sealants, Joint, Two Component, Jet-Blast Resistant, Cold-Applied, for Portland Cement Concrete Pavement.

1.04 QUALITY ASSURANCE

A. Obtain joint sealing materials from a single manufacturer for each different product required.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in original unopened containers or bundles with labels identifying manufacturer, product name and designation, color, expiration period for use, pot life, cur time, and mixing instructions for multicomponent materials.

B. Store and handle materials in compliance with manufacturer's recommendations to prevent deterioration; or damage doe to moisture, high or low temperatures, contaminants, or other causes.

1.06 SYSTEM PERFORMANCES

A. Pavement joints include longitudinal and transverse expansion joints, contraction joints, construction joints, and crack control joints.

B. Provide joint sealants that maintain watertight and airtight continuous seals.

PART 2 PRODUCTS

2.01 GENERAL

A. Compatibility: Provide joint filler, sealant backings, sealants, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experiences

2.02 JOINT VOID - FORMER

A. Plastic with a water stop.

B. 1/4 depth of concrete structural section.

2.03 JOINT VOID – SHEET TYPE

A. F1 Joint Filler: Bituminous (asphalt or tar) mastic in accordance with ASTM D 994; formed and encased between 2 layers of bituminous saturated felt or 2 layers of glass-fiber felt.

B. B2 Joint Filler: Cane or other cellulosic fiber in accordance with ASTM D 1751; saturated with asphalt.

C. F3 Joint Filler: Granulated cork in accordance with ASTM D 1751; in an asphalt binder; encased between 2 layers of asphalt saturated felt or 2 layers of glass-fiber felt.

D. F4 Joint Filler: Sponge rubber fully compressible in accordance with ASTM C 1752; with resiliency recovery rate of 90 percent minimum.

E. F5 Joint Filler: Cork in accordance with ASTM C 1752; impregnated and bound with asphalt; compressible with resiliency recovery rate of 90 percent if not compressed more than 50 percent of original thickness.

F. F6 Joint Filler: Plastic foam (for cold-applied sealants only) preformed, compressible, resilient, non-waxing, non-extruding strips of flexible, non-gassing plastic roam; non-absorbent to water and gas; 30 lb/ft^3 (146.5 kilograms per m^3) density maximum; and of size and shape to control sealant depth and performance.

2.04 JOINT FILLER – BACKER ROD AND TAPE TYPE

A. Elastomeric Tube (Backer Rod): Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, non-absorbent to water and gas, capable of remaining resilient at temperatures down to -26°F (-32° C). Provide product with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.

B. Tape: Self-adhesive polyethylene bond breaker tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to joint filler materials or joint surfaces at back or bottom of joint.

2.05 JOINT SEALANT – GENERAL

A. Color of exposed joint sealant indicated, or if not, as selected from manufacturer's standard colors.

2.06 JOINT SEALANT – HOT-APPLIED

A. HAS1 Sealant: Resilient and adhesive compound type in accordance with ASTM D 3405; for Portland cement concrete or asphalt concrete pavements.

B. HAS2 Sealant: Thermoplastic type in accordance with ASTM D 3581; jet-fuel resistant without rubber unless indicated otherwise.

C. HAS3 Sealant: Elastic type in accordance with ASTM D 1190.

D. HAS4 Sealant: Elastomeric type in accordance with ASTM D 3406; one component, for Portland cement concrete pavements.

E. HAS5 Sealant: Elastomeric type in accordance with ASTM D 3569; one component, jet-fuel resistant, for Portland cement concrete pavements.

2.07 JOINT SEALANT – COLD APPLIED

A. CAS1 Sealant: Elastomeric type in accordance with ASTM C 920; Chemically curing for vehicular or pedestrian use, and types of construction other than highway and airfield pavements and bridges and joint substrates indicated; Types S or M; Grade P or NS; Class 25; Use T, NT, M and O.

1. Self leveling.
2. Shore A Hardness: 40 ± 5 ASTM D 2240.
3. Final cure: 4 days maximum.
4. Service range: -10 to 150°F. (-23° C to 66° C).

B. CAS2 Sealant: Mastic type in accordance with ASTM D 1850; single or multiple component; for joints having a minimum width of 1/2 inch (12.5 mm).

C. CAS3 Sealant: Coal-tar modified urethane type in accordance with FS SS-S-200; one part, jet fuel, resistant, Type H.

D. CAS4 Sealant: Elastomeric preformed polychloroprene type with lubricant adhesive and indicated movement ratio.

1. For concrete pavement seal; ASTM D 2628.
2. For concrete bridge seals; ASTM D 3542.

2.08 SOURCE QUALITY CONTROL

A. Preformed Expansion Joint Fillers: Non-extruding and resilient types; ASTM D 545.

B. Hot-Applied Joint Sealants:

1. Elastic type used in concrete pavements, bridges, other structures; ASTM D 1191.
2. Bituminous type for hydraulic and asphaltic concrete pavements; ASTM D 3407.
3. Elastomeric type of hydraulic concrete pavements; ASTM D 3408.

C. Jet-Fuel-Resistant Joint Sealant: Hot-applied; ASTM D 3582 and ASTM D 3583.

D. Cold-Applied Mastic Joint Sealant: In accordance with ASTM D 1851.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not proceed with installation of joint sealants under unfavorable weather conditions.

B. Install elastomeric sealants when temperature is stable in temperature range recommended by manufacturer for installation.

C. Joint Substrate Conditions: Do not proceed with installation of joint sealers until contaminants capable of interfering with their adhesion are removed from joint substrates.

3.02 PREPARATION

A. Clean, prepare, and size joints in accordance with manufacturer's instructions. Remove any loose materials and other foreign matter which might impair adhesion of sealant.

B. Verify that joint shaping materials and release tapes are compatible with sealant.

C. Examine joint dimensions and size materials to achieve required width to depth ratio.

D. Adjust joint depths to allow sealants to perform properly.

E. Remove moisture on substrate.

F. Bond Breaker Tape: Install where needed or required by manufacturer's recommendations to ensure that elastomeric sealants will perform property.

3.03 JOINTS - GENERAL

A. Construct all joints as follows.

1. At right angles to top surface of placement.
2. Straight unless indicated otherwise.
3. Before uncontrolled shrinkage cracking takes place.
4. To prevent concrete edge slump.

3.04 EXPANSION JOINTS

A. Expansion joints shall be in location as shown on drawings or as approved by ENGINEER. Joints in exterior concrete work shall be placed where shown on drawings or 32'-0" (9.75 meters) o.c. maximum.

B. Premolded filler strips shall extend full depth of slab.

C. Isolation joints shall be used in all areas where slabs abut vertical surfaces. Joint material shall be placed on levels called for and in good alignment.

D. In no case shall the reinforcing or other fixed metal items embedded or bonded into concrete be fun continuous through expansion joint.

E. Finish at joints shall be neatly finished with an edging tool providing a slightly founded edge on each side of the joint filler material.

3.05 CONSTRUCTION JOINTS

A. Construction joints shall be placed in flat slabs in locations as shown on the drawings or as approved by the ENGINEER.

B. The preformed metal keyway joints shall be set to obtain accurate alignment, grades, elvel and plumb in the work and shall be furnished the full depth of the slab.

C. Where a joint is made to a previously placed concrete section, care should be taken to remove all laitance prior to new placement of concrete.

D. The CONTRACTOR may elect to place concrete on both sides of a construction joint or placing through the joint. When this method is employed, a temporary backer such as a 2 x 4 (50 x 100 mm) shall be provided to stiffen and hold the preformed metal joint in alignment ahead of the work and shall be removed as the work progresses.

3.06 CONTROL JOINTS

A. Tooled Joint

1. Tooled joints shall be formed by scoring the slab the full depth with a steel trowel along a straight edge in locations as shown on the drawings or if not shown, not to exceed 625 square feet (58 sq. meters) in the area.
2. The joint shall be finished using a joint tool guided by a straight edge leaving a slightly rounded edge on each side of the joint.

B. Sawn Joints

1. Sawn joints shall be sawn into interior concrete floors as indicated on the drawings and at CONTRACTOR's option in place of preformed metal keys.
2. Joints shall be sawn with a power saw designed to saw depth and width as shown on drawings. Hand held saws will not be accepted.
3. Saw cutting shall occur within 12 hours after placement of concrete. The line of the saw shall be straight, true to line, and square.
4. Pourable joint sealant shall be poured into all sawn joints. Installation shall be in strict accordance with manufacturer's specifications which shall include preparation, priming, etc.

3.07 JOINT SEALING

A. Surface Preparation

1. Remove oil, grease, wax, form-release-agents, curing compounds, bitumens, laitance, and old chalking material by sandblast, or water blast as recommended by manufacturer of sealant. Maximum sand blast angle, 25 degrees ± 5.
2. Clean and dry with air blast. Do not contaminate air blast with oils or lubricants.
3. Remove frost and moisture in concrete joint substrates before commencing sealing.

B. Installation

1. Ensure that sealants are installed in uniform, continuous ribbons without gaps or air pockets, with complete bonding of joint surfaces on opposite sides.
2. Except as otherwise indicated, fill sealant rabbet flush with surface.
3. Where horizontal joints are between a horizontal surface and vertical surface, fill joint to form a slight cove so that joint will not trap moisture and dirt.

C. Depths: Saw cut joints if necessary to provide the required sealant thickness and depth. Install sealant to depths indicated or, if not indicated, as recommended by sealant manufacturer, but within the following general limitations measured at center (thin) section of bead:

1. For sidewalks, pavements, and similar joints sealed with elastomeric sealants and subject to traffic and other abrasion and indentation exposures, fill joints to a depth equal to 75 percent of joint

width, but neither more than 5/8 inch (15.9 mm) deep nor less than 3/8 inch (9.5 mm) deep.

2. For normal moving joints sealed with elastomeric sealants but not subject to traffic, fill joints to a depth equal to 50 percent of joint width, but neither more than 1/2 inch (12.7 mm) deep nor less than 1/4 inch (6.35 mm) deep.
3. For joints sealed with non-elastomeric sealants and caulking compounds, fill joints to a depth in range of 75 percent to 125 percent of joint width.

D. Spillage: Do not allow poured sealant compound to overflow or spill onto adjoining surfaces or to migrate into voids of adjoining surfaces. Clean adjoining surfaces to eliminate evidence of spillage.

E. Heating: Do not overheat hot-applied sealants.

F. Edges: Unless indicated otherwise, recess exposed edges of gasket and exposed joint fillers slightly behind adjoining surfaces so compressed units will not protrude from joints.

3.08 CURE AND PROTECTION

A. Cure sealants and caulking compounds in accordance with manufacturer's instructions and recommend-dations to obtain high early bond strength, internal cohesive strength and surface durability.

B. Follow procedures required for cure and protection of joint sealants during construction period so they will be without deterioration or damage (other than normal wear and weathering) at time of Substantial Completion.

3.09 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as work progresses. Use methods and cleaning materials approved by manufacturers of joint sealant and of products in which joints occur.

B. Remove protective coating and oil from metals with solvent recommended by the sealant manufacturer.

3.10 PROTECTION

A. Protect joint sealant during and after curing period from contact with contaminating substances or from damage resulting from deterioration or damage at time of Substantial Completion.

B. If damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealant immediately and reseal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work at no additional cost to OWNER,

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Unless otherwise noted in the special provisions, no separate measurement will be made for items under this section.

4.02 BASIS OF PAYMENT

A. Unless otherwise noted in the special provisions, no separate payment will be made for items under this section. Full compensation shall be considered as included in the prices paid for the various contract items and no additional compensation will be allowed therefore.

SECTION 03304

PORTLAND CEMENT CONCRETE

PART 1 GENERAL

1.01 SUMMARY

A. Portland cement concrete material requirements.

B. Mix design requirements.

C. Method of measurement and basis of payment

1.02 SUBMITTALS

A. Mix Design: Submit each proposed mix design 14 days prior to use in the Work. Indicate whether mixes have been designed for pumping. Include in the report the following information.

1. Water-cement ratio.
2. Proportion of materials in the mix.
3. Source and type of cement.
4. Analysis of water to be used unless potable.
5. Type and name of admixtures applied. Indicate when accelerating or retarding admixtures are to be used and the resulting change in placement times.
6. Slump, air content, and temperature of samples.
7. Unit weight of fresh and dry light weight concrete.

B. Concrete Quality Charts. Comply with ACI 214 and ACI 301, and submit the following.

1. Specified strength (f_c').
2. Required average strength (f_{cr}).
3. Compressive strength versus date of sample.

C. Optional design mix:

1. At the CONTRACTOR's option, he may elect to provide a concrete mix that has been previously designed, tested, and used and which provides the quality required by these Specification.
2. If the CONTRACTOR exercises this option, he shall submit to the ENGINEER for his approval all pertinent data, including test results to substantiate the design mix requested to be finished.

D. Aggregate Test Report: Submit for each aggregate source.

1. Date of test analysis.
2. Sieve analysis.
3. Organic impurities.
4. Sodium sulfate soundness test.
5. Reactivity of aggregate.
6. Complete identification of aggregate source of supply.

1.03 QUALITY ASSURANCE

A. Do not change material sources, type of cement, air-entraining agent, water reducing agent, other admixtures, or aggregate with ENGINEER's approval.

B. In proportioning materials for mixing, use scales certified by the State of Wyoming. Do not use volume measurement except for water and liquid admixtures.

C. Do not change the quantity of cement per cubic yard from approved mix design without written approval of ENGINEER.

D. Use of admixture will not relax hot or cold weather placement requirements.

E. Ready-mixed concrete to be in accordance with Alternate No. 3 of ASTM C 94 and requirements in this section.

F. Control Testing of Concrete: In accordance with Section 03305.

1.04 REFERENCES

A. AASHTO 26: Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.

B. ACI 211.1: Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.

C. ACI 211.2: Standard Practice for Selecting Proportions for Structural Lightweight Concrete.

D. ACI 211.3: Standard Practice for Selecting Proportions for Non-Slump Concrete.

E. ACI 214: Recommended Practice for Evaluation of Strength Test Results of Concrete.

F. ACI 301: Specifications for Structural Concrete for Buildings.

G. ASTM C 33: Standard Specification for Concrete Aggregates.

H. ASTM C88: Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.

I. ASTM C 94: Standard Specification for Ready-Mix Concrete.

J. ASTM C 150: Standard Specification for Portland Cement.

K. ASTM C 260: Standard Specification for Air-Entraining Admixtures for Concrete.

L. ASTM C 494: Standard Specification for Chemical Admixtures for Concrete.

M. ASTM C 618: Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan four use as a Mineral Admixture in Portland Cement Concrete.

1.05 DEFINITIONS

A. Average Strength (f_{cr}): The required average strength for 30 consecutive strength tests which statistically assures no more than the permissible proportions of tests will fall below Specified Strength.

B. Specified Strength (f_c'): The indicated strength.

1.06 PRODUCT STORAGE AND HANDLING

A. Store bagged and bulk cement in weatherproof enclosures to exclude moisture and contaminants.

B. Stockpile aggregate to avoid segregation and prevent contamination.

C. Avoid contamination, evaporation, or damage to admixtures. Protect liquid admixtures from freezing.

PART 2 PRODUCTS

2.01 CEMENT

A. ASTM C 150, Type II. Type I in above grade structure if approved, or as recommended by soils ENGINEER.

B. Do not use air entraining cement.

2.02 WATER

A. Clean, potable and free from injurious amounts of foreign matter.

B. Comply with AASHTO 26.

2.03 AGGREGATES - GENERAL

A. Gravel, crushed slag, crushed stone, or other inert materials, composed of hard, strong, durable particles free of injurious coatings.

B. The materials passing the No. 200 (75 ìm) sieve shall not exceed 1.75 percent by weight in the combined coarse and fine aggregate.

2.04 COARSE AGGREGATE

A. Sieve Analysis: Graded in accordance with ASTM C 33, as indicated in Table No. 03304-2.04.

B. Gradation limits of Table No. 03304, Subsection 2.04 may be changed if, in the judgment of the ENGINEER, workability and methods of consolidation are such that concrete can be placed without honeycomb or voids, and the maximum aggregate size does not exceed the following requirements.

1. 1/5 of narrowest dimension between forms.
2. 1/3 of depth of slabs.
3. 3/4 of minimum clear spacing between reinforcing bars.

C. Deleterious Substances: Maximum percentage by weight.

1. Soft Fragments: 2.0 percent
2. Coal and Lignite: 0.3 percent
3. Clay Lumps: 0.3 percent
4. Other Deleterious Substances: 2.0 percent

TABLE NO. 03304-2.04

MASTER GRADING BAND LIMITS FOR COARSE AGGREGATION

		COARSE AGGREGATE Percent Passing by Weight					
Sieve Sizes		Grade 467		Grade 57		Grade 67	
in	mm	Min	Max	Min	Max	Min	Max
2"	50.8	100	-	-	-	-	-
1 1/2"	38.1	95	100	100	-	-	-
1"	25.4	-	-	95	100	100	-
3/4"	19.1	35	70	-	-	90	100
1/2"	12.7	-	-	25	60	-	-
3/8"	9.5	10	30	-	-	20	55
#4	4.75	0	5	0	10	0	10
#8	2.36	-	-	0	5	0	5

2.05 FINE AGGREGATE

A. Sieve Analysis: Graded in accordance with ASTM C 33, as follows.

TABLE NO. 03304-2.05

MASTER GRADING BAND LIMITS FOR FINE AGGREGATION			
		FINE AGGREGATE Percent Passing by Weight	
Sieve Sizes			
in	mm	MIN	MAX
3/8"	9.5	100	-
#4	4.75	95	100
#16	1.18	45	80
#50	300µm	10	80
#100	150µm	2	10

B. Deleterious Substances: Maximum percentage by weight.
   1. Coal and Lignite: 0.3 percent.
   2. Clay Lumps: 0.5 percent.
   3. Other Deleterious Substances: 2.0 percent.

2.06 ADMIXTURES

A. Air Entrainment: ASTM C260.

B. Water Reducing and Set Retarding Agents: ASTM C 494.
   1. Type A: Set water reducing.
   2. Type B: Set retarding.
   3. Type C: Set accelerating.
   4. Type C: Water reducing and set retarding.
   5. Type E: Water reducing and set accelerating.
   6. Type F: High range water reducing (super plasticizer). *
   7. Type G: High range water reducing and set retarding. *

   * The relative durability factor of water reducing admixtures shall not be less than 80, and the chlorides content (as c1-) shall not exceed 1 percent by weight of the admixtures.

C. Calcium chloride: None allowed.

D. Pozzolan: Pozzolan conforming to the requirements of ASTM C 618, Class F, is allowed as a Portland cement replacing agent under the following conditions:
   1. The maximum percentage of Portland cement replacement is:
      a. 15 percent, for concrete exposed to weather.
      b. 20 percent, for interior concrete.
   2. The ratio of replacement by weight of Pozzolan to cement shall be 1.25 to 1.0.
   3. The minimum cement content shall be used in the design formulas before replacement is made.

4. Loss of ignition of Pozzolan is less than 3 percent, and the water requirement does not exceed 100 percent.
5. All other requirements of this Section still apply.
6. Mix designs including trial batches are required for each aggregate source and for each concrete class.

2.07 ACI MIX DESIGN

A. The amount by which the average strength (f_{cr}) of a concrete mix exceeds the specified compressive strength (f_c') shall be based upon no more than 1 in 100 random individual strength tests falling more than 500 psi (3.45 mPa) below the specific strength.

B. Proportion the materials in accordance with ACI 211.1, 211.1, or 211.3 as applicable to produce concrete having the properties or limitations of Table No. 03304-2.08.

2.08 HAND MIXING

A. Do not hand mix batches exceeding 0.5 cubic yards (0.4 cubic meters).

B. Hand mix only on watertight platform. Mix cement and aggregate prior to adding water.

C. Ensure all stones are thoroughly covered with mortar and mixture is of uniform color and consistency.

2.09 HEATING, WATER, AND AGGREGATE

A. Do not allow products of fuel combustion to contact the aggregate.

B. Heat mixing water to 150°F. (66°C) maximum. Heat aggregates uniformly.

C. Do not mix cement with water and aggregate at a mix temperature greater than 100°F. (38°C).

TABLE NO. 03304-2.08

CONCRETE MIX PROPERTIES

CONCRETE PROPERTIES	CONCRETE CLASSIFICATIONS					
	Class 7000	Class 6000	Class 5000	Class 4000	Class 3000	Class 2000
Specified Compressive Strength f_c' at 28 days, min., psi(mPa)	7000 (48.5)	6000 (41.4)	5000 (34.5)	4000 (27.6)	3000 (20.7)	2000 (13.8)
Compressive Strength at 7 days, psi, min. (a) (mPa)	4690 (32.4)	4020 (27.7)	3350 (23.1)	2680 (18.5)	2010 (13.9)	1430 (9.9)
Cement content (94 lb sacks of cement per cubic yard of concrete), min. (b)	(c)	(c)	(c)	6.0	5.5	4.5
Entrained air content, (% by column)	(d)	(d)	(d)	6±1	6±1 ±1.5	4.5
Slump range, in. (e) (mm)	2 - 4 (50 – 100)	2 - 4 (50 – 100)	2 - 4 (50 – 100)	2 - 4 (50 – 100)	2 - 4 (50 – 100)	2 - 5 (50 – 100)

(a) Used for monitoring purposes only.
(b) Includes Pozzolan replacements.
(c) Cement content shall be appropriate to produce a mixture meeting the requirements for water/cement ratio and workability for the specific job conditions.

(d) Air content shall be appropriate to the exposure conditions.
(e) Not more than 8 inches (200 mm) after adding high range water reducing admixture (super-plasticizer) at site.
(f) Not allowed if concrete is exposed to freezing and thawing temperatures. Use Class 4000 or higher compressive strength and 6±1.0 percent air entrainment.

PART 3 EXECUTION

3.01 INSTALLATION

A. CONCRETE WORK; Section 03310.
B. CONCRETE QUALITY CONTROL; Section 03305.
C. CONCRETE CURING; Section 03370.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Concrete will be measured by the cubic yard (cubic Meter) to the nearest one-tenth cubic yard (cubic meter) in accordance with the dimensions shown on the plans or ordered. Volumes occupied by reinforcing steel, anchors, or expansion devices, conduits, weep holes, structural steel, pre-cast, pre-stressed concrete girders, or steel piling will not be deducted from the concrete volume. Eye bolts required for box culverts and bridges to attach fencing, as shown on the plans, shall be considered subsidiary to other contract items.
B. Where the ENGINEER determines that it is impracticable to determine the volume of concrete by the dimension method, concrete will be measured by batch volumes incorporated into the Work. When batch measurement is used, an inspector will observe the weight of materials batches, and the weight will be converted to volume in accordance with the design mix.

4.02 BASIS OF PAYMENT

A. The accepted quantities of structural concrete will be paid for at the contract unit price per cubic yard (cubic meter) complete in place.
B. Payment will be made under the specific type or class of concrete, and the pay unit shall be by the cubic yard (C.Y.) (Cubic Meter) basis.

SECTION 03305

CONCRETE QUALITY CONTROL

PART 1 GENERAL

1.01 SUMMARY

A. Testing requirements for CONTRACTOR's quality control of Portland cement concrete mixtures.

B. Re-testing potentially defective concrete.

1.02 SUBMITTALS

A. Field and laboratory control test reports for material properties enumerated herein.

B. Material certificates.

1.03 QUALITY ASSURANCE

A. Test Forms and Storage Areas: ASTM C 31.

B. Control testing in accordance with Section 01440.

1.04 REFERENCES

A. ACI 318: Building Code Requirements for Reinforced Concrete.

B. ASTM C 31: Standard Practice for Making and Curing Concrete Test Specimens in the Field.

C. ASTM C 39: Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.

D. ASTM C 42: Standard Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.

E. ASTM C 78: Standard Test Method for Flexural Strength of Concrete (Using Simple Beam withThird-Point Loading).

F. ASTM C 138: Standard Test Method for Unit Weight, Yield, and Air Content (Gravimetric) of Concrete.

G. ASTM C 172: Standard Method of Sampling Freshly Mixed Concrete.

H. ASTM C 173: Standard Test Method for Air Content of Freshly Mixed Concrete by Volumetric Method.

I. ASTM C 231: Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.

J. ASTM C 567: Standard Test Method for Unit Weight of Structural Lightweight Concrete.

K. ASTM D 4832: Standard Test Method for Preparation and Testing of Soil-Cement Slurry Test Cylinders.

1.05 PROJECT CONDITIONS

A. Furnish labor to assist in obtaining and handling samples at site or sources.

B. As a result of failed tests, perform remedial Work at no additional cost to OWNER.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 EXAMINATION

A. Obtaining Samples: Unless indicated otherwise, secure composite samples in accordance with ASTM C 172. Obtain Samples from different portions of the batch of concrete.

B. Casting:

1. Cast and cure 4 concrete cylinders in accordance with ASTM C 31, 3 for testing and 1 to be cured as a spare. Determine unit weight, slump, air content, and temperature of concrete casting.
2. For controlled low-strength material (CLSM) and lime treated fills, cast concrete cylinders in accordance with ASTM D 4832.

C. Testing: Perform compression tests on samples in accordance with ASTM C 39.

1. Two specimens shall be tested at 28 days for acceptance and one shall be tested at 7 days for information. The acceptance test results shall be the average of the strengths of the two specimens tested at 28 days. If one specimen in a test manifests evidence of improper sampling, molding or testing, it shall be discarded and the spare specimen shall be tested and averaged as one of the two constituting the 28 day test.
2. For controlled low-strength material (CLSM) and lime treated fills, test 1 cylinder at 3 days and the remainder at 28 days.
3. If any one cylinder in a 28-day test shows definite evidence, other than low strength, of improper sampling, molding, handling, curing, or testing, discard. The average strength of the remaining cylinders shall be considered the test result.

3.02 TESTING FLEXURAL STRENGTH

A. Obtaining Samples: Secure composite samples in accordance with ASTM C 172. Obtain samples from different portions of the batch of concrete.

B. Casting: Cast and cure 4 concrete beams in accordance with ASTM C 31. Determine slump, air content, and temperature of concrete casting. Report deviations from requirements.

C. Testing: Perform flexural tests on samples; ASTM C 78.

1. Test 1 beam at 7 days or as approved by ENGINEER for determining when construction traffic is permitted on paved surfaces.
2. Test the remaining beams at 28 days. IF any one beam in a 28-days test shows definite evidence, other than low strength, of improper sampling, molding, handling, curing, or testing, discard. The average strength of the remaining beams shall be considered the test results.

3.03 TESTING CONCRETE PAVEMENT THICKNESS

A. Determined from cores secured in accordance with ASTM C 42.

3.04 TESTING CONCRETE PAVING SMOOTHNESS

A. Maximium perperdicular distance between 3 straightedge points and the pavement surface:

1. Parallel to Centerline: 1/8 inch to 10 feet (3.18 mm to 3 meters).
2. Perpendicular to Centerline: 1/4 inch to 10 feet (6.35 mm to 3 meters).

3.05 ADDITIONAL TESTING

A. Slump Test: ASTM C 231.

B. Air Test:

1. Normal weight concrete air content; ASTM C 231.
2. Light weight concrete air content; ASTM C 173.

C. Unit Weight:
   1. Normal weight concrete; ASTM C 138.
   2. Light weight concrete; ASTM C 567.

D. When requested, test concrete in place by impact hammer, sonoscope, or other non-destructive device:
   1. To determine relative strengths in various locations in Work.
   2. To aid in evaluating concrete strength.
   3. To select areas to be cored.
   4. Te verify quality control in the absence of Control Testing.

3.06 RE-TESTING POTENTIALLY DEFECTIVE CONCRETE

A. If a concrete test result is below specification and the Work is considered potentially deficient:
   1. A request to ENGINEER for re-testing must be made with 35 days from time pf placement if CONTRACTOR desires re-test.
   2. No coring or re-testing shall be done after 40 days have elapsed from the time of placement.
   3. Only 1 rte-test shall be allowed for a test sublot.

B. Obtain and test cores in accordance with ASTM C 42. Secure a minimum of 3 cores from each sublot considered potentially deficient. Coordinate test locations with ENGINEER.

C. If concrete in Work will be dry under service condition, air dry cores for 7 days before tests. Unless otherwise specified, use air temperature 60 to 80°F (16 to 27° C) and relative humidity less than 60 percent.

D. If concrete in Work under service conditions will be more than superficially wet, test cores after moisture conditioning (liquid or vapor water cure).

E. If 1 or more cores shows evidence of having been damaged before testing, provide replacement.

F. Evaluate cores in accordance with ACI 318.

G. If core tests are inconclusive or impractical to obtain, or if structural analysis does not confirm the safety of the Work, load test may be required and evaluated in accordance with ACI 318.

H. Fill core holes with non-shrink, low slump concrete mortar. Coat sides of holes with an approved concrete epoxy resin adhesive. Match color and texture of surrounding concrete.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Measurement will be made only if additional testing and analysis required if the tests show deficiencies. Measurement will be based on the independent lab units of measure.

4.02 BASIS OF PAYMENT

A. Pay all costs incurred in providing additional testing and analysis required if the tests show deficiencies. If additional testing shows concrete meets specification, OWNER will pay for additional testing.

SECTION 03310

CONCRETE WORK

PART 1 GENERAL

1.01 SUMMARY

A. Concrete placement operations for cast-in-place slabs on grade, slabs on fill, structural building frame, and other concrete components.

1.02 SUBMITTALS

A. Quality control test reports and material certificates; Section 03305.

B. Record of Placed Concrete: Record date, location of pour, quantity, air temperature, and CONTRACTOR's quality control test samples taken.

C. Product name, type, and chemical analysis of the following is applicable:

1. Curing compound.
2. Sealing compound.
3. Chemical hardener.
4. Bonding compound.

D. Batch Delivery Ticket: Submit for each batch delivered to site.

1. Slump of batch at the job site.
2. Date.
3. Producer and plant.
4. Job.
5. Name of contractor.
6. Serial number of ticket.
7. Truck number and time dispatched.
8. Volume of concrete.
9. Reading of revolution counter at first addition of water.
10. Signature or initials of Ready-Mix representative.
11. Type and brand of cement
12. Amount of cement.
13. Total water content (W/C/ ratio).
14. Water added for receiver of concrete and receiver's initials.
15. Admixture types and amounts.
16. Maximum size of aggregate.
17. Separate weights of fine and coarse aggregate.
18. Indication that all ingredients are as previously certified or approved.

1.03 QUALITY ASSURANCE

A. Rejection: Concrete Work which fails to meet one or more of the following requirements and which cannot

be brought into compliance shall be rejected. ENGINEER shall determine appropriate modifications or payment adjustments to be made.

1. Appearance: Concrete exposed to view with defects which adversely affect appearance of specified finish.
2. Strength: Strength of concrete fails to comply with any of the following requirements.
   a. The average of three 28-day compressive or flexural strength samples made from the same batch of concrete falls below the acceptance level.
   b. Reinforcing steel size, quantity, strength, position, damage, or arrangement at variance with requirements.
   c. Concrete which differs from required dimensions or location in such a manner as to reduce its strength or load carrying capacity.
   d. Method of curing is not as specified.
   e. Inadequate protection of concrete from extremes of temperature during the early stages of hardening and strength development.
   f. Mechanical injury, construction fires, accidents, or premature removal of formwork likely to result in deficient strength development.
   g. Workmanship likely to result in deficient strength.
3. Slab Tolerance: Finishing which fails to comply with Section 03345 requirement.
4. Material Sources: Failure to comply with Section 03305.

B. Finishers: Approved by ENGINEER or ACI certified.

1.04 REFERENCES

A. ACI 301: Specifications for Structural Concrete for Buildings.

B. ACI 305: Hot Weather Concreting.

C. ACI 306.1: Cold Weather Concreting.

D. ACI 309: Standard Practice for Consolidation of Concrete.

PART 2 PRODUCTS

2.01 MATERIALS

A. Concrete: Class as indicated, material in accordance with Section 03304.

B. Bonding Compound: Polyvinyl acetate base or acrylic base, non-rewettable type.

C. Vapor Barrier: 10 mil thick, clear polyethylene sheet. Type recommended for below grade application and shall be free from pin holes, tears, scars, and other defects.

D. Forms: In accordance with Section 03100.

E. Reinforcement: In accordance with Section 03200.

F. Coverings and Curing Compound: In accordance with Section 03370.

G. Non-shrink Grout: Adhesives epoxy, in accordance with Section 03600.

PART 3 EXECUTION

3.01 PREPARATION

A. Verify that anchors, seats, plates, reinforcement, and other items to be cast into concrete are accurately placed, held securely, and will not impede placing concrete.

B. Do not allow construction loads to exceed member capacity.

C. Prepare previously placed concrete by cleaning with steel brush and applying bonding compound. Apply bonding compound in accordance with manufacturer's instructions.

D. At locations where new concrete is dowelled to existing Work, drill holes in existing concrete, insert steel dowels, and pack solid with non-shrink grout.

3.02 DELIVERY

A. Slump: Do not discharge concrete if its slump is greater or less than permissible slump. Report results of slump test on batch delivery tickets.

B. Concrete Placement Time Limit: After the introduction of mixing water to the cement and aggregates at the batch plant, discharge concrete from truck mixer within the following air temperatures and time periods.

5. Air temperature less than 80°F (27° C): 1-1/2 hours.
6. Air temperature over 80°F (27° C) without a retarder added to the mix: 1 hour maximum.
7. Air temperature over 80°F (27° C) with retarder added to the mix: 1-1/2 hours maximum.

C. Tempering

1. When concrete arrives at site with slump below specified, water may be added if the maximum approved water/cement ratio and the maximum slump is not exceeded, provided that:
   a. The approved mix design has allowed for on-site addition of water.
   b. The amount of water added at the site is accurately measured to ±1 gallon (3.785 liters) of the desired added amount.
   c. That water addition is followed by 3 minutes of mixing at mixing speed prior to discharge.
   d. That the person authorized to add water is mutually approved of in writing by ENGINEER, CONTRACTOR, and Ready-Mix Supplier.
2. Do not add water after concrete discharge from the mixer commences.

D. Cold Weather, Hot Weather Concreting: Maintain mixed concrete temperature at times of placement between 60°F (16° C) and 90°F (32° C).

E. Super-plasticizer

3. Pre-measure and add high range water reducing agent in accordance with manufacturer's instructions.
4. If added at site, add agent using injection equipment capable of rapidly and uniformly distributing the admixture to the concrete. Prior to discharge, mix for a minimum of 5 minutes at a drum rate not less than 12 rpm or more than 15 rpm.
5. If added at plant, do not deliver to site unless batch delivery ticket displays water/cement ratio prior to super-plasticizer addition.
6. Tempering with super-plasticizer after expiration of allowable delivery times is prohibited.

3.03 CONCRETE PLACEMENT

A. Notify ENGINEER minimum 24 hours prior to commencement of concrete placement operations.

B. Place concrete in accordance with ACI 301.

C. Hot Weather Placement: When hot weather conditions exist that would seriously impair the quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.

1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90°F (32° C). Mixing water may be chilled, or chopped ice may be used to control the concrete temperature, provided the water equivalent of the ice is calculated to the total amount of mixing water.
2. Cover reinforcing steel with water-soaked burlap if it becomes too hot so that the steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.

3. Wet forms thoroughly before placing concrete.

D. Cold Weather Placement

4. Protect concrete Work from physical damage or reduced strength, which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified. If necessary to place concrete under conditions of low temperature, placement shall be approved by the ENGINEER.
5. When air temperature has fallen to or ix expected to fall below 40°F (4° C), uniformly heat all water and aggregates before mixing, as required to obtain a concrete mixture temperature of not less than 50°F (10° C) and not more than 70°F (21° C) for 3 days or 50°F (10° C) for 5 days.
6. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen material.
7. Do not use calcium chloride, salt and other material containing antifreeze agents, or chemical accelerators, unless otherwise accepted in writing by the ENGINEER,

E. Do not disturb reinforcement, inserts, embedded parts, and formed joints.

F. Do not break or interrupt successive pours such that cold joints occur.

G. Honeycomb or embedded debris in concrete is not acceptable.

3.04 JOINTS AND JOINT SEALING

A. Expansion and contraction joints, in accordance with Section 03251.

3.05 CONSOLIDATION

A. In accordance with ACI 309.

B. Keep spare vibrator available during concrete placement operations.

3.06 FINISHING

A. Do not add water to concrete surface (i.e., sprinkle) without written approval.

B. Slab Finishing Tolerance: In accordance with Section 03345.

C. Finished: In accordance with Section 03345. When type of finish is not indicated, use following finished as applicable:

1. Sidewalks, garage floors, and ramps: Broom or belt finish.
2. Exterior concrete pavement: Broom or belt finish.
3. Exterior platforms, steps and landings, exterior and interior pedestrian ramps, not covered by other finish materials: Non-slip finish.
4. Surfaces intended to receive bonded applied cementitious applications: Scratched finish.
5. Surfaces intended to receive roofing, except future floors, waterproofing membranes, and roof coverings: Troweled finish.
6. Floors and roof surfaces which are floors intended as walking surfaces or to receive floor coverings: Troweled finish.
7. Unpainted concrete surfaces not exposed to public view: Rough as-cast form finish.
8. Unpainted concrete surfaces exposed to public view: Smooth as-cast form finish.
9. Concrete surfaces to receive paint or plaster: Grout cleaned finish.

3.07 CURING

A. Cure in accordance with Section 03370. Unless specified otherwise, apply a liquid membrane curing compound.

3.08 CONTROL TESTING

A. Arrange for and perform all control testing required for qualification of proposed materials and the establishment of mix designs, in determining strengths for early form removal and other needs of CONTRACTOR.

B. One slump test for each batch of concrete placed in the Work.

C. Two slump tests, one before and one after the addition of super-plasticizer.

3.09 DEFECTIVE CONCRETE

A. Modify or replace concrete not conforming to required levels, lines, details, and elevations.

B. Structural analysis and additional testing may be required at no additional cost to OWNER when the strength of a structure is considered potentially deficient.

C. Patch imperfection. Refer to Section 03345 requirements.

3.10 PROTECTION AND REPAIRS

A. Protection: immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimum moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Random Cracks in Pavement Slabs on Grade: When cracks occur within 2 feet (0.61 meters) of expansion or construction joints, remove and repair, otherwise grout with Section 03600 epoxy adhesive grout. Use saw cuts and dowels in all cut planes.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Measurement of this item shall be of the number of cubic yards (cubic meters) placed for each concrete structural unit or category individually identified in the "Bid Schedule".

4.02 BASIS OF PAYMENT

A. Payment for concrete work shall be based on the unit price bid for each individual concrete category multiplied by the number of units (cubic yards) (cubic meters) placed and measured as above.

SECTION 03345

CONCRETE FINISHING

PART 1 GENERAL

1.01 SUMMARY

A. Finishing interior and exterior concrete surfaces.

1.02 SUBMITTALS

A. Name, type, chemical analysis and manufacturer's recommended rate of application fo rliquaid chemical hardener.

1.03 REFERENCES

A. ACI 303: Guide to Cast-in-Place Architectural Concrete Practice.

1.04 PROJECT CONDITIONS

A. Protect adjacent materials and finished from dust, dirt, and other surface or physical damage during finishing operations. Provide protections as required and remove from site at completion of Work.

PART 2 PRODUCTS

2.01 MATERIALS

A. Mortar and Grout: In accordance with Section 03600.

B. Dry Shake: Blend of metallic mineral aggregate with Portland cement concrete in proportions recommended by manufacturer.

C. Proprietary Materials: If permitted or required, proprietary compounds may be used in lieu of or in addition to foregoing materials. Use such compounds in accordance with manufacturer's recommendations.

D. Liquid-Chemical Hardener: Colorless, aqueous solution containing a blend of magnesium fluosilicate, zinc fluosilicate, and a wetting agent. Mixture contains not less than 2 pounds fluosilicate per gallon (0.24 kilograms fluosilicate per liter) and does not interfere with adhesives and bonding of finishes where such is indicated.

PART 3 EXECUTION

3.01 PREPARATION

A. Examine the areas and conditions under which Work of this Section will be performed.

B. Correct conditions detrimental to timely and proper finishing.

C. Do not proceed until unsatisfactory conditions are corrected.

3.02 FINISHING OF FORMED SURFACES

A. General

1. Allow concrete to cure not more than 72 hours before commencing surface finish operations,

unless approved otherwise.

2. Revise the finishes as needed to secure approval.

B. As-Cast Form Finish

1. Rough: Patch defects, dhip or rub off fins exceeding 1/4 inch (6.35 mm) height.
2. Smooth: Patch tie holes and defects and remove fins completely
   a. When surface texture is impaired and form joints misaligned, grind, bushhammer, or correct affected concrete.
   b. Slurry grout areas evidencing minor mortar leakage to match adjacent concrete.
   c. Repair major mortar leakage as a defective area.
   d. When workmanship is less than acceptable standard, provide one of rubbed finishes at no additional cost to OWNER.

C. Rubbed Finish

1. Smooth Rubbed: Remove forms and perform necessary patching as soon after placement as possible.
   a. Finish newly hardened concrete no later than 24 hours following form removal.
   b. Wet surfaces and rub with carborundum brick or other abrasive until uniform color and texture are produces.
2. Grout Cleaned: Undertake no cleaning operations until all contiguous surfaces are completed and accessible.
   a. Wet surface of concrete sufficiently to prevent absorption of water from grout.
   b. Apply grout uniformly.
   c. Immediately after grouting, scrub surface with cork float or stone to coat surface and fill voids.
   d. While grout is still plastic remove excess grout by working surface with rubber float or sack.
   e. After surface whitens from drying, rub vigorously with clean burlap.
   f. Keep damp for at least 36 hours after final rubbing.
3. Cork Floated: Remove forms within 2 to 3 days of placement where possible.
   a. Remove ties.
   b. Remove all burrs and fins.
   c. Dampen wall surface.
   d. Apply mortar with firm rubber float or with trowel, filling all surface voids.
   e. Compress mortar into voids.
   f. If mortar surface dries too rapidly to permit proper compaction and finishing, apply a small amount of water with fog sprayer.
   g. Produce final texture with cork float using a swirling motion.

D. Unformed Finish

1. After concrete is placed, strike smooth, tops of walls or buttresses, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces.
2. Float to texture which is reasonably consistent with formed surfaces.
3. Continue final treatment on formed surfaces uniformly across uniformed surfaces.

E. Blasted Finish

1. Perform abrasive blasting within 24 to 72 hours after casting.
2. Coordinate with form work construction, concrete placement schedule, and form work removal to ensure that surfaces are blasted at the same age for uniform results.
3. Re-apply curing protection after blast finishing.

F. Architectural Finish

1. General: In accordance with ACI 303.
2. Tooled Finish:
   a. Dress thoroughly cured concrete surface with electric, air, or hand tools to uniform texture, and give a bush hammered surface texture.
   b. Remove sufficient mortar to exposed coarse aggregate in relief and to fracture coarse aggregate for tooled finish.

G. Patched Finish

1. Repair defective areas.
   a. Remove honeycomb and defective concrete to sound concrete.
   b. Make edges perpendicular to surface or slightly undercut.
   c. Featheredges are not permitted.
   d. Dampen area to be patched and at least 6 inches (150 mm) surrounding it to prevent absorption of patching mortar water.
   e. Prepare bonding grout.
   f. Mix to consistency of thick cream.
   g. Brush into surface.
2. Tie Holes: Unless indicated otherwise, after being cleaned and thoroughly dampened, fill tie holes solid with patching mortar
3. Make any patches in concrete to closely match color and texture of surrounding surfaces. Determine mix formula for patching mortar by trial and obtain a good color match with concrete when both patch and concrete are cured and dry.
   a. Mix white and gray Portland cement as required to match surrounding concrete to produce grout having consistency of thick paint.
   b. Use a minimum amount of mixing water.
   c. Mix patching mortar in advance and allow to stand without frequent manipulation, without addition of water, until it has reached stiffest placeable consistency.
   d. After initial set, dress surfaces of patches manually to obtain same texture as surrounding surfaces.
4. After surface water has evaporated from patch area, brush bond coat into surface.
   a. When bond coat begins to lose water sheen, apply patching mortar.
   b. thoroughly consolidate mortar into place and strike-off to leave patch slightly higher than surrounding surface.
   c. Leave undisturbed for at least 1 hour before final finish.
   d. Keep patched area damp for 72 hours or apply curing compound.
   e. Do not use metal tools in finishing an exposed patch.
5. Where as-cast finishes are indicated, total patched area may not exceed 1 in 500 of as-cast surface.
6. In any finishing process which is intended to expose aggregate on surface, patched areas must show aggregate.
   a. Outer 1 inch (25 mm) of patch shall contain same aggregates as surrounding concrete.
   b. For aggregate transfer finish, patching mixture shall contain same selected colored aggregates.
   c. After curing, expose aggregates together with aggregates of adjoining surfaces by same process.

3.03 FINISHING SLABS

A. Slab Finishing Tolerances:
   1. Class A finish: 1 in 1,000.
   2. Class B finish: 1 in 500.
   3. Class C finish: 1 in 250.

B. Broom and Belt Finish: After concrete has been placed, consolidated, struck-off, and leveled to the required tolerance, roughen surface transversely with stiff brushes, rakes, or burlap belt before final set.

C. Floated Finish: After concrete has been placed, consolidated, struck-off, and leveled, do not work further until ready for floating.
   1. Begin floating when water sheen has disappeared and surface has stiffness sufficient to permit operation.
   2. During or after first floating, check planeness of entire surface with a 10 foot (3 meters) long straightedge applied at 2 or more different angles.
   3. Cut down high spots and fill low spots to the required tolerance,
   4. Re-float slab immediately to a uniform sandy texture.

D. Trowel Finish
   1. Float finish surface.
   2. Power trowel.
   3. Hand trowel as required to provide surface. Do not apply water (i.e., sprinkle) to surface of concrete in finishing operations.
   4. First troweling after power floating shall produce smooth surface relatively free of defects but which may still show some trowel marks.
   5. Second trowel by hand after surface has hardened.
   6. Leave finished surface essentially free of trowel marks, uniform in texture and appearance.
   7. On surfaces intended to support floor coverings, grind off defects which would show through floor coverings.

E. "Dry Shake" Finish: Give surface a floated finish.
   1. Apply approximately 2/3 of a blended material for required coverage to surface by a method that ensures even coverage without segregation.
   2. Begin floating immediately after application of first "dry shake".
   3. After material has been embedded by floating, apply remainder of blended material to surface at right angles to prevent application.
   4. Make second application heavier in any areas not sufficiently covered by first application.
   5. Immediately follow with second floating.
   6. After selected material has been embedded by second floating, complete operation with a broomed, floated, or troweled finish, as indicated.

F. Non-slip Finish: Give surface a "dry shake" application, using crushed, ceramically bonded, aluminum oxide particles. Apply at 25 pounds per 100 square feet (12.2 kilograms per 10 square meters).

G. Exposed Aggregate Finish: Immediately after surface of concrete has been leveled to tolerance and surface water has dissipated, spread aggregate uniformly over surface to provide complete coverage to the depth of a single stone.
   1. Embed aggregate into surface by light tamping.
   2. Float surface until embedded aggregate is fully coated with mortar and surface has been brought to tolerance.
   3. Start exposure of aggregate after matrix has hardened sufficiently to prevent dislodgment.
   4. Flow ample quantities of water, without force, over surface of concrete while matrix encasing aggregate is removed by brushing with a fine bristle brush.

5. Continue until aggregate is uniformly exposed.
6. An approved chemical retarded sprayed onto freshly floated surface may be used to extend working time.

H. Chemical-Hardener Finish: Apply liquid chemical-hardener finish to interior concrete floors where indicated. Do not apply liquid chemical concrete hardener on floor areas scheduled to receive synthetic matrice terrazzo, setting beds for tile, terrazzo, vinyl flooring, or like items. Apply hardener after complete curing and drying of concrete surface in accordance with manufacturer's recommendations. Evenly apply each coat, and allow 24 hours for drying between coats. After final coat of chemical-hardener solution is applied and dried, remove surplus hardener by scrubbing and mopping with water.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Unless otherwise noted in the special provisions, no separate measurement will be made for items under this section. Full compensation shall be considered as included in the prices paid for the various contract items and no additional compensation will be allowed therefore.

4.02 BASIS OF PAYMENT

A. Unless otherwise noted in the special provisions, no separate payment will be made for items under this section. Full compensation shall be considered as included in the prices paid for the various contract items and no additional compensation will be allowed therefore.

SECTION 03370

CONCRETE CURING

PART 1 GENERAL

1.01 SUMMARY

A. Concrete curing material requirements and methods.

1.02 SUBMITTALS

A. Manufacturer's specifications, test data, and other data required to prove compliance with the specified requirements.

B. Manufacturer's recommended installation procedures which, when approved by ENGINEER, will become the basis for accepting or rejecting actual installation procedures used in the Work.

1.03 QUALITY ASSURANCE

A. Use workers who are trained, experienced, and completely familiar with the curing and protection requirements of ACI 301 and the specified requirements and the methods needed for proper performance of the Work of this Section.

B. Maintain concrete with minimum moisture loss at relatively constant temperature recommended by manufacturer for a period necessary for hydration of cement and hardening of concrete.

1.04 REFERENCES

A. ACI 301: Specifications for Structural Concrete for Buildings.

B. ASTM C 171: Standard Specification for Sheet Materials for Curing Concrete.

C. ASTM C 309: Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

D. ASTM C 642: Standard Test Method for Specific Gravity, Absorption, and Voids in Hardened Concrete.

1.05 PRODUCT HANDLING

A. Protect the materials of this Section before, during, and after installation, and protect the Work and materials of other trades.

B. In the event of damage, immediately make replacements and repair at no additional cost to OWNER.

PART 2 PRODUCTS

2.01 WATER

A. Clean, non-straining and non-detrimental.

2.02 MOISTURE-RETAINING SHEET MATERIALS

A. ASTM C 171, white, waterproof paper, polyethylene film, or burlap-polyethylene sheet.

2.03 ABSORPTIVE MAT MOISTURE COVER

A. Cotton or burlap fabric, clean roll goods.

2.04 CURING COMPOUND

A. Liquid membrane, in accordance with ASTM C 309.

B. Substance type: Unless indicated, CONTRACTOR to select from the following:

1. Chlorinated rubber.
   a. Type of Compound: Type 2, white pigmented (Titanium Oxide TtiO2), 7 to 9 percent by weight of total solids.
   b. Vehicle Solids Material: Class B, restricted to all resin materials. 40 percent minimum by weight of total solids remainder of vehicles solids to chlorinated paraffin.
   c. Total Solids: 25 percent minimum by weight of compounds.
   d. Viscosity: 20 seconds maximum (Ford Cup).
   e. Fineness of Grand: 6 minimum.
   f. Drying Time:
      1) Set to Touch: 20 minutes maximum.
      2) Dry Hard: 45 minutes.
      3) Alkali Resistance: 48 hours minimum.
   g. Salt Spray (5% @ 95°F (35° C)): 500 hours minimum.
2. Sodium silicate.
   a. Type of Compound: Type 2, white pigmented.
   b. Vehicle Solids Material: Class A, no restriction.
3. Poly-siloxane (alkozy silozane)>
   a. Type of Compound: Type 1, clear or translucent without dye.
   b. Vehicle Solids Material: Class B, restricted to all resin materials.

C. Water Solubility: Less than 1 percent.

D. Weight Gain: At least 85 percent reduction of water absorption during initial 24 hour curing period when compared to untreated test sample, ASTM C 642.

E. Scaling Resistance: Weight loss less than 2.0 percent when subject ot 500 cycles of freeze-thaw.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify concrete surfaces are ready for curing. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. Prepare the surface in strict accordance with manufacturer's recommendations.

3.03 MOISTURE COVER CURING

A. Apply one or both of the following methods.
   1. Water or continuous water-fog spray.
   2. Cover concrete surface with absorptive mat, thoroughly saturate with water, and keep continuously wet.

B. Place absorptive mat to provide coverage of concrete surfaces and edges. Lap over adjacent absorptive covers.

3.04 MOISTURE-RETAINING SHEET CURING

A. Place cover in widest practicable width with sides and ends lapped and sealed to prevent moisture loss.

B. Repair any holes or tears during curing period.

3.05 FORMED SURFACE CURING

A. Cure formed concrete surface, including undersides of beams, supported slabs, and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed.

B. If forms are removed, continue curing by curing compound or methods indicated above, as applicable.

3.06 UNFORMED SURFACE CURING

A. Cure unformed surfaces, such as slabs, floor toppings, and other surfaces by application of appropriate curing method.

B. Final cure concrete surfaces to receive liquid floor hardener or finish flooring by use of moisture-retaining cover, unless approved otherwise.

3.07 CURING COMPOUND

A. Apply the approved product to the designated surfaces in strict accordance with the manufacturer's recommended application procedures.

B. Apply immediately following the final finishing operation as soon as the concrete is form enough to work on.

C. Apply uniformly in continuous operation.

D. Maintain continuity of coating and repair damage during cure period.

E. Should side forms be removed before expiration of cure period, coat exposed surface with curing compound.

F. Unless specified otherwise by manufacturer of curing compound, do not use curing compound on surfaces which are to be covered with coating materials.

3.08 SCHEDULE OF CURING APPLICATIONS

A. Concrete Exposed to Potable Water (as in Water Storage Reservoirs): Moisture cover curing.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Unless otherwise noted in the special provisions, no separate measurement will be made for items under this section. Full compensation shall be considered as included in the prices paid for the various contract items and no additional compensation will be allowed therefore.

4.02 BASIS OF PAYMENT

A. Unless otherwise noted in the special provisions, no separate payment will be made for items under this section. Full compensation shall be considered as included in the prices paid for the various contract items and no additional compensation will be allowed therefore.

SPECIAL PROVISIONS

SPECIAL PROVISIONS

Unless otherwise specified on the plans or Special Provisions and Supplementary Specifications included in the contract, the Work shall conform to the 2001 Edition of the Wyoming Public Work Standard Specifications. These Special Provisions and Supplementary Specifications supplement, amend, and where in conflict therewith, supersede the Wyoming Public Work Standard Specifications. To obtain copies of the Wyoming Public Works Standard Specifications, contact the Wyoming Contractor's Association, phone: (307) 632-0573.

SECTION 01010 SUMMARY OF WORK

Add the following language:

2.01 GENERAL DESCRIPTION OF WORK

A. Project Includes:
   1. Topsoil Stripping
   2. Excavation and Embankment
   3. Pit Run Gravel Sub Base
   4. Gravel Base Course
   5. Plant Mix Pavement
   6. Bridge Abutment Construction
   7. Bridge Pier Construction
   8. Prefabricated Bridge Installation
   9. Bridge Decking
   10. Fence Construction
   11. Topsoil Placement and Hydroseeding
   12. Signage and Striping

B. Change in Scope

   After receipt of bids, OWNER may elect to adjust the Scope of Work to correspond with available funding or scheduling requirements.

SECTION 01041 PROJECT COORDINATION

1.01 SUMMARY

Add the following language to the end of paragraph B:

B. CONTRACTOR shall adhere to local ordinances regarding work hours if more stringent than that specified.

C. Work times and dates may be limited by Wyoming Game and Fish and/or the National Elk Refuge for wildlife protection concerns.

1.02 COORDINATION WITH PUBLIC AND PRIVATE AGENCIES

Add the following language:

E. CONTRACTOR shall coordinate with others working at the site to minimize conflicts and to provide required access.

F. CONTRACTOR shall minimize noise caused by operation. Equipment shall be equipped with suitable silencers and/or mufflers to minimize noise. CONTRACTOR shall not permit

the use of loud, abusive, obnoxious, or profane language by his employee or employees of his subcontractors.

G. CONTRACTOR shall actively minimize the amount of dust, debris, and noxious fumes into the air.

H. CONTRACTOR shall not interrupt utilities providing services to properties adjacent to the work, except as specifically approved by the authority having jurisdiction. Services damaged or interrupted by CONTRACTOR's operation shall be immediately repaired or replaced at the CONTRACTOR's expense. When interruption of services is approved, CONTRACTOR shall notify occupant at least 24 hours prior to the interruption.

I. CONTRACTOR shall make every effort to minimize disturbance of private property by his operations. CONTRACTOR shall notify owner, occupant, and ENGINEER at least 24 hours prior to conducting any operation that requires removal, replacement, or damage to private property. CONTRACTOR shall remedy such removal, replacement, or damage at the CONTRACTOR's expense.

J. CONTRACTOR shall remove all materials, tools, equipment, and construction debris from the site immediately after completion of the work task. No construction debris shall be disposed of at the work site.

1.03 COORDINATION WITH OWNER AND ENGINEER

Add the following language:

C. References to ENGINEER shall mean the OWNER'S Resident Project Representative or Project Manager.

D. CONTRACTOR shall attend and participate with weekly progress/coordination meetings conducted by ENGINEER. Authorized representatives of the CONTRACTOR shall attend the meetings. ENGINEER may schedule such meetings more or less at ENGINEER's discretion, in consideration of the work issues to be addressed.

E. Provide ENGINEER three working days prior notice for testing that is to be verified or performed by the ENGINEER.

F. ENGINEER will provide engineering surveys to establish necessary reference points. Provide ENGINEER three working days prior notice of surveying necessary to establish reference points for construction. Construct all work in relative conformance with the lines and grades shown on the Drawings, unless otherwise modified by ENGINEER as provided in the General Conditions.

G. Additional coordination will be required between the CONTRACTOR and the adjacent pathway construction projects. CONTRACTOR will be required to coordinate with the OWNER with regard to the connection to the Phase 2 Pathway. Shared access and staging on the south side of the bridge is likely. Coordination of activities between contractors will be required.

Add the following language:

1.04 COORDINATION WITH BRIDGE MANUFACTURER

A. Additional coordination will be required between the CONTRACTOR, OWNER and the Bridge Manufacturer with regard to the fabrication and delivery schedule. CONTRACTOR will be required to coordinate with the manufacturer for scheduling for delivery.

B. The Phase 3A – N89 Pathway Bridge Procurement Project was bid on November 9, 2010. Wheeler Lumber, LLC, Bloomington MN, (800) 328-3986, is the apparent low bidder for the Bridge Manufacturing Contract. Coordination and scheduling with this entity will be required for this project.

C. Installation Contractor will be responsible to off-load the structure elements from the transport, therefore close coordination and scheduling is critical. Bridge shall not be delivered until Installation Contractor is ready.

D. All necessary off-loading, handling, and any temporary storage of the Bridge on or off site is the responsibility of the Installation Contractor.

Add the following language:

1.05 PROJECT PERMITS OBTAINED BY THE CONTRACTOR

A. Application for Temporary Turbidity Increase

1. Contractor shall be responsible for the application and receive approval for this permit prior to any work within the river channel or other activities that may increase turbidity of the river.

2. Engineer will assist Contractor in the preparation of the permit and may assist in the routine sample collection and record keeping.

3. Information regarding the requirements for this permit are available from:

Jeff Clark
DEQ/Water Quality Division
122 West 25th Street
Herschler Building, 4th Floor-West
Cheyenne, Wyoming 82002

Add the following language:

1.06 PROJECT PERMITS OBTAINED BY THE OWNER

A. Compliance with all applicable requirements of the following agencies from which the Owner has obtained permits is required.

1. U.S. Army Corps of Engineers
2. Teton County Floodplain Development
3. Teton County Bridge Permit
4. Temporary surface water rights for construction water

B. Copies of the above permits are available from the Owner upon request.

SECTION 01090 REFERENCES

Add the following language:

1.03 SPECIFICATION REFERENCE TABLE

A. The following specification reference table lists individual specifications that are to be included in the contract documents.

SPECIFICATION REFERENCE TABLE				
Specification Section	Specification	2001 Wyoming Public Works Standard Specs	Amendment by Special Provision	Amendment by Supplementary Specification
01010	Summary of Work	WPWSS	SP	
01041	Project Coordination	WPWSS	SP	
01090	References	WPWSS	SP	
01340	Submittals	WPWSS	SP	
01505	Temporary Facilities	WPWSS	SP	
02110	Clearing and Grubbing	WPWSS		
02190	Aggregates	WPWSS	SP	
02210	Excavation & Embankment	WPWSS	SP	
02231	Aggregate Sub-Base & Base Course	WPWSS	SP	
02280	Topsoil	WPWSS	SP	
02290	Watering	WPWSS	SP	
02512	Plant Mix Pavements	WPWSS	SP	
02545	Bituminous Materials	WPWSS	SP	
02551	Tack Coats	WPWSS	SP	
02895	Engineering Fabric	WPWSS	SP	
02900	Landscaping	WPWSS	SP	
03100	Concrete Formwork	WPWSS		
03200	Concrete Reinforcement	WPWSS	SP	
03251	Expansion and Contraction Joints	WPWSS		
03304	Portland Cement Concrete	WPWSS	SP	
03305	Concrete Quality Control	WPWSS		
03310	Concrete Work	WPWSS	SP	
03345	Concrete Finishing	WPWSS		
03370	Concrete Curing	WPWSS		
01000	Mobilization			SS
01091	Reference Standards			SS
01095	Value Engineering			SS
02015	Locating Utilities			SS
02025	Force Account			SS
02810	Signage and Striping			SS
02820	Erosion Protection			SS
03505	Pathway Bridge			SS
31620	Bearing Piles and Sheet Piles			SS

NOTE The above list generally denotes WPWSS Specification Sections that are applicable to this project. Other WPWSS Specification Sections may also apply.

SECTION 01340 SUBMITTALS

1.01 SUMMARY

Add the following language:

F. Submittal information shall be submitted and reviewed prior to installing the applicable item.

G. No progress payments shall be made for any specific contract item until all related submittal and certification information for the item has been reviewed and accepted by ENGINEER or OWNER.

H. CONTRACTOR shall supply all manuals, maintenance data, manufacturer warranty certificates, and other equipment and material information prior to submitting the application for final payment.

I. SUBMITTALS required shall include, but not be limited to the following:

1. Project construction schedule
2. Foreman contact information
3. Competent person and emergency contacts
4. Traffic control plan
5. Stormwater pollution prevention plan
6. List of material suppliers
7. List of subcontractors
8. Labor and equipment hourly rates
9. Base course sieve / proctor
10. Aggregate gradation tests
11. Asphalt mix design and Marshall test
12. Asphalt material certifications
13. Portland cement concrete mix design
14. Bridge deck control joining plan
15. Silt fence material certification
16. "Weed free" straw bale/wattle certification
17. Geotextile filter fabric
18. Topsoil sample
19. Seed mixture and reclamation materials
20. Steel bearing piles
21. Bearing pile equipment
22. Retaining wall materials
23. Prefabricated steel bridge anchors and appurtenances
24. Project record drawings

SECTION 01505 TEMPORARY FACILITIES

1.01 SUMMARY

Add the following language:

D. SAFETY SIGNING AND BARRICADES

1. Provide and maintain safety signing and barricades to prevent the public from entering work areas.

2. Install and maintain safety fence around all open trenches and hazardous areas when CONTRACTOR personnel and operations are not active.

E. EROSION CONTROL AND POLLUTION PREVENTION

1. Construction shall be performed and maintained to minimize erosion and pollution in accordance with the Stormwater Pollution Prevention Plan.

F. CONSTRUCTION STAGING AREAS

1. Contractor shall use the area within the Project Vicinity and Fish Hatchery Area as staging areas. Exact locations of staging areas will be coordinated with NER and the Fish Hatchery and will be identified prior to the commencement of work. Construction materials and equipment may be stored or stockpiled within the project vicinity subject to installation of appropriate signage and related traffic control devices. Existing access points to the highway shall be used. No new access points to the highway will be allowed without written permission from the proper authority.

2. CONTRACTOR shall be responsible for providing any additional staging areas at no additional cost to the OWNER. CONTRACTOR shall reclaim any disturbed areas to their pre-construction condition.

G. TRAFFIC CONTROL

1. CONTRACTOR shall prepare a work area traffic control plan conforming to the most current edition of the Manual of Uniform Traffic Control Devices (MUTCD), published by the U.S. Department of Transportation, Federal Highway Administration.

2. Prior to work, the CONTRACTOR shall submit a traffic control plan to be approved by Western Federal Lands Highway Division (WFLHD), and the US Fish and Wildlife Service/National Elk Refuge (NER).

PART 4 METHOD OF MEASUREMENT

Add the following language:

4.01 METHOD OF MEASUREMENT

B. Traffic Control will be measured on a Lump Sum basis.

Add the following language:

4.02 BASIS OF PAYMENT

B. Traffic Control will be paid on a Lump Sum basis for the quantities accepted and shall include a traffic control plan for WFLHD, & FWS/NER approval prior to any work within the project vicinity. Payment shall include all agency requirements, signing, flagging, barricades, warning lights, and any incidentals required to complete the item. Payment for the lump sum item will be made according to the Mobilization payment schedule.

SECTION 02190 AGGREGATES

2.03 AGGREGATE FOR UNTREATED SUB-BASE AND BASE

B. Crushed Base shall be Grading 'H'.

Delete paragraph D and insert the following language:

C. Pit run or screened sub-base and base shall be screened or unscreened gravel obtained from natural river alluvial deposits with stones generally not exceeding 6" in size. Pit run material shall be extracted and handled to provide well-graded material. CONTRACTOR shall remove large individual stones that are too large for placement within the sub-base layer thickness. ENGINEER may reject any pit run material with a significant percentage of stones exceeding 6" in size.

2.07 AGGREGATE FOR HOT PLANT BITUMINOUS PAVEMENT

C. Type III pavement aggregate shall be required.

D. Fine Aggregate Base Course material shall meet the following gradation criteria:

Sieve Designation	% Passing
3/4"	100
1/2"	97-100
#4	45-70
#8	25-55
#30	15-40
#200	12-15

SECTION 02210 EXCAVATION AND EMBANKMENT

Delete Section 2.02 / Imported Borrow Excavation and insert the following language:

2.02 IMPORTED BORROW EXCAVATION

A. Imported Borrow Excavation shall consist of CONTRACTOR supplied natural earth materials that can be placed and compacted by typical construction equipment operated in a conventional manner. Material shall contain no frozen soil, sod, brush, roots, stumps, trees, organic, or other perishable or deleterious material. Fill material shall not contain stones larger than 6 inches without the approval of the engineer. Stones larger than the maximum size specified shall be removed from the fill prior to compaction. Material shall not contain a large portion OH, CH, or OL soils as defined by ASTM D-2487. All fill sources shall be approved by the engineer prior to placement. ENGINEER may reject any material with a significant percentage of stones exceeding 6" in size. WYDOT has identified available material at the Phillips Bench and Astoria waste sites.

B. Imported Borrow Excavation - Owner Provided, shall consist of fill material supplied by the OWNER for use within the project area. Material will be hauled from its stockpile area within the project vicinity and is intended to be placed, conditioned and compacted as subgrade fill material for the Gros Ventre Bridge approaches.

3.02 MOISTURE AND DENSITY CONTROL

Add the following language:

C. COMPACTING ROCKY MATERIALS

1. Rocky materials shall be defined as coarse-grained materials having at least 50 percent retained by weight on the #4 sieve that cannot be tested by AASHTO-99 or T-180.

2. Rocky materials shall be moistened and compacted as required for acceptance by proof rolling. Proof rolling shall consist of driving a fully loaded 10 yard cubic truck (approximate weight 50,000 pounds) over the finish subgrade in the presence of the Engineer. Two (2) passes will be required. No base course shall be placed until the Engineer has approved the subgrade compaction.

3. The maximum loose layer thickness for placement of rocky material shall not exceed twelve (12) inches.

4. The minimum compactive effort for each layer of rocky materials shall consist of compacting the material with a mechanically powered vibratory plate or other methods approved by the Owner's Representative.

5. Water shall be added during placement of the rocky material to facilitate compaction. The application of water shall be limited to avoid saturating sub-grade soils.

6. CONTRACTOR shall determine the layer thickness, compactive effort, and additional moisture required for consolidating and compacting the material.

7. Unstable areas identified by ENGINEER shall be sub-excavated, replaced, and retested prior to placement of the succeeding layer. Unstable areas resulting from CONTRACTOR'S operation or schedule will not qualify for additional payment.

4.01 METHOD OF MEASUREMENT

Delete paragraphs D & E and insert the following language:

D. IMPORTED BORROW EXCAVATION. This quantity shall be measured by the number of tons, accepted by weight. Each truck will be accompanied by a weight ticket if originating from a pit with calibrated scales. If material comes from other sources, each day, 1 of every 8 trucks will be weighed by calibrated scales with a minimum of 4 trucks weighed each day. The average of the 4 weights will be used for all trucks hauling that day. If different size and types of trucks are used, ENGINEER will randomly choose trucks to be weighed. Bucket Loader Scales will be acceptable as long as all scales are calibrated at the beginning of the project and once per month for the duration of their use.

E. IMPORTED BORROW EXCAVATION – OWNER PROVIDED. This quantity shall be measured by the number of tons, accepted by weight. Each day, 1 of every 8 trucks will be weighed by calibrated scales with a minimum of 4 trucks weighed each day. The average of the 4 weights will be used for all trucks hauling that day. If different size and types of trucks are used, ENGINEER will randomly choose trucks to be weighed. Bucket Loader Scales will be acceptable as long as all scales are calibrated at the beginning of the project and once per month for the duration of their use.

4.02 BASIS OF PAYMENT

Delete paragraphs D & E and insert the following language:

D. IMPORTED BORROW EXCAVATION. This item shall be paid at the contract unit price per ton for the quantities delivered to the site and placed to the grades as shown on the plans. Payment shall considered full compensation for all labor, equipment and incidentals necessary to load, haul, place, compact, construct, shape and slope embankments and sub-base courses, and all other incidentals necessary to complete the work.

E. IMPORTED BORROW EXCAVATION – OWNER PROVIDED. This item shall be paid at the contract unit price per ton for the quantities placed to the grades as shown on the plans from the stockpile site at or adjacent to the project area. Payment shall be considered full compensation for all labor, equipment and incidentals necessary to load, haul, place, compact, condition, construct, shape and slope embankments and sub-base courses, and all other incidentals necessary to complete the work.

SECTION 02231 AGGREGATE SUB-BASE AND BASE COURSES

2.01 MATERIALS

Delete paragraph A and insert the following language:

A. The aggregates shall meet the requirements of Section 02190. AGGREGATES.
   1. Crushed base shall be Grading 'H'.

Add the following language:

3.04 PLACEMENT

A. Crushed base for the pathway shall be placed with an asphalt pavement lay-down machine to provide the specified width and thickness.

SECTION 02280 TOPSOIL

1.01 SUMMARY

Delete paragraphs A, B and C and insert the following language:

A. Topsoil Stripping shall consist of excavating topsoil to the lines and grades shown on the plans, and stockpiling topsoil prior to placing on the finished slopes and disturbed areas of the project.

B. Topsoil Placement applies to the placement and finish grading of topsoil obtained or salvaged from onsite grading operations, or supplied by the owner to a stockpile at or adjacent to the project area, or provided under Import Topsoil.

C. Import Topsoil specifically applies to topsoil delivered from borrow sources provided by the CONTRACTOR.

2.01 TOPSOIL

Add the following language:

B. "Import Topsoil" shall be fertile and friable soil obtained from an offsite CONTRACTOR source. Imported topsoil shall be clean and free of toxic minerals and chemicals, noxious weeds, and rocks larger than 1½ inches in diameter. Imported topsoil sources shall be from sources acceptable to, and approved in writing, by the ENGINEER prior to use.

3.01 STRIPPING AND STORING TOPSOIL

Delete paragraphs A and B and add the following language:

A. Prior to stripping topsoil from the designated areas, brush, grass, or other suitable material not removed by clearing and grubbing shall be chopped, cut, and conserved as mulch and incorporated into the topsoil. The material shall be chopped through a brush chopper, shredded by means of a commercial sized rotary blade mower, or reduced by other approved methods.

B. Upon stripping, the topsoil is to be stockpiled adjacent to the project area as directed by ENGINEER.

C. Topsoil stripping shall include the excavation of sod, topsoil, and unsuitable soils such as clay, silt, and organic materials to a depth where sound gravels are encountered to the disturbance limits as shown on the plans, or as otherwise directed by ENGINEER.

3.03 PLACING TOPSOIL

Delete paragraph A and insert the following language:

A. Topsoil obtained from stripping shall be placed from the stockpile location to the pathway slopes and transitioned to match the existing ground surface. The installed depth of onsite topsoil shall be commensurate with the useable topsoil material salvaged during the topsoil stripping operations to a minimum depth as shown on the plan details.

Add the following language:

D. Onsite topsoil shall be utilized and incorporated into the work to the maximum extent possible. No Imported Topsoil shall be utilized unless authorized, in writing, by Engineer.

E. After the onsite topsoil has been spread, large stiff clods, stone, and other foreign material protruding two inches (2") or more from the surface shall be removed. Rocks, clods, and debris removed from the topsoil shall be removed from the site.

4.01 METHOD OF MEASUREMENT

Delete paragraphs A, B and C and insert the following language:

A. Topsoil Stripping shall be measured by the square foot. The extents of topsoil stripping shall be determined according to the disturbance limits shown on the plans.

B. Topsoil Placement shall be measured by the square foot of suitable topsoil placed to the disturbance limits as shown on the plans.

C. Import Topsoil shall be measured by the Ton, delivered to the site. For conversion estimates, the assumed unit weight of loose, uncompacted import topsoil is approximately 100 lbs. per cubic foot. Using this unit weight, each cubic yard of topsoil weighs approximately 1.35 Ton.

4.02 BASIS OF PAYMENT

Delete paragraphs A and B and insert the following language:

A. The accepted quantity of Topsoil Stripping will be paid for at the contract unit price, per square foot, complete. Payment shall be considered full compensation for all labor, equipment and incidentals necessary to strip, load, haul, stockpile, and all other incidentals necessary to complete the work to the limits of disturbance as shown on the plans.

B. The accepted quantity of Topsoil Placement will be paid for at the contract unit price, per square foot, complete in place. Payment shall be considered full compensation for all labor, equipment and incidentals necessary to load, haul, place, shape, and all other incidentals necessary to complete the work to the grades and depths as shown on the plans.

C. The accepted quantity of Import Topsoil will be paid for at the contract unit price, per ton, delivered to the site. Payment shall be considered full compensation for all labor, equipment and incidentals necessary to load, haul, deliver, and all other incidentals necessary to complete the work to the grades and depths as shown on the plans. Placement and shaping of Import Topsoil shall be paid through Topsoil Placement.

SECTION 02290 WATERING

2.01 WATER SOURCE

Delete paragraph A and add the following language:

A. The OWNER shall furnish the water rights permits required by the Wyoming State Engineers Office for the use of construction water. The OWNER shall provide the water source within the immediate project vicinity for the supply of construction water. CONTRACTOR shall be responsible for all water measurements, and for compliance with all Federal, State, and local government regulations. CONTRACTOR shall maintain records of the quantity of water used from each source for the project. CONTRACTOR shall provide all pumps, piping, and equipment required to utilize the water.

4.01 METHOD OF MEASUREMENT

Delete paragraph A and add the following language:

A. Water will not be measured separately for payment.

SECTION 02512 PLANT MIX PAVEMENTS

1.04 SUBMITTALS

Delete paragraph A and insert the following language:

A. CONTRACTOR shall provide a mix design for the plant mix pavement that has been recently prepared by a qualified independent testing laboratory. The mix design shall establish the optimum mix parameters in conformance to guidelines established by the Asphalt Institute. The mix design shall designate the job mix formula for blending aggregates to conform to the specified type of gradation for plant mix bituminous pavement. If the aggregate sources are changed, a new mix design shall be prepared prior to installing any new material.

Add the following language:

C. The mix design shall conform within the following criteria for a 50-blow per side Marshall test:
   1. Marshall Stability (pounds) 2000 minimum
   2. Marshall Flow (0.01 inch) 8-16
   3. Air Voids 3.0-5.0%
   4. Voids in Mineral Aggregate 13.0-16.0%
   5. Dust/Effective Asphalt 0.8-1.4
   6. Minimum Percent Asphalt 4.5%
   7. Minimum Tensile Strength Ratio (TSR) 75%
   8. Film Thickness (um) 6-12

2.01 MATERIALS

A. BITUMINOUS MATERIALS

Delete paragraphs 1 and 2 and insert the following language:

1. The percentage of bituminous material to be added to the job-mix formula shall be determined by CONTRACTOR'S mix design.

2. The bituminous material to be utilized in the mix shall be PG58-28 asphalt binder, with 0.5% percent anti-strip agent. Alternate asphalt binder having a higher upper specification temperature and/or lower specification temperature will be acceptable provided the CONTRACTOR provides written notice to the ENGINEER prior to production. The asphalt binder grade shall not be changed during production.

B. AGGREGATE MATERIALS

Delete paragraph 1 and insert the following language:

1. Aggregates shall meet the applicable requirements of Section 02190, AGGREGATES as amended by the Special Provisions herein.

3.02 APPLICATION

I. COMPACTION

Delete paragraph 1 and insert the following language:

1. Immediately after the bituminous mixture has been placed, and surface irregularities corrected, it shall be thoroughly and uniformly compacted by rolling. Rolling shall continue while the mixture is in a workable condition until all roller marks are eliminated and a density ranging from 92 to 96% of maximum theoretical voidless unit weight has been obtained. Samples will be tested in accordance with AASHTO T 230, or density will be determined by the use of a properly calibrated nuclear density gage.

J. JOINTS

Add the following language:

2. Joints to existing bituminous pavement or other cold joints shall be vertically saw cut and tacked prior to placing the new pavement.

SECTION 02545 BITUMINOUS MATERIALS

2.02 ASPHALT CEMENTS

Delete paragraph A and insert the following language:

A. Asphalt cement shall be PG 58-28, performance graded asphalt binder, conforming to Section 401 – Plant Mix Pavements and Recycled Plant Mix Pavements of the 2003 Wyoming Department of Transportation Standard Specifications for Road and Bridge Construction. CONTRACTOR shall provide certification from the asphalt supplier specifically listing the performance graded asphalt binder grade and evidence that supplier test results conform to all applicable requirements listed in the referenced WYDOT Supplementary Specification.

SECTION 02551 TACK COAT

2.01 MATERIALS

Delete paragraph A and insert the following language:

A. Emulsified asphalt SS-1 shall be utilized for tack. The application rate shall be 0.25 lbs per square yard unless otherwise directed by ENGINEER.

4.02 BASIS FOR PAYMENT

Delete paragraph A and insert the following language:

A. Tack will not be separately paid, but shall be subsidiary to the Plant Mix Bituminous Pavement pay item.

SECTION 02895 ENGINEERING FABRIC

4.01 METHOD OF MEASUREMENT

Delete paragraph A and insert the following language:

A. Engineer fabric will not be measured separately and shall be considered subsidiary to the related item according to the plan details.

4.02 BASIS OF PAYMENT

Delete paragraph A and insert the following language:

A. Engineering fabric will not be separately paid, but shall be subsidiary to the related bid item according to the plan details for the quantities accepted.

SECTION 02900 LANDSCAPING

1.01 SUMMARY

Add the following language:

E. This item shall consist of seed bed preparation, mechanical broadcasting of seed, raking in seed, and hydromulching in designated areas using the specified seed mixtures with fertilizer. The areas to be seeded shall be all cut/fill slopes and other disturbed areas.

2.01 MATERIALS

Replace paragraph F as follows:

F. Fertilizer – The fertilizer shall be 16% total nitrogen, 6% available phosphoric acid, and 6% total water soluble potash applied at a rate of 65 pounds per acre. Fertilizer shall be dry, free-flowing suitable for application with broadcast seeding. It shall be a standard commercial fertilizer supplied separately or in mixtures in standard containers with name, weight, and guaranteed analysis of contents clearly marked. Fertilizer, which has become wet or otherwise damaged in transit or storage, will not be accepted.

Replace paragraph G as follows:

G. Seed – Seed mix with 95% pure live seed (PLS) shall be as follows:

SEED MIX:

Species	Scientific Name	Mix Rate (PLS lbs/Acre)
GRASSES		
Mountain Brome	Bromus Carinatus	5.4
Bluebunch Wheatgrass	Elymus Spicatus	1.8
Idaho Fescue	Festuca Idahoensis	1.8
Slender Wheatgrass	Elymus Trachycaulus	5.0
Basin Wildrye	Leymus Cinereus	1.0
Sulfur Buckwheat	Eriogonum Umbellantum	1.0
Sandberg Bluegrass	Poa Secunda	1.0
Indian Ricegrass	Achnatherum Hymanoides	1.0
FORBS		
Small Flowered Penstemon	Penstemom Procerus	0.8
Showy Goldeneye	Viguiera Multiflora	0.4
Arrowleaf Balsamroot	Balsamorriza Sagitata	0.8
	TOTAL	**20.0 lbs/Acre**

All seed shall conform to the requirements of Federal Specifications JJJ-S-181; State Laws; and U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act; in effect on the date of invitation of bids. Seed, which has become wet, moldy or otherwise damaged in transit or storage will not be accepted.

Seed shall be furnished separately or in mixture in standard containers clearly marked or labeled with (1) Seed name, (2) Lot number, (3) Net weight, (4) Percentage of purity and of germination and hard seed, (5) Percentage of weed seed content, and (6) all seed shall be certified as noxious weed-free seed. The CONTRACTOR shall furnish the OWNER duplicate signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within 6 months of date of delivery. This statement shall include: (1) Name and address of laboratory, (2) Date of test, (3) Lot number of each kind of seed, and (4) weed content, for each kind of seed furnished, and in case of a mixture, the proportions of each kind of seed.

I. Post and Rail Fence Barrier material and construction shall be according to the plan detail, or approved equal.

J. Elk Refuge Fence removal and end treatment shall be according to the plan detail or approved equal.

3.01 INSTALLATION

Replace paragraph E.1 through E.4 as follows:

E. Seeding

1. General - The specified seed mixture, with fertilizer, shall be uniformly spread on the designated areas to the density in pounds of live seed per acre as specified.
2. Prior to seeding, areas that have become muddy or hard shall be scarified to a depth of 4" and left in a dryable condition.
3. Preparation of Seeding Area – Cut slopes, fill slopes, embankments or other areas to be seeded shall be shaped and finished as specified. Topsoil shall be placed over areas to be seeded in a thickness commensurate with available topsoil material. The areas to be seeded shall be hand raked or otherwise worked such that the surface is loose with no rocks or other debris larger than 2". Each area shall be approved for seeding by the OWNER before seed is applied.
4. After the areas are ready for seeding, the seed will be "hand raked" into the topsoil prior to the installation of the fertilizer and mulch.
5. Hydraulic Methods – Use equipment designed for such work. Water, fertilizer, and mulch shall be uniformly applied to the areas at the application rates specified herein. All seeding operations shall occur prior to November 30, 2011.
6. Hydraulic applications shall result in a uniformly applied product and is subject to OWNER approval.
7. Maintenance of Seeded Area – The CONTRACTOR shall be required to protect the area against traffic by warning signs or barricades or other methods approved by the OWNER.
8. Damaged Area(s)- If seeded areas are damaged by storm or otherwise prior to final acceptance of the project, the OWNER may order the area reworked. The area shall then be reseeded and the damage repaired as directed.

SECTION 03200 CONCRETE REINFORCEMENT

4.01 METHOD OF MEASUREMENT

Delete paragraphs A through D and insert the following language:

A. Concrete Reinforcement will not be measured separately and shall be considered subsidiary to the related item according to the plan details.

4.02 BASIS OF PAYMENT

Delete paragraph A and insert the following language:

A. Concrete Reinforcement will not be separately paid, but shall be subsidiary to the related bid item according to the plan details for the quantities accepted.

SECTION 03304 PORTLAND CEMENT CONCRETE

4.01 METHOD OF MEASUREMENT

Delete paragraphs A and B and insert the following language:

A. Portland Cement Concrete will not be measured separately and shall be considered subsidiary to the related item according to the plan details.

4.02 BASIS OF PAYMENT

Delete paragraphs A and B and insert the following language:

A. Portland Cement Concrete will not be separately paid, but shall be subsidiary to the related bid item according to the plan details for the quantities accepted.

SECTION 03310 CONCRETE WORK

4.01 METHOD OF MEASUREMENT

Delete paragraph A and insert the following language:

A. Concrete Work will not be measured separately and shall be considered subsidiary to the related item according to the plan details.

4.02 BASIS OF PAYMENT

Delete paragraph A and insert the following language:

A. Concrete Work will not be separately paid, but shall be subsidiary to the related bid item according to the plan details for the quantities accepted.

SUPPLEMENTARY SPECIFICATIONS

Unless otherwise specified on the plans or Special Provisions and Supplementary Specifications included in the contract, the Work shall conform to the 2001 Edition of the Wyoming Public Work Standard Specifications. These Special Provisions and Supplementary Specifications supplement, amend, and where in conflict therewith, supersede the Wyoming Public Work Standard Specifications. To obtain copies of the Wyoming Public Works Standard Specifications, contact the Wyoming Contractor's Association, phone: (307) 632-0573.

SECTION 01000	MOBILIZATION
SECTION 01091	REFERENCE STANDARDS
SECTION 01095	VALUE ENGINEERING
SECTION 02015	LOCATING UTILITIES
SECTION 02025	FORCE ACCOUNT
SECTION 02810	SIGNAGE AND STRIPING
SECTION 02820	EROSION PROTECTION
SECTION 03505	PATHWAY BRIDGE
SECTION 31620	BEARING PILES AND SHEET PILES

SUPPLEMENTARY SPECIFICATION
SECTION 01000

MOBILIZATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Bond and insurance costs.
B. Preparatory operations.
C. Movement of personnel, equipment, supplies and incidentals to the project site.
D. Establishment of temporary offices, buildings and other facilities.
E. Other work and operations, which must be performed prior to beginning work on the various items on the project.
F. Demobilization.

1.2 UNIT PRICE MEASUREMENT AND PAYMENT

A. Basis of Measurement: Computed monthly based on the percentage of the original contract amount earned in accordance with the following:
   1. When the percentage of original contract amount shown in Column 1 is earned, the percentage of the contract lump sum price for mobilization shown in Column 2.

Column 1 Percentage of Original Contract	Column 2 Percentage of Lump Sum Price For
0	0
5	20
10	50
20	56.67
40	71.25
50	78.75
60	86.25
70	93.33
80	100%

   2. Upon substantial completion of work on the project, payment of any amount bid for mobilization in excess of 10% of the original contract amount will be paid.
   3. Intermediate values will be computed on the basis of straight-line interpolation.

B. Basis of Payment

1. Bid Item	Pay Unit
Mobilization	LS

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

SUPPLEMENTARY SPECIFICATION
SECTION 01091

REFERENCE STANDARDS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Bond and insurance costs.

B. Schedule of references.

1.2 QUALITY ASSURANCE

A. For products or workmanship specified by association, trade or Federal Standards, comply with requirements of the standard, except when more rigid requirements are specified or required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents.

C. Should specified reference standards conflict with Contract Documents, request clarification from ENGINEER before proceeding.

D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.3 SCHEDULE OF REFERENCES

AASHTO	American Association of State Highway And Transportation Officials 444 North Capitol Street, N.W. Washington, DC 20001
ACI	American Concrete Institute Box 19150 Redford Station Detroit, MI 48219
AI	Asphalt Institute Asphalt Institute Building College Park, MD 20740
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018
ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19130

AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235
CRSI	Concrete Reinforcing Steel Institute 933 Plum Grove Road Schaumburg, IL 60195
MUTCD	Manual on Uniform Traffic Control Devices Federal Highways Administration 400 7th St. SW Washington, DC 20590
NEMA	National Electrical Manufacturer's Association 2101 'L' Street, N.W. Washington, DC 20037
PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 60077
SSPN	Steel Structures Painting Council 4400 Fifth Avenue Pittsburgh, PA 15213
UL	Underwriters' Laboratories, Inc. 333 Pfingston Road Northbrook, IL 60062
WYDOT	Wyoming Department of Transportation P.O. Box 1708 Cheyenne, WY 82002

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SUPPLEMENTARY SPECIFICATION
SECTION 01095

VALUE ENGINEERING

PART 1 GENERAL

1.01 SUMMARY

A. CONTRACTOR may submit a written Value Engineering Contractor Proposal (VECP) for modification to the project that will result in some benefit to the OWNER.

B. Cost savings resulting from a VECP shall be shared between the CONTRACTOR and the OWNER as indicated in this specification.

1.02 MISCELLANEOUS CONDITIONS

A. VECP's may be rejected for any reason. The Work shall be completed in accordance to the contract if a VECP is rejected.

B. OWNER may reject any VECP that will require excessive time or costs for review.

C. Contractor shall have no claim against the OWNER for additional costs or delays resulting from the rejection of a VECP.

D. CONTRACTOR shall have no claim against the OWNER for monetary damages or time delays based on the failure to respond to within the time indicated if additional information is needed to complete the review.

E. Plan errors identified by the CONTRACTOR and resulting in a cost reduction will not qualify for a VECP.

F. A VECP shall only apply to the current contract and shall impose no restrictions on its use or disclosure.

G. A VECP shall not contain experimental features that have not been proven under similar or acceptable conditions.

H. A VECP will not be considered if equivalent options are provided in the contract.

I. VECP's will only be considered when submitted from the CONTRACTOR. No VECP's will be considered directly from subcontractors or suppliers.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 SUBMITTAL

A. CONTRACTOR shall submit one copy of each VECP to both the OWNER and ENGINEER.

B. Each VECP shall include the following:
   1. Statement that the proposal is for a VECP.
   2. Description of the difference between the existing Contract and the proposed change. Identify advantages and disadvantages of each.
   3. Separate detailed cost estimates for both the existing Contract requirements and the proposed changes. All cost estimates shall include CONTRACTOR overhead and profit.
   2. A detailed itemization of the plan sheets and specifications that would require modification under the VECP.
   3. Engineering or other analysis in sufficient detail to support review and evaluation of the VECP.
   4. Information including supporting test results or evaluations of similar VECP conditions and results.
   5. Statement specifying the date by which the VECP must be executed to obtain the maximum benefit.
   6. Statement detailing the effect the VECP will have on the Contract completion date.

3.02 AUTHORIZATION

A. Accepted VECP's shall be authorized by an executed Change Order or supplemental agreement to the Contract.

PART 4 MEASUREMENT AND PAYMENT

4.01 PAYMENT

A. Accepted VECP's changes will be incorporated into the Contract by changes to the contract quantities at the contract unit prices or Change Order, as appropriate under the Contract.

B. The Owner will pay the CONTRACTOR fifty-five percent (55%) of any savings to the OWNER from the difference between the cost of the referenced item as calculated from the original contract, and the reduced cost of the item resulting from the accepted VECP. The CONTRACTOR's VECP proposal preparation, development, review, and processing costs will not qualify for additional payment.

END OF SECTION

SUPPLEMENTARY SPECIFICATION
SECTION 02015

LOCATING UTILITIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Locating existing utilities within the project.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 REQUIREMENTS

A. Coordinate with all utility providers to locate existing buried utility facilities within the project. This item does not include payment for utility locates provided by utility companies.
B. Verify utility locations indicated on the drawings.
C. Record existing utility locations that are incorrect or not shown on the drawings.
D. Protect existing utilities to prevent damage during construction.
E. Verify safe working distances from the existing utilities considering the construction operations to be utilized.
F. Verify depth of any existing utilities that have potential to conflict with the work.
G. Coordinate with each utility as needed to shut down the service as required to construct the work and to facilitate any upgrade or relocation work to be performed by the utility.
H. Provide utility location and safe clearance information to Engineer.
I. Notify Engineer of any utility conflicts that are not adequately addressed in the project design plans and the construction contract.

3.02 POTHOLING

A. Where directed by the ENGINEER, CONTRACTOR shall excavate to expose utility lines and verify location.
B. Utility lines will be located on the record drawings.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Locating utilities will be measured on a time and materials basis. Areas requiring utility locates or "pot holing" shall be determined by Engineer at the time of construction.

4.02 BASIS OF PAYMENT

A. Locating utilities shall be paid on a time and materials, force account basis of work accepted and completed.

END OF SECTION

SUPPLEMENTARY SPECIFICATION
SECTION 02025

FORCE ACCOUNT

PART 1 GENERAL

1.01 FORCE ACCOUNT

A. This item is provided to budget for unforeseen and minor items not addressed in the project design and construction documents, which will be paid as authorized by OWNER.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 AUTHORIZATION

A. Items proposed for Force Account shall be reviewed and authorized by OWNER.

B. Proposed Force Account items not approved by OWNER shall not qualify for payment as Force Account work.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Depending on the nature of the work involved, Force Account work shall be priced on a lump sum, unit price, time and materials basis, or some other combination. Methods of measurement shall be approved prior to performing the Force Account work.

4.02 BASIS OF PAYMENT

A. Force Account authorized and approved by the OWNER shall be paid as work under the contract. Force Account work shall be deducted from the Force Account amount budgeted for the project. Force Account work shall be included with the CONTRACTOR'S regular progress payment applications with supporting cost documentation attached.

END OF SECTION

SUPPLEMENTARY SPECIFICATION
SECTION 02810

SIGNAGE AND STRIPING

PART 1 GENERAL

1.01 SUMMARY

A. The work specified in this section includes furnishing and installing new pathway traffic signage and striping, as shown on the plans and as specified herein.

1.02 SUBMITTALS

A. Submit certification from the manufacturer verifying the sign materials conform to those specified.

PART 2 PRODUCTS

2.01 MATERIALS

A. GENERAL
   1. Signs shall conform to the current edition of the Manual of Uniform Traffic Control Devices (MUTCD), published by the Federal Highway Administration.

B. ALUMINUM SHEET PANELS
   1. Aluminum sheets shall conform to ASTM B 209, alloy, 6061-T6 or 5052-H38.
   2. Fabricate panels that are 30 by 30 inch or smaller from 0.080 inch thick standard width sheets.

C. RETROFLECTIVE SHEETING
   1. Retroflective sheeting material shall be Type I in conformance to ASTM D 4956.
   2. Sign sheeting splices and edges shall be sealed as recommended by the sheeting manufacturer.

D. OWNER SUPPLIED SIGNS
   1. Where designated, OWNER may choose to supply signs for installation by the contractor. These signs are usually custom signs made by specialty sign builders. Contractor is responsible for the handling of these signs as soon as they are delivered to the sight.

E. WOOD POSTS
   1. Posts shall be No. 1 Grade Douglas Fir, Southern Pine, Ponderosa Pine, Hemlock, Spruce, or Western Larch conforming to AASHTO M 168.
   2. Posts shall be treated with ACA, ACZA, or CCA, in conformance to AWPA Standard C14, except the minimum preservative retention shall be 0.40 lbs/cu.ft.
   3. Posts shall have a nominal 4 x 4 inch cross section. The sign panel shall be mounted on the narrow face of the post.

F. HARDWARE
   1. Galvanized steel or aluminum alloy bolts, nuts, and washers, shall be utilized.
   2. Bolts shall be covered with the sheeting material and color specified for the sign.

G. STRIPING PAINT
   1. Paint for pavement striping and traffic marking symbols shall meet or exceed federal specification TT-P-1952-D or E, I & II.
   2. Paint for pavement striping shall be lead free, fast drying, high hiding, water reducible, smooth and homogeneous and free of coarse particles, skins or other foreign materials.
   3. Application of Striping Paint shall be according to the manufactures recommended procedure.

PART 3 EXECUTION

3.01 SIGN INSTALLATION

A. Attach sign to post in accordance to the manufacturer's recommendations.

B. Set posts directly into the ground and compact suitable soil backfill material in layers not to exceed six inches in loose depth. The sign post shall be set vertically plumb. Embedded depth is dependent on post size and type. See details on the plans.

C. The top of the sign panel shall be mounted as shown on the plan details.

D. See details on the plans for additional installation information and requirements with regard to signage.

3.02 STRIPING INSTALLATION

A. All centerline striping and marking symbols to be as shown on the plan and as directed by ENGINEER.

B. Striping and Symbols to conform to current edition of the Manual of Uniform Traffic Control Devices (MUTCD), published by the Federal Highway Administration for size, location, and orientation.

C. Application equipment shall be self-propelled or mobile-drawn pneumatic spraying machine with suitable arrangements of atomizing nozzles and controls to obtain the specified results, or approved equal.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Pathway Signs shall be measured by numerical count of the various signs completed.

B. Pathway Striping shall be measured by the lineal foot for solid centerline striping.

C. Pathway Symbol Striping shall be measured by the numerical count for striping symbols shown on the plans.

4.02 BASIS OF PAYMENT

A. Pathway Signs will be paid at the contract unit price for each sign accepted. Payment shall include proper handling and storage of the sign panels, installing the sign panel, furnishing and installing hardware, post, and necessary incidentals required to complete the item.

B. Pathway Striping will be paid at the contract unit price for all striping accepted. Payment shall include furnishing and completing all striping according to the plans and any necessary incidentals required to complete the item.

C. Pathway Symbol Striping will be paid at the contract unit price for all striping symbols accepted. Payment shall include all symbol striping according to the plans and any necessary incidentals required to complete the item.

SUPPLEMENTARY SPECIFICATION
SECTION 02820

EROSION PROTECTION

PART 1 GENERAL

1.01 SUMMARY

A. The work specified in this section includes furnishing, placing, and maintaining erosion control and protection structures.

B. This work consists of the installation of silt fence, straw wattle, and straw bale structures as required to control construction related erosion. Erosion structures are to be removed 365 days after final completion.

C. The project work site for this phase of construction is less than 1 acre and does not require the Contractor to officially prepare a Storm Water Permit with the Wyoming DEQ. However, due to the surrounding environment, the Contractor shall be responsible for management of storm water that is consistent with "Best Practices", as determined by the Wyoming Department of Environmental Quality (DEQ) Pollutant Discharge Elimination System criteria, and have a storm water pollution prevention plan in order prior to beginning construction.

PART 2 PRODUCTS

2.01 MATERIALS

A. Straw Wattles
   1. Straw Wattles shall require "weed free" certification as required by Local and State regulations.

B. Straw Bales
   1. Straw Bales shall require "weed free" certification as required by Local and State regulations.

C. Silt Fence
   1. Silt Fence may be pre-manufactured silt fencing or built from materials delivered to the site.

PART 3 INSTALLATION

3.01 CONSTRUCTION

A. Install all erosion control devices in compliance with the permit.

B. Installation of silt fence, straw wattle, and straw bale barriers shall conform to the details on the plans.

C. Installation location shall be as shown on the plan and as directed by ENGINEER.

3.02 MAINTENANCE

A. Maintain erosion control structures throughout the duration of the project.

B. Build up of silt shall be removed at the Contractors expense and silt barrier shall be returned to proper operational condition.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Erosion Control shall be paid for by the unit price as shown on the bid schedule for straw waddles, straw bales, and silt fence accepted.

4.02 BASIS OF PAYMENT

A. Erosion Control will be paid by the unit price for the quantities accepted. Payment shall include all labor, equipment, materials, installation and maintenance of all erosion control devices; and removal of any materials after the Project is complete.

END OF SECTION

SUPPLEMENTARY SPECIFICATION
SECTION 03505

PATHWAY BRIDGE

PART 1 GENERAL

1.01 SUMMARY

A. The work specified in this section includes constructing a pedestrian pathway bridge in accordance with this specification and as shown on the plans.

PART 2 PRODUCTS

2.01 MATERIALS

A. PREFABRICATED STEEL TRUSS BRIDGE INSTALLATION

1. Bridge Truss Section shall be a prefabricated steel section procured by Teton County under the Phase 3A – N89 Pathway Bridge Procurement Project. Plans and Specifications from the 3A Project are available for review upon request.
2. Bridge Installation Contractor shall be responsible to coordinate with the Bridge Manufacture and Owner to schedule fabrication, handle delivery, off loading and temporary staging of prefabricated components.
3. Bridge Installation Contractor shall be responsible for site assembly according to the Bridge Manufacture field splice and bridge handling specifications.
4. The Bridge Installation Contractor shall be responsible for supply and installation of anchor systems as designed and specified by the Bridge Manufacturer.
5. The Phase 3A – N89 Pathway Bridge Procurement Project was bid on November 9, 2010. Wheeler Lumber, LLC, Bloomington MN, (800) 328-3986, is the apparent low bidder for the Bridge Manufacturing Contract. Coordination and scheduling with this entity will be required for this project.

B. BRIDGE ABUTMENTS

1. Bridge Abutments shall be driven "H" piles with cast in place concrete cap and timber lagging retaining walls as detailed on the plan and associated specifications, or approved equal.

C. BRIDGE PIERS

1. Bridge Piers shall be driven piles with a cast in place concrete pile cap as detailed on the plans and associated specifications, or approved equal.

D. CONCRETE BRIDGE DECK

1. Concrete Bridge Deck shall be a cast in place deck as detailed on the plans, or approved equal. All concrete materials to conform to related specifications within this manual and as specified on the plans.
2. Concrete Bridge Deck shall be a minimum of 3 inches and maximum 6 inches of normal weight concrete as shown on the deck section detail on the plans. The Bridge Manufacturer shall provide 20 gage (minimum) stay–in-place galvanized metal decking with steel side and end dams.
3. Concrete Bridge Deck shall be rough broomed transversely.

E. RIVER BANK RIP RAP REMOVAL AND RESTORATION

1. Material for river bank construction shall be primarily limited to the rip rap on site. On site rip rap material will be removed and stockpiled as required for construction and replaced upon completion of foundations.

F. IMPORT RIP RAP MATERIAL

1. Additional material for river bank construction and pier protection shall be import from an outside source and supplied according to the plan and details. Material shall be similar size, type and density to the existing rip rap on site or approved equal.

2. Generally, import rip rap material shall be angular and clean and should not contain sand, dust, organic material, excessive cracks, mineral lenses and intrusions or other impurities.

PART 3 INSTALLATION

3.01 CONSTRUCTION

A. Installation and Construction of all bridge components shall be according to the plan, related specifications and manufactures recommendations, where applicable.

B. CONTRACTOR shall prepare a construction plan for temporary access to the river channel in accordance with the ACOE 404 Permit for clearing, construction, bridge installation and reclamation. CONTRACTOR shall limit disturbance to the permitted area while adjacent to the Gros Ventre River.

C. CONTRACTOR shall coordinate with OWNER to schedule delivery of materials on a schedule acceptable to the CONTRACTOR. CONTRACTOR shall be responsible for temporary staging of materials acceptable to the OWNER.

D. PREFABRICATED STEEL TRUSS BRIDGE shall be installed according to the plans, associated specifications, and manufacturer's recommendations.

E. BRIDGE ABUTMENTS AND PIERS shall be constructed according to the plans and associated specifications. CONTRACTOR shall coordinate bridge connections with shop drawings from bridge manufacturer. Connections may vary from those shown on the plans. CONTRACTOR shall protect the river channel from overflow and slobber of concrete.

F. CONCRETE DECK shall be placed according to the plans and associated specifications. CONTRACTOR shall protect the river channel from overflow and slobber of concrete.

G. RIVER BANK RIP RAP REMOVAL AND RESTORATION shall be required for installation of all abutments and piers. CONTRACTOR shall be responsible for the temporary removal of rip rap required to complete abutment, wing wall, and retaining wall construction. Restoration material shall be placed in an interlocking mixture of one and two layers to reduce the voids to a minimum. All disturbed river banks shall be restored to a preconstruction condition upon completion.

H. IMPORT RIP RAP MATERIAL shall be required as shown on the plans for installation of all abutments, piers and river banks. CONTRACTOR shall be responsible for supplying rip rap required to complete abutment, wing wall, and retaining wall construction. Riprap material shall be placed in an interlocking mixture of one and two layers to reduce the voids to a minimum as shown on the plan details.

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. All bridge components and installation shall be measured according to the bid schedule for the quantities accepted.

4.02 BASIS OF PAYMENT

A. PREFABRICATED STEEL TRUSS BRIDGE INSTALLATION will be paid by lump sum. Payment shall include all coordination, scheduling, unloading, temporary staging, assembly of bridge components, temporary river access improvements, anchors, labor, equipment, erection, hardware, and any incidentals necessary to install the bridge sections as shown on the plans. Payment for the prefabricated bridge will be under Phase 3A – N89 Pathway Bridge Procurement Project.

B. BRIDGE ABUTMENTS will be paid by lump sum. Payment shall include driven piles associated with the retaining walls only, concrete cap, reinforcement, timber lagging, labor, equipment and any incidentals necessary to complete the item as shown on the plans. Bridge Abutment Piles will be measured and paid separately under the Bridge Abutment Piles bid item.

C. BRIDGE PIERS will be paid by lump sum. Payment shall include concrete cap, reinforcement, plates, hardware, labor, equipment and any incidentals necessary to complete the item as shown on the plans. Bridge Pier Piles will be measured and paid separately under the Bridge Pier Piles bid item.

D. CONCRETE BRIDGE DECK will be paid by cubic yard for the quantities accepted. Payment shall include all material, forms, reinforcement, labor, equipment and any incidentals necessary to complete the item as shown on the plans.

E. RIVER BANK RIP RAP REMOVAL AND RESTORATION will be paid by lump sum. Payment shall include all excavation, loading, hauling, stockpiling, labor, equipment, restoration and any incidentals necessary to install all abutments, wing walls, and retaining walls as shown on the plans.

F. IMPORT RIP RAP MATERIAL will be paid at the contract unit price per ton for the quantities delivered to the site and placed to the grades as shown on the plans. Payment shall considered full compensation for all labor, equipment and incidentals necessary to load, haul, place, compact, construct, shape, and all other incidentals necessary to complete the work.

SUPPLEMENTARY SPECIFICATION
SECTION 31620

BEARING PILES AND SHEET PILES

PART 1 GENERAL

1.01 DESCRIPTION

A. This section describes the requirements for furnishing and driving steel bearing piles and steel sheet piling.

PART 2 PRODUCTS

2.01 MATERIALS

A. Provide materials in accordance with the following:

Material	ASTM Designation
Steel Bearing Piles	ASTM A572, grade 50
Cutwater Angles and Pile Splices	ASTM A572, grade 50
Sheet Piling	ASTM A328

B. Ensure that sheet piling has a minimum section modulus (SM), (in3/ft [cm3/m]) as specified.

PART 3 EQUIPMENT

3.01 PILE DRIVING FOR BEARING PILES

A. Provide hammers capable of driving piles to specified length and required bearing capacity.

B. Use fixed or swinging leads constructed to allow free movement of the hammer and rigged to hold the pile and hammer in alignment during driving. To distribute the hammer blow, fit a helmet around the pile head as needed to prevent the transfer of torsional forces during driving; maintain the proper hammer and pile alignment. Provide hammer cushions of durable manufactured materials in accordance with the hammer manufacturer's guidelines. Equip diesel hammers with a device, such as rings on the ram, that allows the engineer to visually determine hammer stroke at all times during pile driving.

C. Do not use gravity pile hammers. The engineer may approve the use of air, steam, or closed end diesel hammers.

D. Submit hammer specifications to the engineer, including the following information:

1. Make, model, and range of energy (minimum to maximum) in foot-pounds [joules] of the pile hammer;
2. Range of the pile hammer stroke in feet [meters];
3. Type, thickness in inches [millimeters], area in square inches [square millimeters], elastic modulus in kips per square inch [megapascals], and coefficient of restitution of cushioning material;
4. Weight in pounds [mass in kilograms] of the ram, striker plate, and helmet; and
5. Estimated length in feet [meters] of piling in the leads.

3.02 PILE DRIVING FOR SHEET PILES

A. Use a vibratory hammer to drive sheet piling unless otherwise approved in writing by the engineer.

3.03 APPROVAL OF PILE-DRIVING EQUIPMENT

A. The engineer will determine the adequacy of the pile hammer through wave equation analysis. If the hammer is deemed inadequate, provide other equipment. At least 14 calendar days before driving piles, using the "Pile Driving Hammer Configuration" (Wyoming Department of Transportation Form E-74A) give the engineer the data for each hammer to be used. The engineer will not allow the use of hammers for which the wave equation indicates pile stresses that exceed 90 percent of the minimum yield strength for steel piling.

PART 4 CONSTRUCTION

4.01 DETERMINATION OF LENGTH

A. Use bearing piles long enough to provide the specified bearing capacity, penetration, and extension into the cap or footing block. The length of piling specified is an estimate only; the engineer will determine the final length following an investigation of the site. If the length of the pile is altered from the plan an adjustment in the payment quantity for the item may be allowed.

B. For sheet piling, provide the specified area indicated on the construction documents, unless site conditions prevent installation to those limits.

4.02 PREDRILLED HOLES

A. When specified or approved by the engineer, use predrilled holes. Extend to the elevation specified and obtain the remaining penetration with the pile driver. Do not allow the hole diameter to exceed the pile width. Place the pile in the hole and drive it to set the point firmly into bearing material, and secure full bearing. Fill the space around the pile to the ground surface with dry sand, pea gravel, flowable fill, or other material approved by the engineer. Do not use water or air jets without written approval from the engineer.

4.03 PILE DRIVING

A. Bearing Piles. Drive piles using the system approved and without variation, except with the engineer's written approval. The engineer will consider changes in the driving system only after the necessary information for a revised wave equation analysis is submitted. Support long piles to prevent lateral buckling during driving.

B. Support pile hammers in leads while driving piles. Maintain hammers to obtain the operating length of the stroke and number of blows per minute for which the hammer is designed. Maintain cushions in good condition. The engineer will observe the hammer's initial operations to verify its adequacy. Repair or replace inadequate hammers.

C. Cut the heads of steel piles squarely. Ensure that the helmet closely fits the top of the pile and extends down the sides to maintain alignment of the pile head under hard driving conditions.

D. Drive piles to within 1 in/ft [20 mm/m] of vertical or the specified batter. Drive foundation piles in footings of piers and abutments so that their tops are within 2 in [150 mm] of position in any direction.

1. Pile Bents. Drive piles for bents so that the center of each pile's top is within 3 in [150 mm] of that specified when measured parallel to the centerline of the bent.

2. For pile bents with steel bent caps, ensure that the centerline of the tops of the piles is not out of position by more than 2 in [50 mm] measured perpendicular to the specified centerline of the bent or more than 1 in [25 mm] from a stringline stretched between the centerline of the exterior piles.

3. For pile bents with concrete bent caps, ensure that the centerline of the tops of the piles is not out of position by more than 2 in [75 mm] measured perpendicular to the specified centerline of the bent.

E. Sheet Piling. Install piling to the depth and lateral limits specified; do not remove. When specified, cut weep holes at the factory or in the field.

4.04 BEARING VALUE AND PENETRATION FOR BEARING PILES

A. Drive pile to the length specified and at least 12 ft [4 m] into the ground when no tip elevation is specified. The engineer defines ground within an area of roadway embankment as the bottom of the roadway embankment or bottom of footing, whichever is lower. When a tip elevation is specified, drive piles to at least the specified elevation, unless otherwise allowed in writing by the engineer.

1. End Bearing Piling. Based on a dynamic formula, the wave equation, or both, the engineer will provide the following:

   a. The stroke or hammer energy;

   b. The blow count criteria to prevent overstressing of piling; and

   c. The amount of pile "set" in blows per inch [mm] to achieve refusal at a specified stroke or hammer energy for open end diesel hammers or hydraulic hammers respectively.

2. Soil Resistance Piling. Based on the wave equation, and including a safety factor, the engineer will provide the blow count per inch [mm] or per 12 in [300 mm] at a specified stroke or hammer energy to achieve design bearing capacity and to prevent overstressing of piling.

   a. Contractor shall test initial pile for required design bearing capacity by means of restriking the pile 24 hours after the pile has been driven to ensure the desired capacity has been achieved. Initial test pile may remain in place if required capacity has been met.

   b. Allow sufficient time for required instrumentation and testing. Delay or standby time resulting from nonadherence of the contractor to the pile testing schedule will be at no additional cost to the Owner.

3. Retaining wall piles shall be driven to the length specified on the plans or as approved by the engineer.

4.05 CUTOFF

A. Cut steel piles off at the elevation specified and grind cut location smooth. When required, cap them with steel plates or other devices. Cut sheet piles off at the depth specified.

4.06 PILE SPLICES

A. For bearing piles, use steel H-piles or HSS round tube piles of the size and weight [mass] as specified on the plans. The engineer will allow the length of steel pile to be built up in sections by splicing. Splice before driving, during driving, or both. Ensure that spliced piles have identical cross-sections.

B. Make steel pile splices with pile splicer sections or welded splices as follows:
   1. Pile splicer. Bevel the outside edges of the flanges on the upper length of pile and cut a 7/8 in × 2 1/8 in [22 mm × 54 mm] notch in the web for the spacer bar. Slip the splicer onto the upper pile until the bar slides into the notch, then weld the splicer to the upper pile. Set the upper pile with the attached splicer on the driven pile. Weld the splicer and the outside edge of each flange to the driven pile.
   2. Welded splices. Connect the two pile sections by bevel groove welding.

C. Align the connected pile sections to ensure that the axis of the pile is straight. Weld splices in accordance with AWS Field Welding requirements. Do not use a pile splicer section when the splice point is above ground unless piling is embedded in concrete.

D. To reduce piling waste, use cut-offs longer than 6 ft [2 m] to extend piling, or splice them together as full-length piles and incorporate them into the structure.

4.07 PILE POINTS

A. Use and attach pile points as specified. Work necessary for pile points is considered incidental to the steel piling.

PART 5 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

5.01 METHOD OF MEASUREMENT

A. Bridge Abutment Piles shall be measured by the lineal foot for the quantities accepted.

B. Bridge Pier Piles shall be measured by the lineal foot for the quantities accepted.

C. Retaining Wall Piles shall not be measured separately and shall be considered subsidiary to the lump sum Bridge Abutment item for the quantities specified on the plans.

5.02 BASIS OF PAYMENT

A. Bridge Abutment Piles shall be paid at the contract unit price per lineal foot for the quantities accepted. Payment shall considered full compensation for all labor, material, equipment, testing, splicing, cutoff, paint, and all other incidentals necessary to install piles as shown on the plans and described in this specification.

B. Bridge Pier Piles shall be paid at the contract unit price per lineal foot for the quantities accepted. Payment shall considered full compensation for all labor, material, equipment, testing, splicing, cutoff, and all other incidentals necessary to install piles as shown on the plans and described in this specification.

STANDARD FORMS

Notice of Award

Dated _____

Project:	Owner:	Owner's Contract No.:
Contract:		Engineer's Project No.:

Bidder:

Bidder's Address: (send Certified Mail, Return Receipt Requested)

You are notified that your Bid dated _____ for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for _____

_____

_____

(Indicate total Work, alternates or sections or Work awarded.)

The Contract Price of your Contract is _____

_____ Dollars ($_____).

(Insert appropriate data if Unit Prices are used. Change language for Cost-Plus contracts.)

_____ copies of each of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

_____ sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner [_____] fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the Instructions to Bidders (Article 20), [and] General Conditions (Paragraph 5.01) [and Supplementary Conditions (Paragraph SC-5.01).]
3. Other conditions precedent:

_____

_____

_____

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

_____
Owner

By:_____
Authorized Signature

_____
Title

Copy to Engineer

Notice to Proceed

Dated _____

Project:	Owner:	Owner's Contract No.:
Contract:		Engineer's Project No.:
Contractor:		
Contractor's Address: [send Certified Mail, Return Receipt Requested]		

You are notified that the Contract Times under the above contract will commence to run on_____. On or before that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement, the date of Substantial Completion is_____, and the date of readiness for final payment is _____ [(or) the number of days to achieve Substantial Completion is _____, and the number of days to achieve readiness for final payment is _____].

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Also, before you may start any Work at the Site, you must [add other requirements]:

_____

_____

_____

_____ _____
Owner

Given by:

_____ _____
Authorized Signature

_____ _____
Title

_____ _____
Date

Copy to Engineer

Work Change Directive

No. _____

Date of Issuance: _____ Effective Date: _____

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.:

You are directed to proceed promptly with the following change(s):

Item No.	Description

Attachments (list documents supporting change):

_____

_____

Purpose for Work Change Directive:

☐ Authorization for Work described herein to proceed on the basis of Cost of the Work due to:

☐ Nonagreement on pricing of proposed change.

☐ Necessity to expedite Work described herein prior to agreeing to changes on Contract Price and Contract Time.

Estimated change in Contract Price and Contract Times:

Contract Price $ _____ (increase/decrease) Contract Time _____ (increase/decrease)
days

If the change involves an increase, the estimated amounts are not to be exceeded without further authorization.

Recommended for Approval by Engineer:	Date
Authorized for Owner by:	Date
Accepted for Contractor by:	Date
Approved by Funding Agency (if applicable):	Date:

Change Order

No. _____

Date of Issuance: _____ Effective Date: _____

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.:

The Contract Documents are modified as follows upon execution of this Change Order:

Description:

Attachments: (List documents supporting change):

CHANGE IN CONTRACT PRICE:	CHANGE IN CONTRACT TIMES:
Original Contract Price: $_____	Original Contract Times: ☐ Working days ☐ Calendar days Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] from previously approved Change Orders No._____ to No._____: $_____	[Increase] [Decrease] from previously approved Change Orders No._____ to No._____: Substantial completion (days): _____ Ready for final payment (days): _____
Contract Price prior to this Change Order: $_____	Contract Times prior to this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] of this Change Order: $_____	[Increase] [Decrease] of this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
Contract Price incorporating this Change Order: $_____	Contract Times with all approved Change Orders: Substantial completion (days or date): _____ Ready for final payment (days or date): _____

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: _____ Engineer (Authorized Signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Date: _____	Date: _____	Date: _____
Approved by Funding Agency (if applicable): _____		Date: _____

Change Order

Instructions

A. GENERAL INFORMATION

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order should be used.

B. COMPLETING THE CHANGE ORDER FORM

Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.

Contractor's Application For Payment No. _____

	Application Period:	Application Date:
To (Owner):	From (Contractor):	Via (Engineer)
Project:	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.:

APPLICATION FOR PAYMENT

Change Order Summary

Approved Change Orders		
Number	Additions	Deductions
TOTALS		
NET CHANGE BY CHANGE ORDERS		

1.	**ORIGINAL CONTRACT PRICE**	$ _____
2.	**Net change by Change Orders**	$ _____
3.	**CURRENT CONTRACT PRICE (Line 1 ± 2)**	$ _____
4.	**TOTAL COMPLETED AND STORED TO DATE (Column F on Progress Estimate)**	$ _____
5.	**RETAINAGE:**	
	a. _____ % x $_____ **Work Completed**	$ _____
	b. _____ % x $_____ **Stored Material**	$ _____
	c. **Total Retainage (Line 5a + Line 5b)**	$ _____
6.	**AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5c)**	$ _____
7.	**LESS PREVIOUS PAYMENTS (Line 6 from prior Application)**	$ _____
8.	**AMOUNT DUE THIS APPLICATION**	$ _____
9.	**BALANCE TO FINISH, PLUS RETAINAGE (Column G on Progress Estimate + Line 5 above)**	$ _____

CONTRACTOR'S CERTIFICATION

The undersigned Contractor certifies that: (1) all previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with Work covered by prior Applications for Payment; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to Owner indemnifying Owner against any such Liens, security interest or encumbrances); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

By:	Date:

Payment of: $_____
(Line 8 or other - attach explanation of other amount)

is recommended by: _____ _____
(Engineer) (Date)

Payment of: $_____
(Line 8 or other - attach explanation of other amount)

is approved by: _____ _____
(Owner) (Date)

Approved by: _____ _____
Funding Agency (if applicable) (Date)

Progress Estimate

Contractor's Application

For (contract):	Application Number:
Application Period:	Application Date:

A		B	Work Completed		E	F		G
Item			C	D		Total Completed and Stored to Date (C + D + E)	% (F) B	Balance to Finish (B - F)
Specification Section No.	Description	Scheduled Value	From Previous Application (C + D)	This Period	Materials Presently Stored (not in C or D)			
	Totals							

Progress Estimate

Contractor's Application

For (contract):	Application Number:
Application Period:	Application Date:

A				B	C	D	E	F		G
Item		Bid Quantity	Unit Price	Bid Value	Estimated Quantity Installed	Value	Materials Presently Stored (not in C)	Total Completed and Stored to Date (D + E)	% (F) B	Balance to Finish (B - F)
Bid Item No.	Description									
	Totals									

Stored Material Summary

Contractor's Application

For (contract):					Application Number:				
Application Period:					Application Date:				
A	B	C	D		E		F		G
Invoice No.	Shop Drawing Transmittal No.	Materials Description	Stored Previously		Stored this Month		Incorporated in Work		Materials Remaining in Storage ($) (D + E - F)
			Date (Month/Year)	Amount ($)	Amount ($)	Subtotal	Date (Month/Year)	Amount ($)	
		Totals							

Certificate of Substantial Completion

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.:

This [tentative] [definitive] Certificate of Substantial Completion applies to:

☐ All Work under the Contract Documents: ☐ The following specified portions:

_____

_____

_____

_____

_____
Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

A [tentative] [revised tentative] [definitive] list of items to be completed or corrected, is attached hereto. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

The responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:

☐ Amended Responsibilities ☐ Not Amended

Owner's Amended Responsibilities:

_____

_____

_____

Contractor's Amended Responsibilities:

_____

_____

_____

The following documents are attached to and made part of this Certificate:

_____

_____

_____

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

_____ _____
Executed by Engineer Date

_____ _____
Accepted by Contractor Date

_____ _____
Accepted by Owner Date