SPECIFICATIONS FOR THE LITTLE COAL RIVER RESTORATION PROJECT Bid #2

Little Coal River,
Boone & Lincoln Counties, West Virginia

Prepared For:

West Virginia Conservation Agency (WVCA), Guyan District
2631 5th Street Road
Huntington, WV 25701

West Virginia Department of Environmental Protection
601 57th Street SE
Charleston, WV 25304

July 2012

Stantec Consulting Services Inc.
1 Moore Avenue
Buckhannon, WV 26201

NOTICE TO CONTRACTOR

The following information is provided as guidance for the Contractor intended as a supplement to the Special Provisions and Technical Specifications. It is expected that the Contractor will adhere to this guidance, as failure to do so will impact the bid review and award selection process.

The Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

Contractor Pre-Qualifications: Offering contractors must demonstrate qualifications to perform the Work, as defined in the Contract Documents. The below information shall be submitted in a typewritten format accompanying the bid as scheduled. Failure to meet these qualifications will result in rejection of the bid.

A. Evidence of Bidder's authority to do business in the state of West Virginia.
B. Bidder's West Virginia contractor's license number (current and active).
C. Submit a Contractor's Statement of Qualifications for this project on a completed AGC Form 221. To be considered for this project, the Bidder shall submit written evidence to support the following requirements:

    1. At least one of the Contractor's on site personnel (Site Superintendent, Foreman, Equipment Operator, or Consultant) shall have completed a minimum of two weeks training in Natural Stream Restoration, Natural Channel Design, or Fluvial Geomorphology as approved by the Guyan Conservation District.

    2. At least one of the Contractor's employees directly involved with the project shall have completed a minimum of four weeks training in Natural Stream Restoration, Natural Channel Design, or Fluvial Geomorphology as approved by the Guyan Conservation District.

    3. Ownership or ability to obtain the following equipment for use on the project: at least 2 hydraulic excavators (65,000 lb minimum) with hydraulic thumbs and one or more track trucks for transporting excavated materials within the streambed.

    4. Company must have completed a minimum of 20,000 linear feet of stream restoration utilizing in-stream natural channel stabilization structures (i.e. cross vanes, j-jooks, log vanes, rootwads, toe wood, bioengineering).

    5. Company must have completed at least one significant stream restoration project exceeding $250,000 in contract price.

    6. Experience with plant materials and transplanted vegetation (i.e. native seed mix, bare root seedlings, live stakes, container and balled burlap trees).

7. Contractor shall provide verifiable evidence of staff familiarity with construction of stream channels based on principles of natural channel design.

8. Contractor shall have an equipment operator on site with at least 2 years of experience constructing streams and in-stream structures based on natural channel design principles.

9. Contractor shall have an operator on site that has completed at least one project of at least 1500 linear feet in length.

10. Because access and portions of work areas shall occur within or adjacent to railroad Right of Way, special knowledge of railroad safety procedures is required. Scheduled work activities shall meet or exceed requirements of the Federal Railroad Administration, Office of Railroad Safety.

Construction Schedule: Offering contractors must provide a schedule of construction activities to be sequenced for successful completion by December 31, 2013. This schedule should indicate activities that are contingent and any related assumptions. This schedule shall serve as the project schedule upon Notice to Proceed. This schedule shall serve to coordinate the quantity, location and timing of materials delivery between the Contractor, sub-contractors and rock-hauling contractors (under separate contract). Any revisions to this schedule shall be coordinated with the Owner and approved in writing.

With regard to this schedule, it is the Contractor's responsibility to take into account the probability of false starts, factor in weather and stream flow conditions, mobilization/traffic control, and other possible delays/contingencies.

Construction Drawings, Special Provisions, and Technical Specifications: The Contractor shall adhere strictly to the work as proposed in the contract documents. Any questions, concerns, interpretations or otherwise potential departure from the contract documents must be discussed among (in the company of) the Contractor, the Engineer and the Owner in advance of performing the work in question. Related work shall commence following: 1) written resolution/approval by the Engineer and 2) written approval of the Owner. Any outstanding matters shall be addressed as outlined in the Special Provisions.

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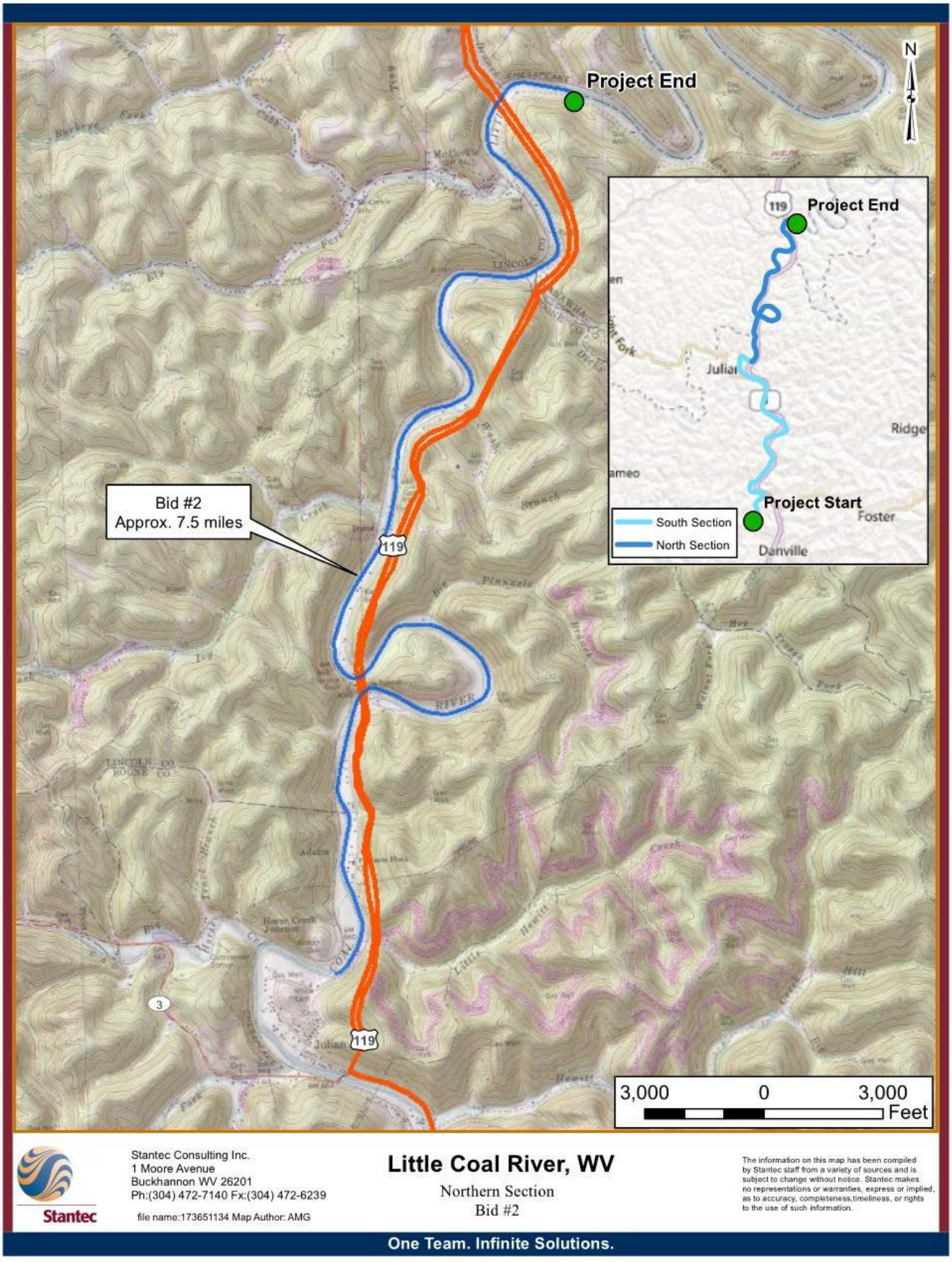
SPECIAL PROVISIONS

DESCRIPTION

Restoration enhancements using natural channel design will be used to provide an ecological lift to the Little Coal River. The project begins near White Road and Little Hewett Creek (Latitude 38°9'50.76"N, Longitude 81°51'2.19"W) and terminates approximately 7.5 miles downstream near Coal River Energy (latitude 38°13'16.72"N, Longitude 81°49'43.33"W). The primary goals and objectives of the project include; reducing sediment inputs to the system, improving water quality, enhancing aquatic habitat, transporting local sand sediments to expose legacy gravel and cobble substrate, and maintaining and improving navigation for recreational boating. Work shall be completed to satisfy the intent of the design and to complement the needs of the community.

SCOPE OF WORK

This project involves the reconstruction of approximately 7.5 miles of channel using natural channel design techniques. The construction involves the installation of various boulder and log structures as well as large woody debris to enhance and restore the stream. Large woody debris can be found on site and boulders will be hauled to the specified locations from the Hobet Mine near Danville, WV. Additional flood plain grading and re-vegetation is included.



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file name:173651134 Map Author: AMG

Little Coal River, WV

Northern Section
Bid #2

One Team. Infinite Solutions.

100.0 – DEFINITIONS

All references to "District" in these Specifications shall mean the Guyan Conservation District, 2631 5th Street Road, Huntington, West Virginia 25701.

All reference to "Engineer" in these Specifications shall mean the District's Engineer or authorized representative.

All references to the "Contractor" shall be understood to mean the successful bidder and or firm or corporation undertaking the execution of the work under the terms of these Specifications.

All references to "WVDOH" in these Specifications shall mean the West Virginia Department of Transportation, Division of Highways.

All references to "WVDEP" in these Specifications shall mean the West Virginia Department of Environmental Protection.

101.0-CONTENTS OF PROPOSAL FORMS

The proposal forms will show the approximate estimates of the various quantities of work to be performed for materials to be furnished, and the amount of the proposal guaranty.

The Plans, Specifications, and other documents designated in the proposal form are considered a part of the proposal form whether attached or not attached.

101.1-INTERPRETATION OF APPROXIMATE ESTIMATES

The quantities appearing in the proposal form are approximate only and are prepared for the comparison of bids. Payment to the Contractor will be made only for the actual quantities of work performed and accepted, or for materials furnished in accordance with the Contract. If upon completion of the construction the actual quantities show either increase or decrease, the unit bid prices offered in the Proposal will prevail except as further provided.

101.2-EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE OF WORK

The bidder is required to examine carefully the Plans, Specifications, contract forms, and the site of the work contemplated. The submission of a bid shall be considered prima facie evidence that the bidder has made such examination and has judged for and satisfied themselves as to the character, quality, and quantity of work to be performed and material required to be furnished under the Contract.

101.3-PREPARATION OF PROPOSAL

The bidder must furnish a unit price, in numerical figures, for each pay item listed. The bidder must also show the products of the respective unit prices and quantities in numerical figures and the total amount of the Proposal obtained in adding the products of the items. All figures shall be in ink or typed. In case of discrepancy between the unit

price and its extensions, the unit price will govern. The Proposal must be signed in ink by the bidder or a qualified and authorized agent; by one or more officers of a corporation duly authorized to act for and on behalf of the corporation; or by all partners or their individually qualified and authorized agents in case of a partnership. The Proposal must contain the name and post office address of an individual bidder, the name and business address of a corporation and its corporate officials, or the name and post office address of each member of a partnership. In addition, the Proposal must contain the Contractor's West Virginia Contractor's License Number. The submittal of a sealed bid for this project indicates acceptance of all components of the contract documents. The proposal shall comply with West Virginia Contractor Licensing Act, Chapter 21, Article 11 Code of West Virginia. Any Contractor submitting a bid for this project hereby certifies, indicates, and acknowledges that they have a valid West Virginia Contractor's License and meet all the qualifications required by the statutes and requirements of the State of West Virginia and the area in which the work is to be performed.

101.4-IRREGULAR PROPOSALS

Proposals will be considered irregular and will be rejected for any of the following reasons:

i. When there are unauthorized additions or irregularities of any kind which may tend to make the Proposal incomplete, indefinite, or ambiguous as to its meaning.
ii. When the bidder adds any provisions reserving the right to accept or reject an award, or to enter into a Contract pursuant to an award.
iii. When the Proposal does not contain a unit price for each pay item listed.
iv. Failure to sign or properly execute the Proposal.
v. Failure to properly acknowledge receipt of addendum(s).
ix. Failure to show the West Virginia Contractor's License Number.

101.5-PROPOSAL GUARANTY

No proposal will be considered unless accompanied by a guaranty in the form of a certified or cashier's check, or bid bond, in the amount of five (5%) of the total bid price, made payable to the Guyan Conservation District. Any Proposal accompanied by a bid bond executed on a copy, duplicate, or facsimile will be rejected.

101.6-DELIVERY OF PROPOSALS

The two (2) envelope system will be used for submission of a Proposal. Each Proposal shall be submitted in a sealed envelope containing two (2) separate sealed envelopes. The outside envelope shall be endorsed "Proposal for the Little Coal River Restoration Project, Boone and Lincoln Counties, West Virginia." and shall have the name of the bidder thereon. Envelopes shall be addressed to the following:

Attn: Boyd Meadows
Guyan Conservation District
2631 5th Street Road
Huntington, WV 25701

and shall have the name and address of the bidder.

The first of the two inside envelopes shall be endorsed "Attachments" and shall contain the following documents:

- Acknowledgement of Receipt of Addenda
- Proposal Guarantee
- West Virginia Contractor's License Number

The second of the two inside envelopes shall be endorsed "Proposal Form" and shall contain the Bid Tabulation Form.

Proposals shall be submitted prior to the date indicated on the Proposal Form.

101.7-WITHDRAWAL OF PROPOSALS

At any time prior to the opening of Proposals, bidders may withdraw Proposals already deposited with the District, provided the request is made in writing or by other approved methods; provided further that any bidder may withdraw their bid during the course of reading of bids prior to the actual reading of bids on the project for which the bid is withdrawn; further provided that the requested withdrawal is made in writing in the following form:

> "I, the undersigned, of _____, Contractor(s) hereby acknowledge that I have this day withdrawn the sealed bid of _____, Contractor(s) on the Guyan Conservation District's Little Coal River Restoration Project."

101.8-PUBLIC OPENING OF PROPOSALS

Proposals will be opened and read publicly at the time indicated on the Proposal Form. The opening will take place at the Guyan Conservation District Office, 2631 5th Street Road, Huntington, West Virginia 25701. Bidders, their authorized agents, and other interested parties are invited to be present.

101.9-DISQUALIFICATION OF BIDDERS

Either of the following reasons may be considered as being sufficient for the disqualification of a bidder and the rejection of their Proposal or Proposals.

i. More than one Proposal for the same work from an individual, firm, or corporation under the same or different name.
ii. Evidence of collusion among bidders. Participants in such collusion will receive no recognition as bidders for any future work of the District.

101.10-MATERIAL GUARANTY

The successful bidder shall furnish a complete statement of the origin, composition and manufacture of all materials to be used in the construction of the work.

101.11-PRE-CONSTRUCTION DATA
There is no additional pre-construction data for this project. All relevant information is included in the contract documents.

102.0-CONSIDERATION OF PROPOSALS
After the Proposals are opened and read, they will be compared on the basis of the summation of the products of the approximate quantities shown in the bid schedule by the unit bid prices. The results of such comparisons will be made immediately available to the public. The right is reserved to reject any or all proposals, to waive technicalities or to advertise for new proposals if, in the judgment of the District, the best interests of the Guyan Conservation District will be promoted.

102.1-AWARD OF CONTRACT
The award of Contract, if it be awarded, will be made within seven (7) calendar days after the opening of Proposals to the lowest responsible bidder. The Guyan Conservation District may, with the agreement of the successful bidder, withhold award for any length of time. The successful bidder will be notified by letter, mailed to the address shown on their Proposal, that their bid has been accepted and that they have been awarded the Contract.

102.2-CANCELLATION OF AWARD
The Guyan Conservation District reserves the right to cancel the award of any Contract at any time before the execution of the Contract documents by all parties without any liability against the District.

102.3-RETURN OF PROPOSAL GUARANTY
All proposal guaranties, except those of the two lowest bidders, will be returned immediately following the opening and checking of the Proposals. The retained proposal guaranty of the unsuccessful of the two lowest bidders will be returned within 10 days following the award of Contract, and that of the successful bidder will be returned after a satisfactory bond has been furnished and the Contract has been executed.

102.4-REQUIREMENT OF CONTRACT BOND
At the time of the execution of the Contract, the successful bidder shall execute and deliver to the District a good and sufficient surety or collateral bond payable to the Guyan Conservation District in the amount of One-Hundred (100) percent of the contract bid price.

102.5-INSURANCE REQUIREMENTS
The Contractor shall be required, in addition to any other form of insurance or bonds required under the terms of the Contract and Specifications, to procure and maintain during the life of the Contract the following types of insurance in the amounts set forth. All such policies of insurance shall be occurrence policies and the Certificate of Insurance provided to the District shall so specify. The policies must provide coverage for all damages arising out of injury to persons or property which allegedly occurred

during the life of the contract regardless of when the claim is filed subject to statute of limitations.

102.5.1-Contractor's Public Liability and Property Damage Liability Insurance: The Contractor shall furnish an ACORD Form 25-S or its equivalent as evidence of insurance with a 30-day notice of cancellation provision that the contractor has in place, an Insurance Devices Office (CGL) Commercial General Liability Insurance Form CG0001, 01-96 issue date or later. The limits of insurance required by the District for the contractor are as follows:

General Aggregate $1,000,000
Products/Completed Operations Aggregate $1,000,000
Personal & Advertising Injury $1,000,000
Each Occurrence $1,000,000
Fire Damage $50,000
Medical Expense Limit $5,000

The CGL policy may include exclusions for blasting, collapse, or underground liability. The CGL policy issued for the Contractor shall include endorsements that extend the aggregate limits of insurance to each construction project separately.

102.5.2-Contractor's Protective Public Liability and Property Damage Liability Insurance: The Contractor shall furnish evidence that, with respect to the operations performed for them, the Contractor carries in their own behalf (1) regular Contractor's Protective Public Liability Insurance providing for a limit of not less than $250,000 for all damages arising out of bodily injuries to or death of one person and subject to that limit for each person, a total limit of $500,000 for all damages arising out of bodily injuries to or death of two or more persons in any one accident; and (2) regular Contractor's Protective Property Damage Liability Insurance providing for a limit of not less than $100,000 for all damages arising out of injury to or destruction of property in any one accident and, subject to that limit per accident, a total (or aggregate) limit of $500,000 for all damages arising out of injury to or destruction of property during the life of the Contract. The policy shall be written or endorsed to cover the hazards of blasting, operation of mechanical equipment on streets and highways, and collapse. The contractor shall also give evidence of insurance for Employer's Liability Insurance, with a 30-day notice of cancellation. The Employer's Liability policy must include coverage to protect the contractor for claims brought under Section 23-4-2 of West Virginia Code. The limits of insurance under this section shall be as follows:

Each accident $500,000
Each disease $500,000
Each disease/employee $500,000

102.5.3-Automobile Insurance: The Contractor shall furnish evidence, with a 30-day notice of cancellation, to the state that it maintains an Insurance Services Office Commercial Automobile Liability insurance policy Form CA0001 or its equivalent. The

policy shall include coverage for owned, nonowned, and hired vehicles. The limits for liability insurance must be at least $1,000,000 combined single limit. Evidence for the coverage shall be set forth on an ACORD Form 25-S Certificate of Liability Insurance.

102.5.4-Countersignature of Resident West Virginia Agent: The policy or policies of Insurance required must be countersigned by a Resident Agent of the State of West Virginia, in accordance with the applicable statute of the State of West Virginia. All certificates of insurance used to verify the policies issued must be endorsed by a West Virginia Licensed Resident Agent. Such endorsement must include the printed name, street address, city and zip code of the Resident Agent.

102.6-EXECUTION OF CONTRACT

The Contract shall be executed by the bidder to whom the Contract has been awarded, the bonds executed by the principal and the sureties, and the Contract and bonds returned to the District within seven (7) calendar days after the date of the notice of the award.

102.7-FAILURE TO EXECUTE CONTRACT

Failure by the bidder to execute the Contract and file acceptable bond within ten (10) calendar days after notice of award shall be just cause for the annulment of the award; and it is understood by the bidder, in the event of such an annulment of award or the Contract, that the amount of the guaranty deposited with the Proposal will be retained by the Guyan Conservation District, not as a penalty, but as liquidated damages. Award may then be made to the next lowest responsible bidder, or the work may be readvertised and constructed under contract or otherwise, as the District may decide.

103.0-INTENT OF CONTRACT

The intent of the Contract is to provide for the construction and completion in every detail of the work described. The Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the Plans, Specifications, and terms of the Contract. Should any misunderstanding arise as to the intent or meaning of the Contract, or any discrepancy appear, the decision of the District shall be final.

103.1-ALTERATION OF PLANS OR CHARACTER OF WORK

Under no circumstances shall alterations of Plans or the nature of the work involve work beyond the termini of the proposed construction except as may be necessary to satisfactorily complete the project. In addition to the above, alterations in Plans or increased quantities of items may be made necessary at a time when the contract or the items involved in the operations are substantially completed, the related contractor organization demobilized, and related equipment essentially removed from the project. Under these circumstances, if it is demonstrated that the unit cost to the Contractor has increased, additional compensation may be allowed by the Engineer and the additional work performed as prescribed in 103.2 as "Extra Work." Any adjustment in compensation because of a change(s) resulting from one or more of the conditions described above will be made in accordance with negotiated unit rates between the

District and the Contractor. Any adjustment in contract time because of such change(s) will be made in accordance with the provisions of 107.4.

103.2-EXTRA WORK

The Contractor shall perform unforeseen work for which there is no price included in the Contract, whenever it is deemed necessary or desirable in order to complete fully the work as contemplated. The work shall be performed in accordance with the Specifications and as directed, and will be paid for as provided by a written supplemental agreement on a unit price or lump sum basis. In the event the Engineer and the Contractor are unable to agree upon the terms of the supplemental agreement, the Contractor shall proceed with the work and receive payment therefore in the manner and amount prescribed in 108.2.

103.3-FINAL CLEAN UP

Before final acceptance is made, the Contractor shall clear all ground occupied by the Contractor during the construction, of all rubbish, excess materials, and equipment. The Contractor shall restore in an acceptable manner all property, both public and private, which has been damaged during the prosecution of the work.

103.4-DIFFERING SITE CONDITIONS

During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for the contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before they are disturbed and before the affected work is performed. Upon written notification, the Engineer will investigate the conditions, and if the Engineer determines that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding loss of anticipated profits, will be made and the contract modified in writing accordingly. The Engineer will notify the Contractor of their determination whether or not an adjustment of the contract is warranted. No contract adjustment which results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice. The Contractor shall promptly notify the Engineer of alleged changes to the Contract due to differing site conditions, extra work, altered work beyond the scope of the Contract, or action(s) taken by the District that changed the Contract terms and conditions.

A. No further work is to be performed or Contract item expense incurred with relation to the claimed change after the date the change allegedly occurred unless directed otherwise in writing or orally follow up in writing in 48 hours by the Engineer.
B. Immediately notify the Engineer verbally of the alleged change or extra work occasioned by site conditions or actions by the District, and in writing within five calendar days of the date the alleged change or action was noted. Thereafter, the Contractor shall provide the following information to the Engineer in writing within 15 calendar days of the written notice.

1. The date of occurrence and the nature and circumstances of the occurrence that constitute a change.
2. Name, title, and activity of each District representative knowledgeable of the claimed change.
3. Identify any documents and the substance of any oral communication involved in the claimed change.
4. Basis for a claim of accelerated schedule performance.
5. Basis for a claim that the work is not required by the Contract.
6. Particular elements of Contract performance for which additional compensation may be sought under this Section including:
   a. Pay item(s) that has been or may be affected by the claimed change.
   b. Labor or materials, or both, that will be added, deleted, or wasted by the claimed change and what equipment will be idled or required.
   c. Delay and disruption in the manner and sequence of performance that has been or will be caused.
   d. Adjustments to Contract price(s), delivery schedule(s), staging, and Contract time estimated due to the claimed change.
   e. Estimate of the time within which the District must respond to the notice to minimize cost, delay, or disruption of performance.

C. Following submission of the notification to the Engineer, and in the absence of directions received to the contrary from an authorized representative of the District, the Contractor shall continue diligent prosecution of the work under the Contract to the maximum extent possible. Within 15 calendar days after receipt of the written notice and required information, the Engineer shall respond in writing to the Contractor to:
   1. Confirm that a change occurred and, when necessary, direct the method and manner of further performance, or
   2. Deny that a change occurred and, when necessary, direct the method and manner of further performance, or
   3. Advise the Contractor that adequate information has not been submitted to decide whether (1) or (2) applies, and indicate the needed information and date it is to be received by the Engineer for further review. The District will respond to such additional information within 15 calendar days of receipt from the Contractor.

103.5-SUSPENSION OF WORK ORDERED BY THE ENGINEER

If the performance of all or any portion of the work is suspended or delayed by the Engineer in writing for an unreasonable period of time (not originally anticipated, customary or inherent in the construction industry) and the Contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the Contractor shall submit to the Engineer in writing a request for adjustment within seven (7) calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment. Upon receipt, the Engineer will evaluate the Contractor's request. If the Engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the

suspension was caused by conditions beyond the control of and not the fault of the Contractor, its suppliers, and not caused by weather, the Engineer will make an adjustment (excluding profit) and modify the contract in writing accordingly. The Contractor will be notified of the Engineer's determination whether or not an adjustment of the contract is warranted. No contract adjustment will be allowed unless the Contractor has submitted the request for adjustment within the time prescribed. No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided or excluded under any other term or condition of this contract.

103.6-SIGNIFICANT CHANGES IN THE CHARACTER OF WORK

The Engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the contract nor release the surety, and the Contractor agrees to perform the work as altered. If the alterations or changes in quantities significantly change the character of the work under the contract, whether such alterations or changes are in themselves significant changes to the character of the work or by affecting other work cause such other work to become significantly different in character, an adjustment, excluding anticipated profit, will be made to the contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the Contractor in such amount as the Engineer may determine to be fair and equitable. If the alterations or changes in quantities do not significantly change the character of the work to be performed under the contract, the altered work will be paid for as provided elsewhere in the contract. The term "significant change" shall be construed to apply only to the following circumstances:

a) When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction; or
b) When a major item of work, (any item having an original contract value in excess of 10 percent of the original contract amount or $50,000 dollars), is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work performed.

104.0-AUTHORITY OF THE ENGINEER

The Engineer will decide all questions which may arise as to the quantity, quality, and acceptability of materials furnished and work performed, and as to the rate of progress of the work; all questions which may arise as to the interpretation of the Plans and Specifications; and all questions as to the acceptable fulfillment of the Contract on the part of the Contractor. The decision of the Engineer will be final.

The Engineer will have the authority to suspend the work wholly or in part due to the failure of the Contractor to correct conditions unsafe for the employees or the general public, for failure to carry out orders, for such periods as the Engineer may deem

necessary due to unsuitable weather, for conditions considered unsuitable for the prosecution of the work, or for any other condition or reason deemed to be in the public interest. All such suspension orders will be directed to the Contractor in writing. The Engineer is not authorized to increase the obligation of the Guyan Conservation District to any Contract except as provided.

104.1-PLANS AND WORKING DRAWINGS

Approved Plans will show the location, profile, typical cross section, and a summary of all items appearing in the Proposal. Any deviations which may be required by the exigencies of the construction will be determined by the Engineer and authorized by the Engineer in writing. The Contractor shall keep one set of approved Plans available on the work at all times. Plans will show such details as are necessary to give a comprehensive idea of the construction contemplated.

It is the Contractor's responsibility to determine the exact location of each utility in project areas where these utilities would be interrupted or damaged by performing work. In the event of damage or disruption to utilities which are active and are to remain in service, the Contractor shall immediately notify the responsible official of the organization operating the utility that is interrupted. The Contractor shall assume all costs, charges or claims connected with the interruption and repair of any utility damaged by the Contractor.

104.2-CONFORMITY WITH PLANS AND SPECIFICATIONS

All work performed and all materials furnished shall be in reasonably close conformity with the lines, grades, cross sections, dimensions and material requirements, including tolerances, shown on the Plans or indicated in the Specifications. Should the Engineer determine the materials, or the finished product do not conform to the Specifications or the Plans, the Engineer will then make a determination if the work will be accepted and remain in place. In this event, the Engineer will document the basis of acceptance by contract modification which will provide for an adjusted payment. All nonconforming material or construction judged to be inadequate for the use intended shall be either reworked or removed and replaced at no expense to the Guyan Conservation District.

104.3-COORDINATION OF PLANS & SPECIFICATIONS

These Specifications and Plans are essential parts of the Contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; and Plans will govern over Specifications.

The Contractor shall take no advantage of any apparent error or omission in the Plans or Specifications. In the event the Contractor discovers such an error or omission, the Contractor shall immediately notify the Engineer. The Engineer will then make such corrections and interpretations as may be deemed necessary for fulfilling the intent of the Plans and Specifications.

104.4-COOPERATION BY CONTRACTOR

The Contractor will be furnished a maximum of three complete sets of plans and cross sections upon request, without charge. Additional copies may be obtained upon payment of $100.00 per set of plan sheets and cross sections. The Contractor shall maintain on the Project at all times one complete set of Plans and Specifications.

The Contractor shall give the work the constant attention necessary to facilitate the progress thereof, and shall cooperate with the Engineer, their inspectors, other Contractors, and utilities in every way possible.

The Contractor shall have on the work at all times, as an agent, a competent superintendent capable of reading and thoroughly understanding the Plans and Specifications, and thoroughly experienced in the type of work being performed, who shall receive instructions from the Engineer or an authorized representative. The Superintendent shall have full authority to execute orders or directions of the Engineer without delay, and to promptly supply such materials, equipment, tools, labor, and incidentals as may be required. Such superintendence shall be furnished irrespective of the amount of work sublet.

The Contractor shall furnish to the Engineer a list of addresses and telephone numbers of their personnel who may be reached in case of emergency during hours when no work is to be performed. On weekends, holidays, during suspensions of work, and during storms the Contractor shall alert certain members of their personnel to stand by and shall inform the Engineer of arrangements so made.

104.5-COOPERATION BETWEEN CONTRACTORS

The Guyan Conservation District reserves the right at any time to contract for and perform other or additional work on or near the work covered by the Contract. When separate Contracts are let within the limits of any one project, each Contractor shall conduct their work so as not to interfere with or hinder the progress or completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed. Each Contractor involved shall assume all liability, financial or otherwise, in connection with their Contract and shall protect and save harmless the District from any and all damages or claims that may arise because of inconvenience, delay, or loss experienced by them because of the presence and operations of other Contractors working within the limits of the same project. The Contractor shall arrange their work and shall place and dispose of the materials being used so as not to interfere with the operations of the other Contractors within the limits of the same project. The Contractor shall join work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others. In the event the Engineer finds further coordination effort is necessary, the Engineer shall call a meeting of the Contractors involved. After the meeting has been held, the Engineer may notify the Contractors of the action required of each and the Engineer's decision shall be final.

104.6-CONSTRUCTION STAKES, LINES AND GRADES

The Engineer will set control prior to the beginning of construction activities. The Contractor will set the baseline and construction stakes establishing lines, slopes and continuous profile-grade. The stakes and marks established above shall constitute field control to secure a correct layout of all the work.

The Contractor shall be responsible for having the finished work in reasonably close conformity with the lines, grades, elevations, and dimensions called for on the Plans or established by the Engineer. The Contractor shall be held responsible for the preservation of stakes, marks, and references, and shall have them reset at the Contractor's expense when they are damaged, lost, displaced, or removed.

104.7-AUTHORITY AND DUTIES OF THE INSPECTOR

Inspectors employed by the Guyan Conservation District will be authorized to inspect all work done and materials furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication or manufacture of the materials to be used. The Inspector is not authorized to alter or waive the provisions of the Contract. The Inspector is authorized to call the attention of the Contractor to any failure of the work or materials to conform to the Specifications and Contract. The Inspector is authorized to reject materials which do not meet specification requirements or suspend the portion of the work involved until any question at issue can be referred to the Project Engineer. The Inspector is not authorized to issue instructions contrary to the Plans and Specifications. The Inspector shall not act as foreman or perform other duties for the Contractor, nor interfere with the management of the work by the latter. The Contractor shall notify the inspector in advance any day(s) that the Contractor will not be present at the job site.

104.8-INSPECTION OF WORK AND MATERIALS

All materials and each part or detail of the work shall be subject to inspection by the Engineer. The Engineer or a representative shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

104.9-REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK

Except as provided in 104.2, all work which does not conform to the requirements of the Contract will be considered as unacceptable work. Unaccepted work, whether the result of poor workmanship, use of defective materials, damage through carelessness or any other cause, found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner. Unacceptable material shall be removed from the job site. Work done contrary to the instructions of the Engineer, work done beyond the lines shown on the Plans, or as given, except as specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the Contract. Work so done may be ordered removed or replaced at the Contractor's expense. Upon failure on the part of the Contractor to comply promptly with any order of the Engineer, made under the provisions of this Subsection, the Engineer will have authority to cause unacceptable work to be remedied or removed

and replaced and unauthorized work to be removed, and to deduct the costs from any monies due or to become due the Contractor.

104.10-ACCEPTANCE

Upon due notice from the Contractor of presumptive completion of the entire project, the Engineer will make an inspection. If all construction and other contractual requirements provided for and contemplated by the Contract is found completed to satisfaction, that inspection will constitute the final inspection. The Engineer will make the final acceptance and notify the Contractor in writing of this acceptance.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the Engineer will give the Contractor the necessary instruction for correction of same in writing, and the Contractor shall immediately comply with and execute such instructions. Upon correction of the work, another inspection will be made which will constitute the final inspection provided the work has been satisfactorily completed. In such event, the Engineer will make the final acceptance and notify the Contractor in writing of this acceptance.

104.11-CLAIMS FOR ADJUSTMENT AND DISPUTES

If additional compensation is considered due for work or material not covered in the Contract, written notification of the intent to make a claim under Subsection 103.4, shall be given to the Engineer before beginning or continuing the affected work.

The Engineer will respond as described under Subsection 103.4 following notification. The Contractor shall provide necessary cooperation and information to the Engineer during the period of notification, review, and evaluation to provide possible resolution of the Contract question and avoid, if possible, further claim process actions. If notification is not given, or the Contractor does not afford the Engineer proper facilities for keeping strict account of actual costs, the Contractor waives any claim for additional compensation. Notice by the Contractor, and the fact that the Engineer has kept account of the costs shall not be construed as substantiating the validity of the claim. An equitable adjustment will be made to the Contract if the claim is found to have merit.

A. Claim submittals shall be in sufficient detail to enable the Engineer to determine the basis for entitlement and the resulting costs. The following information if available, should accompany each claim submitted:
   1. Detailed factual statement of the claim providing all necessary dates locations, and items of work affected by the claim.
   2. The date actions resulting in the claim occurred or conditions resulting in the claim became evident.
   3. The name, title, and activity of each Contractor employee knowledgeable about the facts that gave rise to such claim.
   4. The specific provisions of the Contract that support the claim, and a statement why the provisions support the claim.
   5. The identification of any pertinent documents, and the substance of any material communications relating to the claim.

6. A statement whether the additional compensation or extension of time is based on the provisions of the Contract or an alleged breach of Contract.
7. If an extension of time is also sought, the specific days for which it is sought and the basis for such claim as determined by an analysis of the construction schedule.
8. The amount of additional compensation sought and a breakdown of that amount.

B. Required Certification of Claims. The claim submittal shall include the Contractor's written certification, under oath, attesting to the following:
1. The claim is made in good faith.
2. Supportive data is accurate and complete to the Contractor's best knowledge and belief.
3. The amount of the claim accurately reflects the Contractor's actual cost incurred.

In complying with this requirement, the Contractor shall use the following certification:

Under penalty of law for perjury or falsification, the undersigned _____ (Company), hereby certifies that the claim for extra compensation and time, if any, made herein for work on this Contract is a true statement of the actual costs incurred and time sought, and is fully documented and supported under the Contract between the parties this _____ day of _____, _____.
_____(Company) By _____
Its _____

ATTEST:
By_____
Its _____

C. Review of Claims. All claims filed will be subject to review by the Guyan Conservation District at any time following the claim filing, whether or not the claim is part of a suit pending in the courts of this State. The review may begin upon submission. The Contractor or Supplier shall cooperate with the District and shall, at a minimum, provide access to the following documents of the Contractor, its/their subsidiaries, separate divisions and affiliates if said documents are available:
1. Daily time sheets and foreman's daily reports.
2. Union agreements if any.
3. Insurance, welfare, and benefits records.
4. Payroll register.
5. Earnings records.
6. Payroll tax returns.
7. Material invoices, purchases orders, and all material and supply Acquisition Contracts.
8. Material cost distribution worksheets.
9. Equipment records (list of company equipment, rates, etc.).
10. Vendor rental agreements.
11. Canceled checks (payroll and vendors).
12. Job cost report.

13. Job payroll ledger.
14. General ledger, general journal, (if used) and all subsidiary ledgers and journals together with all supporting documentation pertinent to entries made in these ledgers and journals.
15. Cash disbursements journal.
16. Depreciation records on all company equipment.
17. All other documents used to develop costs for the Contractor's internal purposes in establishing the actual cost of owning and operating equipment.
18. All documents related to the preparation of the Contractor's bid including the final calculations on which the bid was based.
19. Worksheets used to prepare the claim, establishing the cost components for items of the claim including, but not limited to, labor, benefits and insurance, materials, equipment, and all documents that establish the time periods, individuals involved, the hours and the rates for the individuals.

105.0-SOURCE OF SUPPLY AND QUALITY REQUIREMENTS

The material used on the work shall meet all quality requirements of the Contract. To expedite the inspection and testing of materials, the Contractor shall notify the Engineer of their proposed sources of materials. At the option of the Engineer, materials may be approved at the source of supply before delivery is started. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources at no increase in cost to the Guyan Conservation District.

The Contractor shall provide and maintain a quality control system. This quality control system shall conform to all requirements of the specifications.

105.1-HANDLING MATERIALS

All materials shall be handled in such manner as to preserve their quality and fitness for the work. Aggregates shall be transported from the storage site to the work in tight vehicles, so constructed as to prevent loss or segregation of materials after loading and measuring, in order that there may be no inconsistencies in the quantities of materials intended for incorporation in the work as loaded and the quantities as actually received at the place of operations.

105.2-UNACCEPTABLE MATERIALS

105.2.1-Acceptance or Rejection: Following the application of the appropriate acceptance plan, the decision of the Engineer will be final as to the acceptance, rejection, or acceptance at an adjusted price of sampled lots or sublots.

105.2.2-Disposition of Lots or Sublots: Lots or sublots not conforming to specification requirements may be reworked or removed and replaced and resubmitted for acceptance. All nonconforming lots or sublots evaluated as unsatisfactory for the use intended shall be reworked or removed and replaced and resubmitted for acceptance. When the

evaluation indicates the lots or sublots may satisfactorily remain in place, acceptance will be an adjusted price as stated in the Specifications or as directed by the Engineer.

105.3-SILENCE OF SPECIFICATIONS

The apparent silence of these Plans and Specifications as to any detail, or the apparent omission from them of a detailed description concerning any point shall be regarded as meaning that only material and workmanship of acceptable quality are to be used.

106.0-LAWS TO BE OBSERVED

The Contractor shall keep fully informed of all Federal and State laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders and decrees; and shall protect and indemnify the District and its representatives against any claim or liability arising from or based on the violation of any such laws, ordinances, regulations, orders, or decrees, whether by themselves, or their employees.

106.1-PERMITS, LICENSES AND TAXES

The Guyan Conservation District shall procure all permits necessary to perform the work for the project at the project site. The Contractor shall be responsible for procuring all permits and associated fees at any waste and/or borrow site.

106.2-PATENTED DEVICES, MATERIALS, AND PROCESSES:

If the Contractor employs any design, devise, material, or process covered by letters of patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the patentee or owner. The Contractor and the surety shall indemnify and save harmless the Guyan Conservation District, and affected third party, or political subdivision from and claims for infringement by reasons of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the District for any costs, expenses, and damages which it may be obligated to pay by reason of any infringement, at any time during the prosecution or after the completion of the work.

106.3-FEDERAL-AID PROVISIONS

When the United States Government pays any portion of the cost of a project, the Federal Laws and the Rules and Regulations made pursuant to such laws must be observed by the Contractor, and the work shall be subject to the inspection of the appropriate Federal District. Such inspection shall in no sense make the Federal Government a party to the Contract and will in no way interfere with the rights of either party hereunder.

106.4-SANITARY PROVISIONS

The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of their employees as may be necessary to comply with the requirements of the State and local Boards of Health, or of other bodies or tribunals

having jurisdiction. The Contractor shall not create, commit, or maintain a public nuisance.

106.5-PUBLIC CONVENIENCE AND SAFETY

The Contractor shall comply with all applicable Federal, State, and local laws governing safety, health and sanitation. The Contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions, on their own responsibility, or as the Engineer may determine, 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.

The Contractor shall not require any laborer or mechanic employed in performance of the Contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to their health or safety, as determined under construction safety and health standards (Title 29, Code of Federal Regulations, Part 1926, formerly Part 1518, as revised from time to time). promulgated by the United States Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (83 Stat. 96).

106.6-PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE

The Contractor shall be responsible for the preservation of all public and private property and shall protect carefully from disturbance or damage all land monuments and property marks until the Engineer has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in the Contractor's manner or method of executing the work, or at any time due to defective work or materials, and this responsibility will not be released until the project shall have been completed and accepted.

When or where and direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the non-execution thereof by the Contractor, the Contractor shall restore, at their own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in as acceptable manner.

106.7-RESPONSIBILITY FOR DAMAGE CLAIMS

The Contractor shall indemnify and save harmless the Guyan Conservation District, its officers and employees, from all suits, actions, or claims of any character brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or

misconduct of the Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Worker's Compensation Act," or any other law, ordinance, order, or decree; and so much of the money due the Contractor under and by virtue of their Contract as may be considered necessary by the District for such purpose may be retained for the use of the District or, in case no money is due, their surety may be held until such suit or suits, action or actions, claim or claims for injuries or damages as aforesaid shall have been settled and suitable evidence to that effect furnished to the District; except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that the Contractor is adequately protected by public liability and property damage insurance.

106.8-CONTRACTOR'S RESPONSIBILITY FOR WORK

Until final written acceptance of the project by the Engineer, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part thereof by the action of the elements, or from the nonexecution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault of or negligence of the Contractor, including but not restricted to acts of God, of the public enemy or governmental authorities.

In case of suspension of work from any cause whatever, the Contractor shall be responsible for the project and shall take such precautions as may be necessary to prevent damage to the project, provide for normal drainage and to erect any necessary temporary structures, signs, or other facilities at their expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established seedlings furnished under their Contract, and shall take adequate precautions to protect important vegetative growth against injury.

106.9-CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES

The Contractor will be required to work in close proximity to existing buried and overhead utilities as shown on the Plans. The locations of utilities shown on the Plans are approximate and based on the best information available to the District. The Contractor shall be solely responsible for properly locating and identifying buried and overhead utilities, both private and public, prior to commencement of work. The Contractor shall comply with all regulations pertaining to utilities in the State of West Virginia.

Materials used for utility repairs shall be as specified by the affected utility and approved by the Engineer. The Contractor will be required to cross over buried gas and water lines with construction equipment and supplies. The Contractor is required to contact the affected gas and water line owner and comply with their requirements for proper cross over construction techniques and materials.

The Contractor shall assume the risks for all utilities located about his work, whether above the surface or below the surface of the ground. The Contractor shall be solely responsible to correctly locate all existing underground and overhead utilities, both public and private. The Contractor shall notify the utility companies likely to be effected well in advance and before beginning any work within the Project sites. Likewise, the contractor will be required to obtain private utility locations from the property owner within and adjacent to the Project site**.**

106.10-FURNISHING RIGHT-OF-WAY

The Guyan Conservation District will be responsible for securing all necessary right-of-way in advance of construction.

106.11-PROTECTION OF RIVERS, STREAMS, AND IMPOUNDMENTS

The Contractor shall exercise every reasonable precaution throughout the life of the Project to prevent pollution of rivers, streams, or impoundments. Pollutions such as chemicals, fuels, lubricants, bitumens, raw sewage, and other harmful wastes shall not be discharged into or alongside the Little Coal River or into natural or man-made channels leading thereto.

106.12-PLANT PEST REGULATIONS

The indiscriminate movement of nursery stock, hay or straw mulch, equipment and soil samples into and out of West Virginia constitutes a potential hazard to State and National Agriculture. Therefore, it shall be the responsibility of the prime Contractor to comply with all applicable State and Federal Plant Pest Regulations in the fulfillment of this contract. Information regarding these regulations may be obtained from Plant Pest Control Division, West Virginia Department of Agriculture, Charleston, West Virginia 25305, or United States Department of Agriculture, Agriculture Research Service, Plant Pest Control Division, P.O. Box 1257, Roanoke, Virginia 24001.

106.13-AIR POLLUTION CONTROL

The Contractor shall exercise every reasonable precaution throughout the life of the project to keep air pollution to a minimum. The Contractor shall also comply with the applicable regulations of the West Virginia Air Pollution Control Commission. During times of limited dispersion, construction operations may be suspended.

107.0-SUBLETTING OF CONTRACT

The Contractor will not be permitted to use subcontractors to perform any work associated with this project. We will allow subletting of the contract only with written justification submitted directly to the engineer or WVCA agent. Justification must be approved in writing by the engineer and the Guyan Conservation District.

107.1-NOTICE TO PROCEED

The Contractor shall begin work within seven (7) days of the date “Notice to Proceed” is given.

107.2-PROSECUTION OF THE WORK

The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the Plans and Specifications within the time set forth at the pre-bid conference. The Contractor's working hours will be limited to the period of time between 7:00 a.m. and 7:00 p.m.

107.3-CHARACTER OF WORKERS; METHODS AND EQUIPMENT

The Contractor shall at all times employ sufficient labor and equipment for prosecuting the several classes of work to full completion in the manner and time required by these Specifications. All employees shall have sufficient skill and experience to perform properly the work assigned to them. Employees engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform all work properly and satisfactorily. Any person who, in the opinion of the Engineer, does not perform their work in proper and skillful manner or is intemperate or disorderly shall, at the request of the Engineer, be removed forthwith. Any Contractor employing such person shall not reemploy such person on the project without the written approval of the Engineer. Should a Contractor fail to remove such a person or persons as required above, or fail to furnish suitable and sufficient personnel for the proper prosecution of the work, the Engineer may suspend the work by written notice until such order is complied with.

All equipment which is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the project shall be such that no injury to adjacent property will result from its use. The methods and equipment to be used by the Contractor in accomplishing the construction are not prescribed in the Contract. The Contractor is free to use any methods or equipment that the Contractor demonstrates to the satisfaction of the Engineer will accomplish the contract work in conformity with the requirements of the Contract.

107.4-DETERMINATION AND EXTENSION OF CONTRACT TIME

107.4.1-General: The Guyan Conservation District shall determine and specify in the Contract a fixed calendar date allowed for completion of the Work, hereinafter called Contract time.

The Contract time will consist of the number of calendar days counting from the effective date of the Engineer's issuance of the Notice to Proceed to the calendar date specified for completion of the project, including all Saturdays, Sundays, holidays and non-working days. All calendar days elapsing between the effective dates of any orders of the Engineer to suspend Work and to resume Work for suspensions not the fault of the Contractor shall be excluded. When the Work on the Contract is substantially complete, as determined solely by the Engineer, the Contract time charges shall be discontinued prior to final acceptance being made by the Engineer as prescribed in 104.10.

107.4.2-Extension of Contract Time: The Contractor shall be responsible for any delays caused by failing to start work activities on the early start dates. The Contractor shall also be responsible for any delays caused by lack of continuous effort, inadequate allocation and scheduling of resources and coordination of the work, inadequate or insufficient application of resources, or inability to meet interim completion dates due to Contractor's approach to the work. Such delays shall not be considered for an extension of interim completion dates or the contract completion date.

If the Contractor finds it impossible for reasons beyond his control to complete the Work within the Contract time as specified or as extended according to the provisions of this Section, the Contractor shall make a written request to the Engineer within seven (7) calendar days for an extension of time.

The Contractor shall notify the Engineer, in writing, within seven (7) calendar days if a problem develops requiring direction to the Contractor by the Engineer or after the occurrence of any delay including delays in critical path activities, or delays in the controlling operation during the prosecution of Work that the Contractor believes may warrant revision of the contract completion date.

The notification shall set forth therein the reasons that shall justify the granting of the request, and as a minimum, identify the cause(s) for the delay; the particular critical path activity(s) or controlling operation(s) affected, the affect of any District act or omission on each activity or operation delayed, and the significant dates that encompass the periods of delay. The notification shall be considered by the District as a request by the Contractor for a contract time extension. If notification is not given within the prescribed time, or if, having given notification as provided herein, the Contractor does not afford the Engineer proper facilities for keeping strict account of actual costs and loss of time, the Contractor waives any claim for additional compensation and Contract time extension. Delay costs allegedly incurred before notifying the Engineer, in the manner provided herein, that operations have been delayed shall not be allowed.

If the Engineer determines that the Work was delayed because of conditions beyond the control of and without the fault or negligence of the Contractor, the Engineer may extend the time for project completion as the conditions justify. Only delays in the activities on the critical path or, in the absence of scheduling requirements, delays in the controlling operation will be considered for a contract time extension provided, when required, the Contractor has submitted proper notification and supporting documentation justifying the request. The Engineer shall promptly advise the Contractor in writing of the approval or rejection of the time extension request. The extended time for completion shall then be in full force and effect the same as though it were the original time for completion.

107.4.2.1-Excusable Noncompensable Delays:
An excusable noncompensable delay is a delay in the critical path activity or, a delay in the controlling operation that was beyond the Contractor's control and not caused by the Contractor's fault or negligence. Consideration may be given to an adjustment in Contract

time, but no consideration shall be given for additional monetary compensation. Excusable noncompensable delays include:

A. Delay of Notice to Proceed more than fourteen (14) calendar days after the contract letting date for reasons beyond the control of and without the fault or negligence of the Contractor. Consideration for an adjustment of Contract time will be limited to the number of calendar days in excess of fourteen (14) calendar days, counting from the Contract letting date to the effective date of the District's issuance of the Notice to Proceed.

B. Delays due to Acts of God, labor strike (not within the Contractor's power to settle) freight embargoes, state of national emergency or other reasons beyond the control of the Contractor. Consideration for an adjustment of contract time shall be limited to the number of potential working days lost as determined by the Engineer.

C. Delays in obtaining materials due to extraordinary market conditions caused by industry wide strike, natural disaster, area-wide shortage, official federal declaration that a material is critical due to national defense efforts, or for other reasons beyond the control of the Contractor. Consideration for an adjustment of contract time shall be limited to the number of potential working days lost as determined by the Engineer.

D. Delays due to adverse weather.

Consideration for an adjustment of contract time shall be limited to the number of potential working days lost each month, as determined by the Engineer, in excess of twenty (20)% of the potential working days within that month or portion thereof.

107.4.2.2-Excusable Compensable Delays:

An excusable compensable delay is a delay in the critical path activity or, a delay in the controlling operation that was caused solely by the Guyan Conservation District. An adjustment in Contract time may be considered along with additional monetary compensation, if entitled. Excusable compensable delays include:

A. Delays in a critical path activity or, a delay in the controlling operation due to contract modifications resulting in the performance of added Work, revised Work, or Work in greater quantities than those set forth in the Proposal. The District reserves the right to negotiate unit prices that includes the cost for additional resources (labor, material and equipment) required to complete added Work, revised Work, or Work in greater quantities within the originally scheduled dates, thereby negating the need for a contract time adjustment. Consideration for adjustment of Contract time for added or revised Work shall be limited to the extra time allowances as agreed on and specified in the Change Order that covers the added or revised Work. Any adjustment of Contract time for Work authorized in accordance with 103.6 that requires the performance of Work in greater quantities than those specified in the Contract shall be made at the discretion of the Engineer in accordance with one of the two options below:

1. The extra time allowances as agreed on and specified in the Change Order that covers the additional or increased Work; or
2. The same ratio that the total cost of the added or increased work shall bear to the total contract bid amount, provided the added or increased work is judged to be a critical path activity or, a controlling operation.

B. Loss of time due to differing site conditions. Consideration for adjustment of Contract time shall be according to section 103.4.

C. Loss of time due to any written orders of the Engineer suspending work or delaying critical path activities on the project not the fault of the Contractor. Consideration for adjustment of contract time shall be according to section 103.5.

D. Loss of time due solely to acts or omissions by the District and not caused or contributed to by the Contractor's fault or negligence. Consideration for an adjustment of contract time shall be limited to the number of potential working days lost as determined by the Engineer.

107.5-DEFAULT AND TERMINATION OF CONTRACT

The Guyan Conservation District reserves the right to terminate the contract if the contractor:

i. fails to begin work under the Contract within the time specified in the "Notice to Proceed",

ii. fails to perform the work with sufficient employees and equipment or with sufficient materials to assure the prompt completion of the work,

iii. performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable,

iv. discontinues the prosecution of the work,

v. fails to resume work, which has been discontinued, within a reasonable time after notice to do so,

vi. becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency,

vii. allows any final judgment to stand against the Contractor unsatisfied for a period of 10 days,

viii. makes an assignment for the benefit of creditors, or

ix. for any other cause whatsoever, fails to carry out the contract terms in an acceptable manner, the Engineer will give notice in writing to the Contractor and their surety of such delay, neglect or default. If the Contractor or Surety, within a period of 10 days after such notice, shall not proceed in accordance therewith, the District will, upon written notification from the Engineer of the fact of such delay, neglect or default and the Contractor's failure to comply with such notice, have full power and authority, without violating the Contract, to take the prosecution of the work out of the hands of the Contractor. The District may appropriate or use any or all materials and equipment on the ground as may be suitable and acceptable and may enter into an agreement for the completion of the contract according to the terms and provisions thereof, or use such other methods as in the opinion of the Engineer will be required for the completion of the Contract in an acceptable manner. All cost charges incurred by the District, together with the cost of completing the work under Contract, will be deducted from any monies due or which may become due the

Contractor. If such expense exceeds the sum which would have been payable under the Contract, then the Contractor and the surety shall be liable and shall pay to the District the amount of such excess.

107.6-TERMINATION OF CONTRACT FOR CONVENIENCE OF THE DISTRICT

The Guyan Conservation District may terminate the entire Contract or any portion thereof; if the Engineer determines that a termination is in the District's interest. The Engineer will deliver to the Contractor a Notice of Termination specifying the extent of termination and the effective date.

A. Submittals and Procedures. After receipt of a Notice of Termination, the Contractor shall immediately proceed with the following obligations:
   1. Stop work as specified in the notice.
   2. Place no further subcontracts or orders for materials, services, or facilities, except as necessary to complete the continued portion of the Contract.
   3. Terminate all subcontracts to the extent they relate to the work terminated.
   4. Settle all outstanding liabilities and termination settlement Proposals arising from the termination of the contract or portion thereof.
   5. Transfer title and deliver to the District (1) fabricated, partially fabricated, or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the work terminated, and (2) the completed or partially completed plans, drawings, information, and other property that, if the Contract had been completed, would be required to be furnished to the District.
   6. Complete performance of the work not terminated.
   7. Acceptable materials obtained by the Contractor for the Project that have not been incorporated in the work shall be inventoried in conjunction with the Engineer at a date identified by the Engineer.
   8. Take any action necessary, or that the Engineer may direct, for the protection and preservation of the property related to the Contract that is in the possession of the Contractor and in which the District has or may acquire an interest.

B. Settlement Provisions. When the District orders termination of all or a part of the Contract effective on a certain date, completed items of work as of that date will be paid for at the Contract bid price. Payment for partially completed work will be made at agreed prices. Items that are eliminated in their entirety by such termination shall be paid for as provided in Subsection 108.3.
   1. Additional Costs. Within sixty working days of the effective termination date, the Contractor shall submit a claim for additional damages or costs not covered above or elsewhere in the Contract. Such claim may include such cost items as reasonable idle equipment time, mobilization efforts, bidding and project investigative costs, overhead expenses attributable to the project terminated, legal and accounting charges involved in claim preparation, actual idle labor cost if work is stopped in advance of termination date, guaranteed payments for private land usage as part of the original Contract, and any other cost or damage for which the Contractor feels reimbursement should be made. Anticipated profits will not

be considered as part of any settlement. The Contractor and the District may agree upon the whole or any part of the amount to be paid because of the termination. The amount may include a reasonable allowance for profit on work done. The agreed amount may not exceed the total Contract price as reduced by the amount of payments previously made, and the Contract price of work not terminated. The Contract shall be amended, and the Contractor paid the agreed amount.

2. Additional Cost Review. If the Contractor and the District fail to agree on the whole amount to be paid the Contractor because of the termination of work, the District will pay the amounts determined as follows, but without duplication of any amounts agreed upon above:
   a. For Contract work performed before the effective date of termination, the total (without duplication of any items) of:
      1. The cost of work performed;
      2. The cost of settling and paying termination settlement Proposals under terminated subcontracts that are properly chargeable to the termination portion of the Contract if not included in subparagraph 1 above; and
      3. A sum, as profit on (1) above determined by the District to be fair and reasonable. The District shall allow no profit under this subdivision if the Contractor's costs incurred on work performed exceed the bid item payments made.
   b. The reasonable costs of settlement of the work terminated, including:
      1. Accounting, legal, clerical, and other expenses reasonably necessary for the preparation of termination settlement Proposals and support data;
      2. The termination and settlement of subcontracts (excluding the amounts of such settlements); and
      3. Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory.
   c. Except for normal spoilage, and to the extent that the District expressly accepts the risk of loss, District will exclude from the fair value, all that is destroyed, lost, stolen, or damaged so as to become undeliverable to the District or to the buyer.
   d. In arriving at the amount due the Contractor under this clause, there will be deducted--
      1. All unliquidated advance or other payments to the Contractor under the terminated portion of the Contract;
      2. Any claim that the District has against the Contractor under the Contract; and
      3. The agreed price for, or the proceeds from the sale of materials, supplies, or other things acquired and sold by the Contractor not recovered by or credited to the District. If termination is partial, the Contractor may file a Proposal with the District for an equitable adjustment of the price(s) of the continued portion of the Contract. The District will make any equitable adjustment agreed upon. Any Proposal for an equitable adjustment under this clause shall be requested within sixty working days from the effective date of termination unless extended in writing by the Engineer. The District may, under the terms and conditions it prescribes, make partial payments and payments against costs incurred by the Contractor for the termination portion

of the Contract, if these payments will not exceed the amount to which the Contractor is entitled.

The Contractor shall maintain and make available all project cost records to the District for audit to the extent necessary to determine the validity and amount of each item claimed. This includes all books and other evidence bearing on the Contractor's costs and expenses under the Contract. These records and documents shall be made available to the District at the Contractor's office, at all reasonable times, without any direct charge. If approved by the District, photographs, microphotographs, or other authentic reproductions may be maintained instead of original records and documents. Termination of the Contract or portion thereof shall not relieve the Contractor of contractual responsibilities of the work completed, nor shall it relieve the Surety of its obligation for and concerning any just claim arising out the work performed.

108.0-MEASUREMENT OF QUANTITIES

All work completed under the Contract will be measured by the Engineer according to United States standard measure. The method of measurement and computations to be used in determining of quantities of materials furnished and of work performed under the Contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise indicated, the requirements prescribed shall govern. Earthwork will be computed by the average end area method, using the horizontal length measured along the baseline as the distance between sections. Other acceptable methods may be used.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally and no deductions will be made for individual fixtures having an area of nine square feet (one square yard) or less for fabrics and one square feet or less for sidewalk replacements. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the Plans.

The term ton will mean the short ton consisting of 2,000 lb. All materials which are measured or proportioned by weight shall be weighed on approved scales by competent, qualified personnel. Scales for weighing shall be of either the beam type, springless-dial type or digital recorder type. All plant and truck scales and metering devices shall be inspected, approved and sealed in accordance with the requirements of the West Virginia Division of Labor, Bureau of Weights and Measures, or other appropriate agencies of the State or its political subdivisions. Poises shall be designed to be locked in any position to prevent unauthorized changes. When the beam type scales are used, provisions for a "telltale" dial shall be made for indicating to the operator that the required load in the weighing hopper is being approached. A device on the weighing beams shall clearly indicate the critical position.

When approved by the Engineer, material specified to be measured by the cubic yard may be weighed and these weights converted to cubic yard for payment purposes. Further, when it is impractical to measure the material by weighing, or in its original

position, the material will be measured in its final position and adjusted by a volume change factor. These conversion factors will be determined by the Engineer and shall be agreed to by the Contractor before these methods of measurement are used.

108.1-SCOPE OF PAYMENT

The Contractor shall receive and accept compensation provided for in the Contract as full payment for furnishing all materials and for performing all work under the Contract in a complete and acceptable manner and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the prosecution thereof.

If the "Basis of Payment" clause in the Specifications relating to any unit price in the bid schedule requires that the unit price cover and be considered compensation for certain work or material essential to the item, this work or material will not also be measured or paid for under any other pay item which may appear elsewhere in the Specifications, except as provided in 103.4

108.2-FORCE ACCOUNT WORK

If directed by the Guyan Conservation District, as provided for in 103.2, the Contractor shall perform extra or unforeseen work on a force account basis and shall be compensated in the following manner:

108.2.1-Labor: For all labor and for foremen and superintendence in direct charge of the specific force account operations, the Contractor shall receive the actual current local rate of wage, agreed to in writing before beginning work, paid for each and every hour that the labor and foremen are actually engaged in the work.

The Contractor shall also receive the actual costs paid to, or in behalf of, workmen by reason of subsistence and travel allowances, Worker's Compensation insurance premiums, unemployment insurance contributions, Social Security and Medicare taxes, health and welfare benefits, and pension fund benefits when such amounts are required by employment contract generally applicable to the classes of labor employed on the work. The Contractor shall furnish satisfactory evidence of the rate or rates and the amount paid for insurance premiums and taxes. For overhead and profit, an amount equal to sixteen percent of the sum of the above labor costs shall also be paid to the Contractor.

108.2.2-Materials: For all materials used in the specific force account operation and incorporated into the project, the Contractor shall receive the actual cost of materials delivered including labor charges for employees of the material supplier who are required to perform an incidental amount of work in conjunction with the material furnished and freight charges paid exclusive of equipment rentals as hereinafter set forth. The Contractor shall furnish invoices to document actual materials costs;
however, if materials used on the force account work are not specifically purchased for such work but are taken from the Contractor's inventory, then in lieu of the invoices the Contractor shall furnish an affidavit certifying that such materials were taken from inventory, that the quantity claimed was actually used, and that the price and freight

claimed represent the Contractor's actual cost. For overhead and profit, an amount equal to sixteen percent of the sum of the above materials costs shall also be paid to the Contractor. All materials paid for will become the property of the District.

108.2.3-Equipment: The movement of equipment to and from the specified force account operation shall be as directed by the Engineer. All equipment must be in good operating condition to qualify for rental payment. For all Contractor equipment either rented or owned, the rental rates and operating costs include full compensation for major repairs, repairs due to normal wear and tear, labor and parts needed for routine daily servicing of the equipment, operating expendables such as fuel, lubricants, tires and ground engaging components, and the percentage of mechanic's wages and related maintenance vehicles chargeable to preventive and field maintenance. Payable time periods shall not include time elapsed before the Engineer has advised the Contractor that the equipment is required for use in the force account or time elapsed after the Engineer has advised the Contractor the equipment is no longer needed exclusive of costs for transportation, assembly and disassembly set forth in 108.2.3.4, time elapsed while equipment is broken down or time spent repairing equipment. No separate payment will be made for any type of repairs to equipment. When equipment is rented from a rental District which the Contractor owns or is part owner, the equipment shall be treated as owned equipment and rental rates determined accordingly.

108.2.3.1-Rented Equipment:
For required equipment which is not owned and must be obtained by rental, the Contractor shall be paid the actual rental cost for the equipment for the time that the equipment is required solely for use in the force account work. The Contractor shall furnish invoices to document actual equipment rental costs. Estimated operating costs shall also be paid for each hour the rented equipment is actually operated in the force account work, not to exceed the estimated operating cost per hour set forth for the equipment in the current Rental Rate Blue Book for Construction Equipment published by Dataquest, Inc. For overhead and profit, an amount equal to sixteen percent of the sum of the above costs for rented equipment shall also be paid to the Contractor.

108.2.3.2-Owned Equipment:
For owned equipment, other than small tools costing less than $500 each, the Contractor shall be paid a rental rate determined from the current Rental Rate Blue Book for Construction Equipment published by Dataquest, Inc. The hourly rate shall be determined by dividing the monthly rate set forth in the Rental Rate Blue Book by 176 with appropriate adjustments made for age and region. The hourly rate for overtime work shall be determined by dividing the monthly rate set forth in the Rental Rate Blue Book by 176 with appropriate adjustments made for age and region. The estimated operating cost per hour set forth in the Rental Rate Blue Book shall also be paid for each hour the equipment is actually operated in the force account work.

If the owned equipment is not referred to in the current Rental Rate Blue Book, the hourly rental rate will be an agreed amount not to exceed the hourly rate computed as follows: A monthly rental rate equivalent to six percent of the Contractor's original

acquisition cost of the equipment shall be established. The hourly rental rate shall then be determined by dividing this monthly rental rate by 176. Operating costs in such cases shall be a reasonable agreed-upon amount for each hour the equipment is actually operated in the force account work. For overhead and profit, an amount equal to sixteen percent of the sum of the above costs for owned equipment shall also be paid to the Contractor.

108.2.3.3-Idle Equipment:
For required equipment held on the site of force account work on an idle basis at the request of the Engineer, the Contractor shall be paid for such idle time at an adjusted hourly rental rate exclusive of estimated operating costs. For owned equipment, such payment shall be made at one-half the hourly rate determined by dividing the monthly rate set forth in the Rental Rate Blue Book by 176 with appropriate adjustments made for age and region. Payment of idle time for owned equipment on force account work shall not exceed 8 hours each day less the hours the equipment operates that day. Payment for idle time shall not be made on Saturday, Sunday, or holidays, when equipment is operated more than 8 hours per day or 40 hours per week, when equipment is idle due to the Contractor's decision not to work on potential working days or when equipment is idle due to weather. For overhead and profit, an amount equal to sixteen percent of the sum of the above costs for idle owned equipment shall also be paid to the Contractor.

108.2.3.4-Miscellaneous:
Transportation charges for owned or rented equipment to and from the site of the force account work shall be paid provided the equipment is obtained from the nearest approved source, the return charges do not exceed the delivery charges, haul rates do not exceed the established rates of licensed haulers, and charges are restricted to those units of equipment not already available and not on or near the project. In the case of owned equipment, the Contractor shall be paid idle time rates for the equipment being hauled in addition to the applicable rental rates for the hauling equipment. All costs associated with the assembly and disassembly of the equipment for transport shall also be paid. All charges by persons or firms other than the Contractor shall be supported by satisfactory invoices.

108.2.4-Taxes: When the work is done by the Contractor, the amount of State and municipal taxes related to the force account work required to be paid by the Contractor will be reimbursed to the Contractor. For overhead and profit, an amount equal to sixteen percent of the sum of the above costs for State and municipal taxes shall also be paid to the Contractor.

108.2.5-Contract Bond: The cost of premiums for contract bond required by 102.4 which is extra cost and related to the force account work will be paid to the Contractor. For overhead and profit, an amount equal to sixteen percent of the sum of the above costs for contract bond shall also be paid to the Contractor.

108.2.6-Insurance: The cost of premiums for Contractor's Public Liability and Property Damage Liability Insurance required by 102.5.1 and Contractor's Protective Public

Liability and Property Damage Liability Insurance required by 102.5.2 which is extra cost and related to the force account work will be paid to the Contractor. For overhead and profit, an amount equal to sixteen percent of the sum of the above costs for insurance shall also be paid to the Contractor.

108.2.7-Records: The Contractor's representative and the Engineer shall compare records daily of the cost of work done as ordered on a force account basis, and shall indicate agreement by signature on such records. No payment will be made for work performed on a force account basis until the Contractor has furnished the Engineer an itemized statement of the cost of such force account work detailed as follows:

a. Name, classification, date, daily hours, total hours, wage rate, fringe benefit rate and extended amounts for each laborer and foreman.
b. Quantities of materials, unit prices and extended amounts.
c. Transportation of materials.
d. Designation, dates, daily hours, total hours, rental rate/hour, operating cost/hour, and extended amount for each unit of equipment.
e. Transportation of equipment.
f. Rates for property damage insurance, liability insurance, bond, municipal tax, subsistence and travel allowance, Worker's Compensation insurance, unemployment insurance, Social Security and Medicare taxes.

The Contractor must also furnish satisfactory evidence of the actual cost for each of the charges listed on the itemized statement (excluding those charges for owned equipment determined from the Rental Rate Blue Book).

108.2.8-Basis of Payment: The compensation provided in 108.2.1 to 108.2.7, inclusive, shall be received by the Contractor as payment in full for extra work done on a force account basis, including all labor, materials, equipment, fuel, lubricants, maintenance of equipment, administration, overhead, use of small tools and equipment for which no rental is allowed, profit, taxes, bond costs, insurance premiums, unemployment contributions and any other expense arising from the performance of the force account work.

108.3-ELIMINATED ITEM

Should any items contained in the proposal be found unnecessary for the proper completion of the work, the Engineer may, upon written order to the Contractor, eliminate such items from the Contract, and such action will in no way invalidate the contract. When a Contractor is notified of the elimination of items, the Contractor will be reimbursed for actual work done and all costs incurred, including mobilization of materials prior to the notification.

108.4-PARTIAL PAYMENTS

Payment will be made on a monthly basis upon completion of river enhancement and following acceptance of the completed in-stream structures by the Guyan Conservation District. Invoices shall be submitted by the first Friday of every month during

construction. The Guyan Conservation District will require 45 days for payment to the contractor.

108.5-ACCEPTANCE AND FINAL PAYMENT

When the project has been accepted, as provided in 104.10, the Engineer will prepare the final estimate of the quantities of the various classes of work performed. Before the final payment is made, the Contractor shall execute the Statement of Acceptance on the back of the final estimate. After the Contractor executes such final estimate or if the Contractor fails or declines to execute the final estimate within 30 days after receipt, the District will consider the estimate approved and accepted and he will be paid the entire sum found to be due. Upon written request from the Contractor received within 30 days of his receipt of the final estimate, the time for review and execution of the final estimate will be extended up to 60 additional calendar days. Should the Contractor desire to reserve the right to file a claim with the State Court of Claims for any sum or compensation not included in the final estimate, growing out of the Contract, then a Reservation of Right stipulating the nature, each item and the amount claimed shall be added at the end of the acceptance statement. This claim must be filed with the State Court of Claims within 120 days of execution of the final estimate. The acceptance of final payment of the contractor shall be considered a release in full of all claims against the Guyan Conservation District arising out of said project, except for any claim reserved at the end of the acceptance statement on the back of the final estimate.

109.0-MINIMUM WAGE DETERMINATIONS

The contractor shall pay the current West Virginia Department of Labor minimum wage rates as established for Boone or Lincoln County (depending on work location), West Virginia pursuant to Code 21-5A-1. The prevailing wage rates relevant to this project are attached to these specifications.

109.1-NONDISCRIMINATION OF EMPLOYEES (GOVERNOR'S EXECUTIVE ORDER)

During the performance of this Contract for public work or for goods or services, the Contractor agrees as follows:

The Contractor shall provide equal employment opportunity for all qualified persons and shall not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. Contractors are required to give written notice to any labor union with which they have a collective bargaining or other agreement, that they have complied with the requirements of the Executive Orders by the Governor of the State of West Virginia, dated October 16, 1963, and December 15, 1965. These provisions shall be fully and effectively enforced and any breach of them will be regarded as a material breach of the Contract.

109.2-PROVISIONS FOR WEST VIRGINIA STATE FUNDS CONTRACTS

109.2.1-Applications: These contract provisions shall apply to all work performed on the Contract by the Contractor with their own organization and with the assistance of

employees under their immediate superintendence and to all work performed on the Contract by piece work, station work, or by subcontract.

109.2.2-Payrolls: Submission by the Contractor, of payrolls, or copies thereof, is not required. Each Contractor shall preserve their weekly payroll records for a period of three years from the date of completion of this Contract. The payroll records shall set out accurately and completely the project number, name, classification, hourly wage rate of each employee, hours worked by each employee daily and weekly wages earned by each employee, and deductions made from such weekly wages, and the actual weekly wages paid to each employee. Such payroll records shall be made available at all times for inspection by authorized representatives of the District.

109.2.3-Payment of Predetermined Minimum Wages: These contract provisions are supplemented elsewhere in the Contract which set forth the certain predetermined minimum wage rates. The Contractor shall pay not less than these rates. The wages of all labor shall be paid in legal tender of the United States, except that this condition will be considered satisfied if payment is made by negotiable check, on a solvent bank, which may be readily cashed by the employee in the local community for the full amount, without discount or collection charges of any kind. Where checks are used for payment, the Contractor shall make all necessary arrangements for the checks to be cashed and shall give information regarding such arrangements. The minimum wages specified shall be exclusive of any charges for medical examination, medical fees, or insurance, except as specifically required by State Law. No individual employed on the project in other than an administrative position shall be paid less than the minimum rate for unskilled labor.

TECHNICAL SPECIFICATIONS

200.0 – GENERAL

200.1-RELATED DOCUMENTS
The provisions of the contract apply to the work specified in this section.

200.2-DESCRIPTION OF WORK
This specification covers all items related to construction of in-stream structures, including excavation of the proposed channel.

200.3-REFERENCES
The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 136	(1996a) Sieve Analysis of Fine and Coarse Aggregates
ASTM D 422	(1963; R 1998) Particle-Size Analysis of Soils
ASTM D 2487	(1998) Classification of Soils for Engineering Purposes (Unified Soil Classification System)

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

WVDOT Spec	(2010) Standard Specifications for Road and Bridge Construction

200.4-DEFINITIONS

200.4.1-Bankfull Elevation: Bankfull elevation is the point of incipient flooding in an alluvial channel. This elevation is the reference for all elevations on or along the Hydraulic Structures described in this section and is clearly delineated in the project drawings.

200.4.2-Bankfull Bench: The bankfull bench is a constructed floodplain adjacent to the channel. The bankfull bench is constructed at the bankfull elevation.

200.4.3-Footing Boulder (Footing Stone): Footing boulders are boulders placed to provide a foundation for in-stream structures. Typically footing boulders are buried in the channel bottom and not seen when the structure is completed. The minimum footing depth at the invert of the stream shall be three times the protrusion height of the invert boulder. All surface boulders for all hydraulic structures require footing boulders unless bedrock is encountered at the proposed elevation of footing boulders. Footing boulders shall be durable sandstone with a minimum median axis diameter of 3.5 feet.

200.4.4-Surface Boulder (Surface Stone): Surface boulders are the top-most course of boulders used in each Hydraulic Structure. All surface boulders can be seen protruding from the water surface during extremely low flows. Surface boulders shall be durable sandstone with a minimum median axis diameter of 3.5 feet.

200.4.5-Vane Length: The vane length is the straight-line portion of a boulder vane measured from the stream bank at bankfull elevation to the channel bed.

200.4.6-Vane Angle: The vane angle is the smallest angle measured between a vane and a line tangent to bankfull elevation at the point where the vane intersects the bank.

200.4.7-Floodplain Sill: A floodplain sill is the buried extension of the in-stream structure perpendicular to the flow direction of the bankfull channel that extends beyond the bankfull channel.

200.4.8-Thalweg: The thalweg is the lowest portion of the bankfull channel.

200.5-MATERIALS
Refer to each technical specification for materials necessary for each structure or item of work.

201.0-SITE PREPARATION

201.1-GENERAL
This work shall consist of clearing and grubbing, removing, and disposing of all vegetation and debris within the construction limits that is necessary to complete the work as indicated on the Contract Plans. This work shall also include preservation from injury or defacement of all vegetation and objects to remain. Native vegetation shall be preserved along the site where possible. Alignment stakes, grade stakes, guard stakes, boundary markers, bench marks and tie points shall be preserved until such time as their usefulness has ceased and permission for their destruction is given by the Engineer.

201.2-CLEARING AND GRUBBING
All areas within the work limits indicated on the Plans shall be cleared and grubbed of the obstructions described. For areas outside of the construction limits, existing ground cover shall be preserved insofar as possible, and the area shall be left neat and clear and in a condition which is reasonably consistent with the surroundings.

201.3-DISPOSAL
All wood-type material shall be stockpiled and used for Woody Debris Toe Protection and Log Vanes. Material in excess shall be disposed of by the Contractor.

201.4-METHOD OF MEASUREMENT
The quantity of work done, will be on a lump sum basis.

201.5-BASIS OF PAYMENT
Site preparation, determined as provided above, will be paid for at the contract price bid as a lump sum item, which price and payment shall be full compensation for the completion of items discussed with this task. The Contractor shall submit for payment a percentage of the bid item amount based on the work completed associated with this bid item. No deduction will be made, nor will any increase be made, in the lump sum site preparation item amount regardless of decreases or increases in the final total contract amount or for any other cause.

202.0-MOBILIZATION/DEMOBILIZATION

202.1-GENERAL
This work shall consist of the performance of construction preparatory operations, including the movement of personnel and equipment to the project site, equipment movement during construction of the project, and movement of personnel and equipment from the project site following completion. The bid for mobilization/demobilization shall be lump sum and shall include multiple mobilizations and demobilizations as needed to complete the work.

202.2-METHOD OF MEASUREMENT
The method of measurement will be lump sum.

202.3-BASIS OF PAYMENT
Mobilization and Demobilization, determined as provided above, will be paid for at the contract price bid as a lump sum item, which price and payment shall be full compensation for the completion of items discussed with this task. The bid price for mobilization/demobilization shall not exceed ten (10%) percent of the total bid price for the project. No deduction will be made, nor will any increase be made, in the lump sum mobilization item amount regardless of decreases or increases in the final total contract amount or for any other cause.

203.0-TEMPORARY EROSION & SEDIMENT CONTROL

203.1-GENERAL
This work will include measures taken by the Contractor to do all work and take measures necessary to control soil erosion resulting from construction operations, preventing the flow of sediment from the construction, and containing construction materials (including excavation and backfill) within the protected working area so as to prevent damage to the adjacent wetlands or water courses. The Contractor shall not employ any method that violates a rule, regulation, guideline, or procedure established by Federal, State or local agencies having jurisdiction over the environmental effects of construction.

Pollutants such as chemicals, fuels, lubricants, bitumen, raw sewage and other harmful waste shall not be discharged into or alongside of any body of water or into natural or man-made channels thereto.

203.2-CONSTRUCTION ACTIVITIES

The Contractor shall keep all related permits and erosion control plans onsite. The Contractor shall install and maintain necessary best management practice (BMP) on the project to provide appropriate erosion prevention and sediment control. The Contractor shall use acceptable methods necessary to control soil erosion and prevent the flow of sediment to the maximum extent possible. These methods shall include, but not be limited to, the use of silt fences, pump arounds, fiber rolls, hay bales, water diversion structures, temporary revegetation, diversion ditches and settling basins.

Construction operations shall be restricted to the areas of work indicated on the Drawings and to the area which must be entered for the construction of temporary or permanent facilities. The Engineer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow, and fill operations and to direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of wetlands and adjacent watercourses. Such work may involve the use of temporary mulches, mats, or other control devices or methods necessary to control erosion.

Excavated soil material shall not be placed adjacent to wetlands or watercourses in a manner that will cause it to be washed away by high water or runoff. Earth berms or diversions shall be constructed to intercept and divert runoff water away from critical areas. Diversion outlets shall be stable or shall be stabilized by means acceptable to the Engineer. If for any reason construction materials are washed away during the course of construction, the Contractor shall remove those materials from the fouled areas as directed by the Engineer. The Contractor shall not pump silt-laden water from trenches or other excavations into wetlands, or adjacent watercourses. Instead, silt-laden water from his excavations shall be discharged within areas surrounded by baled hay or into sediment traps to ensure that only sediment-free water is returned to the watercourses. Damage to vegetation by excessive watering or silt accumulation in the discharge area shall be avoided.

For work within easements or rights-of-way, all materials used in construction such as excavation, backfill, roadway, and pipe bedding and equipment shall be kept within the limits of the easements or rights-of-way.

Prohibited construction procedures include, but are not limited to the following:

A. Dumping of spoil material into any streams, wetlands, surface waters, or unspecified locations.
B. Indiscriminate, arbitrary, or capricious operation or excavations into surface waters, or wetlands.
C. Pumping of silt-laden water from trenches or excavations into surface water or wetlands.
D. Damaging vegetation adjacent to or outside of the construction area limits.

E. Disposal of trees, brush, debris, paints, chemicals, asphalt products, concrete curing compounds, fuels, lubricants, insecticides, wash water from concrete trucks or hydro seeders, or any other pollutant in wetlands, surface waters, or unspecified locations.
F. Permanent or unauthorized alteration of the flow line of any stream.

Any temporary working roadways required shall be clean fill approved by the Engineer. In the event fill is used, the Contractor shall take every precaution to prevent the fill from mixing with native materials of the site.

Upon completion of the project and once final vegetative cover has been established to the satisfaction of the District and Engineer, the Contractor will remove all BMPs and restore the disturbed portions of the project to the final contour.

203.3-MATERIALS
Unless otherwise specified on the drawings or in these Technical Specifications, provide erosion control materials in accordance with the requirements of West Virginia Department of Transportation (WVDOT).

203.3.1-Silt Fence: Synthetic filter fabric shall be a pervious sheet of woven propylene, nylon, and polyester or ethylene yarn and shall be certified by the manufacturer or supplier as conforming to the following requirements:

Physical Property	**Minimum Requirements**
Grab Strength (ASTM D 4632)	100 lb
Mullen Burst (ASTM D 3786)	200 psi
Puncture (ASTM D 4833)	50 lb
Trapezoid Tear (ASTM D 4533)	50 lb
AOS (ASTM D 4751)	30 sieve
Flow Rate (ASTM D 4491)	10 gal./sq.ft./min

Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide minimum of six months of expected usable construction life at a temperature range of 0°F to 120°F.

Posts shall be either two-inch by two-inch wood or 1.33 pounds per linear foot steel with a minimum length of five feet and shall be placed at a maximum horizontal spacing of five feet. Steel posts shall have projections for fastening wire to them.

203.3.2-Temporary Seed: Temporary seed species for surface erosion control or over-seeding shall be a minimum of 95 percent pure live seed in accordance with the temporary cover crop specification found in the seeding schedule. Weed seed shall be a maximum 1 percent by weight of the total mixture. Seed labeled in accordance with U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act shall be furnished. The mixing of seed may be done by the seed supplier prior to delivery, or on

site as directed. Substitutions will not be allowed without written request and approval from the Engineer. Seed that is wet or moldy or that has been otherwise damaged in transit or storage will not be accepted. Acceptable temporary seed species and seeding rates are shown on the plans.

203.3.3-Straw Mulch: Straw mulch for this item shall be small-grain straw free of weeds, disease, and rot. Straw mulch obtained from regular farming operations is not free of weeds and will be rejected. Straw shall be oat, wheat, rye, barley, or rice stalk. Straw stock shall be in air-dry condition and of a suitable consistency to be broadcast by commercial mulch-blowing equipment.

203.4-EXECUTION

203.4.1-Silt Fence: Where applicable silt fence shall be installed down-slope of areas to be disturbed prior to clearing and site preparation. The bottom 12 inches of the fabric shall be buried in a 6-inch trench cut into the ground to prevent sediment from escaping under the fence. All earth work shall be on the upstream side of the fence.

Silt Fences shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Damaged, dislodged, or decomposed fences shall be repaired or replaced immediately. Silt fence shall be replaced at least every six months.

Sediment deposits shall be removed after each storm event or when deposits reach approximately one-half of the fence height.

Silt Fence shall remain in place until permanent soil stabilization has become established.

203.4.2-Temporary Seeding: Temporary seeding shall be used on exposed soil surfaces where additional work will not occur for a period of more than 14 calendar days. Temporary seeding shall be performed at no additional cost to the District.

After the areas required to be seeded have been brought to the grades shown, the soil shall be tilled to a minimum depth of at least four inches by an approved operation until the condition of the soil is acceptable. The Work shall be performed only during periods when, in the Engineer's opinion, beneficial results are likely to be obtained. When drought, excessive moisture, or other unsatisfactory conditions prevail, the work shall be stopped. Undulations or irregularities in the surface shall be leveled before application of seeding and blanket.

Seed shall be applied at the rates indicated on the Plans.

Apply mulch cover to all seeded areas and promote germination and growth.

Protection of temporary seeded areas shall be the responsibility of the Contractor. Protection shall be provided against traffic or other use by erecting barricades immediately after treatment is completed, and by placing warning signs, as directed.

Seeded areas shall be maintained until permanent seeding can be placed on the area. Any damage shall be repaired, and mulch material that has been removed by wind or other causes shall be replaced and secured.

The Contractor shall be responsible for the proper care of temporarily seeded areas. Water and fertilizer shall be applied to seeded areas as necessary to promote seed growth and prevent erosion.

203.5-METHOD OF MEASUREMENT
The quantity of work performed, will be on a lump sum basis.

203.6-BASIS OF PAYMENT
Temporary erosion and sediment control, determined as provided above, will be paid for at the contract price bid as a lump sum item, which price and payment shall be full compensation for the completion of items discussed with this task. The Contractor shall submit for payment a percentage of the bid item amount based on the work completed associated with this bid item. No deduction will be made, nor will any increase be made, in the lump sum site preparation item amount regardless of decreases or increases in the final total contract amount or for any other cause.

204.0-TEMPORARY CONSTRUCTION ENTRANCE

204.1-GENERAL
This item shall consist of all labor, materials and equipment for clearing and grubbing, unclassified excavation and bedding required for construction and maintenance of stabilized construction entrances. Stabilized construction entrances shall be used at all points where traffic will be leaving a construction site and moving directly onto a public road.

204.2-MATERIALS
Rock for the temporary construction entrance shall be 4 to 6 inch stone.

204.3-EXECUTION
Stabilized construction entrances shall be installed per detail as shown on these plans and within these specifications.

204.4-MAINTENANCE
If washing is used, provisions shall be made to intercept the wash water and trap the sediment before it is carried offsite or into the creek. Washdown facilities shall be required as directed by the District or Engineer. Washdown areas in general must be stabilized with crushed gravel and drain into a temporary sediment trap or sediment basin. Construction entrances should be used in conjunction with the stabilization of construction roads to reduce the amount of mud picked up by vehicles.

Inspect entrances every seven (7) calendar days and within 24-hours after each rainfall that produces 1/2- inches or more precipitation, or after heavy use. Check for mud and

sediment buildup and pad integrity. Make daily inspections during periods of wet weather. Maintenance is required more frequently in wet weather conditions. Reshape the stone pad as needed for drainage and runoff control.

Wash and replace stones as needed and as directed by the District or Engineer. The stone in the entrance should be washed and replaced whenever the entrance fails to reduce mud being carried off-site by vehicles. Frequent washing will extend the useful life of stone.

Immediately remove mud and sediment tracked or washed onto public roads by brushing or sweeping. Flushing should only be used when the water can be discharged to a sediment trap or basin.

Repair any broken pavement immediately.

Inspect and clean sediment traps immediately following each rainfall.

Dispose of sediment in a suitable area in such a manner that it will not erode.

Remove stabilized construction entrances as soon as they are no longer needed to provide access to the site. Bring the disturbed area to grade, and stabilize it using appropriate permanent stabilization methods. Removal of the construction entrances and restoration of the construction area is part of this item.

204.5-METHOD OF MEASUREMENT
Measurement for Temporary Construction Entrance shall be per each. All grading and geotextile fabric is considered incidental for this item.

204.6-BASIS OF PAYMENT
All work described above, including labor, materials and equipment, complete and accepted, shall be paid at the unit price bid per each for Item – Temporary Construction Entrance. Price and payment shall be full compensation for the completion of work related to this item.

205.0-TEMPORARY STREAM CROSSING

205.1-GENERAL
This specification covers furnishing all materials, equipment, and labor for clearing and grubbing, unclassified excavation and bedding required for construction of the Temporary Stream Crossing as required by the plans or as directed by the Engineer.

205.2-MATERIALS

205.2.1-Aggregate: Stone used in construction shall be sized according to the details on the plans.

205.2.2-Geotextile Filter Fabric: Geotextile filter fabric shall be a pervious sheet of woven or non-woven propylene, nylon, and polyester or ethylene yarn and shall be certified by the manufacturer or supplier as conforming to the following minimum requirements:

Physical Property	Requirements
Filtering Efficiency	75%
Tensile Strength at 20%	50 lbs./linear inch (minimum)
Flow Rate	3 gal./sq.ft./min. (minimum)

Geotextile filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of 0^{o}F to 120^{o}F.

205.3-EXECUTION
Temporary stream crossings shall be constructed at all locations indicated on the plans and in accordance with the detail on the plans.

The Contractor shall excavate enough floodplain and stream channel perpendicular to the channel to allow for the construction of the permanent low water crossing. Side slopes are to be graded to 3 to 1 or flatter, and the slope along the profile of the permanent low water crossing shall be 10 to 1 or flatter. A layer of geotextile fabric shall be installed along the entire length and width of the permanent low water crossing. Paving material as specified on the plans shall be placed over the geotextile fabric.

205.4-METHOD OF MEASUREMENT
Measurement for Temporary Stream Crossing shall be per each, installed to the satisfaction of the Engineer. All grading and geotextile fabric is considered incidental for this item.

205.5-BASIS OF PAYMENT
All work described above, including labor, materials and equipment, complete and accepted, shall be paid on a per each basis for Item – Temporary Stream Crossing. Price and payment shall be full compensation for the completion of work related to this item.

206.0-BOULDER CROSS VANE

206.1-GENERAL
This work consists of preparing areas at which cross vanes are to be placed, excavation of channel material, furnishing and placing footing boulders, surface boulders, and gravel substrate, and finishing banks, structure slopes, and stream channel at the locations specified on the plans.

206.2-MATERIAL

206.2.1-Select Backfill Material: Select backfill material for this item shall be limestone, sandstone, or dolomite river gravel/cobble, free of shale and mined from the project site. Slag or recycled aggregate will be rejected.

206.2.2-Geotextile Fabric: Geotextile fabric for this item shall be certified by the manufacturer or supplier. Geotextile fabric shall be non-woven with the following minimum[1] properties:

a. Grab Strength of 890 N (200 lbs.) by ASTM D 4632
b. Elongation of 15% by ASTM D 4632
c. Sewn Seam Strength[2] of 800 N. (180 lbs.) by ASTM D 4632
d. Puncture Strength of 356 N. (80 lbs.) ASTM D 4633
e. Burst Strength of 2206 kPA (320 psi.) by ASTM D 3786
f. Trapezoid Tear of 222 N. (50 lbs.) by ASTM D 4533
g. Apparent Opening Size < 0.425mm (U.S. #40) by ASTM D 4751
h. Permeability of 0.010 cm/sec by AASHTO M 288
i. Ultraviolet Degradation at 500 hours with 70% strength retained for all classes by ASTM D 4355
j. Flow Rate of 27 Liters/sec/m^2 (40 gal./min/$ft.^2$) by AASHTO M 288

1. *Minimum. Use value in weaker principle direction. All numerical values represent minimum average roll value (i.e., test results from any sampled roll in a lot shall meet or exceed the minimum values in the Table).*
2. *Values apply to both the field and manufactured seams.*

The Contractor shall submit manufacturer specifications to the Engineer prior to ordering materials.

206.2.3-Boulders: Boulders shall be durable sandstone or approved stone type with minimum median axis diameter as shown on the plans. Boulders for this item shall be of sufficient hardness to resist weathering and shall be free of shale, cracks, or other compromising blemishes. Boulders shall have a maximum weighted loss of 30 percent when subjected to five cycles of sodium sulfate soundness test, MP 703.00.22. Slag or recycled aggregate will be rejected. Boulder source must be submitted to the Engineer for approval.

206.3-EXECUTION

Construct cross vane structures by first shaping the bankfull channel to the grades specified, including scour pools and placement of gravel substrate. Next, excavate enough bed material to place the footing boulders, surface boulders, and select backfill material. Placement of boulders for cross vane structures should start at the center of the stream, or invert, and proceed outward to the banks. Place footing boulders and surface boulders at the channel invert, leaving gaps between the surface boulders at the invert as shown in the plans. Check the elevations of the inverts in accordance with the profile to within 0.3 feet. Once the inverts have been established, the remainder of the footing

boulders and surface boulders shall be placed tightly against each other, minimizing voids. All surface boulders shall be offset upstream from the footing boulders a minimum of 1/3 width of the footing boulder to allow for a "splash pad". The vane arms of the cross vane shall slope up to the elevation and at the slopes indicated on the drawings. Backfill and chink all voids with select backfill material that consists of cobble, gravel, and fines to seal any gaps. Fill the voids on the upstream side of surface boulders (except at the gapped surface boulders above the invert) with stone material such that water will flow over the surface boulders rather than through gaps in the boulders. Once all of the footing, surface, and sill boulders are placed and chinked well, geotextile fabric shall be placed on the upstream side/face of the rock structure all along the sill, vane and invert portions of the cross vane as shown on the plans. Backfill against the fabric and trim any exposed geotextile fabric; do not leave any exposed geotextile fabric. Once the structure has been completed and chinked well, excavate the scour pool, reshape the stream cross section, and backfill gravel/cobble substrate around the structure.

Select backfill material and channel finishing is considered incidental for this item.
The surface of cross vanes shall be finished to a smooth and compact surface in accordance with the lines, grades and cross sections or elevations shown on the drawings.

206.4-METHOD OF MEASUREMENT
Measurement for Boulder Cross Vanes shall be per each, installed to the satisfaction of the Engineer.

206.5-BASIS OF PAYMENT
Payment of Boulder Cross Vanes shall be per each. Payments as specified shall be considered full compensation for all labor, materials, equipment and incidentals necessary to perform the Work as required.

207.0-BOULDER CROSS VANE WITH STEP

207.1-GENERAL
This work consists of preparing areas at which cross vanes with steps are to be placed, excavation of channel material, furnishing and placing footing boulders, surface boulders, and backfill material, and finishing banks, structure slopes, and stream channel at the locations specified on the plans.

207.2-MATERIALS

207.2.1-Select Backfill Material: Select backfill material for this item shall be limestone, sandstone, or dolomite river gravel/cobble, free of shale and mined from the project site. Slag or recycled aggregate will be rejected.

207.2.2-Geotextile Fabric: Geotextile fabric for this item shall be certified by the manufacturer or supplier. Geotextile fabric shall be non-woven with the following minimum[1] properties:

a. Grab Strength of 890 N (200 lbs.) by ASTM D 4632
b. Elongation of 15% by ASTM D 4632
c. Sewn Seam Strength[2] of 800 N. (180 lbs.) by ASTM D 4632
d. Puncture Strength of 356 N. (80 lbs.) ASTM D 4633
e. Burst Strength of 2206 kPA (320 psi.) by ASTM D 3786
f. Trapezoid Tear of 222 N. (50 lbs.) by ASTM D 4533
g. Apparent Opening Size < 0.425mm (U.S. #40) by ASTM D 4751
h. Permeability of 0.010 cm/sec by AASHTO M 288
i. Ultraviolet Degradation at 500 hours with 70% strength retained for all classes by ASTM D 4355
j. Flow Rate of 27 Liters/sec/m^2 (40 gal./min/ft.^{2}) by AASHTO M 288

1. *Minimum. Use value in weaker principle direction. All numerical values represent minimum average roll value (i.e., test results from any sampled roll in a lot shall meet or exceed the minimum values in the Table).*
2. *Values apply to both the field and manufactured seams.*

The Contractor shall submit manufacturer specifications to the Engineer prior to ordering materials.

207.2.3-Boulders: Boulders for this item shall be constructed of angular, flat, or cubed durable sandstone rock of sufficient hardness to resist weathering and shall be free of shale, cracks and other defects. Boulders shall have a maximum weighted loss of 30 percent when subjected to five cycles of sodium sulfate soundness test, MP 703.00.22. Slag or recycled aggregate will be rejected. Minimum boulder diameter is shown on the plans. Boulder source must be submitted to the Engineer for approval.

207.3-EXECUTION

Construct cross vane structures by first shaping the bankfull channel to the grades specified, including scour pools and placement of gravel substrate. Next, excavate enough bed material to place the footing boulders, surface boulders, and select backfill material. Placement of boulders for cross vane structures should start at the center of the stream, or most upstream invert, and proceed outward to the banks. Place footing boulders and surface boulders at the upstream channel invert, leaving gaps between the surface boulders at the invert as shown in the plans. Check the elevations of the upstream inverts in accordance with the profile to within 0.3 feet. Once the upstream inverts have been established, the footing boulders and surface boulders along the arm shall be placed along the arm until the location of the step is reached. The step boulders and invert shall be placed as shown on the plans. All boulders along the arms of the cross vane shall be placed tightly against each other, minimizing voids. All surface boulders shall be offset upstream from the footing boulders a minimum of 1/3 width of the footing boulder to allow for a “splash pad”. The vane arms of the cross vane shall slope up to the elevation and at the slopes indicated on the drawings. Backfill and chink all voids with select backfill material that consists of cobble, gravel, and fines to seal any gaps. Fill the voids on the upstream side of surface boulders (except at the gapped surface boulders above the invert) with stone material such that water will flow over the surface boulders rather than

through gaps in the boulders. Once all of the footing, surface, and sill boulders are placed and chinked well, geotextile fabric shall be placed on the upstream side/face of the rock structure all along the sill, vane and invert portions of the cross vane as shown on the plans. Backfill against the fabric and trim any exposed geotextile fabric; do not leave any exposed geotextile fabric. Once the structure has been completed and chinked well, excavate the scour pool, reshape the stream cross section, and backfill gravel/cobble substrate around the structure.

Select backfill material and channel finishing is considered incidental for this item.
The surface of cross vanes shall be finished to a smooth and compact surface in accordance with the lines, grades and cross sections or elevations shown on the drawings.

207.4-METHOD OF MEASUREMENT
Measurement for Boulder Cross Vane With Step shall be per each, installed to the satisfaction of the Engineer.

207.5-BASIS OF PAYMENT
Payment for Boulder Cross Vane With Step shall be per each. The harvesting of materials from the project site is considered incidental for this item. Payment as specified shall be considered full compensation for all labor, materials, equipment and incidentals necessary to perform the Work as required.

208.0-BOULDER W-WEIR

208.1-GENERAL
This work consists of preparing areas at which boulder w-weirs are to be placed, excavation of channel material, furnishing and placing footing boulders, surface boulders, and gravel substrate, and finishing banks, structure slopes, and stream channel at the locations specified on the plans.

208.2-MATERIALS

208.2.1-Select Backfill Material: Select backfill material for this item shall be limestone, sandstone, or dolomite river gravel/cobble, free of shale and mined from the project site. Slag or recycled aggregate will be rejected.

208.2.2-Geotextile Fabric: Geotextile fabric for this item shall be certified by the manufacturer or supplier. Geotextile fabric shall be non-woven with the following minimum[1] properties:

a. Grab Strength of 890 N (200 lbs.) by ASTM D 4632
b. Elongation of 15% by ASTM D 4632
c. Sewn Seam Strength[2] of 800 N. (180 lbs.) by ASTM D 4632
d. Puncture Strength of 356 N. (80 lbs.) ASTM D 4633
e. Burst Strength of 2206 kPA (320 psi.) by ASTM D 3786
f. Trapezoid Tear of 222 N. (50 lbs.) by ASTM D 4533

g. Apparent Opening Size < 0.425mm (U.S. #40) by ASTM D 4751
h. Permeability of 0.010 cm/sec by AASHTO M 288
i. Ultraviolet Degradation at 500 hours with 70% strength retained for all classes by ASTM D 4355
j. Flow Rate of 27 Liters/sec/m^2 (40 gal./min/ft.^{2}) by AASHTO M 288
    1. *Minimum. Use value in weaker principle direction. All numerical values represent minimum average roll value (i.e., test results from any sampled roll in a lot shall meet or exceed the minimum values in the Table).*
    2. *Values apply to both the field and manufactured seams.*

The Contractor shall submit manufacturer specifications to the Engineer prior to ordering materials.

208.2.3-Boulders: Boulders for this item shall be constructed of angular, flat, or cubed durable sandstone rock of sufficient hardness to resist weathering and shall be free of shale, cracks and other defects. Boulders shall have a maximum weighted loss of 30 percent when subjected to five cycles of sodium sulfate soundness test, MP 703.00.22. Slag or recycled aggregate will be rejected. Minimum boulder diameter is shown on the plans. Boulder source must be submitted to the Engineer for approval.

208.3-EXECUTION

Construct w-weir structures by first shaping the bankfull channel to the grades specified, including scour pools and placement of gravel/cobble substrate. Next, excavate enough bed material to place the boulders and select backfill material. Placement of boulders for w-weir structures should start at the inverts located approximately one-fourth the bankfull width from each bank and proceed along the vane arms. Place footing boulders and surface boulders at the channel invert. Check the elevations of the inverts in accordance with the profile to within 0.3 feet. Once the inverts have been established, the remainder of the footing boulders and surface boulders shall be placed tightly against each other, minimizing voids. All surface boulders shall be offset upstream from the footing boulders a minimum distance as specified in the drawings to allow for a “splash pad”. The vane arms shall slope up at the slopes indicated on the drawings. The two outside arms of the w-weir shall slope up toward the banks at the elevation and slopes indicated on the drawings. The two arms extending towards the center of the channel shall tie together half way between the invert elevation and the bank tie-in elevation. Chink all voids with cobble, gravel, and fines to seal any gaps using the select backfill material. Fill the voids on the upstream side of surface boulders with stone material such that water will flow over the surface boulders rather than through gaps in the boulders. Once all of the footing, surface, and sill boulders are placed and chinked well, geotextile fabric shall be placed on the upstream side/face of the rock structure all along the sill, vane and invert portions of the cross vane as shown on the plans. Backfill against the fabric and trim any exposed geotextile fabric; do not leave any exposed geotextile fabric. Once the structure has been completed and chinked well, excavate the scour pools, reshape the stream cross section, and backfill gravel/cobble substrate around the structure.

Select backfill material and channel finishing is considered incidental for this item.

The surface of w-weirs shall be finished to a smooth and compact surface in accordance with the lines, grades and cross sections or elevations shown on the drawings.

208.4-METHOD OF MEASUREMENT
Measurement for Boulder W-weir shall be per each, installed to the satisfaction of the Engineer.

208.5-BASIS OF PAYMENT
Payment for Boulder W-Weir shall be per each. The harvesting of materials from the project site is considered incidental for this item. Payment as specified shall be considered full compensation for all labor, materials, equipment and incidentals necessary to perform the Work as required.

209.0-BOULDER J-HOOK

209.1-GENERAL
This work consists of preparing areas at which Boulder J-Hook Vanes are to be placed, excavation of channel material, furnishing and placing footing boulders, surface boulders, geotextile fabric and gravel substrate, and finishing banks, structure slopes, and stream channel at the locations specified on the plans.

209.2-MATERIALS

209.2.1-Select Backfill Material: Select backfill material for this item shall be limestone, sandstone, or dolomite river cobble, gravel and sand mixture, free of shale and mined from the project site. Slag or recycled aggregate will be rejected.

209.2.2-Geotextile Fabric: Geotextile fabric for this item shall be certified by the manufacturer or supplier. Geotextile fabric shall be non-woven with the following minimum1 properties:

a. Grab Strength of 890 N (200 lbs.) by ASTM D 4632
b. Elongation of 15% by ASTM D 4632
c. Sewn Seam Strength[2] of 800 N. (180 lbs.) by ASTM D 4632
d. Puncture Strength of 356 N. (80 lbs.) ASTM D 4633
e. Burst Strength of 2206 kPA (320 psi.) by ASTM D 3786
f. Trapezoid Tear of 222 N. (50 lbs.) by ASTM D 4533
g. Apparent Opening Size < 0.425mm (U.S. #40) by ASTM D 4751
h. Permeability of 0.010 cm/sec by AASHTO M 288
i. Ultraviolet Degradation at 500 hours with 70% strength retained for all classes by ASTM D 4355
j. Flow Rate of 27 Liters/sec/m^2 (40 gal./min/ft. ^{2}) by AASHTO M 288

1. *Minimum. Use value in weaker principle direction. All numerical values represent minimum average roll value (i.e., test results from any sampled roll in a lot shall meet or exceed the minimum values in the Table).*
2. *Values apply to both the field and manufactured seams.*

The Contractor shall submit manufacturer specifications to the Engineer prior to ordering materials.

209.2.3-Boulders: Boulders for this item shall be constructed of angular, flat, or cubed durable sandstone rock of sufficient hardness to resist weathering and shall be free of shale, cracks and other blemishes. Boulders shall have a maximum weighted loss of 30 percent when subjected to five cycles of sodium sulfate soundness test, MP 703.00.22. Slag or recycled aggregate will be rejected. Minimum boulder diameter is shown on the plans. Boulder source must be submitted to the Engineer for approval.

209.3-EXECUTION

Construct J-Hook vane structures by first shaping the bankfull channel to the grades specified, including scour pools and gravel substrate. Next, excavate enough bed material to place the footing boulders, surface boulders, sill boulders, and gravel. Placement of boulders for J-Hook structures should start at the center of the stream, or invert, and proceed outward to the banks. Place footing boulders and surface boulders at the channel invert, leaving gaps between the surface boulders at the invert as shown in the plans. Place footing boulders and surface boulders in vane arm at angle and slope shown on the plans. Check the elevation of the inverts in accordance with the profile to within 0.3 feet. Once the inverts have been established, the remainder of the footing boulders and surface boulders shall be placed tightly against each other, minimizing voids. All surface boulders shall be offset upstream from the footing boulders a minimum of 1/3 width of the footing boulder to allow for a "splash pad". Check the elevations of where the vane arm ties into the bank and the channel bottom in accordance with plans. Backfill and chink all voids with select backfill material that consists of cobble, gravel, and fines to seal any gaps. Fill the voids on the upstream side of surface boulders (except at the gapped surface boulders above the invert) with stone material such that water will flow over the surface boulders rather than through gaps in the boulders. Once all of the footing, surface, and sill boulders are placed and chinked, install geotextile fabric against the upstream side of footing and surface boulders along the vane arm and bank sill as shown on the plans. Secure geotextile fabric by backfilling with native gravel/cobble mixture from stream channel against the fabric and trim any exposed geotextile fabric; do not leave any exposed geotextile fabric. The geotextile fabric shall be completely buried and not visible. The surface of Boulder J-Hook Vanes shall be finished to a smooth and compact surface in accordance with the lines, grades and cross sections or elevations shown on the drawings.

Select backfill material and channel finishing is considered incidental for this item.

209.4-METHOD OF MEASUREMENT
Measurement for Boulder J-Hook Vanes shall be per each, installed to the satisfaction of the Engineer.

209.5-BASIS OF PAYMENT
Payment for Boulder J-Hook Vanes shall be per each. The harvesting of materials from the project site is considered incidental for this item. Payment as specified shall be considered full compensation for all labor, materials, equipment and incidentals necessary to perform the Work as required.

210.0-BOULDER VANE

210.1-GENERAL
This work consists of preparing areas at which Boulder Vanes are to be placed, excavation of channel material, furnishing and placing footing boulders, surface boulders, geotextile fabric and gravel substrate, and finishing banks, structure slopes, and stream channel at the locations specified on the plans.

210.2-MATERIALS

210.2.1-Geotextile Fabric: Geotextile fabric for this item shall be certified by the manufacturer or supplier. Geotextile fabric shall be non-woven with the following minimum[1] properties:

a. Grab Strength of 890 N (200 lbs.) by ASTM D 4632
b. Elongation of 15% by ASTM D 4632
c. Sewn Seam Strength[2] of 800 N. (180 lbs.) by ASTM D 4632
d. Puncture Strength of 356 N. (80 lbs.) ASTM D 4633
e. Burst Strength of 2206 kPA (320 psi.) by ASTM D 3786
f. Trapezoid Tear of 222 N. (50 lbs.) by ASTM D 4533
g. Apparent Opening Size < 0.425mm (U.S. #40) by ASTM D 4751
h. Permeability of 0.010 cm/sec by AASHTO M 288
i. Ultraviolet Degradation at 500 hours with 70% strength retained for all classes by ASTM D 4355
j. Flow Rate of 27 Liters/sec/m^2 (40 gal./min/ft.^{2}) by AASHTO M 288

1. *Minimum. Use value in weaker principle direction. All numerical values represent minimum average roll value (i.e., test results from any sampled roll in a lot shall meet or exceed the minimum values in the Table).*
2. *Values apply to both the field and manufactured seams.*

The CONTRACTOR shall submit manufacturer specifications to the ENGINEER prior to ordering materials.

210.2.2-Select Backfill Material: Select backfill material for this item shall be limestone, sandstone, or dolomite river cobble, gravel and sand mixture, free of shale and mined from the project site. Slag or recycled aggregate will be rejected.

210.2.3-Boulders: Boulders for this item shall be constructed of angular, flat, or cubed durable sandstone rock of sufficient hardness to resist weathering and shall be free of shale, cracks and other blemishes. Boulders shall have a maximum weighted loss of 30 percent when subjected to five cycles of sodium sulfate soundness test, MP 703.00.22. Slag or recycled aggregate will be rejected. Minimum boulder diameter is shown on the plans. Boulder source must be submitted to the Engineer for approval.

210.3-EXECUTION

Construct Boulder Vane structures by first shaping the bankfull channel to the grades specified, including scour pools and gravel substrate. Next, excavate enough bed material to place the footing boulders, surface boulders, sill boulders, and select backfill material. Placement of boulders for Boulder Vane structures should start at the invert and proceed outward to the banks. Place footing boulders and surface boulders in vane arm at angle and slope shown on the plans. Check the elevation of the bank tie-in in accordance with the plans to within 0.3 feet and slope the vane as specified in the plans until reaching the invert location. Do not exceed the slope range indicated in the plans. Once the bank tie-in has been established, the remainder of the footing boulders and surface boulders shall be placed tightly against each other, minimizing voids. All surface boulders shall be offset upstream from the footing boulders a minimum of 1/3 width of the footing boulder to allow for a "splash pad". Check the elevations of where the vane arm ties into the bank and the channel bottom in accordance with plans. Backfill and chink all voids with select backfill material that consists of cobble, gravel, and fines to seal any gaps. Fill the voids on the upstream side of surface boulders with stone material such that water will flow over the surface boulders rather than through gaps in the boulders. Once all of the footing, surface, and sill boulders are placed and chinked, install geotextile fabric against the upstream side of footing and surface boulders along the vane arm and bank sill as shown on the plans. Secure geotextile fabric by backfilling with native gravel/cobble mixture from stream channel against the fabric and trim any exposed geotextile fabric; do not leave any exposed geotextile fabric. The geotextile fabric shall be completely buried and not visible. The surface of Boulder Vanes shall be finished to a smooth and compact surface in accordance with the lines, grades and cross sections or elevations shown on the drawings.

Select backfill material and channel finishing are considered incidental for this item.

210.4-METHOD OF MEASUREMENT

Measurement for Boulder Vanes shall be per each, installed to the satisfaction of the Engineer.

210.5-BASIS OF PAYMENT

Payment for Boulder Vanes shall be per each. The harvesting of materials from the project site is considered incidental for this item. Payment as specified shall be considered full compensation for all labor, materials, equipment and incidentals necessary to perform the Work as required.

211.0-BOULDER CONSTRUCTED RIFFLES

211.1-GENERAL

A Boulder Constructed Riffle is comprised of boulders and river stone placed along a riffle. Boulders will be placed as alternating mini vanes approximately 50 degrees from the channel bank. Footer boulders are to be placed under surface boulders on the farthest upstream mini vane. Boulder sills shall extend past the banks a minimum of 10 feet. Vanes shall be spaced in equal distance apart through the length of the riffle. The pattern created is a small low flow partially sinuous channel through the riffle. Stone shall be placed in the low flow sinuous channel creating a stable channel bed.

211.2-MATERIALS

211.2.1-River Stone: Stone material for this item shall be river cobble, gravel and sand mixture, free of shale and mined from the project site. The river stone shall be used to chink the gaps between the large boulders and create a constant slope throughout the riffle. Select backfill Slag or recycled aggregate will be rejected.

211.2.2-Boulders: Boulders for this item shall be constructed of angular, flat, or cubed durable sandstone rock of sufficient hardness to resist weathering and shall be free of shale, cracks and other blemishes. Boulders shall have a maximum weighted loss of 30 percent when subjected to five cycles of sodium sulfate soundness test, MP 703.00.22. Slag or recycled aggregate will be rejected. Minimum boulder diameter is shown on the plans. Boulder source must be submitted to the Engineer for approval.

211.2.3-Geotextile Fabric: Geotextile fabric for this item shall be certified by the manufacturer or supplier. Geotextile fabric shall be non-woven with the following minimum[1] properties:

a. Grab Strength of 890 N (200 lbs.) by ASTM D 4632
b. Elongation of 15% by ASTM D 4632
c. Sewn Seam Strength[2] of 800 N. (180 lbs.) by ASTM D 4632
d. Puncture Strength of 356 N. (80 lbs.) ASTM D 4633
e. Burst Strength of 2206 kPA (320 psi.) by ASTM D 3786
f. Trapezoid Tear of 222 N. (50 lbs.) by ASTM D 4533
g. Apparent Opening Size < 0.425mm (U.S. #40) by ASTM D 4751
h. Permeability of 0.010 cm/sec by AASHTO M 288
i. Ultraviolet Degradation at 500 hours with 70% strength retained for all classes by ASTM D 4355
j. Flow Rate of 27 Liters/sec/m^2 (40 gal./min/$ft.^2$) by AASHTO M 288

1. *Minimum. Use value in weaker principle direction. All numerical values represent minimum average roll value (i.e., test results from any sampled roll in a lot shall meet or exceed the minimum values in the Table).*
2. *Values apply to both the field and manufactured seams.*

The Contractor shall submit manufacturer specifications to the Engineer prior to ordering materials.

211.3-EXECUTION

Construct the Boulder Constructed Riffle by first shaping the channel to the approximate grades specified. Layout the location of the boulder mini vanes as shown on the Plans. Construct the vanes by excavating channel in the location of vanes to the depth of the boulder and gravel placement at the angle specified on the plans. Extend the excavation into the channel banks where necessary. Place the boulders in the mini vanes from upstream to downstream, maintaining a tight fit across the channel bed. Mini vane construction should begin at the channel invert and work towards the top of the low flow channel, with each arm extending into the bank. The upstream and downstream most vanes shall have sills extending 10 feet past bankfull on the side adjacent to the outside bend. The inside two vanes shall have one boulder of the sill past bankfull. For the upstream most boulder vane each Surface boulder should have a Footer boulder beneath it and geotextile along the upstream face of the vane. Stones shall be placed tightly together, minimizing gaps. Backfill and chink all voids with select backfill material that consists of cobble, gravel, and fines to fill any voids. Fill the voids on the upstream side of surface boulders with stone material such that water will flow over the surface boulders rather than through gaps in the boulders. Once all of the footing, surface, and sill boulders are placed and chinked, install geotextile fabric against the upstream side of footing and surface boulders along the vane arm and bank sill as shown on the plans. Place geotextile fabric all along the upstream side of the most upstream mini vane and sill in the boulder constructed riffle. The geotextile fabric must extend a minimum of 6 inches below the footer boulders and up near the top of the surface boulders. Backfill the banks and compact to within a foot of the final grade with cohesive soil as practicable. Place a single row of erosion control blanket parallel to the channel on both banks in the low spot left from the bank excavation a minimum of 1 foot into the channel from the proposed toe of the bank. Then the erosion control blanket may extend up the banks for its final installation. Final grade shall provide a smooth slope up to the top of the low-flow channel with the boulders protruding 0.2 to 0.4 feet from the surface of the low flow channel. Upon completion of vanes, place native riffle material across the width of the channel on the upstream side of each of the mini vanes in the constructed riffle. Plant live stakes at the top of each vane arm as specified in the plans. Final grades should be within 0.3 feet of those indicated on the Plans. Excavation of channel material may be necessary to achieve the correct grades. This shall be considered incidental to construction of Boulder Constructed Riffles.

211.4-METHOD OF MEASUREMENT

Measurement for Boulder Constructed Riffles shall be per each, installed to the satisfaction of the Engineer.

211.5-BASIS OF PAYMENT

Payment for Boulder Constructed Riffles shall be per each. The harvesting of materials from the project site is considered incidental for this item. Payment as specified shall be

considered full compensation for all labor, materials, equipment and incidentals necessary to perform the Work as required.

212.0-LOG VANE J-HOOK

212.1-GENERAL

This work consists of preparing areas at which Log Vane J-Hook structures are to be placed, excavation of channel material, furnishing and placing footing boulders, surface boulders, logs, geotextile fabric and gravel substrate, and finishing banks, structure slopes, and stream channel at the locations specified on the plans.

212.2-MATERIALS

212.2.1-Select Backfill Material: Select backfill material for this item shall be limestone, sandstone, or dolomite river cobble, gravel and sand mixture, free of shale and mined from the project site. Slag or recycled aggregate will be rejected.

212.2.3-Boulders: Boulders for this item shall be constructed of angular, flat, or cubed durable sandstone rock of sufficient hardness to resist weathering and shall be free of shale, cracks and other blemishes. Boulders shall have a maximum weighted loss of 30 percent when subjected to five cycles of sodium sulfate soundness test, MP 703.00.22. Slag or recycled aggregate will be rejected. Minimum boulder diameter is shown on the plans. Boulder source must be submitted to the Engineer for approval.

212.2.5-Logs: Logs for this item shall be from trees free of rot and/or disease with minimum dimensions and trunk length as shown on the plans with root ball attached. Logs shall be straight with limbs trimmed off, flush. Logs may be harvested from the site as directed by the Engineer.

212.2.6-Root Wads: Root wads for this item shall be from trees free of rot and/or disease with minimum dimensions as shown on the plans with root ball attached. Root wads may be harvested from the site as directed by the Engineer.

212.2.7-Geotextile Fabric: Geotextile fabric for this item shall be certified by the manufacturer or supplier. Geotextile fabric shall be non-woven with the following minimum[1] properties:

a. Grab Strength of 890 N (200 lbs.) by ASTM D 4632
b. Elongation of 15% by ASTM D 4632
c. Sewn Seam Strength[2] of 800 N. (180 lbs.) by ASTM D 4632
d. Puncture Strength of 356 N. (80 lbs.) ASTM D 4633
e. Burst Strength of 2206 kPA (320 psi.) by ASTM D 3786
f. Trapezoid Tear of 222 N. (50 lbs.) by ASTM D 4533
g. Apparent Opening Size < 0.425mm (U.S. #40) by ASTM D 4751
h. Permeability of 0.010 cm/sec by AASHTO M 288

i. Ultraviolet Degradation at 500 hours with 70% strength retained for all classes by ASTM D 4355

j. Flow Rate of 27 Liters/sec/m^2 (40 gal./min/ft.^{2}) by AASHTO M 288

1. Minimum. Use value in weaker principle direction. All numerical values represent minimum average roll value (i.e., test results from any sampled roll in a lot shall meet or exceed the minimum values in the Table).

2. *Values apply to both the field and manufactured seams.*

The Contractor shall submit manufacturer specifications to the Engineer prior to ordering materials.

212.3-EXECUTION

Trees marked for use in Log Vane J-Hook structures and approved by the District and the Engineer shall be carefully excavated and downed. The Contractor shall first excavate around the base of the tree taking care to maintain the root ball. The Contractor shall then push the tree over with a track excavator or dozer. The top of the tree and limbs may then be cut so the log and root ball may be transported.

Construct Log Vane J-Hook structures by first shaping the bankfull channel to the grades specified, including scour pools and placement of gravel substrate. Next, excavate enough bed material to place the root wad (sill log), log vane, woody debris, and gravel. Place the sill log and log vane at angles and slopes shown on the plans. The sill log shall be under the log vane and the root wad of each should lock together. Check the elevations of where the log ties into the bank and the channel bottom in accordance with plans. A portion of the log vane should extend into the bed of the stream near the invert. Place footer log behind/upstream of the log vane and fill gaps with woody limbs. Install geotextile fabric all along the upstream side of log vane, along the sill log and across the bottom of channel as shown on the plans. Secure geotextile fabric to log using two-inch galvanized roofing nails on 1-foot spacing and backfill with a mixture consisting of sand, gravel, and cobble. Cobble and gravel shall be mixed prior to backfilling. The nails used to secure the geotextile fabric shall be covered with backfill. The geotextile fabric shall be completely covered and not visible. Place footing and surface boulders around the log vane invert and bank tie-in as shown on the plans. Check the elevations of the invert to be within 0.3’ of the invert specified on the plans. Backfill on the upstream side of the log vane with select backfill material as shown on the plans.

Gravel and cobble substrate and channel finishing are considered incidental for this item.

212.4-METHOD OF MEASUREMENT

Measurement for Log Vane J-Hooks shall be per each, installed to the satisfaction of the Engineer.

212.5-BASIS OF PAYMENT

Payment for Log Vane J-Hooks shall be per each. The harvesting of materials, including logs and root wads, from the project site is considered incidental for this item. Payment

as specified shall be considered full compensation for all labor, materials, equipment and incidentals necessary to perform the Work as required.

213.0-LOG VANE

213.1-GENERAL

This work consists of preparing areas at which Log Vane structures are to be placed, excavation of channel material, furnishing and placing boulders, boulders, logs, geotextile fabric and gravel substrate, and finishing banks, structure slopes, and stream channel at the locations specified on the plans.

213.2-MATERIALS

213.2.1-Select Backfill Material: Select backfill material for this item shall be limestone, sandstone, or dolomite river cobble, gravel and sand mixture, free of shale and mined from the project site. Slag or recycled aggregate will be rejected.

213.2.3-Boulders: Boulders for this item shall be constructed of angular, flat, or cubed durable sandstone rock of sufficient hardness to resist weathering and shall be free of shale, cracks and other blemishes. Boulders shall have a maximum weighted loss of 30 percent when subjected to five cycles of sodium sulfate soundness test, MP 703.00.22. Slag or recycled aggregate will be rejected. Minimum boulder diameter is shown on the plans. Boulder source must be submitted to the Engineer for approval.

213.2.4-Logs: Logs for this item shall be from trees free of rot and/or disease with minimum dimensions as shown on the plans with root ball attached. Logs shall be straight with limbs trimmed off, flush.

213.2.5-Root Wads: Root wads (as sill logs) for this item shall be from trees free of rot and/or disease with minimum dimensions as shown on the plans with root ball attached.

213.2.6-Geotextile Fabric: Geotextile fabric for this item shall be certified by the manufacturer or supplier. Geotextile fabric shall be non-woven with the following minimum[1] properties:

k. Grab Strength of 890 N (200 lbs.) by ASTM D 4632
l. Elongation of 15% by ASTM D 4632
m. Sewn Seam Strength[2] of 800 N. (180 lbs.) by ASTM D 4632
n. Puncture Strength of 356 N. (80 lbs.) ASTM D 4633
o. Burst Strength of 2206 kPA (320 psi.) by ASTM D 3786
p. Trapezoid Tear of 222 N. (50 lbs.) by ASTM D 4533
q. Apparent Opening Size < 0.425mm (U.S. #40) by ASTM D 4751
r. Permeability of 0.010 cm/sec by AASHTO M 288
s. Ultraviolet Degradation at 500 hours with 70% strength retained for all classes by ASTM D 4355
t. Flow Rate of 27 Liters/sec/m^2 (40 gal./min/$ft.^2$) by AASHTO M 288

3. *Minimum. Use value in weaker principle direction. All numerical values represent minimum average roll value (i.e., test results from any sampled roll in a lot shall meet or exceed the minimum values in the Table).*
4. *Values apply to both the field and manufactured seams.*

The Contractor shall submit manufacturer specifications to the Engineer prior to ordering materials.

213.3-EXECUTION

Trees marked for use in Log Vane structures and approved by the District and the Engineer shall be carefully excavated and downed. The Contractor shall first excavate around the base of the tree taking care to maintain the root ball. The Contractor shall then push the tree over with a track excavator or dozer. The top of the tree and limbs may then be cut so the log and root ball may be transported.

Construct Log Vane structures by first shaping the bankfull channel to the grades specified, including scour pools and placement of gravel substrate. Next, excavate enough bed material to place the root wad (sill log), log vane, woody debris, and gravel. Place the sill log and log vane at angles and slopes shown on the plans. The sill log shall be under the log vane and the root wad of each should lock together. Check the elevations of where the log ties into the bank and the channel bottom in accordance with plans. A portion of the log vane should extend into the bed of the stream near the invert. Place footer log and woody debris behind/upstream of the log vane. Install geotextile fabric all along the upstream side of log vane and the sill log as shown on the plans. Secure geotextile fabric to log using two-inch galvanized roofing nails on 1-foot spacing and backfill with a mixture consisting of sand, gravel, and cobble. Cobble and gravel shall be mixed prior to backfilling. The nails used to secure the geotextile fabric shall be covered with backfill. The geotextile fabric shall be completely covered and not visible. Place footing and surface boulders around the log vane invert and bank tie-in as shown on the plans. Check the elevations of the invert in accordance with the plans. Backfill around the log vane and root wad as shown on the plans. If logs are not long enough for the entire length of the vane, at the discretion of the Engineer, logs may be strapped together as shown in the Log Vane detail. Joints of strapped logs shall be staggered.

Gravel and cobble substrate and channel finishing are considered incidental for this item.

213.4-METHOD OF MEASUREMENT

Measurement for Log Vanes shall be per each, installed to the satisfaction of the Engineer.

213.5-BASIS OF PAYMENT

Payment for Log Vanes shall be per each. The harvesting of materials, including logs and root wads, from the project site is considered incidental for this item. Payment as specified shall be considered full compensation for all labor, materials, equipment and incidentals necessary to perform the Work as required.

214.0-CONVERGING BOULDER CLUSTER

214.1-GENERAL
This work consists of preparing areas at which Converging Boulder Clusters are to be placed, excavation of channel material, furnishing and placing footing boulders, surface boulders, and gravel substrate, and finishing the stream channel at the locations specified on the plans.

214.2-MATERIALS
Boulders for this item shall be constructed of angular, flat, or cubed durable sandstone rock of sufficient hardness to resist weathering and shall be free of shale, cracks and other blemishes. Boulders shall have a maximum weighted loss of 30 percent when subjected to five cycles of sodium sulfate soundness test, MP 703.00.22. Slag or recycled aggregate will be rejected. Minimum boulder diameter is shown on the plans. Boulder source must be submitted to the Engineer for approval.

214.3-EXECUTION
Construct converging boulder clusters by first shaping the bankfull channel to the grades specified. Next, excavate enough bed material to install the boulder mini vanes as described in 210.3 of this document. Once the mini vane(s) have been placed excavate enough bed material to place the boulder cluster footer boulders followed by surface boulders at the spacing specified in the plans. The surface boulders for the cluster rocks should protrude approximately 1.0 feet from the channel bed. The geotextile fabric for the mini vanes shall be completely covered and not visible. This structure is intended to form the riffle facet in the channel. Check the elevations of the invert in accordance with the plans.

214.4-METHOD OF MEASUREMENT
Measurement for Converging Boulder Clusters shall be per each, installed to the satisfaction of the Engineer.

214.5-BASIS OF PAYMENT
Payment for Converging Boulder Clusters shall be per each. The harvesting of materials from the project site is considered incidental for this item. Payment as specified shall be considered full compensation for all labor, materials, equipment and incidentals necessary to perform the Work as required.

215.0-WING DEFLECTOR

215.1-GENERAL
This work consists of preparing areas at which Wing Deflectors are to be placed, excavation of channel material, furnishing and placing footing boulders, surface boulders, geotextile fabric and gravel substrate, and finishing banks, structure slopes, and stream channel at the locations specified on the plans.

215.2-MATERIALS

215.2.1-Geotextile Fabric: Geotextile fabric for this item shall be certified by the manufacturer or supplier. Geotextile fabric shall be non-woven with the following minimum[1] properties:

k. Grab Strength of 890 N (200 lbs.) by ASTM D 4632
l. Elongation of 15% by ASTM D 4632
m. Sewn Seam Strength[2] of 800 N. (180 lbs.) by ASTM D 4632
n. Puncture Strength of 356 N. (80 lbs.) ASTM D 4633
o. Burst Strength of 2206 kPA (320 psi.) by ASTM D 3786
p. Trapezoid Tear of 222 N. (50 lbs.) by ASTM D 4533
q. Apparent Opening Size < 0.425mm (U.S. #40) by ASTM D 4751
r. Permeability of 0.010 cm/sec by AASHTO M 288
s. Ultraviolet Degradation at 500 hours with 70% strength retained for all classes by ASTM D 4355
t. Flow Rate of 27 Liters/sec/m^2 (40 gal./min/ft.^{2}) by AASHTO M 288

3. Minimum. Use value in weaker principle direction. All numerical values represent minimum average roll value (i.e., test results from any sampled roll in a lot shall meet or exceed the minimum values in the Table).

4. *Values apply to both the field and manufactured seams.*

The Contractor shall submit manufacturer specifications to the Engineer prior to ordering materials.

215.2.2-Select Backfill Material: Select backfill material for this item shall be limestone, sandstone, or dolomite river cobble, gravel and sand mixture, free of shale and mined from the project site. Slag or recycled aggregate will be rejected.

215.2.3-Boulders: Boulders for this item shall be constructed of angular, flat, or cubed durable sandstone rock of sufficient hardness to resist weathering and shall be free of shale, cracks and other blemishes. Boulders shall have a maximum weighted loss of 30 percent when subjected to five cycles of sodium sulfate soundness test, MP 703.00.22. Slag or recycled aggregate will be rejected. Minimum boulder diameter is shown on the plans. Boulder source must be submitted to the Engineer for approval.

215.3-EXECUTION

Excavate enough bed material to place the footing boulders, surface boulders, sill boulders, and select backfill material. Placement of boulders for Wing Deflector structures should start at the farthest upstream extent of the structure and proceed downstream sloping the structure into the banks. Place footing boulders and surface boulders in the wing arm at the angle and slope shown on the plans. Check the elevation of the bank tie-in in accordance with the plans to within 0.30 feet. Footing boulders and surface boulders shall be placed tightly against each other, minimizing voids. All surface boulders shall be offset upstream from the footing boulders a minimum of 1/3 width of the footing boulder to allow for a “splash pad”. Check the elevations of where the

downstream extent of the structure ties into the bank and the channel bottom in accordance with plans. Surface boulders should be seen protruding approximately 0.5 feet above the low flow water level on the farthest upstream extent of the structure. Backfill and chink all voids with select backfill material that consists of cobble, gravel, and fines to seal any gaps. Fill the voids on the upstream side of surface boulders with stone material such that water will flow over the surface boulders rather than through gaps in the boulders. Once all of the footing, surface, and sill boulders are placed and chinked, install geotextile fabric against the upstream side of footing and surface boulders along the vane arm and bank sill as shown on the plans. Secure geotextile fabric by backfilling with native gravel/cobble mixture from stream channel against the fabric and trim any exposed geotextile fabric; do not leave any exposed geotextile fabric. The geotextile fabric shall be completely buried and not visible. The surface of Wing Deflectors shall be finished to a smooth and compact surface in accordance with the lines, grades and cross sections or elevations shown on the drawings.

215.4-METHOD OF MEASUREMENT

Measurement for Wing Deflectors shall be per each, installed to the satisfaction of the Engineer.

215.5-BASIS OF PAYMENT

Payment for Wing Deflectors shall be per each. The harvesting of materials from the project site is considered incidental for this item. Payment as specified shall be considered full compensation for all labor, materials, equipment and incidentals necessary to perform the Work as required.

216.0-WOODY DEBRIS TOE PROTECTION

216.1-GENERAL

Woody Debris Toe Protection consists of natural materials to reinforce the outer channel bank along a meander, as well as provide habitat in a pool with woody debris. The layering of coarse woody material, small woody debris, live stakes and soil create a stable interlocking matrix. The top layers of sod mats provide instant stability above low flow conditions. If sod mats are not available then coir fiber soil lifts may be used with select live stake materials.

216.1-MATERIALS

216.1.1-Woody materials: The coarse woody material shall be a minimum of 12” in diameter or greater and shall be different lengths interlocking together. Small woody material shall consist of small logs, limbs, tree tops and brush. Woody material shall be gathered from onsite trees and woody plants taken during the clearing and grubbing process.

216.1.2-Coir Fiber Lifts: Use 700 gram Coir Fiber Erosion Control Fabric in 2.0-foot soil lifts with live staking. The soil lifts should be tight and staked with biodegradable

and durable anchors. Seeding and mulching should be placed under and behind the face of the erosion control blanket.

216.1.3-Geotextile Fabric: Geotextile fabric for this item shall be certified by the manufacturer or supplier. Geotextile fabric shall be non-woven with the following minimum[1] properties:

u. Grab Strength of 890 N (200 lbs.) by ASTM D 4632
v. Elongation of 15% by ASTM D 4632
w. Sewn Seam Strength[2] of 800 N. (180 lbs.) by ASTM D 4632
x. Puncture Strength of 356 N. (80 lbs.) ASTM D 4633
y. Burst Strength of 2206 kPA (320 psi.) by ASTM D 3786
z. Trapezoid Tear of 222 N. (50 lbs.) by ASTM D 4533
aa. Apparent Opening Size < 0.425mm (U.S. #40) by ASTM D 4751
bb. Permeability of 0.010 cm/sec by AASHTO M 288
cc. Ultraviolet Degradation at 500 hours with 70% strength retained for all classes by ASTM D 4355
dd. Flow Rate of 27 Liters/sec/m^2 (40 gal./min/ft.^{2}) by AASHTO M 288

5. Minimum. Use value in weaker principle direction. All numerical values represent minimum average roll value (i.e., test results from any sampled roll in a lot shall meet or exceed the minimum values in the Table).

6. *Values apply to both the field and manufactured seams.*

The Contractor shall submit manufacturer specifications to the Engineer prior to ordering materials.

216.2-EXECUTION

Construct Woody Debris Toe Protection by first shaping the bankfull channel to the grades specified, including scour pools and placement of gravel substrate. Next, excavate enough bank and bed material to place the woody debris for the structure. Build woody debris out from the existing bank at a depth equal to the typical pool cross sections shown in the plans. The woody debris and backfill matrix will cover the outer bank from the bottom of the pool up to the low flow stage. Woody debris shall not extend more than 12" beyond the bank into the channel at the upstream and downstream tie-in locations, and the woody debris should extend up to the low flow elevation to provide adequate depth of woody debris while keeping the wood saturated. Geotextile fabric shall be placed on top of the woody debris matrix. Next place coir fiber lifts on top of the non-woven geotextile up to bankfull stage as shown in the detail. The outer face of the coir fiber lifts shall match the slope of the proposed cross section. Coir Fiber soil lifts are to be built tight with adequate live stakes to have 3 per square yard along the bank. Live Stakes shall be installed as per described in the Live Stake technical specification.

216.3-METHOD OF MEASUREMENT

Measurement for Woody Toe Protection shall be per linear foot, installed to the satisfaction of the Engineer.

216.4-BASIS OF PAYMENT
Payment for Woody Toe Protection shall be per linear foot. The harvesting of woody material and sod from the project site is considered incidental for this item. Payment as specified shall be considered full compensation for all labor, materials, equipment and incidentals necessary to perform the Work as required.

217.0-SEEDING, MULCHING AND EROSION CONTROL BLANKET

217.1-GENERAL
This specification covers all items related to native seeding within the Riparian Zone specified on the Plans and includes the preparation of soil for seeding, mulching, fertilizing, and the placement of erosion control blanket associated with the stream restoration.

217.2-MATERIALS

217.2.1-Permanent Seed: Seed for this item shall be a mixture specified on the Plans and by the Engineer. Pure live seed shall be a minimum 99 percent by weight of the total mixture.

217.2.1.1-Seed Supplier Requirements:
The Seed Supplier for all seed shall be approved by the Engineer in writing. The Seed Supplier shall certify that all seed was produced from USDA Hardiness Zone 6 and written certification shall be provided to the Engineer upon request. Seed collected from "the wild" is prohibited.

217.2.1.2-Seed Identification:
State-approved seed of the latest season's crop shall be provided in original sealed packages bearing the producer's guaranteed analysis for percentages of mixture, purity, germination, hard seed, weed seed content, and inert material. Other materials shall be inspected for compliance with specified requirements. Labels shall be in conformance with AMS Seed Act and applicable state seed laws.

217.2.1.3-Substitutions:
All proposed species substitutions or changes in percent composition of species or USDA Hardiness Zone must be approved by the Engineer in writing prior to purchase and planting. Only specified seed species will be accepted. Cultivated varieties (cultivars) will be rejected.

217.2.2-Temporary Seed: Temporary seed species for surface erosion control or over-seeding shall be a minimum of 95 percent pure live seed in accordance with the temporary crop cover specification found in the planting plan. Pure live seed shall be a minimum 99 percent by weight of the total mixture.

217.2.3-Straw Mulch: Straw mulch for this item shall be small-grain straw free of weeds, disease, and rot. Straw mulch obtained from regular farming operations is not free of weeds and will be rejected.

217.2.4-Erosion Control Blanket: Erosion Control Blanket shall be 700 gram coir fiber blanket with the following requirements. GEOCOIR® / DeKoWe® 700 coir fiber blanket or approved equal shall be installed along the project in disturbed areas.

217.3-EXECUTION

217.3.1-Seeding Area: All non-paved disturbed areas within the Riparian Zone specified on the plans shall be restored, seeded, fertilized, and mulched unless otherwise directed by the Engineer**.**

217.3.2-Seeding Schedule and Conditions: The Contractor shall seed the newly constructed streambanks as soon as possible with temporary and permanent seed species. The Contractor shall seed the remaining areas within the Riparian Zone as soon as disturbance to the seeding areas from construction activities is halted. The species survival rate shall be evaluated and the Engineer will determine if there are areas that need to be re-seeded. Re-seeding operations shall be performed from September 1 to November 1 for fall establishment. No seeding shall be performed on frozen ground or when the temperature is 32°F or lower. Seeding operations shall be performed only during periods when beneficial results can be obtained. When drought, excessive moisture, or other unsatisfactory conditions prevail, the work shall be stopped when directed. When special conditions warrant a variance to the seeding operations, proposed alternate times shall be submitted for the Engineer's approval.

217.3.3-Inspection: Seed shall be inspected upon arrival at the job site for conformity to species and quality. Seed that is wet, moldy, or bears a test date five months or older, shall be rejected. Other materials shall be inspected for compliance with specified requirements.

217.3.4-Storage: Seed storage methods and location shall be approved by the Engineer. Seed shall be stored in cool, dry locations away from contaminants and direct sunlight.

217.3.5-Site Preparation: All areas to be seeded shall conform to the finished grades as specified on the plans and be free of all trash, debris, and other foreign materials. All gullies, washes, or disturbed areas that develop subsequent to final dressing shall be repaired prior to seeding.

The Contractor shall verify that finished grades are as indicated on drawings, and the placing of topsoil, smooth grading, and compaction requirements have been completed prior to commencement of the seeding operation. Topsoil shall be a minimum of 6 inches thick on all finished surfaces outside of the low flow channel. The location of underground utilities and facilities in the area of the planting operation shall be verified.

Damage to underground utilities and facilities shall be repaired at the Contractor's expense.

The prepared surface shall be a maximum 1 inch below the adjoining grade of any surfaced area. New surfaces shall be blended to existing areas. The prepared surface shall be completed with a light raking to remove debris.

Areas with the prepared surface shall be protected from compaction or damage by vehicular or pedestrian traffic and surface erosion.

217.3.6-Seeding: Seeding shall be accomplished by hand or using a broadcast spreader. Native seeds should be broadcast at rates specified in the plans. Any alternative seeding methods must be approved by the Engineer. Seed shall be applied in two different directions and covered with 1/4 inch of topsoil. The Contractor shall maximize the seed/soil contact by firming soil around the seed with a cultipacker or by dragging the surface with a finish harrow chain link fence. Immediately after seeding, the site shall be watered lightly but thoroughly so that the top 4 inches of soil is saturated. Alternative seeding equipment or methods shall be approved by the Engineer in writing.

217.3.7-Mulching: The Contractor shall mulch and tack all seeded areas within 12 hours after seeding with a weed-free straw at the rate of 1.5 tons/acre.

217.3.8-Erosion Control Blanket Installation: Where indicated on the Plans or as directed, surface erosion control blankets shall be installed. Seed and mulch shall be spread prior to placement of the blanket. Placement of the material shall be accomplished without damage to installed material or without deviation to finished grade. The blankets shall be rolled out in the direction of the flow on stream banks. The blankets shall extend a minimum of two feet beyond the first slope break to a minimum of two feet beyond the top of bank. Secure the blanket by overlapping at the seams with the downstream and lower fabrics under adjacent blankets. The top of the blanket shall be buried in a 6-inch deep trench and secured with 18-inch wooden stakes. Blanket staking shall be performed with 18" long wooden stakes that are approximately 2" x 1" in cross section size. The 18" wooden stakes shall have 2" galvanized roofing nails at the top to hold the blanket in place and prevent the blanket from lifting off the stake. Along the exterior and overlap areas of the blanket, stakes shall be installed on two foot centers. Along the interior portions of the blanket, stakes shall be installed on 2.5 foot centers. The stakes should be angled slightly upstream and toward outer edges in order to increase blanket tension and resist failure under high flow conditions. Extra stakes may be necessary around structures and low edges to keep water from piping under fabric. If, after staking the blanket, it is possible to lift the blanket 1 inch away from the soil by hand pulling, additional stakes shall be applied until the fabric is secured. Erosion control blankets shall be used on all slopes that are 3-horizontal to 1-vertical, or steeper as well as where indicated on the drawings

217.3.9-Plant Establishment Period:

217.3.9.1-Commencement:
Upon completion of the last day of the planting operation, the plant establishment period for maintaining installed plant material in a healthy growing condition shall commence and shall be in effect for a minimum of 12 months. A written calendar time period shall be furnished for the plant establishment period. When there is more than one plant establishment period, the boundaries of the planted area covered for each period shall be described. The plant establishment period shall be modified for inclement weather shut down periods, or for separate completion dates for areas.

217.3.9.2-Maintenance During Plant Establishment Period:
Maintenance of plant material shall include supplementing mulch, watering, eradicating weeds, insects and disease and post-fertilization are the responsibility of the contractor.
The plant material shall be watered as necessary to prevent desiccation and to maintain an adequate supply of moisture within the root zone. An adequate supply of moisture is estimated to be the equivalent of 1 inch of absorbed water per week, delivered in the form of rain or augmented by watering. Run-off, puddling and wilting shall be prevented. Unless otherwise directed, watering trucks shall not be driven over turf areas. Watering of other adjacent areas or existing plant material shall be prevented.

217.4-METHOD OF MEASUREMENT
Measurement for Seeding and Mulching shall be per acre, installed to the satisfaction of the Engineer. Measurement for Erosion Control Blanket shall be per square yard, installed to the satisfaction of the Engineer.

217.5-BASIS OF PAYMENT
Payment for Seeding and Mulching shall be per acre. Payment for Erosion Control Blanket shall be per square yard. The stockpiling of topsoil from the project site is considered incidental for this item. Payment as specified shall be considered full compensation for all labor, materials, equipment and incidentals necessary to perform the Work as required.

218.0-LIVE STAKES

218.1-GENERAL
This work shall consist of harvesting, transporting, installing, and maintaining live stake materials into the disturbed areas along the stream bank and near installed structures as specified on the plans or as directed by the Engineer.

218.1.1-Warranty: The Contractor shall maintain a 1 year, 85 percent care and replacement warranty for all live stakes. The period of care and replacement shall begin after inspection and approval of the initial installation of all live stakes and continue for 1 year, with one potential replacement period. The Contractor will not be responsible for live stakes that have been damaged by vandalism, fire, flooding or other activities beyond the Contractor's control.

218.2-PRODUCTS

218.2.1-Live Stakes: Live stakes are obtained by harvesting cuttings from an existing stand of the desired shrub(s) during the dormant season (November 15 – March 15). Live cuttings for live stakes shall be 1/2 to 1 ½-inch in diameter and 2.5 - 4 feet in length, retaining at least two buds near the top end. Buds on the stakes shall be oriented in an upward direction. The basal ends shall be tapered to a point for easy insertion into the soil. The top shall be cut smooth and square. Side branches shall be removed with the bark left intact prior to installation.

218.2.1.1-Source and Supplier Requirements:
The source of all live cuttings shall be from purchased stock, located on-site, or within 25 miles of the project site. If the Contractor is unable to locate sufficient harvesting sites for the live stakes, upon approval from the Engineer, the Contractor may purchase live branch material from a State-certified nursery or other source approved by the Engineer. The material shall meet all of the specifications found in this section.

218.2.1.2-Substitutions:
Any proposed species substitutions or changes in percent composition of species shall require prior written approval by the Engineer. Only specified plant species will be accepted. No cultivated varieties (cultivars) are acceptable.

218.3-EXECUTION

218.3.1-General: The harvest and installation of Live Stakes shall be performed only during the dormant season between November 1 and March 31, or as directed by Engineer. When special conditions warrant a variance to the planting operations, proposed planting times shall be submitted for approval by the Engineer. All materials and construction techniques shall be inspected and approved by the Engineer prior to installation.

218.3.2-Harvesting: The source of all live cuttings shall be from purchased stock or located on-site or within 25 miles of the project site. The Contractor shall locate, flag, and code the live cutting sites. The Contractor shall notify the Engineer 72 hours prior to harvesting to review and approve all harvesting sites. Upon approval by the Engineer, the Contractor shall be responsible for harvesting and transporting the cuttings to the job site. Live cuttings shall be harvested and installed when they are dormant, which typically occurs between November 15 and March 15.

218.3.3-Purchasing: If the Contractor is unable to locate sufficient harvesting sites for the live stakes, upon approval from the Engineer, the Contractor may purchase live branch material from a State certified nursery. The material shall meet all of the specifications found in this section.

218.4-LIVE MATERIAL PREPARATION

218.4.1-Cutting: Shrubs and young trees used in preparation of live stakes shall be cut directly above the ground. All cuts shall be smooth and the cut surface kept small. The use of large pruning shears or power saws may be required. Trees that are more than 3 inches in diameter shall be topped. The live materials shall be transported to the construction site within 8 hours of harvesting and then cut to size, as specified above and on the details.

218.4.2-Storage: Live materials must be protected against drying out and overheating before/during transport (e.g., they shall be covered, transported in unheated vehicles, moistened, kept in soak pits) and on-site prior to installation (e.g., by storing in controlled conditions, storing in shade, covering with evergreen branches or plastic, placing in moist soil, or spraying with anti-transparent chemicals). Live materials shall receive continuous shade, shall be sheltered from the wind, and shall be continuously protected from drying by heeling into moist soils. Where water is available, live cuttings shall be sprayed or immersed. Warm water (60 degrees F) stimulates growth and should be used only upon the approval of the Engineer. Any costs associated with such storage are incidental to the overall unit costs. Live materials shall be installed the same day that the cuttings are harvested. If installation of live materials cannot be accomplished on the same day and storage is required, live materials shall be stored for a period no longer than two (2) days. Any storage of live materials must be approved by the Engineer prior to storing.

218.5-LIVE STAKE INSTALLATION

The cuttings shall be "planted" in a dormant state, typically in early spring or late fall, into pilot holes set on random centers in tight soils, or in loose soils driven directly into the ground. Cuttings may be driven into rock placements, provided that the voids in the rock are filled with some soils in the gravel and/or sand. The cutting must be planted deep enough that at least two-thirds of the cutting is below ground for rooting and to prevent desiccation. Drive live stakes into the ground so that no more than 8 to 12 inches of the stake is exposed. The Contractor shall use a dead-blow hammer for driving the stake directly into the ground or drive a pilot hole, smaller in diameter than the live stake, and then driving the live stake into the pilot hole. Stagger the live stakes in a random pattern throughout the specified planting area at a general density of 1 live stake per square yard. Live stakes shall be installed above low flow water surface and below bankfull elevation in areas identified, with greater density where indicated on the drawings.

Placement of the live stakes shall be as indicated on the drawings and details. Live stake buds shall be facing upward.

218.6-REPLACEMENT OF SPLIT STAKES

All live stakes split during installation may be left in place but must be supplemented with a new live stake that remains un-split after installation.

218.7-MAINTENANCE
The Contractor shall maintain a 1 year, 85 percent care and replacement warranty for live stakes. The Contractor shall perform maintenance as follows: a) Replace diseased and dead vegetation; b) Keep vegetation cleared of debris after storm events; and c) water vegetation as needed. The Contractor will not be responsible for live stakes that have been damaged by vandalism, fire, flooding greater than a 5 year storm event or other activities beyond the Contractor's control. It will be the Contractor's responsibility to supply water if there is none available on the site. Any costs associated with supplying water shall be the responsibility of the Contractor and shall be included in the unit cost of the live staking installation.

218.8-METHOD OF MEASUREMENT
Measurement for Live Stakes shall be per each, installed to the satisfaction of the Engineer.

218.9-BASIS OF PAYMENT
Payment for Live Stakes shall be per each. The harvesting of materials from the project site and use of tools to aid installation of live stakes is considered incidental for this item. Payment as specified shall be considered full compensation for all labor, materials, equipment and incidentals necessary to perform the Work as required

219.0-TREES AND SHRUBS

219.1-GENERAL
This specification covers furnishing all materials, equipment, and labor for planting trees and shrubs as required by the plans or as directed by the Engineer.

219.2-MATERIALS

219.2.1-Plant Stock:

219.2.1.1-General:
Plant stock for this item shall be trees and shrubs specified by the Planting Plan and the Engineer. All Plant Stock must be healthy, vigorous, and free of damage and disease. Plant stock shall be healthy representatives typical of their species or variety and exhibit a normal habit of growth.

219.2.1.2-Supplier Requirements:
The Plant Supplier for all plant stock shall be approved by the Engineer in writing. The Plant Supplier shall certify that all Plant Stock were produced from USDA Hardiness Zone 6 and written certification shall be provided to the Engineer upon request. Plant stock collected from "the wild" is prohibited.

219.2.1.3-Substitutions:
All proposed species substitutions or changes in percent composition of species or USDA Hardiness Zone must be approved by the Engineer in writing prior to purchase and

planting. Only specified plant species will be accepted. Cultivated varieties (cultivars) will be rejected.

219.2.2-Staking Materials:

219.2.2.1-Bracing Stakes:
Bracing stakes for this item shall be hardwood or fir; rough sawn, free from knots, rot, cross grain, or other defects that would impair their strength. Wood bracing stakes shall be a minimum 2 x 2 inch square and a minimum of 8-feet long with a point at one end.

219.2.2.2-Ground Stakes:
Ground stakes for this item shall be hardwood or fir; rough sawn, free from knots, rot, cross grain, or other defects that would impair their strength. Wood ground stakes shall be a minimum of 2 x 2 inch square and a minimum 3-feet long with a point at one end.

219.2.2.3-Metal Guying Material:
Metal guying material for this item shall be a minimum 12-gauge wire. Multi-strand cable shall be woven wire. Guying material tensile strength shall conform to the size of tree to be held firmly in place. Metal guying material must be covered in a rubber hose sleeve.

219.2.2.4-Rubber Chafing Guards:
Rubber chafing guards for this item shall be 1.5 times the circumference of the base of the plant trunk. Rubber chafing guards for this item shall consist of recycled material and shall be the same color throughout the project.

219.3-EXECUTION

219.3.1-Schedule and Conditions: Planting operations shall be performed only from March 1 to May 31 for spring establishment, and from September 1 to November 1 for fall establishment, when beneficial results can be obtained. When drought, excessive moisture, frozen ground or other unsatisfactory conditions prevail, the work shall be stopped when directed by the Engineer. When special conditions warrant a variance to the planting operations, proposed planting times shall be submitted for approval by the Engineer.

219.3.2-Protection During Delivery: Plant stock shall be protected during delivery to prevent desiccation and damage to the branches, trunk, root system, or earth ball. Branches shall be protected by tying-in. Exposed branches shall be covered during transport.

219.3.3-Inspection: Plant stock shall be inspected upon delivery to the project site for conformity to species and quality. Plants shall be well shaped, vigorous and healthy with a well branched root system, free from disease, harmful insects and insect eggs, sun-scald injury, disfigurement, abrasion, mishandling or poor pruning. Plant stock shall be

inspected for unauthorized substitution and to certify nursery grown status. Plant stock shall be inspected to certify production in USDA Hardiness Zone 6.

Plants showing desiccation, abrasion, sun-scald injury, disfigurement, or unauthorized substitution shall be rejected. Container-grown plant stock shall have new fibrous roots and the root mass shall contain its shape when removed from the container.

Plants with broken or cracked balls shall be rejected. Plants with broken containers shall be rejected. Bare-root plant stock that is not dormant or is showing roots where pulled from the ground shall be rejected. Plants that have evidence of stress, disease, dieback or mishandling will be rejected. Plants damaged in handling or transportation may be rejected by the Engineer.

219.3.4-Storage: Plants not installed on the day of arrival at the site shall be stored and protected in areas approved by the Engineer. Plants shall not be stored longer than 30 days. Plants shall be protected from direct exposure to wind and sun. Containerized trees and shrubs shall be kept in a moist condition by watering the base of each plant. Bare-root trees and shrubs shall be stored in buckets of water so that the water level covers the roots.

219.3.5-Site Preparation: Planting locations and bed outlines shall be staked on the project site before any excavation is made. Planting locations may be adjusted to meet field conditions following approval by the Engineer.

219.3.6-Installation:

219.3.6.1-Containerized Trees and Shrubs:

219.3.6.1.1-Planting Pits
Excavate the planting pit to at least 1½ times the width of the root mass of the plant to be installed. Excavate the planting pit to a depth that allows the surface of the containerized plant to be flush with the existing grade after the soil in the bottom of the pit is tamped.

219.3.6.1.2-Planting
For burlap containers, remove burlap from top 1/3 of rootball. For other containers, remove the plant by inverting the container and pushing on the container bottom. Place the plants in the center of the planting pit by carrying the plant by the root mass.

219.3.6.1.3-Backfill
Backfill the planting pit with native soil to a depth equal to 2/3 times the depth of the root ball. Cover the native soil with a soil mix composed of 5 parts topsoil to 1 part organic matter and a 2” layer of wood cellulose fiber mulch to a depth equal to 1/3 times the depth of the rootball.

219.3.6.1.4-Staking Materials
Bracing stakes and guying material shall be installed according to the Plans. Bracing stakes shall be set without damaging rootball. Rubber chafing guards shall be used to protect tree trunks and branches when metal guying material is applied.

219.3.6.1.5-Watering
The Contractor shall water plant thoroughly immediately after planting. Water shall be of a sufficient quantity to saturate the backfill, and shall be applied slowly enough to infiltrate the soil without runoff. The need for additional watering shall be at the discretion of the Engineer.

219.3.7-Pruning: Pruning shall be accomplished by trained and experienced personnel. The pruning of trees and shrubs shall be in accordance with ANSI A300. Only dead or broken material shall be pruned from installed plants. The typical growth habit of individual plant material shall be retained. Clean cuts shall be made flush with the parent trunk. Improper cuts, stubs, dead and broken branches shall be removed. "Headback" cuts at right angles to the line of growth will not be permitted. Trees shall not be poled or the leader removed, nor shall the leader be pruned or "topped off".

219.3.8-Tree Establishment Period:

219.3.8.1-Commencement:
Upon completion of the last day of the planting operation, the plant establishment period for maintaining installed plant material in a healthy growing condition shall commence and shall be in effect for a minimum of 1 year. A written calendar time period shall be furnished for the plant establishment period. When there is more than one plant establishment period, the boundaries of the planted area covered for each period shall be described. The plant establishment period shall be modified for inclement weather shut down periods, or for separate completion dates for areas.

219.3.8.2-Maintenance During Plant Establishment Period:
Maintenance of plant material shall include straightening plant material, supplementing mulch; pruning dead or broken branch tips; watering; eradicating weeds, insects and disease; post-fertilization; and removing and replacing unhealthy plants. At the end of the 12-month establishment period, the Contractor shall remove all stakes and guying material.

The plant material shall be watered as necessary to prevent desiccation and to maintain an adequate supply of moisture within the root zone. An adequate supply of moisture is estimated to be the equivalent of 1 inch of absorbed water per week, delivered in the form of rain or augmented by watering. Run-off, puddling and wilting shall be prevented. Unless otherwise directed, watering trucks shall not be driven planted areas. Watering of other adjacent areas or existing plant material shall be prevented.

219.4-METHOD OF MEASUREMENT
Trees and Shrubs will be measured per each, installed to the satisfaction of the Engineer.

219.5-BASIS OF PAYMENT
Payment for Trees and Shrubs shall be per each. The harvesting of materials from the project site and use of tools to aid installation of trees or shrubs is considered incidental for this item. Payment as specified shall be considered full compensation for all labor, materials, equipment and incidentals necessary to perform the Work as required.

220.0-CONSTRUCTION LAYOUT STAKING

220.1-GENERAL
This item shall consist of furnishing, placing, and maintaining construction layout stakes necessary for the proper prosecution of the work under the Contract, all in accordance with these Specifications.

220.2-MATERIALS
18" wooden surveying stakes shall be free from knots, rot, cross grain, or other defects that would impair their strength.

220.3-EXECUTION
The Contractor will locate and reference the baseline and will establish bench marks along the line of the improvement for the proper layout of the work. The Contractor shall make all calculations involved and shall furnish and place all layout stakes. The Contractor shall provide field forces and shall set all additional stakes needed, such as offset stakes, reference point stakes, slope stakes, supplementary bench marks, and any other horizontal or vertical controls necessary to secure a correct layout of the work. The Contractor shall be responsible for having the layout staking work conform to the lines, grades, elevations, and dimensions called for on the Plans.

The Contractor shall furnish a copy of their survey records for checking by the Engineer and for the District's permanent file. These records shall be furnished as they are completed during the progress of the work. Any inspection or checking of the Contractor's layout by the Engineer and the acceptance of all or any part of it shall not relieve the Contractor of their responsibility to secure the proper dimensions, grades, and elevations of the several parts of the work.

The Contractor shall exercise care in the preservation of stakes and bench marks and shall have them reset at their expense when any are damaged, lost, displaced or removed. The Contractor shall use competent personnel and suitable equipment for the layout work required.

220.4-METHOD OF MEASUREMENT
Construction Layout Staking will be measured as a lump sum item.

220.5-BASIS OF PAYMENT
Construction Layout Staking, determined as provided above, will be paid for at the contract price bid as a lump sum item, which price and payment shall be full

compensation for furnishing, setting, maintaining, and resetting, when necessary, the stakes, and for furnishing all engineering personnel, equipment, materials, and all incidentals. The total payment for construction layout stakes shall not exceed five (5) percent of the total contract bid price.

MINIMUM WAGE RATES

Appendices I, II, III, IV and V

West Virginia Division of Labor

Heavy and Highway

Construction Rate Appendices

2012

APPENDIX I

West Virginia Division of Labor

Heavy and Highway

Construction Rate Appendices Laborer Classifications

2012

WEST VIRGINIA DIVISION OF LABOR
HEAVY & HIGHWAY CONSTRUCTION RATES
2012

APPENDIX I

LABORER CLASSIFICATIONS

CLASS I: Shall include Blacksmith, Tunnel Driller, Tunnel Miner, Tunnel Foreman, Laborer Foreman, Mucker Chucker, Reinforcing Bar Handler (structures), Toxic and Hazardous Waste Removal Laborer, Asbestos Abatement Laborer, and Lead Base Paint Removal Laborer, Inside Laborer, Powderman, Laser Screed Operator, Cement Specialist and GPS Operator.

CLASS II: Shall include Pipe Layer, (including Laser Beam Set-up), Form Setter (road), Drill Operator, Air Tool Operator, Grade Checker and Asphalt Raker, Vibrator Man, Whacker, Chainsaw Operator, Mortarman, Mason Tender, Blacksmith Helper, Cement Finisher Helper, Drill Helper, Powderman Helper, Waterproofer, Sheeter and Shorer, Placement of Lagging, Pipelayer Helper, Bull-float Man, Pavement Reinforcing Placer, Handyman, Signal Man, Greencutter, Georgia Power Buggy, Burner, Cement Blower Man, Bituminous Hand Sprayer, Bork 250 Remote Control Ditch Witch and Walk Behind Concrete Saw, Deckhand, Mulcher and Seeder (hand or machine), Fence Erector, Installation of Ground Mounted Post Supports and Signs, Installation of Ground Mounted Beams and Signs Including Concrete Footers, Installation of Overhead Sign Supports and Signs including Concrete Footers, Installation of Guardrail and Anchors Assemblies, Tree Trimmer, Labor Operating a Bobcat on non-productive work, Labor Operating a Forklift and Casion Bottom Man.

CLASS III: Shall include Flag Person, Watchman, Traffic Control Maintenance Person, Carpenter's Tender and General Laborer.

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APPENDIX II

West Virginia Division of Labor

Heavy and Highway

Construction Rate Appendices Operating Engineer Classifications

2011

WEST VIRGINIA DIVISION OF LABOR
HEAVY & HIGHWAY CONSTRUCTION RATES
2012

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APPENDIX II

OPERATING ENGINEER CLASSIFICATIONS

CLASS I: Shall include those operating the following equipment: cranes, tower cranes, derricks, derrick boats, dredge, draglines, clamshells, cableways, boom truck, loaders of six (6) cu. yd. capacity and over, Master Mechanics and Operating Engineer foremen. Class I shall also include excavators and shovels with an operating weight of one hundred ten thousand (110,000) pounds and over.

CLASS II: Shall include those operating the following equipment: loaders up to six (6) cubic yard capacity, gradall, hoist (two drums or more), mixer plant (two or more mixers including batch control), pile driver, core drill, trencher, backhoe, asphalt paver, cement paver, rotary drill, bulldozers, standard guage locomotive, concrete pump, controlled fine grade machine, slip form paver, log leader, log skidder, motor grader, rubber tired scraper, tractor pan, Roto Miller, tow or work, boat, moblie conveyor, transloader, articulating equipment, material hauler, carry deck, compactor with blade, skidsteer including attachments, fork lift, self-propelled concrete speader, concrete finishing machinie, derrick (single drum), hoist (single drum) single drum paver, air tugger, Ross Carrier, multiple concrete saw, hydraulic post driver, horizonal road-boring machine, tie distributor, track lining machine, ballast tamper, anchor application machine, ribbon rail puller, ballast regulator, auto sled, turrn table, pavement breaker, asphalt batch plant, concrete batch plant, crushing plant, asphalt roller, compactor with blade, power broom, vac-all truck, self-propelled concrete spreader and concrete finishing machine, mechanics with tools and greasers. Class II shall also include excavators, and shoovels with an operating weight of up to one hundred ten thousand (110,000) pounds.

CLASS III: Asphalt roller.

CLASS IV: Shall include those operating the following type of equipment: air compressor, concrete mixer (under one (1) cubic yard), light plant, narrow gauge locomotive, fireman, mechanic's tender, assistant engineer, deckhand, screedman, spreaderbox man, joint sealer and pump, steam jenny, stationary conveyor (belt or bucket), gasoline or diesel powered welder, brakeman of locomotive, conductor of locomotive, A-frame, tireman, screening and washing plant, form sub-grader, power form handling equipment, burlap and curing machine, form grader, bull float, bar and joint installing machine, roller and compactor, hydroblaster, concrete mixer (single drum, one (1) cu. yd. or over), portable concrete saw and highway striping operator. Utility operators shall be paid Class II rate when operating more than one (1) but less than five (5) air compressors, pumps, stationary conveyors (belt or bucket), light plants, and gasoline or diesel powered welders.

Note: $2.00 per hour shall be added to the Class I rate for individuals operating a lattice boom crane with a fixed boom of 150 feet or more.

Capacities for equipment shall be as per manufactures maximum rated capacity

Twenty-five cents per hour shall be added to all of the above schedules for tunneling and for all other underground work.

APPENDIX III

West Virginia Division of Labor

Heavy and Highway

Construction Rate Appendices Teamster Classifications

2011

APPENDIX III

TEAMSTER CLASSIFICATIONS

CLASS I: SINGLE AXLE TRUCKS used as Dumps, Supply, Fuel, Water, Van, Flatbody, Monorail, Distributor (other than Bituminous Distributors) and including Towed Single Units, Material Checkers and Receivers, Team 4-Up, Greasers, Tiremen and Mechanic Tenders (Trucks), Warehouse, Yardmen, Team 2-Up and pick-up trucks.

CLASS II: TANDEM AND TRI-AXLE TRUCKS, used as Dumps, Supply, Fuel, Water, Van, Flatbody, Monorail and including Towed Single Units, Truck Tractors used in combination with Dump, Van, Tank, Flatbed, Low Platform, or Pole Trailers, Bituminious Distributors, Agitator or Mixer Trucks (up to and including 20 cubic yards), Rubber-tired Tractors (towing and pushing), Drag Drivers and Tag-alongs.

CLASS III: OFF HIGHWAY TRUCKS, Mobile Metered Mixer, Agitator or Mixer Trucks (over 20 cubic yards), Off Highway Rear Dump Trucks, Articulating Dumps, "A" Frame, Mechanic (Truck) and/or Dispatchers

Note: Double Hitched equipment operated by one driver shall pay 50% more than the wages set out above. Twenty-five cents ($0.25) per hour shall be added for tunneling and all other underground work.

WELDERS: Receive rates prescribed for craft performing operation to which the welding is incidental.

APPENDIX IV

West Virginia Division of Labor

Heavy and Highway

Construction Rate Appendices Ironworker Classification

2011

WEST VIRGINIA DIVISION OF LABOR
HEAVY & HIGHWAY CONSTRUCTION RATES
2012

APPENDIX IV

IRONWORKER

Where precast, prestressed, reinforced concrete, structural, floor, side, top or bottom members (columns, beams, girders, slabs, panels, plus all post tensioning work) are used in the construction of building bridges and other structures and power equipment, such as derricks, cranes, jacks and/or rigging is used, the work of unloading, loading, handling and placing to complete erection and dismantling of same shall be performed by Ironworkers.

All reinforcing, structural steel or other material used as or taking the place of, and all falsework, S.I.P. or other decking, expansion dams and embedded metals, catwalks, handrails, stairs, platforms, guardrails, piling pertaining to falsework, scuppers, downspouts, piping and supports of the same, signs and supports, drilling of holes in the piers and abutments, when drilled through templates, or base plates to anchor same, shear connectors, welding on all the same, all repairs, fence, retrofits or replacement of materials or structures shall be performed by Ironworkers.

APPENDIX V

West Virginia Division of Labor

Heavy and Highway

Construction Rate Appendices Carpenter / Ironworker Classifications

2011

WEST VIRGINIA DIVISION OF LABOR
HIGHWAY BRIDGE STAY-IN-PLACE FORMS RATES
2012

APPENDIX V

CARPENTER / IRONWORKER

S.I.P. Forms are pre-formed metal panels that replaced the wood form work previously utilized to form the bottom of poured in place concrete and to support reinforcing steel installation and the personnel and equipment utilized in constructing the roadway on highway bridges.

Custom and usage requires a composite crew of one carpenter to one iron worker comprising each two (2) person crew.

For any crew of workmen (regardless of the total number of crew members performing the S.I.P. form work) handling, and installing in its entirety, Stay in Place (S.I.P.) decking [forms], 50% of the workmen must be paid at the Carpenter (Highway Rate) and 50% of the workmen must be paid at the Iron Worker (Highway Rate) of wages as prescribed in the WV Division of Labor's Prevailing Wage Rate Schedule for those respective classifications.

The first and every odd numbered crew member hired/ assigned the S.I.P. form work must be paid the Carpenters Highway wage rate and the second and every even numbered crew member hired/ assigned the S.I.P. form work must be paid the Iron Workers Highway wage rate. The odd and even issue will be determined by the date each crew member begins work on the S.I.P. form work and the initial assignment of wages will remain the same for each crew member until the project is completed.

APPENDIX VI

West Virginia Division of Labor

Building / Heavy / Highway
Construction Rate Appendices / Apprentice Fringe Rates

2012

NOTE: All classifications of Apprentices must be paid the Journeyman fringe benefit rate for their respective classifications except those specified in the following pages of this appendix.

Those Apprentices listed in this appendix must be paid at least the amount of fringe benefit rates indicated for their respective classification.

WEST VIRGINIA DIVISION OF LABOR
Apprentice Fringe Rate

Asbestos/Firestop
2012

Berkeley, Hampshire, Hardy, Jefferson and Morgan

CLASSIFICATION	Interval	FRINGE BENEFITS
ASBESTOS/FIRESTOP	1st	0.57
	2nd	4.07
	3rd - 6th	5.12

APPRENTICE SCHEDULE:
Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR

Apprentice Fringe Rates

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OFFICE WEST VIRGINIA SECRETARY OF STATE

Electrician
2012

Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral and Morgan

CLASSIFICATION	Interval	FRINGE BENEFITS
ELECTRICIAN	1st	4.64
	2nd	4.71
	3rd	10.70
	4th	10.85
	5th	11.76
	6th	11.91

Barbour, Doddridge, Harrison, Lewis, Marion, Monongalia, Pendleton, Pocahontas, Preston, Randolph, Taylor, Tucker and Upshur

CLASSIFICATION	Interval	FRINGE BENEFITS
ELECTRICIAN	1st & 2nd	8.66
	3rd-10th	Full Fringe Rate

Cabell, Lincoln, Logan, Mason, Mingo and Wayne

CLASSIFICATION	Interval	FRINGE BENEFITS
ELECTRICIAN	1st & 2nd	11.08
	3rd	17.93
	4th	18.48
	5th	18.50
	6th	19.55
	7th	19.61
	8th	20.15
	9th	20.20
	10th	20.26

Jackson, Pleasants, Ritchie, Tyler, Wood and Wirt

CLASSIFICATION	Interval	FRINGE BENEFITS
ELECTRICIAN	1st & 2nd	6.60
	3rd	13.98
	4th	15.21
	5th	16.44
	6th	17.67

Hancock

CLASSIFICATION	Interval	FRINGE BENEFITS
ELECTRICIAN	1st	7.63
	2nd	8.86
	3rd	10.10
	4th	11.33
	5th	12.58
	6th	13.61
	7th	16.29
	8th	17.53
	9th	20.00
	10th	21.24

APPRENTICE SCHEDULE:

Check with the Federal Bureau of Apprenticeship & Training in the locality worked.

Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
APPRENTICE FRINGE RATES

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Glaziers
2012

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Barbour, Berkeley, Boone, Braxton, Cabell, Calhoun, Clay, Doddridge, Fayette, Gilmer, Grant, Greenbrier, Hampshire, Hardy, Harrison, Jefferson, Kanawha, Lewis, Lincoln, Logan, Marion, Mason, McDowell, Mercer, Mineral, Mingo, Monongalia, Monroe, Morgan, Nicholas, Pendleton, Pocahontas, Preston, Putnam, Raleigh, Randolph, Summers, Taylor, Tucker, Upshur, Wayne, Webster and Wyoming

CLASSIFICATION		FRINGE BENEFITS
GLAZIERS	All Intervals	3.43

Brooke, Hancock, Marshall, Ohio and Wetzel

CLASSIFICATION		FRINGE BENEFITS
GLAZIERS	All Intervals	9.07

Jackson, Pleasants, Ritchie, Roane, Tyler, Wirt and Wood

CLASSIFICATION		FRINGE BENEFITS
GLAZIERS	All Intervals	3.42

APPRENTICE SCHEDULE:

Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Apprentice Fringe Rate

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OFFICE WEST VIRGINIA SECRETARY OF STATE

Painter
2012

Brooke, Hancock, Marshall, Ohio and Wetzel

CLASSIFICATION		FRINGE BENEFITS
PAINTER	All Intervals	9.56

Barbour, Berkeley, Doddridge, Gilmer, Grant, Hampshire, Hardy, Harrison, Jefferson, Lewis, Marion Mineral, Monongalia, Morgan, Pendleton, Preston, Randolph, Taylor, Tucker, Upshur and Webster

CLASSIFICATION		FRINGE BENEFITS
PAINTER	All Intervals	8.53

Boone, Braxton, Cabell, Calhoun, Clay, Fayette, Greenbrier, Kanawha, Lincoln, Logan, Mason, McDowell, Mercer, Mingo, Monroe, Nicholas, Pocahontas, Putnam, Raleigh, Summers, Wayne and Wyoming

CLASSIFICATION		FRINGE BENEFITS
PAINTER	All Intervals	9.02

Jackson, Pleasants, Ritchie, Roane, Tyler, Wirt and Wood

CLASSIFICATION		FRINGE BENEFITS
PAINTER	All Intervals	8.65

APPRENTICE SCHEDULE:

Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Apprentice Fringe Rate

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Plumber/Pipefitter
2012

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OFFICE WEST VIRGINIA SECRETARY OF STATE

Berkeley, Jefferson and Morgan

CLASSIFICATION	Intervals	FRINGE BENEFITS
PLUMBER/PIPEFITTER	1st	9.23
	2nd	11.06
	3rd	11.88
	4th	12.70
	5th	13.11

Wood, Tyler, Pleasants, Wirt, Jackson and Calhoun

CLASSIFICATION	Intervals	FRINGE BENEFITS
PLUMBER/PIPEFITTER	1st	6.65
	2nd	6.65
	3rd	11.99
	4th	12.52
	5th	14.12
	6th	14.65
	7th	15.19
	8th	15.72
	9th	16.25
	10th	16.79

Marshall, Ohio and Wetzel

CLASSIFICATION	Intervals	FRINGE BENEFITS
PLUMBER/PIPEFITTER	1st	15.76
	2nd	16.73
	3rd	17.71
	4th	18.68
	5th	19.66
	6th	20.63
	7th	21.61
	8th	22.58
	9th	23.56
	10th	24.53

Harrison, Lewis, Monongalia, Taylor and Upshur

CLASSIFICATION	Intervals	FRINGE BENEFITS
PLUMBER/PIPEFITTER	1st	12.37
	2nd	13.61
	3rd	14.84
	4th	16.08
	5th	17.32
	6th	18.56
	7th	19.80
	8th	21.03
	9th	22.27
	10th	23.50

APPRENTICE SCHEDULE:

Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Apprentice Fringe Rate

Plumber/Pipefitter
2012

Barbour, Doddridge and Preston

CLASSIFICATION	Intervals	FRINGE BENEFITS
PLUMBER/PIPEFITTER	1st	12.42
	2nd	13.66
	3rd	14.90
	4th	16.14
	5th	17.38
	6th	18.62
	7th	19.86
	8th	21.11
	9th	22.35
	10th	23.59

Braxton, Gilmer, Randolph and Tucker

CLASSIFICATION	Intervals	FRINGE BENEFITS
PLUMBER/PIPEFITTER	1st	12.45
	2nd	13.70
	3rd	14.94
	4th	16.19
	5th	17.43
	6th	18.68
	7th	19.92
	8th	21.17
	9th	22.41
	10th	23.66

Grant, Hampshire, Hardy, Mineral and Pendleton

CLASSIFICATION	Intervals	FRINGE BENEFITS
PLUMBER/PIPEFITTER	1st	12.50
	2nd	13.74
	3rd	14.99
	4th	16.24
	5th	17.50
	6th	18.74
	7th	19.99
	8th	21.24
	9th	22.49
	10th	23.74

APPRENTICE SCHEDULE:
Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Apprentice Fringe Rate

Roofer
2012

Brooke, Hancock, Marshall and Ohio

CLASSIFICATION	Intervals	FRINGE BENEFITS
ROOFER	1st	8.86
	2nd - 6th	9.08

Boone, Cabell, Clay, Fayette, Greenbrier, Kanawha, Lincoln, Logan, Mason, McDowell, Mercer, Mingo, Monroe, Nicholas, Putnam, Raleigh, Summers, Wayne, Webster and Wyoming

CLASSIFICATION	Intervals	FRINGE BENEFITS
ROOFER	1st	7.76
	2nd	8.01
	3rd	8.26
	4th	8.51
	5th - 7th	Full Fringe

APPRENTICE SCHEDULE:
Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Apprentice Fringe Rate

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OFFICE WEST VIRGINIA SECRETARY OF STATE

Sheetmetal Worker
2012

Cabell, Lincoln, Logan, Mingo and Wayne

CLASSIFICATION	Interval	FRINGE BENEFITS
SHEETMETAL WORKER	1st	0.62
	2nd	8.57
	3rd	14.08
	4th	16.56
	5th	17.82

Boone, Braxton, Clay, Fayette, Greenbrier, Kanawha, Mason, McDowell, Mercer, Monroe, Nicholas, Putnam, Raleigh, Summers and Wyoming

CLASSIFICATION	Interval	FRINGE BENEFITS
SHEETMETAL WORKER	1st	12.64
	2nd	18.15
	3rd	18.23
	4th	18.32
	5th	18.40

Calhoun, Gilmer, Jackson, Pleasants, Ritchie, Roane, Tyler, Wood and Wirt

CLASSIFICATION	Interval	FRINGE BENEFITS
SHEETMETAL WORKER	1st	11.97
	2nd	18.75
	3rd	18.84
	4th	18.92
	5th	19.01

Barbour, Doddridge, Harrison, Lewis, Marion, Monongalia, Pendleton, Pocahontas, Preston, Randolph, Taylor, Tucker, Upshur, Webster and Wetzel

CLASSIFICATION	Interval	FRINGE BENEFITS
SHEETMETAL WORKER	1st	12.14
	2nd	14.82
	3rd	15.90
	4th	16.97
	5th	18.04

Brooke, Hancock, Marshall and Ohio

CLASSIFICATION	Interval	FRINGE BENEFITS
SHEETMETAL WORKER	1st	10.33
	2nd	11.45
	3rd	13.33
	4th	13.37
	5th	13.46

APPRENTICE SCHEDULE:

Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Apprentice Fringe Rate

Sheetmetal Worker
2012

Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral and Morgan

CLASSIFICATION	Interval	FRINGE BENEFITS
SHEETMETAL WORKER	1st	16.32
	2nd	16.36
	3rd	16.39
	4th	16.43
	5th	16.46
	6th	16.50
	7th	16.54
	8th	16.57

APPRENTICE SCHEDULE:

Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Apprentice Fringe Rates

Sprinklerfitter
2012

All Counties

CLASSIFICATION	Interval	FRINGE BENEFITS
SPRINKLERFITTER	1st & 2nd	8.15
	3rd & 4th	14.00
	5th-10th	17.75

APPRENTICE SCHEDULE:

Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

West Virginia Division of Labor

Heavy and Highway
Construction Rates

2012

WEST VIRGINIA DIVISION OF LABOR
Heavy and Highway Construction Rates

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OFFICE WEST VIRGINIA
SECRETARY OF STATE

Boilermaker
2012

ALL COUNTIES EXCEPT:
Brooke, Grant, Hancock

CLASSIFICATION	RATE	FRINGE BENEFITS
BOILERMAKER	36.91	19.89
BOILERMAKER - WATER TANK CONSTRUCTOR	36.91	19.89

Brooke, Hancock

CLASSIFICATION	RATE	FRINGE BENEFITS
BOILERMAKER	38.10	24.46
BOILERMAKER - WATER TANK CONSTRUCTOR	38.10	24.46

Grant

CLASSIFICATION	RATE	FRINGE BENEFITS
BOILERMAKER	32.16	21.41
BOILERMAKER - WATER TANK CONSTRUCTOR	32.16	21.41

NOTE: To apply the wage rates properly use H&H Appendix I, II, III, IV and V.

APPRENTICE SCHEDULE:
Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Heavy and Highway Construction Rates

Bricklayer
2012

Barbour, Berkeley, Doddridge, Gilmer, Grant, Hampshire, Hardy, Harrison, Jefferson, Lewis, Marion, Mineral, Monongalia, Morgan, Pendleton, Pocahontas, Preston, Randolph, Taylor, Tucker,Upshur, Webster

CLASSIFICATION	RATE	FRINGE BENEFITS
BRICKLAYER	28.92	16.08

Boone, Braxton, Clay, Fayette, Greenbrier, Kanawha, Logan, McDowell, Mercer, Monroe, Nicholas, Putnam, Raleigh, Summers, Wyoming

CLASSIFICATION	RATE	FRINGE BENEFITS
BRICKLAYER	27.73	18.18

Brooke, Hancock,

CLASSIFICATION	RATE	FRINGE BENEFITS
BRICKLAYER	26.65	15.56

Cabell, Lincoln, Mason, Mingo, Wayne

CLASSIFICATION	RATE	FRINGE BENEFITS
BRICKLAYER	29.36	18.18

Calhoun, Jackson, Pleasants, Ritchie, Roane, Wirt, Wood

CLASSIFICATION	RATE	FRINGE BENEFITS
BRICKLAYER	27.85	13.80

Marshall, Ohio, Tyler, Wetzel

CLASSIFICATION	RATE	FRINGE BENEFITS
BRICKLAYER	27.24	15.08

NOTE: To apply the wage rates properly use H&H Appendix I, II, III, IV and V.

APPRENTICE SCHEDULE:

Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Heavy and Highway Construction Rates

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OFFICE WEST VIRGINIA
SECRETARY OF STATE

Carpenter
2012

ALL COUNTIES EXCEPT:
Berkeley, Brooke, Grant, Hampshire, Hancock, Hardy, Jefferson, Marshall, Mineral, Morgan, Ohio, Pendleton

CLASSIFICATION	RATE	FRINGE BENEFITS
CARPENTER	26.37	16.84

Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan, Pendleton

CLASSIFICATION	RATE	FRINGE BENEFITS
CARPENTER	29.76	13.45

Brooke, Hancock, Marshall, Ohio

CLASSIFICATION	RATE	FRINGE BENEFITS
CARPENTER	25.25	18.28
CARPENTER WELDER	26.65	18.28

NOTE: To apply the wage rates properly use H&H Appendix I, II, III, IV and V.

APPRENTICE SCHEDULE:
Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Heavy and Highway Construction Rates

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OFFICE WEST VIRGINIA
SECRETARY OF STATE

Cement Mason
2012

Boone, Braxton, Cabell, Calhoun, Clay, Fayette, Gilmer, Greenbrier, Jackson, Kanawha, Lincoln, Logan, Mason, McDowell, Mercer, Mingo, Monroe, Nicholas, Pleasants, Putnam, Raleigh, Ritchie, Roane, Summers, Tyler, Wayne, Wirt, Wood, Wyoming

CLASSIFICATION	RATE	FRINGE BENEFITS
CEMENT MASON	29.52	14.36

Barbour, Berkeley, Brooke, Doddridge, Grant, Hampshire, Hancock, Hardy, Harrison, Jefferson, Lewis, Marion, Marshall, Mineral, Monongalia, Morgan, Ohio, Pendleton, Pocahontas, Preston, Randolph, Taylor, Tucker, Upshur, Webster, Wetzel

CLASSIFICATION	RATE	FRINGE BENEFITS
CEMENT MASON	28.16	15.15

NOTE: To apply the wage rates properly use H&H Appendix I, II, III, IV and V.

APPRENTICE SCHEDULE:
Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Heavy and Highway Construction Rates

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Diver
2012

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OFFICE WEST VIRGINIA
SECRETARY OF STATE

ALL COUNTIES EXCEPT:
Berkeley, Brooke, Grant, Hampshire, Hancock, Hardy, Jefferson, Marshall, Mineral, Morgan, Monongalia, Ohio, Pendleton, Wetzel

CLASSIFICATION	RATE	FRINGE BENEFITS
DIVER	26.92	16.84
DIVER HELPER	26.37	16.84

Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan, Pendleton

CLASSIFICATION	RATE	FRINGE BENEFITS
DIVER	30.75	13.45
DIVER HELPER	29.76	13.45

Brooke, Hancock, Marshall, Monongalia, Ohio, Wetzel

CLASSIFICATION	RATE	FRINGE BENEFITS
DIVER	47.55	13.12
DIVER HELPER	31.70	13.12

NOTE: To apply the wage rates properly use H&H Appendix I, II, III, IV and V.

APPRENTICE SCHEDULE:
Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Heavy Construction Rates

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OFFICE WEST VIRGINIA SECRETARY OF STATE

Electrician
2012

Boone, Braxton, Calhoun, Clay, Fayette, Gilmer, Kanawha, Nicholas, Putnam, Raleigh, Roane, Summers, Webster, Wyoming

CLASSIFICATION	RATE	FRINGE BENEFITS
ELECTRICIAN	34.44	15.25

Greenbrier, McDowell, Mercer, Monroe

CLASSIFICATION	RATE	FRINGE BENEFITS
ELECTRICIAN	24.15	14.94

Cabell, Lincoln, Logan, Mason, Mingo, Wayne

CLASSIFICATION	RATE	FRINGE BENEFITS
ELECTRICIAN	31.87	20.18

Barbour, Doddridge, Harrison, Lewis, Marion, Monongalia, Pendleton, Pocahontas, Preston, Randolph, Taylor, Tucker, Upshur

CLASSIFICATION	RATE	FRINGE BENEFITS
ELECTRICIAN	28.64	20.35

Jackson, Pleasants, Ritchie, Tyler, Wirt, Wood

CLASSIFICATION	RATE	FRINGE BENEFITS
ELECTRICIAN	30.14	20.33

Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan

CLASSIFICATION	RATE	FRINGE BENEFITS
ELECTRICIAN	29.40	15.07

Brooke, Marshall, Ohio, Wetzel

CLASSIFICATION	RATE	FRINGE BENEFITS
ELECTRICIAN	28.61	21.15

Hancock

CLASSIFICATION	RATE	FRINGE BENEFITS
ELECTRICIAN	33.00	24.78

NOTE: To apply the wage rates properly use H&H Appendix I, II, III, IV and V.

APPRENTICE SCHEDULE:

Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Heavy and Highway Construction Rates

Ironworker
2012

Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan, Pendleton, Preston, Tucker,

CLASSIFICATION	RATE	FRINGE BENEFITS
IRONWORKER	31.56	15.17

Barbour, Brooke, Hancock, Harrison, Marion, Marshall, Monongalia, Ohio, Taylor, Tyler, Wetzel

CLASSIFICATION	RATE	FRINGE BENEFITS
IRONWORKER	33.46	21.17

Boone, Braxton, Clay, Fayette, Kanawha, Lincoln, Logan, McDowell, Mingo, Nicholas, Putnam, Raleigh, Randolph, Webster, Wyoming

CLASSIFICATION	RATE	FRINGE BENEFITS
IRONWORKER	32.93	17.49

Calhoun, Doddridge, Gilmer, Jackson, Lewis, Mason, Pleasants, Ritchie, Roane, Upshur, Wirt, Wood

CLASSIFICATION	RATE	FRINGE BENEFITS
IRONWORKER	31.37	17.84

Cabell, Wayne

CLASSIFICATION	RATE	FRINGE BENEFITS
IRONWORKER	32.74	19.18

Greenbrier, Mercer, Monroe, Pocahontas, Summers

CLASSIFICATION	RATE	FRINGE BENEFITS
IRONWORKER	33.05	14.56

NOTE: Work to include structural steel & fiberglass erection, fence erection, tying reinforcing steel & fiberglass, precast erection and dismantling of same.

Equipment requiring State or Federal certification or certification of training shall be paid $1.50 above listed rate.
An Iron Worker required to have an Electrical License will receive an additional $1.00 per hour.

NOTE: To apply the wage rates properly use H&H Appendix I, II, III, IV and V.

APPRENTICE SCHEDULE:
Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Heavy and Highway Construction Rates

Laborer
2012

ALL COUNTIES :

CLASSIFICATION	RATE	FRINGE BENEFITS
CLASS I	25.85	13.45
CLASS II	24.82	13.45
CLASS III	23.76	13.45

NOTE: To apply the wage rates properly use H&H Appendix I, II, III, IV and V.

WEST VIRGINIA DIVISION OF LABOR
Heavy and Highway Construction Rates

Millwright
2012

ALL COUNTIES EXCEPT:
Berkeley, Brooke, Cabell, Grant, Hampshire, Hancock, Hardy, Jefferson, Lincoln, Marshall, Mineral, Morgan, Ohio, Pendleton, Wayne

CLASSIFICATION	RATE	FRINGE BENEFITS
MILLWRIGHT	30.70	17.34

Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan, Pendleton

CLASSIFICATION	RATE	FRINGE BENEFITS
MILLWRIGHT	31.76	13.45

Brooke, Hancock, Marshall, Ohio

CLASSIFICATION	RATE	FRINGE BENEFITS
MILLWRIGHT	35.10	12.94
MILLWRIGHT - MONORAIL LAYOUT MAN	36.85	12.94
MILLWRIGHT - CERTIFIED WELDER	36.10	12.94

Cabell, Lincoln, Wayne

CLASSIFICATION	RATE	FRINGE BENEFITS
MILLWRIGHT	31.98	16.06

NOTE: To apply the wage rates properly use H&H Appendix I, II, III, IV and V.

APPRENTICE SCHEDULE:
Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Heavy and Highway Construction Rates

Operating Engineer
2012

ALL COUNTIES

CLASSIFICATION	RATE	FRINGE BENEFITS
CLASS I	31.00	16.90
CLASS II	28.24	16.90
CLASS III	27.13	16.90
CLASS IV	23.67	16.90

Note: $2.00 per hour shall be added to the Class I rate for individuals operating a lattice boom crane with a fixed boom of 150 feet or more.

Capacities for equipment shall be as per manufactures maximum rated capacity

Twenty-five cents per hour shall be added to all of the above schedules for tunneling and for all other underground work.

NOTE: To apply the wage rates properly use H&H Appendix I, II, III, IV and V.

APPRENTICE SCHEDULE:
Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Heavy and Highway Construction Rates

Painter
2012

Barbour, Berkeley, Doddridge, Gilmer, Grant, Hampshire, Hardy, Harrison, Jefferson, Lewis, Marion, Mineral, Monongalia, Morgan, Pendleton, Preston, Randolph, Taylor, Tucker, Upshur, Webster

CLASSIFICATION	RATE	FRINGE BENEFITS
PAINTER	28.86	13.26

Boone, Braxton, Cabell, Calhoun, Clay, Fayette, Greenbrier, Kanawha, Lincoln, Logan, Mason, McDowell, Mercer, Mingo, Monroe,Nicholas, Pocahontas, Putnam, Raleigh, Summers, Wayne, Wyoming

CLASSIFICATION	RATE	FRINGE BENEFITS
PAINTER	29.33	13.07

Brooke, Hancock, Marshall, Ohio, Wetzel

CLASSIFICATION	RATE	FRINGE BENEFITS
PAINTER	27.75	13.61

Jackson, Pleasants, Ritchie, Roane, Tyler, Wirt, Wood

CLASSIFICATION	RATE	FRINGE BENEFITS
PAINTER	28.49	12.70

NOTE: To apply the wage rates properly use H&H Appendix I, II, III, IV and V.

APPRENTICE SCHEDULE:
Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Heavy and Highway Construction Rates

FILED

2012 JAN -3 AM 9:48

OFFICE WEST VIRGINIA
SECRETARY OF STATE

Piledriver
2012

ALL COUNTIES EXCEPT:
Berkeley, Brooke, Grant, Hampshire, Hancock, Hardy, Jefferson, Marshall, Mineral, Monongalia, Morgan, Ohio, Pendleton, Wetzel

CLASSIFICATION	RATE	FRINGE BENEFITS
PILEDRIVER	26.92	16.84

Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan, Pendleton

CLASSIFICATION	RATE	FRINGE BENEFITS
PILEDRIVER	30.75	13.45

Brooke, Hancock, Marshall, Monongalia, Ohio, Wetzel

CLASSIFICATION	RATE	FRINGE BENEFITS
PILEDRIVER	31.70	13.12
WELDER AND/OR CREOSOTE	32.11	13.12

NOTE: To apply the wage rates properly use H&H Appendix I, II, III, IV and V.

APPRENTICE SCHEDULE:
Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Heavy and Highway Construction Rates

Electrician

Signal and Lighting Rates
2011

ALL COUNTIES

CLASSIFICATION	RATE	FRINGE BENEFITS
JOURNEYMAN TECHNICIAN	28.12	15.58
JOURNEYMAN INSTALLER	25.30	15.47
JOURNEYMAN TECHNICIAN APPRENTICES		
1st 1000 hours (60% of J.T. Rate)	16.87	13.14
2nd 1000 hours (65% of J.T. Rate)	18.28	13.19
3rd 1000 hours (70% of J.T. Rate)	19.68	13.25
4th 1000 hours (75% of J.T. Rate)	21.09	13.80
5th 1000 hours (80% of J.T. Rate)	22.50	13.87
6th 1000 hours (90% of J.T. Rate)	25.31	14.97
(OPER.) ALL MECHANIZED EQUIPMENT	22.50	14.87
GROUNDMAN/TRUCK DRIVER W/CDL "A"	19.79	15.25
GROUNDMAN WITHOUT CDL	15.71	15.09
FLAGGER *	13.69	7.76

NOTE: Work to include street lighting and signage, traffic signals, traffic signal controls, airport runway lighting and signage, and campground facility lighting excluding buildings.

* Flagger rate only to be applied to signal and lighting work.

APPRENTICE SCHEDULE:
Check with the Federal Bureau of Apprenticeship & Training in the locality worked.
Phone: (304) 347-5794

WEST VIRGINIA DIVISION OF LABOR
Heavy and Highway Construction Rates

Teamster
2012

ALL COUNTIES EXCEPT:
Berkeley, Brooke, Cabell, Grant, Hampshire, Hancock, Hardy, Jefferson, Lincoln, Logan, Marshall, Mason, Mineral, Mingo, Morgan, Ohio, Pendleton, Wayne, and Wetzel.

CLASSIFICATION	RATE	FRINGE BENEFITS
CLASS I	24.97	14.20
CLASS II	25.76	14.20
CLASS III	26.44	14.20

NOTE: Double Hitched equipment operated by one driver shall pay 50% more than the wages set out above.

Twenty-five cents per hour shall be added for tunneling and all other underground work.

NOTE: To apply the wage rates properly use H&H Appendix I, II, III, IV and V.

WELDERS: Receive rates prescribed for craft performing operation to which the welding is incidental.

WEST VIRGINIA DIVISION OF LABOR
Heavy and Highway Construction Rates

Teamster
2012

Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan, Pendleton

CLASSIFICATION	RATE	FRINGE BENEFITS
CLASS I	24.07	15.81
CLASS II	24.96	15.81
CLASS III	25.73	15.81

NOTE: Double Hitched equipment operated by one driver shall pay 50% more than the wages set out above.

Twenty-five cents per hour shall be added for tunneling and all other underground work.

NOTE: To apply the wage rates properly use H&H Appendix I, II, III, IV and V.

WELDERS: Receive rates prescribed for craft performing operation to which the welding is incidental.

WEST VIRGINIA DIVISION OF LABOR
Heavy and Highway Construction Rates

Teamster
2012

Cabell, Lincoln, Logan, Mason, Mingo, Wayne

CLASSIFICATION	RATE	FRINGE BENEFITS
CLASS I	27.03	14.41
CLASS II	28.00	14.41
CLASS III	28.79	14.41

NOTE: Double Hitched equipment operated by one driver shall pay 50% more than the wages set out above.

Twenty-five cents per hour shall be added for tunneling and all other underground work.

NOTE: To apply the wage rates properly use H&H Appendix I, II, III, IV and V.

WELDERS: Receive rates prescribed for craft performing operation to which the welding is incidental.

WEST VIRGINIA DIVISION OF LABOR
Heavy and Highway Construction Rates

Teamster
2012

Marshall, Ohio, Wetzel

CLASSIFICATION	RATE	FRINGE BENEFITS
CLASS I	25.05	14.07
CLASS II	25.95	14.07
CLASS III	26.55	14.07

NOTE: Double Hitched equipment operated by one driver shall pay 50% more than the wages set out above.

Twenty-five cents per hour shall be added for tunneling and all other underground work.

Pensions at the above stated rates per week shall be paid for employees working one (1) or more working days.

Health & Welfare hourly rates are not to exceed the above listed rates. If maximum rates are determined to be less, the difference is to be added back into the wages.

NOTE: To apply the wage rates properly use H&H Appendix I, II, III, IV and V.

WELDERS: Receive rates prescribed for craft performing operation to which the welding is incidental.

WEST VIRGINIA DIVISION OF LABOR
Heavy and Highway Construction Rates

Teamster
2012

Brooke and Hancock

CLASSIFICATION	RATE	FRINGE BENEFITS
CLASS I	26.17	12.91
CLASS II	27.92	12.91
CLASS III	28.71	12.91

NOTE: Double Hitched equipment operated by one driver shall pay 50% more than the wages set out above.

Twenty-five cents per hour shall be added for tunneling and all other underground work.

NOTE: To apply the wage rates properly use H&H Appendix I, II, III, IV and V.

WELDERS: Receive rates prescribed for craft performing operation to which the welding is incidental.

PROPOSAL FORM

Little Coal River Restoration Project, Bid 2, Boone and Lincoln Counties
Bid Opening _____,_____ at _____ p.m.

Contractor's Proposal Form

West Virginia Contractor's License Number # _____

Company Name: _____

Address: _____

ITEM NO.	QUANITITY		DESCRIPTION	UNIT PRICE	AMOUNT
201.0	1	LS	SITE PREPARATION		
202.0	1	LS	MOBILIZATION/DEMOBILIZATION		
203.0	1	LF	TEMPORARY EROSION & SEDIMENT CONTROLS		
204.0	15	EA	TEMPORARY CONSTRUCTION ENTRANCE		
205.0	15	EA	TEMPORARY STREAM CROSSING		
206.0	4	EA	BOULDER CROSS VANE		
207.0	0	EA	BOULDER CROSS VANE WITH STEP		
208.0	0	EA	BOULDER W-WEIR		
209.0	1	EA	BOULDER J-HOOK		
210.0	35	EA	BOULDER VANE		
211.0	2	EA	BOULDER CONSTRUCTED RIFFLES		
212.0	2	EA	LOG VANE J-HOOK		
213.0	25	EA	LOG VANE		
214.0	4	EA	CONVERGING BOULDER CLUSTER		
215.0	3	EA	WING DEFLECTOR		
216.0	645	LF	WOODY DEBRIS TOE PROTECTION		
217 A	4	AC	SEEDING AND MULCHING		
217 B	780	SY	EROSION CONTROL BLANKET		
218.0	12,000	EA	LIVE STAKES		
219.0	3,224	EA	TREES AND SHRUBS		
220.0	1	LS	CONSTRUCTION LAYOUT STAKING		
			TOTAL:		

Notes: The Contractor shall execute and keep current a bond payable to the Guyan Conservation District in the amount of one-hundred (100%) percent of the total bid price.

No proposal will be considered unless accompanied by a guaranty in the form of a certified or cashier's check, or bid bond, in the amount of five (5%) percent of the total bid price, made payable to the Guyan Conservation District. Any Proposal accompanied by a bid bond executed on a copy, duplicate, or facsimile will be rejected.

By submitting this proposal form, the contractor agrees with all components of the contract documents.

Bidders Authorized Signature: _____ Date: _____