INTRO.GR1

INTRODUCTION

This Contract shall be constructed in accordance with the 2025 Standard Specifications for Road, Bridge, and Municipal Construction.

SPECIAL PROVISIONS

Several types of Special Provisions are included in this contract; General, Region, Bridges and Structures, and Project Specific. Special Provisions types are differentiated as follows:

(date)	General Special Provision
(******)	Notes a revision to a General Special Provision and also notes a Project Specific Special Provision.
(Regions[1] date)	Region Special Provision

General Special Provisions are similar to Standard Specifications in that they typically apply to many projects, usually in more than one Region. Usually, the only difference from one project to another is the inclusion of variable project data, inserted as a "fill-in".

Region Special Provisions are commonly applicable within the designated Region. Region designations are as follows:

Regions[1]	
ER	Eastern Region
NCR	North Central Region
NWR	Northwest Region
OR	Olympic Region
SCR	South Central Region
SWR	Southwest Region
WSF	Washington State Ferries Division

Project Specific Special Provisions normally appear only in the contract for which they were developed.

DIVISION1.GR1

Division 1
General Requirements

DESWORK.GR1

DESCRIPTION OF WORK

DESWORK1.FR1
(March 13, 1995)
This Contract provides for the improvement of *** $$1$$ *** and other work, all in accordance with the attached Contract Plans, these Contract Provisions, and the Standard Specifications.

DESWORK2.FB1
(August 3, 2015)

This contract provides for the improvement of *** $$1$$, *** by cleaning and painting the metal surfaces of the following *** $$2$$ *** and other work, all in accordance with the Contract Provisions and Standard Specifications.

Highway & Bridge Location Structure Element

*** $$3$$ ***

1-02.GR1
Bid Procedures and Conditions

1-02.1.GR1
Prequalification of Bidders

1-02.1.INST1.GR1
Section 1-02.1, including title, is deleted and replaced with the following:

1-02.1.OPT1.GR1
(April 2, 2018)
Vacant

1-02.4.GR1
Examination of Plans, Specifications and Site of Work

1-02.4(1).GR1
General

1-02.4(1).INST1.GR1
Section 1-02.4(1) is supplemented with the following:

1-02.4(1).OPT1.FR1
(September 3, 2019)
The Reference Information for this project is available for review by the bidder at the following location:

*** $$1$$ ***

The Reference Information includes the following:

*** $$2$$ ***

1-02.5.GR1
Proposal Forms

1-02.5.INST1.GR1
The first sentence of the first paragraph of Section 1-02.5 is revised to read:

1-02.5.OPT1.2026.GR1
(January 6, 2025)
Bidders are authorized to access an electronic Proposal Form for submittal via Bidx.com through AASHTOWare Project Bids™ software “BidExpress®”.

1-02.6.GR1

Preparation of Proposal

1-02.6.INST1.GR1

Item number 3 in the second paragraph of Section 1-02.6 is supplemented with the following:

1-02.6.OPT1.FR1

(September 3, 2019)

The successful Bidder will be the Bidder submitting the lowest responsive Bid that does not exceed the maximum funds available. The maximum funds available for this Contract is *** $$1$$ ***.

Submitting a Proposal that exceeds the maximum funds available will result in the Proposal being declared irregular and shall cause the Bid to be rejected by the Contracting Agency. Submitted Proposals that exceed the maximum funds available will be opened publicly in accordance with Section 1-02.12 prior to being rejected.

1-02.6.OPT2.GR1

(November 20, 2023)

The fourth and fifth paragraphs of Section 1-02.6 are deleted.

1-02.6.INST2.GR1

The fourth paragraph of Section 1-02.6 is revised to read:

1-02.6.OPT8.2026.GR1

(September 3, 2024)

The Bidder shall submit with the Bid a Subcontractor List (WSDOT Form #271-015) containing the following:

1. Subcontractors who will perform the work of structural steel installation, rebar installation, heating, ventilation, air conditioning, and plumbing as described in RCW 18.106 and electrical as described in RCW 19.28, and

2. The Work those subcontractors will perform on the Contract as described in RCW 39.30.060.

3. No more than one subcontractor for each category of work identified, except, when subcontractors vary with Bid alternates, in which case the Bidder shall identify which subcontractor will be used for which alternate.

1-02.6.INST3.GR1

Section 1-02.6 is supplemented with the following:

1-02.6.OPT3.GR1

(September 3, 2024)

The Bidder shall submit the following supplemental documents with the Bid in accordance with Section 1-02.9:

1. Disadvantaged Business Enterprise Utilization Certification (WSDOT Form 272-056).

2. DBE Written Confirmation Form (WSDOT Form 422-031) - For each and every DBE firm listed on the Bidder's completed Disadvantaged Business Enterprise Utilization Certification, the Bidder shall submit written confirmation from that DBE firm that the DBE is in agreement with the DBE participation commitment that the Bidder has made in the Bidder's completed Disadvantaged Business Enterprise Utilization Certification.

3. Good Faith Effort Documentation - Bidder must submit good faith effort documentation with the Disadvantaged Business Enterprise Utilization Certification only in the event the Bidder's efforts to solicit sufficient DBE participation have been unsuccessful.

4. DBE Item Breakdown (WSDOT Form 272-054) The Bidder shall submit a DBE Item Breakdown form defining the scope of work to be performed by each DBE listed on the DBE Utilization Certification.

1-02.6.OPT4.GR1

(November 4, 2024)

The Bidder shall submit a completed Public Works Small and Veteran Business Plan (SVB Plan, WSDOT Form 226-018) with the Bid, when required by the Special Provisions.

For each and every Public Works Small Business Enterprise (PWSBE) or Veteran-Owned Business (VOB) firm listed on the Bidder's completed SVB Plan, the Bidder shall submit a completed PWSVB Subcontractor Written Confirmation Form (WSDOT Form 226-017) that confirms the listed firm is in agreement with the PWSVB participation commitment that the Bidder has made in the Bidder's completed PWSVB Plan. Bidder must submit good faith effort documentation only in the event the Bidder's efforts to solicit sufficient participation have been unsuccessful.

Directions for delivery of the PWSVB Plan, PWSVB Subcontractor Written Confirmation, and good faith effort documentation are included in Section 1-02.9.

1-02.6.OPT5.FR1

(September 7, 2021)

Alternative Bids

The bidding proposal on this project permits the Bidder to submit a Bid on one or more alternatives for the construction *** $$1$$ ***.

Bid Proposal

The bid proposal is composed of the following parts: Base Bid and Alternatives *** $$2$$ *** i.e. A1, A2, etc.

The base bid includes all items that do not change as to quantity, dimension, or type of construction, regardless of which alternative is Bid.

The Alternative portions of the bid proposal contain all items which change as to quantity, dimension, or construction method, depending on which alternative is Bid.

Alternative A1

Alternative A1 is based on constructing the *** $$3$$ ***.

The bid items for Alternative A1 are as listed in the bid proposal.

Alternative A2
Alternative A2 is based on constructing the *** $$4$$ ***.

The bid items for Alternative A2 are as listed in the bid proposal.

Bidding Procedures
The Bidder shall submit a price on each and every item of Work included in the base bid. The Bidder shall also submit prices on each and every item under the alternative on which the Bidder chooses to bid, or, if the Bidder chooses to bid on more than one alternative, the Bidder shall submit prices for each and every item under each alternative chosen. If the Bidder chooses to bid on more than one alternative, the Bidder shall submit their sealed Bid in the envelope provided by the Contracting Agency using the Proposal Form provided. If the Bidder chooses to Bid on more than one alternative, the Bid cannot be accepted electronically via AASHTOWare Project Bids™ "BidExpress®."

The successful Bidder will be determined by the lowest total of an alternative plus the base bid. Award will be based on the lowest total subject to the requirements of Section 1-03.

1-02.6.OPT6.FR1

(August 3, 2015)

Cumulative Alternates Bidding

The Bid Proposal for this Contract requires the Bidder to bid cumulative Alternates as part of the bid. As such the Bidder is required to submit a Base Bid and a bid for each of the Alternate(s).

Bid Proposal
The Bid Proposal includes the following:

1. Base Bid
   The Base Bid shall include constructing all items included in the Proposal *except* those items contained in the Alternate(s).

2. Alternate(s)

   a. Alternate A1
      Based on constructing (*** $$1$$ ***)
      The Bid items for Alternate A1 are as listed in the Bid Proposal.

   b. Alternate A2
      Based on constructing (*** $$2$$ ***)
      The Bid items for Alternate A2 are as listed in the Bid Proposal.

   c. Alternate A3
      Based on constructing (*** $$3$$ ***)
      The Bid items for Alternate A3 are as listed in the Bid Proposal.

Bidding Procedures
To be considered responsive the Bidder shall submit a price on each and every Bid item included in the Base Bid and all Alternate(s.)

The successful Bidder will be the Bidder submitting the lowest responsible Bid for the highest order Preference that is within the amount of available funds for the project. Available funds will be announced immediately prior to the opening of Bids. The following are listed in order from highest to lowest Preference:

1. Preference 1: Lowest total for Base Bid plus Alternate A1 plus Alternate A2 plus Alternate A3, plus etcetera.

2. Preference 2: Lowest total for Base Bid plus Alternate A1 plus Alternate A2 plus Alternate A3.

3. Preference 3: Lowest total for Base Bid plus Alternate A1 plus Alternate A2.

4. Preference 4: Lowest total for Base Bid plus Alternate A1.

5. Preference 5: Lowest total for Base Bid.

The Contracting Agency may, at their discretion, award a Contract for the Base Bid, without any additional Alternates, in the event that all Bids exceed the available funds announced. In any case, the award will be subject to the requirements of Section 1-03.

1-02.6.OPT7.GR1

(September 3, 2024)

Bidder Questionnaire

The Bidder shall submit with their Bid a completed Bidder Questionnaire form (WSDOT Form #272-022). This shall be filled out for each firm who submitted a bid or quote in attempt to participate in the project whether they were successful or not and include the following information:

1. Firm name;

2. Firm address including ZIP code;

3. Firm's status as a DBE or non-DBE;

4. Race and gender information for the firm's majority owner;

5. NAICS code applicable to each scope of work the firm sought to perform in its bid;

6. Age of the firm; and

7. The annual gross receipts of the firm. The Bidder may obtain this information by asking each firm to indicate into what gross receipts bracket they fit (less than $1 million; $1-3 million; $3-6 million; $6-10 million; etc.) rather than requesting an exact figure from the firm.

Failure to return this completed form as part of the Bid Proposal package will cause this Bid to be considered irregular in accordance with Section 1-02.13. A copy of this form is included in the Proposal Forms.

1-02.9.GR1

Delivery of Proposal

1-02.9.INST1.GR1

Section 1-02.9 is supplemented with the following:

1-02.9.OPT1.GR1

(September 3, 2024)

DBE Document Submittal Requirements

General

The Bidder shall submit supplemental documents that are identified with the Bidder's company name, Project title, Bid date, and description of all contents. (ie, DBE Utilization Certification, DBE Written Confirmation Document, Good Faith Effort (GFE) Documentation, and DBE Bid Item Breakdown Form)

Submissions must be made by one of the following methods:

1. Physically in a sealed envelope marked as "BID SUPPLEMENT"; or
2. By facsimile to the following FAX number: 360-705-6966; or
3. By e-mail to the following e-mail address: DBEDoc@wsdot.wa.gov; or
4. Mailed to: Washington State Department of Transportation
   Room 2D20
   310 Maple Park Avenue SE
   Olympia WA 98501-2361

The only documents that can be accepted after the 11:00:59 am time for delivery of Proposal are the Written Confirmation Document, the DBE Bid Item Breakdown Form, and GFE Documentation (if applicable). Incomplete or inaccurate documents will be rejected, except as detailed above for the DBE Bid Item Breakdown Form.

The Contracting Agency is not responsible for delayed, partial, failed, illegible or partially legible FAX or e-mail document transmissions, and such documents may be rejected as incomplete at the Bidder's risk.

DBE Utilization Certification (WSDOT Form 272-056)

The DBE Utilization Certification shall be received at the same location and no later than the time required for delivery of the Proposal. The Contracting Agency will not open or consider any Proposal when the DBE Utilization Certification is received after the time specified for receipt of Proposals or received in a location other than that specified for receipt of Proposals. The DBE Utilization Certification may be submitted in the same envelope as the Bid deposit.

DBE Written Confirmation Document (WSDOT Form 422-031) and GFE Documentation, (if applicable)

The DBE Written Confirmation Document(s) and/or GFE Documentation are not required to be submitted with the Proposal. The DBE Written Confirmation Document(s) and/or GFE Documentation (if applicable) shall be received either with the Bid Proposal or as a Supplement to the Bid. Written confirmation and/or GFE

Documentation shall be received no later than 48 hours (not including Saturdays, Sundays and Holidays) after the time for delivery of the Proposal. To be considered responsive, Bidders shall submit a Written Confirmation Document from each DBE firm listed on the Bidder's completed DBE Utilization Certification and/or the GFE Documentation as required by Section 1-02.6.

DBE Bid Item Breakdown Form (WSDOT Form 272-054)

The DBE Bid Item Breakdown shall be received either with the Bid Proposal or as a Supplement to the Bid. The documents shall be received no later than 48 hours (not including Saturdays, Sundays and Holidays) after the time for delivery of the Proposal. The successful Bidder shall submit a completed DBE Bid Item Breakdown, however, the Contractor may correct minor errors to the DBE Bid Item Breakdown for a period up to five calendar days (not including Saturdays, Sundays and Holidays).

The DBE Bid Item Breakdown Form will not be included as part of the executed Contract.

NOTE: If the Bid is submitted electronically via AASHTOWare Project Bids™ software, "BidExpress," the DBE Utilization Certification may be attached to the electronic bid or submitted as a supplemental document as defined above.

1-02.9.OPT2.GR1

(November 4, 2024)

PWSVB Document Submittal Requirements

General

The Bidder shall submit supplemental documents that are identified with the Bidder's company name, Project title, Bid date, and description of all contents (i.e., PWSVB Plan, PWSVB Subcontractor Written Confirmation Documents, and/or PWSVB GFE Documentation).

Submissions must be made by one of the following methods:

1. Physically in a sealed envelope marked as "BID SUPPLEMENT"; or

2. By facsimile to the following FAX number: 360-705-6966; or

3. By e-mail to the following e-mail address: DBEDoc@wsdot.wa.gov; or

4. Mailed to: Washington State Department of Transportation
   Room 2D20
   310 Maple Park Avenue SE
   Olympia WA 98501-2361

The Contracting Agency is not responsible for delayed, partial, failed, illegible or partially legible FAX or e-mail document transmissions, and such documents may be rejected as incomplete at the Bidder's risk.

Public Works Small and Veteran Business Plan (SVB Plan) (WSDOT Form 226-018)

The PWSVB Plan shall be received no later than the time required for delivery of the Bid. The Contracting Agency will not open or consider any Bid when the PWSVB Plan is received after the time specified for receipt of Bids or received as specified

by this Special Provision. The PWSVB Plan may be submitted in the same envelope as the Bid deposit.

PWSVB Subcontractor Written Confirmation (WSDOT Form 226-017) and/or GFE Documentation

The PWSVB Subcontractor Written Confirmation Documents and/or GFE Documents are not required to be submitted with the Bid. The SVBE Subcontractor Written Confirmation Document(s) and/or GFE (if any) shall be received either with the Bid or as a Supplement to the Bid. The documents shall be received no later than 48 hours (not including Saturdays, Sundays, and Holidays) after the time for delivery of the Bid. To be considered responsive, Bidders shall submit Written Confirmation Documentation from each SVBE firm listed on the Bidder's completed SVB Plan and/or the GFE as required by Section 1-02.6.

NOTE: If the Bid is submitted electronically via Bidx.com through AASHTOWare Project Bids™ software "BidExpress®", the PWSVB Plan may be attached to the electronic Bid or submitted as a supplemental document as defined above.

1-02.9.INST2.GR1

The first sentence of the first paragraph of Section 1-02.9 is revised to read:

1-02.9.OPT3.2026.GR1

(January 6, 2025)

For projects scheduled for Bid opening in Olympia, the Proposal shall be sealed and submitted in the envelope provided with it to the address provided below or shall be submitted electronically via Bidx.com through AASHTOWare Project Bids™ software "BidExpress®".

1-02.12.GR1

Public Opening of Proposals

1-02.12.INST1.GR1

Section 1-02.12 is supplemented with the following:

1-02.12.OPT1.FR1

(August 3, 2015)

Date of Opening Bids

The bid opening date for this project is *** $$1$$ ***. Bids received will be publicly opened and read after 11:00:59 A. M. Pacific Time on this date.

1-02.12.OPT2.FR1

(October 3, 2022)

Date of Opening Bids

Proposals will be received by in-person delivery or by courier at the *** $$1$$ *** reception desk located at the *** $$2$$ *** on the Bid opening day.

The Bid opening date for this project is *** $$3$$ ***. Bids received will be publicly opened and read after 11:00:59 A.M. on this date.

1-02.12.OPT3.GR1

(February 26, 2025)

The Bid opening date for this project is subject to change or cancellation, contingent upon project funding resulting from the Washington State 2025 Legislative Session. Bidders will be notified in writing a minimum of 28 days prior to the Bid opening date, of the Contracting Agency's decision to proceed with accepting and opening Bids.

1-02.13.GR1

Irregular Proposals

1-02.13.INST1.GR1

Item 1 of Section 1-02.13 is supplemented with the following:

1-02.13.OPT1.2026.GR1

(January 13, 2025)

n. The Bidder fails to submit the Bidder Questionnaire (WSDOT Form 272-022), if applicable, as required in Section 1-02.6, or if the documentation that is submitted fails to meet the requirements of the Special Provisions.

1-02.13.INST2.GR1

Items 1k, 1l, and 1m of Section 1-02.13 are revised to read:

1-02.13.OPT2.2026.GR1

(November 4, 2024)

k. The Bidder fails to submit an PWSVB Plan (WSDOT Form #226-018) if applicable, as required in Section 1-02.6;

l. The Bidder fails to submit Written Confirmations (WSDOT Form #226-017) from each PWSBE or VOB firm listed on the Bidder's completed PWSVB Plan that they are in agreement with the Bidder's PWSVBE participation commitment, if applicable, as required in Section 1-02.6, or if the written confirmation that is submitted fails to meet the requirements of the Special Provisions;

m. The Bidder fails to submit PWSVBE Good Faith Effort documentation, if applicable, as required in Section 1-02.6, or if the documentation that is submitted fails to demonstrate that a Good Faith Effort to meet the Condition of Award in accordance with Section 1-07.11.

1-02.INST1.GR1

Section 1-02 is supplemented with the following:

1-02.OPT1.GR1

(September 7, 2021)

Protest Procedures

Form and Substance

All protests regarding any contents or portion of the bid proposal must be submitted to the Contracting Agency as soon as possible after the protestant becomes aware of the reason(s) for the protest. All protests must be in writing and signed by the protestant or an authorized agent. Such writing must state all facts and arguments on which the protestant is relying as the basis for its action. Such protestant shall also attach, or supply on demand by the Contracting Agency, any relevant exhibits referenced in the writing. Copies of all protests and exhibits shall be submitted by the protestant to the Bidder against whom the protest is made (if any) at the same time

such protest and exhibits are submitted to the Contracting Agency. All protests shall be emailed to CAA@wsdot.wa.gov.

Pre-award Protests

To allow sufficient response time, all pre-award protests must be received by the Contracting Agency no later than 5:00 p.m. of the second business day after the bid opening date. If the protest is mailed after the bid opening date and before the pre-award protest deadline, the protestant shall immediately notify WSDOT's Manager, Contract Ad & Award by telephone, or some other means of rapid communication, that a protest has been made.

The Contracting Agency shall consider all the facts available to the protest, and issue a decision in writing within five (5) business days after receipt of the protest, unless, in the Contracting Agency's sole discretion, more time is needed. The protestant and the Bidder(s) against whom the protest is made will be notified if additional time is necessary; and if the additional time required affects the bid opening date or the award date, all bidders shall be notified.

The Contracting Agency's decision shall be final and conclusive. Selection of the successful Bidder, if one is to be made, will be postponed until after the Contracting Agency has issued its decision. The Contracting Agency shall provide the protestant with written notice of this decision no later than two full working days prior to execution of the contract.

Post-award Protests

The Contracting Agency shall immediately notify all unsuccessful Bidders of the Contracting Agency's award decision. Any decision made by the Contracting Agency regarding the award and execution of the contract or bid rejection shall be conclusive subject to the scope of the judicial review permitted under Washington Law. Such review, if any, shall be timely filed in the Superior Court of Thurston County, Washington.

Protests which do not comply with the above-specified procedures will not be considered.

1-03.GR1

Award and Execution of Contract

1-03.2.GR1

Award of Contract

1-03.2.INST1.GR1

The first sentence of Section 1-03.2 is revised to read:

1-03.2.OPT1.GR1

(April 7, 2008)

It is the Contracting Agency's intent to award the Contract within 24 hours of the bid opening.

1-03.3.GR1

Execution Of Contract

1-03.3.INST1.GR1
Section 1-03.3 is supplemented with the following:

1-03.3.OPT1.GR1

(October 3, 2022)

Escrow Bid Documentation

Scope and Purpose

The purpose of this specification is to preserve the Contractor's bid documentation for use by the Contracting Agency in any litigation between the Contracting Agency and Contractor arising out of this Contract.

The Contractor shall submit a legible copy of all documentation used to prepare the Bid for this Contract to a escrow institution designated by the Contracting Agency. Such documentation shall be placed in escrow with the escrow institution and preserved by that institution as specified in the following sections of this specification.

Bid Documentation

The term "bid documentation" as used in this specification means any writings, working papers, computer printouts, charts, and any other data compilations which contain or reflect all information, data, and calculations used by the Contractor to determine the Bid in bidding for this project. The Contractor shall submit its documentation in whatever format it was created and shall also provide electronic copies. The term "bid documentation" includes but is not limited to Contractor equipment rates, Contractor overhead rates, labor rates, efficiency or productivity factors, arithmetic extensions, and quotations from subcontractors and material providers to the extent that such rates and quotations were used by the Contractor in formulating and determining the amount of the bid. The term "bid documentation" also includes any manuals which are standard to the industry used by the Contractor in determining the bid for this project. Such manuals (including year of publication) may be included in the Bid Documentation by reference. The term does not include bid documents provided by the Contracting Agency for use by the Contractor in bidding on this project.

Submittal of Bid Documentation

The Contractor shall submit the bid documentation to the escrow institution. The bid documentation shall be submitted to the escrow institution within seven calendar days after the Contract for this project has been executed by the Contracting Agency. The bid documentation shall be submitted in a sealed container. The container shall be clearly marked "Bid Documentation" and shall also show on the face of the container the Contractor's name, the date of submittal, the project title, and the contract number.

Affidavit

The sealed container shall contain, in addition to the bid documentation, an affidavit signed under oath by an individual authorized by the Contractor to execute bidding proposals. The affidavit shall list each bid document with sufficient specificity so a comparison can be made between the list and the bid documentation to ensure that all of the bid documentation listed in the affidavit has been enclosed in the sealed container. The affidavit shall show that the affiant has personally examined the bid documentation and that the affidavit lists all of the documents used by the Contractor to determine the Bid for this project and that all such bid documentation has been enclosed in the sealed container.

Verification

The escrow institution upon receipt of the sealed container shall place the container in a safety deposit box, vault, or other secure place, and immediately notify the Contracting Agency in writing that the container has been received. Upon receipt of such notice, the Contracting Agency will promptly notify the Contractor in writing that the Contracting Agency will open the sealed container to verify that the affidavit has been enclosed and to compare the bid documents listed in the affidavit with the bid documents enclosed in the container to ensure that all of the bid documentation has been submitted and that the copies are legible. The notification will advise the Contractor of the date and time the container will be opened and the name of the Contracting Agency employee who will verify the contents of the container. The Contracting Agency employee verifying the contents of the escrow container will not be involved or connected with the review, evaluation, or resolution of any claim by the Contractor made to the Contracting Agency in connection with the contract for which the verification was made. The Contractor may have representatives present at the opening.

Supplementation

Documents listed in the affidavit but not enclosed in the sealed container through error or oversight shall be submitted in a sealed container within five calendar days after the opening of the original container. Also, any bid documentation that is illegible shall be replaced with legible copies and furnished within five calendar days after the opening of the original container. The face of the container shall show the same information as the original container except the container shall be marked "Supplemental Bid Documentation". The same procedure used in verifying the contents of the original container shall be used in verifying the contents of the supplemental submittal.

Duration and Use

The bid documentation and affidavit shall remain in escrow during the life of the Contract and will be returned to the Contractor by the escrow institution, provided that the Contractor has signed the final contract voucher certification and has not reserved any claims on the final contract voucher certification against the Contracting Agency arising out of the Contract. In the event that claims against the Contracting Agency are reserved on the final contract voucher certification, the bid documentation and affidavit shall remain in escrow. If the claims are not resolved and litigation ensues, the Contracting Agency may serve a request upon the Contractor to authorize the escrow institution, in writing, to release the bid documentation and affidavit in escrow to the Contracting Agency. The Contractor shall respond to the request within 20 days after service of the request. If the Contractor objects or does not respond to the request within 20 days after service of the request, the Contracting Agency may file a motion under the Civil Rules requesting the court to enter an order directing the escrow institution to deliver the bid documentation and affidavit in escrow to the Contracting Agency. The Contractor shall respond to the request within the time required by the then applicable Civil Court Rules for the Superior Court of the State of Washington. If the Contractor objects or does not respond to the request within the time required by the then applicable Civil Rules, the Contracting Agency may file a motion pursuant to such rules requesting the court to enter an order directing the escrow institution to deliver the bid documentation and affidavit in escrow to the Contracting Agency. The escrow institution shall release the bid documentation and affidavit as follows:

1. To the Contracting Agency upon receipt of a letter from the Contractor authorizing the release;

2. To the Contracting Agency upon receipt of a certified copy of a court order directing the release of the documents;

3. To the court for an in camera examination pursuant to a certified copy of a court order;

4. The bid documentation and affidavit shall be returned to the Contractor if litigation is not commenced within the time period prescribed by law.

The Contractor agrees that the sealed container placed in escrow and any supplemental sealed container placed in escrow contain all of the bid documentation used to determine the Bid and that no other bid documentation shall be utilized by the Contractor in litigation over Certified Claims brought by the Contractor arising out of this Contract unless otherwise ordered by the court.

Remedies for Refusal or Failure to Provide Bid Documentation
Failure or refusal to provide bid documentation shall be deemed a material breach of this Contract. The Contracting Agency may at its option refuse to make payment for progress estimates under Section 1-09.9 until the Contractor has submitted the bid documentation required by this specification. The Contracting Agency may at its option terminate the contract for default under Section 1-08.10. These remedies are not exclusive and the Contracting Agency may take such other action as is available to it under the law.

Confidentiality of Bid Documentation
The bid documentation and affidavit in escrow are and will remain the property of the Contractor. The Contracting Agency has no interest in or right to the bid documentation and affidavit other than to verify the contents and legibility of the bid documentation unless litigation ensues between the Contracting Agency and Contractor over Certified Claims brought by the Contractor arising out of this Contract. In the event of such litigation, the bid documentation and affidavit may become the property of the Contracting Agency for use in the litigation as may be appropriate subject to the provisions of any court order limiting or restricting the use or dissemination of the bid documentation and affidavit as provided in the preceding section entitled Duration and Use.

Cost and Escrow Instructions
The cost of the escrow will be borne by the Contracting Agency. The Contracting Agency will provide escrow instructions to the escrow institution consistent with this specification.

1-03.3.INST2.GR1
The first paragraph of Section 1-03.3 is supplemented with the following:

1-03.3.OPT3.GR1
(January 4, 2016)
Within 20 calendar days after the Award date, the successful Bidder shall return WSDOT Form 421-013 with the Contractor's costs for transit, bicycle and pedestrian Work.

1-04.GR1

Scope of the Work

1-04.2.GR1

Coordination of Contract Documents, Plans, Special Provisions, Specifications, and Addenda

1-04.2.INST1.GR1

Section 1-04.2 is supplemented with the following:

1-04.2.OPT1.GR1

(November 20, 2023)

Document Control

This specification applies to project documentation and correspondence that occurs after execution of the Contract. The Contractor shall submit all project documentation and correspondence for this Contract in electronic format utilizing the WSDOT Unifier system. Documents that are received by means other than the WSDOT Unifier system will be rejected, except as allowed by this special provision or specifically approved by the Engineer.

The Engineer may reject documents that are deemed unsuitable. This includes documents that are illegible, unreadable, locked, etc. Forms that require further information from WSDOT must be unlocked.

The Contractor shall submit to the Contracting Agency a Unifier Access Request Form (WSDOT Form 134-092) to WSDOT e-Construction Support (e-ConstructionSupport@wsdot.wa.gov) designating all individuals requiring access to WSDOT Unifier no later than 5 days following Contract Award. Training for WSDOT Unifier will be provided by WSDOT at no cost to the Contractor. Throughout the life of the Project, all changes to the Contractor's personnel who require access to the WSDOT Unifier system shall be submitted on a Unifier Access Request Form.

All signed documents shall be in PDF format and will require an electronic signature. An electronic signature is defined as a symbol, or process attached to or logically associated with a record and executed or adopted by a person with the intent to sign the record. All signed documents shall be in PDF format.

WSDOT has provided an application to be used to apply electronic signatures to the following documents:

Change Orders that are not Minor Change Orders
421-009 Release – Retained Percentage (Except Landscaping)
134-146 Final Contract Voucher Certificate

When the Contract specifies that documentation is to be submitted through other web-based systems, such as the Diversity Management and Compliance System, or email addresses, the Contractor shall utilize those systems and email addresses accordingly.

Before a Completion Date will be established by the Contracting Agency, all contractor active tasks in Unifier shall be closed out or acknowledged.

All costs for submitting project documentation electronically shall be included in the Contract prices for the Bid items of Work involved.

1-04.5.GR1

Procedure and Protest by the Contractor

1-04.5.INST1.GR1

Section 1-04.5 is supplemented with the following:

1-04.5.OPT1.GR1

(January 13, 2021)

Project Partnering

The Engineer and the Contractor's Project Manager (PM) will plan and host a Project Partnering workshop as soon as practical after Contract execution. The objective of this Partnering workshop is to promote open lines of communication and teamwork between the Contracting Agency and Contractor staff for the effective completion of the work, and to the standard of quality that will be a source of pride to both the Contracting Agency and the Contractor. Commitments made by both parties shall be memorialized in a Project Partnering Agreement at the conclusion of the Partnering workshop. The Partnering agreement will not affect the terms of the Contract. It is intended only to establish an environment of cooperation and mutual understanding between the parties.

The planning and execution of the Partnering process is intended to be a collaborative effort between the Engineer and the PM. The length of the partnering workshop should be commensurate with the size and complexity of the project, and familiarity of the parties. For simple projects an expanded pre-construction meeting may suffice. The partnering workshop may be facilitated by the Engineer, the Engineer and PM, or a mutually agreeable Partnering Facilitator (PF). Selection of a PF, dates and location of the workshops, materials needed for the workshop, frequency and location for follow up meetings, and estimated cost associated with this effort should be discussed and agreed to prior to moving forward with the Partnering process.

An initial 1 day (or half day) facilitated Project Partnering workshop is recommended to initiate the partnering agreement. After the initial Partnering workshop, quarterly follow up meetings on projects with over 120 working days shall be scheduled to evaluate how the Partnering process is working, acknowledge successes and opportunities for improvement.

The cost to retain the services of a Partnering Facilitator (if mutually selected as the PF), locate and rent a neutral location to hold the workshop (if held offsite), and any additional materials needed to host the workshop, will be paid by the Contractor. The Partnering Field Guide is available as a resource to the Engineer and PM to assist in the planning of the Partnering session(s) at the following link:

https://wsdot.wa.gov/publications/fulltext/construction/WSDOTProjects-Partnering-FieldGuide.pdf

The Contracting Agency will reimburse invoice cost for the Contractor provided Partnering Facilitator, facilities and materials at a rate of 50% under the Bid item, "Project Partnering".

Payment

"Project Partnering", by calculation.

"Project Partnering" will be calculated and paid for as described above.

1-05.GR1

Control of Work

1-05.1.GR1

Authority of the Engineer

1-05.1(2).GR1

Requests for Information (RFI)

1-05.1(2).INST1.GR1

The fourth paragraph of Section 1-05.1(2) is revised to read:

1-05.1(2).OPT1.2026.GR1

(November 4, 2024)

The Contractor may submit a RFI for one of the following reasons:

1. The Contractor believes there is information missing from the Contract Documents (Missing Information).

2. The Contractor believes a clarification of one or more of the Contract requirements is necessary (Clarification).

3. The Contractor needs to substitute a material that provides an equal or better level of performance as the one specified in the Contract (RFC - Material Substitution). Requests shall indicate the location(s), quantity, and shall describe how the material provides an equal or better level of performance as the material originally specified.

4. The Contractor requests a change to the Contract requirements for a reason other than one listed in items 1-3 of this Section (RFC - Other). To be considered, the request must not meet the requirements of a Value Engineering Change Proposal. To be considered, the request shall qualify as a Minor Change in accordance with Section 1-04.4(1) and shall describe how the change is beneficial to the project.

1-05.3.GR1

Working Drawings

1-05.3.INST1.GR1

Section 1-05.3 is supplemented with the following:

1-05.3.OPT1.FR1

(September 3, 2019)

When submittals require review by the railroad, the Engineer will require up to *** $$1$$ *** calendar days from the date the submittals are received until they are returned to the Contractor. If a submittal is returned unapproved and then resubmitted, then an additional review time of up to *** $$2$$ *** calendar days will be required.

If more than *** $$1$$ *** calendar days are required for the Engineer's review of any individual submittal or resubmittal, an extension of time will be considered in accordance with Section 1-08.8.

1-05.3.OPT2.GR1

(October 3, 2022)

Right and Left Designation

Any right or left designations used to locate Structures throughout the Plans and these Special Provisions are made by facing offshore.

1-05.3.OPT3.GR1

(October 3, 2022)

Work Plan

The Contractor shall submit a Work Plan to the Engineer for review. The Work Plan shall include the following minimum requirements:

1. The Work Plan shall describe the Contractor’s proposed methods for accomplishing the Work within the conditions and restrictions of the Contract. It shall describe the nature, approach and sequence of the Work to be performed; the type and location of cranes, barges and other equipment to be used; plans for demolition, debris control and disposal of materials; temporary construction; compliance with environmental provisions; and any unavoidable impacts, necessary safeguards, and mitigating measures.

2. Where the Contractor’s Work would impact the operation and safety of ferry traffic and ferry pedestrian areas, the Work Plan shall detail the methods used to either separate the Work from the ferry traffic or to maintain the area in a safe condition while it is being utilized by ferry passengers.

3. The Work Plan shall be a Type 2 Working Drawing with attached drawings, charts, diagrams and references to the Plans and Progress Schedule as necessary.

4. The Work Plan shall be updated whenever conditions change or as directed by the Engineer.

All costs associated with the Work Plan shall be included in the applicable items of Work.

1-05.4.GR1

Conformity with and Deviations from Plans and Stakes

1-05.4.INST1.GR1

Section 1-05.4 is supplemented with the following:

1-05.4.OPT1.GR1

(September 3, 2024)

Contractor Surveying - Structure

The Contracting Agency has provided primary survey control in the Plans.

The Contractor shall be responsible for setting, maintaining, and resetting all alignment stakes, slope stakes, and grades necessary for the construction of bridges, noise walls, retaining walls, buried structures, and marine structures. Except for the survey control

data to be furnished by the Contracting Agency, calculations, surveying, and measuring required for setting and maintaining the necessary lines and grades shall be the Contractor's responsibility.

The Contractor shall inform the Engineer when monuments are discovered that were not identified in the Plans and construction activity may disturb or damage the monuments. All monuments noted on the plans “DO NOT DISTURB” shall be protected throughout the length of the project or be replaced at the Contractor’s expense.

Detailed survey records shall be maintained, including a description of the work performed on each shift, the methods utilized, and the control points used. The record shall be adequate to allow the survey to be reproduced. A copy of each day's record shall be provided to the Engineer within three working days after the end of the shift.

The meaning of words and terms used in this provision shall be as listed in "Definitions of Surveying and Associated Terms" current edition, published by the American Congress on Surveying and Mapping and the American Society of Civil Engineers.

The survey work by the Contractor shall include but not be limited to the following:

1. Verify the primary horizontal and vertical control furnished by the Contracting Agency and expand into secondary control by adding stakes and hubs as well as additional survey control needed for the project. Provide descriptions of secondary control to the Contracting Agency. The description shall include coordinates and elevations of all secondary control points.

2. Establish, by placing hubs and/or marked stakes, the location with offsets of foundation shafts and piles.

3. Establish offsets to footing centerline of bearing for structure excavation.

4. Establish offsets to footing centerline of bearing for footing forms.

5. Establish wing wall, retaining wall, noise wall, and buried structure horizontal alignment.

6. Establish retaining wall top of wall profile grade.

7. Establish buried structure profile grade.

8. Establish elevation benchmarks for all substructure formwork.

9. Check elevations at top of footing concrete line inside footing formwork immediately prior to concrete placement.

10. Check column location and pier centerline of bearing at top of footing immediately prior to concrete placement.

11. Establish location and plumbness of column forms, and monitor column plumbness during concrete placement.

12. Establish pier cap and crossbeam top and bottom elevations and centerline of bearing.

13. Check pier cap and crossbeam top and bottom elevations and centerline of bearing prior to and during concrete placement.

14. Establish grout pad locations and elevations.

15. Establish structure bearing locations and elevations, including locations of anchor bolt assemblies.

16. Establish box girder bottom slab grades and locations.

17. Establish girder and/or web wall profiles and locations.

18. Establish diaphragm locations and centerline of bearing.

19. Establish roadway slab alignment, grades and provide dimensions from top of girder to top of roadway slab. Set elevations for deck paving machine rails.

20. Establish traffic barrier and curb profile.

21. Profile all girders prior to the placement of any deadload or construction live load that may affect the girder's profile.

22. Establish locations for marine structures including fixed and floating berthing structures, vehicle and pedestrian foundations and spans, and marine-based buildings.

The Contractor shall provide the Contracting Agency copies of any calculations and staking data when requested by the Engineer.

The Contractor shall submit the computed elevations at the top of bridge decks as a Type 2 Working Drawing. To compute top of bridge deck elevations, elevations shall be taken at the tenth points along the centerline of each girder web from center-to-center of bearing. For girders exceeding 100 feet in length, the elevations shall be taken at equivalent intervals not to exceed 10 feet.

The Contractor shall ensure a surveying accuracy within the following tolerances:

		Vertical	Horizontal
1.	Stationing on structures		±0.02 feet
2.	Alignment on structures		±0.02 feet
3.	Superstructure elevations	±0.01 feet variation from plan elevation	
4.	Substructure	±0.02 feet variation from Plan grades.	

Buried structures shall be within the tolerances described in Section 6-20.3.

The Contracting Agency may spot-check the Contractor's surveying. These spot-checks will not change the requirements for normal checking by the Contractor.

When staking the following items, the Contractor shall perform independent checks from different secondary control to ensure that the points staked for these items are within the specified survey accuracy tolerances:

Piles
Shafts
Footings
Columns

The Contractor shall calculate coordinates for the points associated with piles, shafts, footings and columns. The Contracting Agency will verify these coordinates prior to issuing approval to the Contractor for commencing with the survey work. The Contracting Agency will require up to seven calendar days from the date the data is received to issuing approval.

Contract work to be performed using contractor-provided stakes shall not begin until the stakes are approved by the Contracting Agency. Such approval shall not relieve the Contractor of responsibility for the accuracy of the stakes.

Payment

Payment will be made for the following bid item when included in the proposal:

"Structure Surveying", lump sum.

The lump sum contract price for "Structure Surveying" shall be full pay for all labor, equipment, materials, and supervision utilized to perform the Work specified, including any resurveying, checking, correction of errors, replacement of missing or damaged stakes, and coordination efforts.

1-05.4.OPT2.GR1

(January 13, 2021)

Contractor Surveying - Roadway

The Contracting Agency has provided primary survey control in the Plans.

The Contractor shall be responsible for setting, maintaining, and resetting all alignment stakes, slope stakes, and grades necessary for the construction of the roadbed, drainage, surfacing, paving, channelization and pavement marking, illumination and signals, guardrails and barriers, and signing. Except for the survey control data to be furnished by the Contracting Agency, calculations, surveying, and measuring required for setting and maintaining the necessary lines and grades shall be the Contractor's responsibility.

The Contractor shall inform the Engineer when monuments are discovered that were not identified in the Plans and construction activity may disturb or damage the monuments. All monuments noted on the plans “DO NOT DISTURB” shall be protected throughout the length of the project or be replaced at the Contractors expense.

Detailed survey records shall be maintained, including a description of the work performed on each shift, the methods utilized, and the control points used. The record

shall be adequate to allow the survey to be reproduced. A copy of each day's record shall be provided to the Engineer within three working days after the end of the shift.

The meaning of words and terms used in this provision shall be as listed in "Definitions of Surveying and Associated Terms" current edition, published by the American Congress on Surveying and Mapping and the American Society of Civil Engineers.

The survey work shall include but not be limited to the following:

1. Verify the primary horizontal and vertical control furnished by the Contracting Agency, and expand into secondary control by adding stakes and hubs as well as additional survey control needed for the project. Provide descriptions of secondary control to the Contracting Agency. The description shall include coordinates and elevations of all secondary control points.

2. Establish, the centerlines of all alignments, by placing hubs, stakes, or marks on centerline or on offsets to centerline at all curve points (PCs, PTs, and PIs) and at points on the alignments spaced no further than 50 feet.

3. Establish clearing limits, placing stakes at all angle points and at intermediate points not more than 50 feet apart. The clearing and grubbing limits shall be 5 feet beyond the toe of a fill and 10 feet beyond the top of a cut unless otherwise shown in the Plans.

4. Establish grading limits, placing slope stakes at centerline increments not more than 50 feet apart. Establish offset reference to all slope stakes. If Global Positioning Satellite (GPS) Machine Controls are used to provide grade control, then slope stakes may be omitted at the discretion of the Contractor

5. Establish the horizontal and vertical location of all drainage features, placing offset stakes to all drainage structures and to pipes at a horizontal interval not greater than 25 feet.

6. Establish roadbed and surfacing elevations by placing stakes at the top of subgrade and at the top of each course of surfacing. Subgrade and surfacing stakes shall be set at horizontal intervals not greater than 50 feet in tangent sections, 25 feet in curve sections with a radius less than 300 feet, and at 10-foot intervals in intersection radii with a radius less than 10 feet. Transversely, stakes shall be placed at all locations where the roadway slope changes and at additional points such that the transverse spacing of stakes is not more than 12 feet. If GPS Machine Controls are used to provide grade control, then roadbed and surfacing stakes may be omitted at the discretion of the Contractor.

7. Establish intermediate elevation benchmarks as needed to check work throughout the project.

8. Provide references for paving pins at 25-foot intervals or provide simultaneous surveying to establish location and elevation of paving pins as they are being placed.

9. For all other types of construction included in this provision, (including but not limited to channelization and pavement marking, illumination and signals,

guardrails and barriers, and signing) provide staking and layout as necessary to adequately locate, construct, and check the specific construction activity.

10. Contractor shall determine if changes are needed to the profiles or roadway sections shown in the Contract Plans in order to achieve proper smoothness and drainage where matching into existing features, such as a smooth transition from new pavement to existing pavement. The Contractor shall submit these changes to the Engineer for review and approval 10 days prior to the beginning of work.

The Contractor shall provide the Contracting Agency copies of any calculations and staking data when requested by the Engineer.

The Contractor shall ensure a surveying accuracy within the following tolerances:

	Vertical	Horizontal
Slope stakes	±0.10 feet	±0.10 feet
Subgrade grade stakes set 0.04 feet below grade	±0.01 feet	±0.5 feet (parallel to alignment) ±0.1 feet (normal to alignment)
Stationing on roadway	N/A	±0.1 feet
Alignment on roadway	N/A	±0.04 feet
Surfacing grade stakes	±0.01 feet	±0.5 feet (parallel to alignment) ±0.1 feet (normal to alignment)
Roadway paving pins for surfacing or paving	±0.01 feet	±0.2 feet (parallel to alignment) ±0.1 feet (normal to alignment)

The Contracting Agency may spot-check the Contractor's surveying. These spot-checks will not change the requirements for normal checking by the Contractor.

When staking roadway alignment and stationing, the Contractor shall perform independent checks from different secondary control to ensure that the points staked are within the specified survey accuracy tolerances.

The Contractor shall calculate coordinates for the alignment. The Contracting Agency will verify these coordinates prior to issuing approval to the Contractor for commencing with the work. The Contracting Agency will require up to seven calendar days from the date the data is received.

Contract work to be performed using contractor-provided stakes shall not begin until the stakes are approved by the Contracting Agency. Such approval shall not relieve the Contractor of responsibility for the accuracy of the stakes.

Stakes shall be marked in accordance with Standard Plan A10.10. When stakes are needed that are not described in the Plans, then those stakes shall be marked, at no additional cost to the Contracting Agency as ordered by the Engineer.

Payment

Payment will be made for the following bid item when included in the proposal:

"Roadway Surveying", lump sum.

The lump sum contract price for "Roadway Surveying" shall be full pay for all labor, equipment, materials, and supervision utilized to perform the Work specified, including any resurveying, checking, correction of errors, replacement of missing or damaged stakes, and coordination efforts.

1-05.4.OPT3.GR1

(April 4, 2011)

Licensed Surveyors

The Contractor shall be responsible for reestablishing or locating legal survey markers such as GLO monuments or property corner monuments, conduct boundary surveys to determine Contracting Agency right-of-way locations, and obtain, review and analyze deeds and records as necessary to determine these boundaries. The Contracting Agency will provide “rights of entry” as needed by the Contractor to perform the work.

The Contractor shall brush out or clear and stake or mark the right-of-way lines as designated by the Engineer.

The Contractor shall inform the Engineer when monuments are discovered that were not identified in the Plans and construction activity may disturb or damage the monuments. All monuments noted on the plans “DO NOT DISTURB” shall be protected throughout the length of the project or be replaced at Contractors expense.

When required, the Contractor shall prepare and file a Record of Survey map in accordance with RCW 58.09 and provide a recorded copy to the Contracting Agency. The Contracting Agency will provide all existing base maps, existing horizontal and vertical control, and other material available with Washington State Plane Coordinate information to the Contractor. The Contracting Agency will also provide maps, plan sheets, and/or aerial photographs clearly identifying the limits of the areas to be surveyed. The Contractor shall establish Washington State Plane Coordinates on all points required in the Record of Survey and other points designated in the Contract documents.

Existing right of way documentation, existing base maps, existing horizontal and vertical control descriptions, maps, plan sheets, aerial photographs and all other available material may be viewed by prospective bidders at the office of the Engineer.

The Contractor shall perform all of the necessary calculations for the contracted survey work and shall provide copies of these calculations to the Contracting Agency. Electronic files of all survey data shall be provided and in a format acceptable to the Contracting Agency.

All survey work performed by the Contractor shall conform to all applicable sections of the Revised Code of Washington and the Washington Administrative Code.

The Contractor shall provide all traffic control, signing, and temporary traffic control devices in order to provide a safe work zone.

Payment

Payment will be made in accordance with Section 1-09.6 for the following bid item when included in the proposal:

"Licensed Surveying", Force Account.
For the purpose of providing a common proposal for all bidders, the Contracting Agency has entered an amount for the item "Licensed Surveying" in the bid proposal to become a part of the total bid by the Contractor.

1-05.4.OPT4.GR1

(March 9, 2023)

Contractor Surveying – ADA Features

ADA Feature Staking Requirements

The Contractor shall be responsible for setting, maintaining, and resetting all alignment stakes, and grades necessary for the construction of the ADA features. Calculations, surveying, and measuring required for setting and maintaining the necessary lines and grades shall be the Contractor's responsibility. The Contractor shall build the ADA features within the specifications in the Standard Plans and contract documents.

ADA Feature Contract Compliance

The Contractor shall be responsible for completing measurements to verify all ADA features comply with the Contract in the presence of the Engineer.

ADA Feature As-Built Measurements

The Contractor shall be responsible for providing the latitude and longitude of each ADA feature as indicated on the ADA Inspection Form(s) (WSDOT Form 224-020).

The completed ADA Inspection Form(s) (WSDOT Form 224-020) shall be submitted as a Type 3 Working Drawing and transmitted to the Engineer within 30 calendar days of completing the ADA feature. After acceptance, the Contracting Agency will submit the final form(s) to the WSDOT ADA Steward.

Payment

Payment will be made for the following bid item that is included in the Proposal:

"ADA Features Surveying", lump sum.

The lump sum Contract price for "ADA Features Surveying" shall be full pay for all the Work as specified.

In the instance where an ADA feature does not meet accessibility requirements, all work to replace non-compliant work and then to measure, record the as-built measurements, and transmit the electronic forms to the Engineer shall be completed at no additional cost to the Contracting Agency.

1-05.7.GR1

Removal of Defective and Unauthorized Work

1-05.7.INST1.GR1

Section 1-05.7, including title and subsections, is deleted and replaced with the following:

1-05.7.OPT1.2026.GR1

(November 4, 2024)

Nonconforming Work

The Contracting Agency will not pay for Nonconforming Work.

Nonconforming Work is Work that in any way fails to meet the requirements of the Contract. This includes, but is not limited to:

- Work that does not conform to Contract requirements
- Work that does not meet Contract requirements
- Work done beyond the lines and grades set by the Plans or the Engineer
- Extra Work and materials furnished without the Engineer's written approval
- Defective Work
- Noncompliant Work
- Nonconforming Work
- Out of specification Work
- Rejected Work
- Unacceptable Work
- Unauthorized Work
- Unsuitable Work
- Unsatisfactory Work

Identification of Nonconforming Work

The Contractor is responsible for quality control and shall identify all Nonconforming Work. The Contracting Agency may also identify Nonconforming Work during inspection of Work that has been completed, is at an identified hold point, or has been identified by the Contractor as ready for inspection. However, failure by the Contracting Agency to identify Nonconforming Work shall not relieve the Contractor from their responsibility for the quality of the Work, nor shall it constitute acceptance or approval of the Nonconforming Work.

Reporting of Nonconforming Work

Unless otherwise specified, the Contractor shall immediately report all Nonconforming Work to the Engineer along with any relevant information about how the Nonconforming

Work shall be remediated. The Contractor shall be responsible and bear all costs for remediating Nonconforming Work.

If the Contract requires the use of the WSDOT Unifier system for Document Control in accordance with Section 1-04.2, reporting and remediation submittals shall follow the "Nonconformance Report" business process in Unifier.

Remediation of Nonconforming Work

Remediation to correct Nonconforming Work shall be completed as soon as possible. However, unless otherwise specified, the Contractor shall not proceed with implementing the remedy until the Engineer has accepted the Contractor's proposed remedy. Any remedial work done prior to the Engineer's acceptance shall be at the Contractor's sole risk and will be subject to further rejection or remediation. The Engineer has the right to reject all or part of the Nonconforming Work, and the Engineer's decision is final and not subject to protest.

Remediation shall be classified in one of the following categories:

1. Rework to Contract requirements

2. Remove and replace

3. Repair to acceptable standards

When disputes occur over which category a remedy belongs, the Engineer's decision will be final and binding.

Rework to Contract Requirements

To be considered rework, the design and construction standards of the proposed completed Work, in the sole judgment of the Engineer, shall meet the design and construction standards applicable to the project.

Reporting of Nonconforming Work that is reworked is not required if all of the following conditions are met:

1. The remediation shall be completed in the same shift as the Nonconforming Work was identified.

2. It shall be remedied without damaging other Work.

3. It shall be remedied without putting the public at risk.

4. The Contractor's proposed remedy is in accordance with the Contract requirements.

5. The Engineer does not request the Nonconforming Work be reported.

Examples of Nonconforming Work that may not need reported if reworked include:

- Missing dobies prior to concrete pouring

- Rebar spacing and missing rebar

- Out of plumb luminaire or sign pole/post

For all other rework the Contractor shall submit all relevant information to the Engineer. The Contractor shall include Type 2 Working Drawings. The Type 2 Working Drawings shall explain how the nonconforming work will be reworked including repairs that will achieve the Contract requirements. For preapproved repair procedures, Type 1 Working drawings shall be included in lieu of the Type 2 Working Drawings.

Remove and Replace

To be considered as remove and replace, the Nonconforming Work shall be removed and replaced and the design and construction standards of the proposed completed Work, in the sole judgment of the Engineer, shall meet the design and construction standards applicable to the project.

Reporting of Nonconforming Work that is removed and replaced is not required if all of the following conditions are met:

1. The remedy shall be completed in the same shift the Nonconforming Work was identified.

2. It shall be removed and replaced without damaging other Work.

3. Both the removal and the replacement meet all Contract requirements.

4. The Engineer does not request the Nonconforming Work be reported.

Examples of Nonconforming Work that may not need reported if removed and replaced include:

- Decompacting and recompacting a lift of embankment to meet compaction requirements

- Removing and replacing an installed and dented luminaire pole with a new one.

For all other remove and replace Work, the Contractor shall submit all relevant information, including Working Drawings of the Type requested by the Engineer.

The Working Drawings shall include how the nonconforming Work will be removed and replaced including protection of other Work if needed. Type 2 Working Drawings shall be required, unless the remediation requires engineering, in which case, Type 2E Working Drawings shall be provided.

Repair to an Acceptable Standard

At the Contractor’s written request, the Engineer may approve remediation that includes repairing to an acceptable standard that does not meet the Contract requirements with an appropriate price reduction that may range from no reduction to no payment.

To request to repair Nonconforming work to an acceptable standard, the Contractor shall submit all relevant information. Remedies proposed for this category shall include Type 2E Working Drawings. The Type 2E working drawings shall indicate whether the Work, as repaired, will achieve the same load carrying capacity, and shall assess the effects of the repair on the durability of the Work. Calculations shall be provided to demonstrate that the Work, as repaired, will perform the intended functions for its intended design life.

1-05.9.GR1

Equipment

1-05.9.INST1.GR1

Section 1-05.9 is supplemented with the following:

1-05.9.OPT1.FR1

(April 7, 2008)

General

This specification contains requirements for the use of machine control grading.

Instead of providing grade control through construction stakes, the Contractor may control grade with equipment that is controlled by a machine control system.

The Contractor may use any type of equipment and machine control system that produces results meeting the requirements of the Contract.

Electronic data is provided for the Contractor's convenience, and is not a part of the Contract. No guarantee or warranty is made by the Contracting Agency that electronic data provided to the Contractor: is compatible with any of the systems that are used by the Contractor; is complete; is representative of actual conditions at the project site, or; accurately reflects the quantities and character of the actual Work required. The furnishing of electronic design data or documentation shall not relieve the Contractor from any risks or of any duty to make examinations and investigations as required by Section 1-02.4 or any other responsibility under the Contract or as required by law. Except as provided above, no corrections, additions, or updates of any kind will be made to electronic data provided to the Contractor.

The Engineer may perform spot checks of the Contractor's machine control grading results, calculations, records, field procedures, and quality control measures. If the Engineer determines that the Work being performed is not achieving results that will meet the Contract requirements, the Contractor shall make corrections to the Work at no additional cost to the Contracting Agency.

WSDOT Responsibilities

1. The Engineer will set the initial horizontal and vertical control points for the project as shown in the Contract documents.

2. The Engineer will provide additional datum and scale factor information upon request.

3. After execution of the Contract, the Engineer will make available upon written request the following electronic data used to design the project:

*** $$1$$ ***

Data may be obtained by furnishing a written request to the Engineer at the following address:

*** $$2$$ ***

Contractor's Responsibilities

1. The Contractor shall provide any information or data that is requested by the Contracting Agency for the purpose of performing the verification of quantities, and quality.

2. The Contractor shall be responsible for any edits or conversions of the Contracting Agencies electronic data whether done by the Contractor or a vendor that is hired by the Contractor to perform such edits or conversions.

3. The Contractor shall be responsible for the accuracy and usability of any data or model that is developed from the Contracting Agencies data.

4. The Contractor shall be responsible for checking and recalibrating Machine Control Equipment as required to achieve results that meet the requirements of the Contract.

5. The Contractor shall be responsible for establishing any additional control points needed to achieve results that meet the requirements of the Contract.

6. The Contractor shall provide the Contracting Agency electronic as-built construction data for the final Roadway surface model in a MicroStation format.

7. One week prior to the start of grading operations the Contractor shall meet with the Engineers staff to review the grading plans, quality processes, and tolerance requirements.

Payment

All costs associated with the use of machine control grading equipment are incidental to related items of Work, and no additional payment will be provided.

1-05.9.OPT2.FR1

(March 9, 2023)

The Contracting Agency suspects that the following noxious weeds (aquatic or upland) or aquatic invasive species exist within the project boundary:

*** $$1$$ ***

To prevent the spread of noxious weeds and aquatic invasive species, the Contractor shall clean all equipment in accordance with the following:

1. Permits;

2. The current edition of the Washington Department of Fish and Wildlife's publication, "Invasive Species Management Protocols"; and

3. *** $$2$$ ***

1-05.14.GR1

Cooperation with Other Contractors

1-05.14.INST1.GR1

Section 1-05.14 is supplemented with the following:

1-05.14.OPT1.FR1

(March 13, 1995)

Other Contracts Or Other Work

It is anticipated that the following work adjacent to or within the limits of this project will be performed by others during the course of this project and will require coordination of the work:

*** $$1$$ ***

1-05.14.OPT2.FR1

(March 13, 1995)

The Contractor on this project shall provide sufficient room within the right of way for a two-way haul road past the Contractor's operations for use of the *** $$1$$ *** Contractor.

1-05.14.OPT3.GR1

(March 20, 2025)

Speed Safety Camera System Vendor

Coordination with a vendor managed by the Contracting Agency to provide portable Speed Safety Camera Systems (SSCS) when workers are present within the work zone may be required. If a SSCS is used on this Contract, the SSCS vendor's field personnel will need to enter the temporary traffic control zone to place and remove required signage and equipment to implement the automated speed enforcement. The SSCS vendor may document the work zone traffic control setup provided by the Contractor to confirm workers are present prior to commencing operations with the SSCS.

The Engineer will set up a coordination meeting between the Contractor's designated traffic control manager, traffic control supervisor, the Contracting Agency, and the SSCS vendor's field personnel a minimum of 5 working days prior to the first anticipated implementation date of the SSCS. At a minimum, coordination will include the following:

1. The anticipated date and time the SSCS vendor will be on site.

2. The expected work area location and temporary traffic control or staged traffic plan that will be in place when the vendor will be on site, including the location(s) of any Contractor-provided Radar Speed Display Sign (RSDS) if included in the project.

3. Location for the SSCS vendor's enforcement unit, photo enforcement sign, and RSDS (may be vendor-provided if one is not provided by the Contractor).

4. Provide contact information between Contractor's traffic control manager, traffic control supervisor, Contracting Agency staff, and SSCS vendor.

1-06.GR1

Control of Material

1-06.INST1.GR1

Section 1-06 is supplemented with the following:

1-06.OPT2.GR1

Buy America Requirements

1-06.OPT2(A).GR1

(March 20, 2025)

General Requirements

In accordance with Buy America requirements contained in 23 CFR 635.410 and 2 CFR 184, the following materials must be produced in the United States:

1. All Iron or Steel Products used in the project. This means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.

2. All Manufactured Products used in the project. This means the manufactured product was manufactured in the United States.

3. All Construction Materials used in the project. This means that all manufacturing processes for the construction material occurred in the United States.

An article, material, or supply will be classified in one of four categories: 1) Iron or Steel Product, 2) Manufactured Product, 3) Construction Material, or 4) Excluded Material. Only a single category will apply to an item except as follows:

1. With respect to precast concrete products that are classified as Manufactured Products, the components of precast concrete products that consist wholly or predominantly of iron, steel, or combination of both shall meet the requirements for and be tracked as an Iron or Steel Product. The item shall also meet the requirements for a Manufactured Product, and the cost of the iron or steel components shall be included in determining if the Manufactured Product was produced in the United States.

2. With respect to intelligent transportation systems and other electronic hardware systems that are classified as Manufactured Products, the cabinets or other enclosures of such systems that consist wholly or predominantly of iron, steel, or a combination of both, shall meet the requirements for and be tracked as an Iron or Steel Products. The item shall also meet the requirements for a Manufactured Product and the cost of the iron or steel components shall be included in determining if the manufactured product was produced in the United States.

Some contract items are composed of multiple parts that may fall into different categories. Individual components will be categorized as a Construction Material, a Manufactured Product, an Iron or Steel Product, or an excluded material based on their composition when they arrive at the staging area or work site.

Definitions

1. Construction Material: Defined as any article, material, or supply brought to the construction site for incorporation into the final product. Construction materials include an article, material, or supply that is or consists primarily of:

    a. Non-ferrous metals including all manufacturing processes, from initial smelting or melting through final shaping, coating, and assembly;

    b. Plastic and polymer-based products including all manufacturing processes, from initial combination of constituent plastic or polymer-based inputs, or, where applicable, constituent composite materials, until the item is in its final form);

    c. Glass including all manufacturing processes, from initial batching and melting of raw materials through annealing, cooling, and cutting);

    d. Fiber optic cable (includes drop cable) including all manufacturing processes, from initial ribboning (if applicable), through buffering, fiber stranding and jacketing, (fiber optic cable also includes the standards for glass and optical fiber);

    e. Optical fiber including all manufacturing processes, from the initial preform fabrication stage, though the completion of the draw;

    f. Lumber including all manufacturing processes, from initial debarking through treatment and planing;

    g. Drywall including all manufacturing processes, from initial blending of mined or synthetic gypsum plaster and additives through cutting and drying of sandwiched panels; or

    h. Engineered wood including all manufacturing processes from the initial combination of constituent materials until the wood product is in its final form.

    If a Construction Material is not manufactured in the United States it shall be considered a Foreign Construction Material.

2. Excluded Material: A material where Buy America requirements do not apply. This includes the following:

    a. Materials excluded by Section 70917(c) of the Buy America, Build America Act with respect to aggregates this includes cement and cementitious materials, aggregates such as stone, sand, or gravel or aggregate binding agents or additives. These materials shall be classified as excluded materials based on the composition when brought to the work site. It also includes combinations of these excluded materials when mixtures of Excluded Materials are delivered to the work site without final form for incorporation into the project (i.e. wet concrete and HMA). If they are formed prior to delivery, they are a Manufactured Product and not an Excluded Material.

    b. Temporary materials that are not being permanently incorporated into the project.

c. Raw or minimal processed materials where the article, material, or supply does not fall into any of the categories, as it is not a Manufactured Product, an Iron or Steel Product, or a Construction Material and when these materials are delivered to the work site without final form for incorporation into the product (i.e. seed mix and topsoil). If they are formed prior to delivery, they are a Manufactured Product and not an Excluded Material.

3. Iron or Steel Product: An article, material, or supply that consist of wholly or predominantly of iron or steel or a combination of both. To be considered predominantly of iron or steel or a combination of both means that the cost of the iron and steel content exceeds 50 percent of the total cost of all its components. The cost of iron and steel is based on a good faith estimate of the cost of the iron or steel components.

4. Manufactured Product: A Manufactured Product includes any item produced as a result of the manufacturing process. Items that should be treated as a manufactured product (rather than a construction material) are: 1) items that consist of two or more of the listed construction materials that have been combined together through a manufacturing process, and 2) items that include at least one of the listed construction materials as defined above, combined with a material that is not listed through a manufacturing process.

   If a product is not an Iron or Steel Product, a Construction Material, or an Excluded Material, it is a Manufactured Product.

5. United States: To further define the coverage, a domestic product is a manufactured steel construction material that was produced in one of the 50 states, the District of Columbia, Puerto Rico, or in the territories and possessions of the United States.

Iron or Steel Product Requirements

Iron or Steel Products that are permanently incorporated into the project shall consist of American-made materials only. Buy America requirements do not apply to temporary steel or iron items, e.g., temporary sheet piling, temporary bridges, steel scaffolding and falsework.

Minor amounts of foreign steel and iron may be utilized in this project provided the cost of the foreign material used does not exceed one-tenth of one percent of the total contract cost or $2,500.00, whichever is greater.

American-made material is defined as material having all manufacturing processes occurring domestically.

If domestically produced steel billets or iron ingots are exported outside of the United States, as defined above, for any manufacturing process then the resulting product does not conform to the Buy America requirements. Additionally, products manufactured domestically from foreign source steel billets or iron ingots do not conform to the Buy America requirements because the initial melting and mixing of alloys to create the material occurred in a foreign country.

Manufacturing begins with the initial melting and mixing and continues through the coating stage. Any process which modifies the chemical content, the physical size or shape, or the final finish is considered a manufacturing process. The processes include rolling,

extruding, machining, bending, grinding, drilling, welding, and coating. The action of applying a coating to steel or iron is deemed a manufacturing process. Coating includes epoxy coating, galvanizing, aluminizing, painting, and any other coating that protects or enhances the value of steel or iron. Any process from the original reduction from ore to the finished product constitutes a manufacturing process for iron.

Due to a nationwide waiver, Buy America requirements do not apply to raw materials (iron ore and alloys), scrap (recycled steel or iron), and pig iron ore processed, pelletized, and reduced iron ore.

The following are considered to be steel manufacturing processes:

1. Production of steel by any of the following processes:

    a. Open hearth furnace.

    b. Basic oxygen.

    c. Electric furnace.

    d. Direct reduction.

2. Rolling, heat treating, and any other similar processing.

3. Fabrication of the products:

    a. Spinning wire into cable or strand.

    b. Corrugating and rolling into culverts.

    c. Shop fabrication.

A certification of materials origin will be required for all iron or steel products prior to such items being incorporated into the permanent work. The Contractor will not receive payment until the certification is received by the Engineer. The certification shall be on WSDOT Form 350-109 provided by the Engineer, or such other form the Contractor chooses, provided it contains the same information as WSDOT Form 350-109.

Manufactured Products

Due to a nationwide waiver, Buy America requirements do not apply to Manufactured Products except as follows:

1. When a precast concrete product is classified as a Manufactured Product, the components that are an Iron or Steel Product shall follow the “Iron and Steel Requirements” of this Specification.

2. When an electronic hardware system such as an intelligent transportation system is classified as a Manufactured Product, the cabinets and the other enclosures of such systems that are an Iron or Steel Product shall follow the “Iron and Steel Requirements” of this Specification.

Construction Material Requirements

A Contractor provided certification of materials origin will be required before each progress estimate or payment. The Contractor will not receive payment until the certification is received by the Engineer. The Contractor shall certify that all Construction Materials installed during the current progress estimate period meet the Buy America requirements. The certification shall be on WSDOT Form 350-111 provided by the Engineer, or such other form the Contractor chooses, provided it contains the same information as WSDOT Form 350-111.

Waiver for De Minimis Costs

Minor amounts of Foreign Construction Materials may be utilized in this project, provided that the total cost of the Foreign Construction Materials does not exceed $1,000,000 and does not exceed 5 percent of the total applicable material costs calculated as follows:

$$\frac{Total\ cost\ of\ Foreign\ Construction\ Materials}{Total\ applicable\ material\ costs} < 0.05$$

The total applicable material costs shall be the sum of the costs all Construction Materials, all Iron or Steel Products, and all Manufactured Products. Total applicable material costs does not include Excluded Materials.

1-06.OPT2(B).FR1

(March 20, 2025)

The following items of work containing steel, iron or other construction materials are considered to be temporary and are excluded from the Buy America requirements:

*** $$1$$ ***

1-06.OPT2(C).GR1

(March 20, 2025)

Waiver for Small Grants

Because the federal financial assistance is less than $500,000, this project is considered a Small Grant. Therefore, the Waiver of Buy America Requirements for De Minimis Costs and Small Grants applies to this project. This waiver removes the domestic preferences for Iron or Steel Products, Manufactured Products, and Construction Materials requirements contained in 2 CFR 184 and 23 CFR 635.410.

1-06.OPT3.GR1

FTA Buy America Requirements

1-06.OPT3(A).GR1

(March 20, 2025)

General Requirements

Construction materials used in the Project are subject to the domestic preference requirement of the Build America, Buy America Act, Pub. L. 117-58, div. G, tit. IX, §§ 70911 - 70927 (2021) and 2 CFR 184 as implemented by the U.S. Office of Management and Budget, the U.S. Department of Transportation, and FTA.

This Contract is subject to the Federal Transit Administration's (FTA's) Buy America requirements in 49 C.F.R. Part 661 and 49 U.S.C. 5323(j).

In accordance with Buy America Preferences for Infrastructure Projects requirements contained in 2 CFR 184 and Division G, Title IX - Build America, Buy America Act (BABA), of Public Law 117-58 (Infrastructure Investment and Jobs Act), the following materials must be American-made:

1. All steel and iron used in the project are produced in the United States. This means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.

2. For manufactured products to be considered produced in the United States, (1) all the manufacturing processes for the product must take place in the United States; and (2) all the components of the product must be of U.S. origin. A component is considered of U.S. origin if it is manufactured in the United States, regardless of the origin of its subcomponents.

3. All construction materials are manufactured in the United States. This means that all manufacturing processes for the construction material occurred in the United States.

An article, material, or supply will be classified in one of three categories: 1) Steel and Iron, 2) Manufactured Product, or 3) Construction Material. Only a single category will apply to an item and be subject to the requirements of the Buy America requirements of that category. Some contract items are composed of multiple parts that may fall into different categories. Individual components will be categorized as a construction material, manufactured product, or steel and iron based on their composition when they arrive at the staging area or work site. The steel and iron requirements of this specification apply to all construction materials made primarily of steel or iron and used in infrastructure projects. These items include, but are not limited to, structural steel or iron, steel or iron beams and columns, running rail and contact rail. These requirements do not apply to steel or iron used as components or subcomponents of other manufactured products or rolling stock, or to bimetallic power rail incorporating steel or iron components.

Definitions

1. Construction Material: Defined as any article, material, or supply brought to the construction site for incorporation into the final product. Construction materials include an article, material, or supply that is or consists primarily of:

    a. Non-ferrous metals: including all manufacturing processes, from initial smelting or melting through final shaping, coating, and assembly.

    b. Plastic and polymer-based products (including all manufacturing processes, from initial combination of constituent plastic or polymer-based inputs, or, where applicable, constituent composite materials, until the item is in its final form.

    c. Glass (including all manufacturing processes, from initial batching and melting of raw materials through annealing, cooling, and cutting);

    d. Fiber optic cable (includes drop cable) including all manufacturing processes, from initial ribboning (if applicable), through buffering, fiber stranding and jacketing, (fiber optic cable also includes the standards for glass and optical fiber);

e. Optical fiber including all manufacturing processes, from the initial preform fabrication stage, though the completion of the draw;

f. Lumber including all manufacturing processes, from initial debarking through treatment and planing;

g. Drywall including all manufacturing processes, from initial blending of mined or synthetic gypsum plaster and additives through cutting and drying of sandwiched panels; or

h. Engineered wood including all manufacturing processes from the initial combination of constituent materials until the wood product is in its final form.

Construction Materials do not include items of primarily iron or steel; manufactured products; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives.

If a Construction Material is not manufactured in the United States it shall be considered a Foreign Construction Material.

2. Manufactured Product: A Manufactured product includes any item produced as a result of the manufacturing process. Items that consist of two or more of the listed construction materials that have been combined together through a manufacturing process, and items that include at least one of the listed materials combined with a material that is not listed through a manufacturing process, should be treated as manufactured products, rather than as construction materials.

3. Manufactured in the United States: A construction material will be considered as manufactured in the United States if all manufacturing processes have occurred in the United States.

4. Structural Steel: Defined as all structural steel products included in the project.

5. United States: To further define the coverage, a domestic product is a manufactured steel construction material that was produced in one of the 50 states, the District of Columbia, Puerto Rico, or in the territories and possessions of the United States.

Steel and Iron Requirements

All steel and iron construction materials that are permanently incorporated into the project shall consist of American-made materials only. Buy America requirements do not apply to temporary steel or iron items, e.g., temporary sheet piling, temporary bridges, steel scaffolding and falsework.

For iron and steel to be considered as American-made material, all steel and iron manufacturing processes must take place in the United States, except metallurgical processes involving refinement of steel additives.

If domestically produced steel billets or iron ingots are exported outside of the area of coverage, as defined above, for any manufacturing process then the resulting product does not conform to the Buy America requirements. Additionally, products manufactured domestically from foreign source steel billets or iron ingots do not conform to the Buy

America requirements because the initial melting and mixing of alloys to create the material occurred in a foreign country.

A bidder/proposer must submit to the contracting agency the appropriate Buy America certification with all bids/proposals on FTA-funded contracts, except those subject to a general waiver. A bid/proposal that is not accompanied by a completed Buy America certification must be rejected as non-responsive. This requirement does not apply to lower-tier subcontractors.

A certification of materials origin will be required for all items comprised of, or containing, steel or iron construction materials prior to such items being incorporated into the permanent work. The Contractor will not receive payment until the certification is received by the Engineer. The certification shall be on WSDOT Form 350-109A provided by the Engineer, or such other form the Contractor chooses, provided it contains the same information as WSDOT Form 350-109A.

Manufactured Products Requirements

Manufactured products that contain steel and iron will follow "Steel and Iron Requirements" of this Specification.

Construction Material Requirements

A Contractor provided certification of materials origin will be required before each progress estimate or payment. The Contractor will not receive payment until the certification is received by the Engineer. The Contractor shall certify that all construction materials installed during the current progress estimate period meets the Build America, Buy America Act. The certification shall be on WSDOT Form 350-111A, or such other form the Contractor chooses, provided it contains the same information as WSDOT Form 350-111A.

Waiver for De Minimis Costs

Minor amounts of Foreign Iron and Steel, Manufactured products and Construction Materials may be utilized in this project, provided that the total cost of the Iron and Steel, Manufactured products and Construction Materials is no more than the lesser of $1,000,000 or 5 percent of the total applicable material costs calculated as follows:

$$\frac{Total\ cost\ of\ Foreign\ \ Iron\ \ Steel, Manufactured\ Products,\ and\ Construction\ Materials}{Total\ applicable\ material\ costs} < 0.05$$

The total applicable material costs shall be the sum of the costs all Iron and Steel, Manufactured products and Construction Materials, Total applicable material costs does not include the cost of cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives.

1-06.OPT3(B).GR1

(March 20, 2025)

General Requirements

Construction materials used in the Project are subject to the domestic preference requirement of the Build America, Buy America Act, Pub. L. 117-58, div. G, tit. IX, §§ 70911 - 70927 (2021) and 2 CFR 184 as implemented by the U.S. Office of Management and Budget, the U.S. Department of Transportation, and FTA.

This Contract is subject to the Federal Transit Administration's (FTA's) Buy America requirements in 49 C.F.R. Part 661 and 49 U.S.C. 5323(j).

In accordance with Buy America Preferences for Infrastructure Projects requirements contained in 2 CFR 184 and Division G, Title IX - Build America, Buy America Act (BABA), of Public Law 117-58 (Infrastructure Investment and Jobs Act), must be American-made:

1. All steel and iron used in the project are produced in the United States. This means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.

2. For manufactured products to be considered produced in the United States, (1) all the manufacturing processes for the product must take place in the United States; and (2) all the components of the product must be of U.S. origin. A component is considered of U.S. origin if it is manufactured in the United States, regardless of the origin of its subcomponents.

3. All construction materials are manufactured in the United States. This means that all manufacturing processes for the construction material occurred in the United States.

Waiver for De Minimis Costs

Because the federal financial assistance is less than $500,000, this project is considered a Small Grant and the Waiver of Buy America Requirements for De Minimis Costs and Small Grants applies to this project. This waiver removes the domestic preferences for iron and steel, manufactured products, and construction materials used in infrastructure projects for this Project.

1-06.1.GR1

Approval of Materials Prior to Use

1-06.1.INST1.GR1

Section 1-06.1 is supplemented with the following:

1-06.1.OPT1.GR1

(April 3, 2017)

For each proposed material that is required to be submitted for approval using either the QPL or RAM process the Contractor will be allowed to submit for approval two material sources or manufacturers per material type at no cost. Additional material sources or manufacturers may be submitted for approval and will be processed at a cost of $125.00 per material source or manufacturer submitted by QPL submittal and $400.00 per material submitted by RAM. All costs for processing additional material sources or manufacturers will be deducted from monies due or that may come due to the Contractor. Subject to a request by the Contractor and a determination by the Engineer the costs for processing may be waived.

1-07.GR1

Legal Relations and Responsibilities to the Public

1-07.1.GR1

Laws to be Observed

1-07.1.INST1.GR1

Section 1-07.1 is supplemented with the following:

1-07.1.OPT1.GR1

(October 3, 2022)

Ferry Tolls and Service

No gratuity of tolls or special service will be granted to the Contractor. Contractor use of ferry service shall be in accordance with the published rates, tolls, and schedules for the general public.

1-07.1.OPT2.GR1

(October 3, 2022)

Ferry Terminal Access and Security

The Contractor shall comply with the following access and security requirements when performing the Work.

Contractor Employee Identification Lists

The Contractor shall submit to the Engineer a list of all personnel who will be working on WSF property or within 300 feet of the WSF marine structures. This list shall contain the Contract number, WSF property, contract description, date site work begins, company name, main office phone number, contact person(s), contact phone number(s), on site personnel employees' names and photo ID numbers.

Contractor Employee I.D. Cards

Contractor employees shall present photo identification to WSF Terminal personnel every time they seek entry onto WSF property for the purpose of performing work or providing services. The same Contractor employee shall be listed on the Contractor Employee Identification List as submitted. The photo ID shall:

- Contain the full name of the individual.
- Contain a photograph clearly depicting the person's current facial features. (Driver's license is not acceptable.)
- Contain the name of the issuing Contractor organization.
- Shall be laminated or constructed of material so as to be tamper resistant.
- Shall bear a photo ID number issued by the issuing Contractor's organization.

Employees shall wear their photo ID in a visible location at all times while on WSF properties or working area.

Contractor Parking Pass

If parking is allowed in the Contract, the Contractor will be issued a disposable parking pass that allows the vehicle to be parked at a designated location at the terminal on the day of issue and for the period during which services are provided. A pass shall be obtained each day the Contractor's vehicle enters the facility. Any vehicle not displaying

a parking pass is subject to being towed at the owner's risk and expense. All vehicles entering WSF facilities are subject to security screening and inspection by Washington State Patrol (WSP) personnel.

Restricted Areas and Employee Areas

All areas on WSF terminals and vessels that are not considered public access areas will be designated with conspicuous signs as **"Restricted Areas"** or **"Employee Only Areas"**. Areas will be locked, barricaded, or otherwise physically delineated as needed. Contractor employees who need to enter restricted or employee areas shall obtain permission/direction from WSF personnel. **"Restricted Areas"** require that one person for every five people be in possession of Transportation Workers Identification Card (TWIC) issued by the Transportation Security Administration as required under the Maritime Transportation Security Act. If the Contractor's work will involve extended amounts of time in these areas, they will be required to have personnel with TWIC identification. An unauthorized person in a restricted area constitutes a reportable "Breach of Security" that will be reported by the Contracting Agency to the U.S. Coast Guard National Response Center in Washington, D.C.

Note: **"Restricted Areas"** are Terminal Supervisor's office, security communication rooms, vehicle slips and overhead loading when security gate is closed and vessel is tied up.

Access to the vessel when the traffic arm is down is allowed only with permission from WSF personnel.

Material Delivery

Material deliveries to WSF property shall be pre-arranged with the Engineer.

Equipment Identification

Contractor's derricks, skiffs, and trailers shall be clearly identified with the company's name or logo. At the end of the work shift, all equipment and construction materials shall be picked up and secured in a way that readily identifies the material as belonging to the Contractor.

Payment

All costs associated with conforming to terminal ferry access security requirements shall be included in the unit Contract prices for the associated items of Work.

1-07.1.OPT3.FR1

(April 3, 2006)

Confined Space

Confined spaces are known to exist at the following locations:

*** $$1$$ ***

The Contractor shall be fully responsible for the safety and health of all on-site workers and compliant with Washington Administrative Code (WAC 296-809).

The Contractor shall prepare and implement a confined space program for each of the confined spaces identified above. The Contractors Confined Space program shall be sent to the Contracting Agency at least 30 days prior to the Contractor beginning work in or adjacent to the confined space. No work shall be performed in or adjacent to the

confined space until the plan is submitted to the Engineer as required. The Contractor shall communicate with the Engineer to ensure a coordinated effort for providing and maintaining a safe worksite for both the Contracting Agency's and Contractor's workers when working in or near a confined space.

All costs to prepare and implement the confined space program shall be included in the bid prices for the various items associated with the confined space work.

1-07.1.OPT4.FR1

(October 3, 2022)

Noise Exemption/Variance Conditions

The jurisdiction(s) listed below has granted a nighttime noise exemption and/or variance to its respective noise control code and WAC 173-60 to allow Contracting Agency representatives to perform nighttime Work under the conditions as listed below.

Jurisdiction	Nights	Expiration Date
*** $$1$$ ***	*** $$2$$***	*** $$3$$ ***

This exemption/variance allows the Contractor to exceed the local noise ordinance levels. All nighttime Work activities require approved noise exemptions or variances from the listed jurisdiction(s) including nighttime Work within the Contracting Agency's Right-of-Way.

The Contractor shall perform the following measures to minimize construction noise:

1. All trucks performing export haul shall have well maintained bed liners as inspected and accepted by the Engineer.

2. Truck tailgate banging is prohibited. All truck tailgates shall be secured to prevent excessive noise from banging.

3. A copy of the noise exemption and/or variance shall be kept on the project site at all times.

4. The Contractor shall mail Nighttime Work Mail Notifications to residents located within *** $$4$$ *** feet of Contracting Agency Right-of-Way within the nighttime Work zone.

*** $$5$$ ***

The Contracting Agency will provide the Nighttime Work Mail Notification, and the Contractor shall submit the following information to the Contracting Agency 20 working days prior to the start of nighttime Work:

- Start date and duration of the nighttime Work.

- List of the expected nighttime noise sources.

- List of noise mitigation measures to be implemented.

The Contractor shall obtain the mailing distribution list of residents and property owners. The Contractor shall hire a Mailing Service to print and distribute by mail the Contracting

Agency's provided Nighttime Work Mail Notification to the required residences *** $$6$$ *** working days prior to the start of the night Work.

The Contractor shall not proceed with nighttime Work unless all conditions listed in this Contract are in place and the Affidavit of Service by Mailing is received by the Contracting Agency 24 hours prior to the start of nighttime Work.

The Affidavit of Service by Mailing is a notarized document from the Mailing Service stating that the Nighttime Work Mail Notifications were mailed. A list of addresses obtained by the Contractor for the mailing shall be included with the Affidavit.

General

Failure of the Contractor to perform all obligations under this Special Provision will result in the suspension of all night Work until a corrective Work plan is accepted by the Engineer. Working days will continue to accrue during the period of suspension.

The Contractor shall be responsible for obtaining all exemptions or variances to perform nighttime Work outside the project limits such as staging areas. A copy of each exemption or variance obtained by the Contractor shall be provided to the Contracting Agency before proceeding with the nighttime Work.

Other noise mitigation measures may be required, and it is understood that the Contractor is responsible for devising methods that comply with all ordinances. Compliance with the above noise mitigation measures shall not be considered a warranty that the equipment or the activity will comply with all local regulations.

Payment

All costs to comply with the above noise exemption/variance requirements shall be included in the associated items of Work.

1-07.1.OPT5.FR1

(October 3, 2022)

Nighttime Construction Work Requirements

The Contractor shall perform nighttime Work within the Contracting Agency's Right-of-Way under the measures listed below to minimize construction noise:

1. All trucks performing export haul shall have well maintained bed liners as inspected and accepted by the Engineer.

2. Truck tailgate banging is prohibited. All truck tailgates shall be secured to prevent excessive noise from banging.

3. The Contractor shall mail Nighttime Work Mail Notifications to residents located within *** $$1$$ *** feet of Contracting Agency Right-of-Way within the nighttime Work zone.

*** $$2$$ ***

The Contracting Agency will provide the Nighttime Work Mail Notification and the Contractor shall submit the following information to the Contracting Agency 20 working days prior to the start of nighttime Work:

- Start date and duration of the nighttime Work.
- List of the expected nighttime noise sources.
- List of noise mitigation measures to be implemented.

The Contractor shall obtain the mailing distribution list of residents and property owners. The Contractor shall hire a Mailing Service to print and distribute by mail the Contracting Agency's provided Nighttime Work Mail Notification to the required residences *** $$3$$ *** working days prior to the start of the night Work.

The Contractor shall not proceed with nighttime Work unless all conditions listed in this Contract are in place and the Affidavit of Service by Mailing is received by the Contracting Agency 24 hours prior to the start of nighttime Work.

The Affidavit of Service by Mailing is a notarized document from the Mailing Service stating that the Nighttime Work Mail Notifications were mailed. A list of addresses obtained by the Contractor for the mailing shall be included with the Affidavit.

General

Failure of the Contractor to perform all obligations under this Special Provision will result in the suspension of all night Work until a corrective Work plan is accepted by the Engineer. Working days will continue to accrue during the period of suspension.

The Contractor shall be responsible for obtaining all exemptions or variances to perform nighttime Work outside the project limits such as staging areas. A copy of each exemption or variance obtained by the Contractor shall be provided to the Contracting Agency before proceeding with the nighttime Work.

Other noise mitigation measures may be required, and it is understood that the Contractor is responsible for devising methods that comply with all ordinances. Compliance with the above noise mitigation measures shall not be considered a warranty that the equipment or the activity will comply with all local regulations.

Payment

All costs to comply with the above nighttime Work requirements shall be included in the associated items of Work.

1-07.1.OPT6.FR1

(October 3, 2022)

****** $$1$$ *** Noise Exemption/Variance Conditions***

The jurisdiction(s) listed below has granted a nighttime noise exemption and/or variance to its respective noise control code and WAC 173-60 to allow Contracting Agency representatives to perform nighttime Work under the conditions as listed below.

Jurisdiction	Nights	Expiration Date
*** $$2$$ ***	*** $$3$$***	*** $$4$$ ***

This exemption/variance allows the Contractor to exceed the local noise ordinance levels. All nighttime Work activities require approved noise exemptions or variances from the

listed jurisdiction(s) including nighttime Work within the Contracting Agency's Right-of-Way.

The Contractor shall perform the following measures to minimize construction noise:

1. All trucks performing export haul shall have well maintained bed liners as inspected and accepted by the Engineer.

2. Truck tailgate banging is prohibited. All truck tailgates shall be secured to prevent excessive noise from banging.

3. A copy of the noise exemption and/or variance shall be kept on the project site at all times.

*** $$5$$ ***

General

Failure of the Contractor to perform all obligations under this Special Provision will result in the suspension of all night Work until a corrective Work plan is accepted by the Engineer. Working days will continue to accrue during the period of suspension.

The Contractor shall be responsible for obtaining all exemptions or variances to perform nighttime Work outside the project limits such as staging areas. A copy of each exemption or variance obtained by the Contractor shall be provided to the Contracting Agency before proceeding with the nighttime Work.

Other noise mitigation measures may be required, and it is understood that the Contractor is responsible for devising methods that comply with all ordinances. Compliance with the above noise mitigation measures shall not be considered a warranty that the equipment or the activity will comply with all local regulations.

Payment

All costs to comply with the above noise exemption/variance requirements shall be included in the associated items of Work.

1-07.1(2).GR1

Health and Safety

1-07.1(2).INST1.GR1

Section 1-07.1(2) is supplemented with the following:

1-07.1(2).OPT2.GR1

(October 3, 2022)

Diving and Workboat Safety Requirements

The Contractor shall comply with the requirements of WAC 296-37, "Standards for Commercial Diving Operations" and the requirements contained herein as applicable. The Contractor shall give the Engineer 24 hours advance notice of any planned diving or workboat activity.

General Requirements for Communications and Safety

The following requirements shall be followed whenever diving or workboat activity is performed at the ferry terminal:

- Prior to diving and workboat activity, the Contractor shall obtain approval from the Engineer.

- Notification shall be made no less than one hour prior to the Diver entering the water.

- The Engineer or designee will be responsible for notifying each vessel of the upcoming day's diving or workboat activity.

- The Engineer will request that the vessels depart under low power (slow bell) unless otherwise necessary due to weather conditions.

- The diving team and workboat operations shall not disrupt the ferry service schedule.

- Communications between the Diver and the Diver's Tender shall be maintained at all times.

- The Engineer and Masters shall be notified at the completion of diving and workboat activity each day.

Slip-Specific Diving Requirements

The following safety rules shall be followed when diving activities are performed within the diving envelope of the ferry slip. The diving envelope is defined as occurring in an active ferry slip being used for vessel operations:

- It includes the area around all of the slip landing aid structures.

- A 50-yard by 50-yard box which is bisected by the centerline of the slip and runs from the off-shore portion of the apron toward shore.

A three-member minimum diving team will be required when diving within the diving envelope. The duties of the team members shall include:

- One member shall be diving.

- One member shall be in a skiff, on the trestle or on the transfer span acting as the Diver's Tender. The Diver's Tender shall maintain communication with the Diver, and the Safety Technician, at all times. In addition, the Diver's Tender shall ensure that the diver has safely surfaced and cleared the diving area five minutes prior to the vessel landing, unless the Diver is outside the envelope.

- One member shall act as a Safety Technician. The Safety Technician shall be in a skiff or on shore and shall maintain constant communication with the Diver's Tender.

Upon completion of diving activity, the Safety Technician shall notify the Engineer and Masters. Once the diver has cleared the diving area, the Safety Technician shall directly radio the Master on each arriving vessel and relay the message "DIVER

CLEAR". The Engineer will provide the Safety Technician a hand-held radio for this purpose.

Slip-Specific Workboat Requirements

The following safety rules shall be followed when operating workboats at the ferry terminal:

- The workboat shall not pass in front of a ferry vessel when it is closer than 500 yards from the terminal on approach (33 CFR 165.1317).
- While the ferry vessel is making the landing approach to the ferry terminal, workboats shall maintain a 100-yard distance unless moored to a larger anchored vessel or to a landing structure for other than the active slip (33 CFR 165.1317).
- Workboats shall maintain a 25-yard distance from any ferry vessel while ferry vessels are moored at the ferry terminal unless approved by the vessel Master (33 CFR 165.1317).
- Operators of workboats shall be aware of the slip and any vessels that are or will be using the slip.
- Operators of workboats shall be aware of the ferry schedule and when ferry vessels will be departing so that they can position their workboat in a safe operating location in compliance with the requirements noted above.
- The workboat **shall not** cross under the active occupied slip unless the Master has been notified and agrees.
- Workboats shall be moored in locations that will provide visibility to vessel approaches and/or protection from any prop wash that may occur by ferry vessel approaches and departures.

Payment

All costs to comply with this Special Provision covering diver and workboat safety shall be included in related items of Work.

1-07.1(2).OPT3.FR1

(March 9, 2023)

Lead Health Protection Program

The following Structural and non-structural materials located at the project site contain lead-based products:

*** $$1$$ ***

The Contractor shall be fully responsible for the safety and health of all on-site workers and maintain strict compliance with Washington Administrative Code (WAC 296-155-176). The Contractor’s Lead Health Protection Program shall be submitted to the Contracting Agency as a Type 2 Working Drawing prior to the Contractor beginning Work involving exposure to materials containing lead. The Contractor shall communicate with the Engineer to ensure a coordinated effort for providing and

maintaining a safe worksite for both the Contracting Agency's and Contractor's workers.

Contracting Agency personnel shall be given free and full access to all hygiene and housekeeping facilities including, but not limited to, change areas, showers, and handwashing and eating facilities.

Payment

All costs to comply with this Special Provision for the Lead Health Protection laws and regulations are the responsibility of the Contractor and shall be included in related items of work.

1-07.3.GR1

Fire Prevention and Merchantable Timber Requirements

1-07.3.INST1.GR1

Section 1-07.3 is supplemented with the following:

1-07.3.OPT1.GR1

(August 2, 2004)

The Forest Service Provisions, included in the Appendix to these Special Provisions, are made a part of this contract. The Contractor shall comply with the requirements of these Forest Service provisions at no additional cost to the Contracting Agency.

1-07.3(2).GR1

Merchantable Timber Requirements

1-07.3(2).INST1.GR1

Section 1-07.3(2) is supplemented with the following:

1-07.3(2).OPT1.GR1

(April 7, 2008)

This project contains merchantable timber.

Export Restrictions - DOT Form 410-100, Purchaser Certification for Export Restricted Timber, will be included when the contract is sent to the Contractor for execution. The form shall be completed and signed by the Contractor. The Contractor shall send the original signed form and one copy of the signed form directly to the Washington State Department of Revenue at the address on the form. The Contractor shall send one signed copy along with the other documents required by Section 1-03.3 to the Contracting Agency with the executed contract.

State Tax Requirements - It shall be the Contractor's responsibility to pay to the State Department of Revenue all taxes on harvested timber.

1-07.4.GR1

Sanitation

1-07.4(2).GR1

Health Hazards

1-07.4(2).INST1.GR1

Section 1-07.4(2) is revised to read:

1-07.4(2).OPT1.FR1

(August 7, 2017)

This project site is known to be occupied by transients and therefore contains biological hazards and associated physical hazards. These may include, but not be limited to violent and dangerous individuals, hypodermic needles, garbage, broken glass, human and animal excrement, drug paraphernalia, and other hazards.

The Contractor shall take precautions and perform any necessary Work required to provide and maintain a safe and healthful jobsite for all workers and the public for the duration of the project in accordance with all applicable laws and contract requirements.

The Contractor shall ensure that the public, including persons who may be non-English speaking or those who may not be able to recognize potential safety and health hazards within the project area, are not harmed by the Contractors activities.

Nothing required by this Specification shall operate as a waiver of the Contractor's responsibility for taking all steps necessary to ensure the safety of the public under Section 1-07.23 or responsibility for liability and damages under Section 1-07.14 or for any other responsibility under the Contract or as may be required by law.

Health and Safety Plan

The Contractor shall prepare a written Health and Safety Plan. The plan shall be prepared under the supervision of a certified industrial hygienist and shall incorporate all required County, State, and Federal health and safety provisions. The plan shall include requirements of the Federal Occupational Safety and Health Act of 1970 (OSHA), all amendments, and all other applicable health regulations.

Preparation of the Health and Safety Plan shall include an initial site assessment by the industrial hygienist. The plan shall break initial cleanup of the project into identifiable construction areas. The plan shall be submitted to the Engineer prior to commencing cleanup Work. At least one copy of the plan shall be posted at the work site while cleanup Work is in progress. The industrial hygienist shall perform one or more follow-up site assessments as needed to approve the site following completion of the initial site cleanup.

Public Notification

The Contractor shall furnish and install the "No Trespassing" signs shown in the Plans at locations staked by the Engineer at least 72 hours prior to performing site cleanup or any potentially hazardous Work (such as clearing or operating equipment).

At the same time that "No Trespassing" signs are posted, provide written notification of the following to the Engineer and to the chief law enforcement officer of the local governmental entity where the Work will occur:

1. The precise location of each area that is posted "No Trespassing";

2. The date and time that each site was posted “No Trespassing”;

3. The date, time, description and duration of the Work to be performed at each site.

At least 72 hours prior to performing site cleanup in Work areas containing encampments (such as tents, makeshift dwellings, sleeping sites, or accumulations of personal property that are not refuse), the Contractor shall post a notification at each encampment area. Each notice shall:

1. Be weather resistant, and written in both English and Spanish.

2. Be affixed to each dwelling or post mounted within 10-feet of each encampment;

3. State the Prime Contractor’s company name as the entity that performed the cleanup as required by the Washington State Department of Transportation;

4. Provide the date that the notice is posted;

5. Provide date(s) and time(s) that cleanup will occur;

6. Provide the telephone number, business hours and physical address of the location where stored personal property may be claimed.

7. State that personal property will be stored for 70-days from the date of removal, and if unclaimed within that time, will be disposed of.

At the same time that notifications are posted at encampment areas, provide written notification of the schedule to perform site cleanup to the Engineer and to the following advocacy groups:

$$1$$

Acceptance of signs and notifications will be based on visual inspection that the sign and notifications meet these requirements.

Site Cleanup of Biological and Physical Hazards

An initial cleanup of the site, including all preparatory work required to make the worksite sanitary and safe in accordance with applicable laws and with the Contract, shall be completed to remove all individuals, encampments, and personal property from areas signed “No Trespassing”, and to address all biological and associated physical hazards present on the project. Necessary worker training, on and off site preparations, and personal protective equipment shall be provided by the Contractor to complete this Work. If aggressive or violent individuals are encountered, the Contractor shall notify the local law enforcement agency to assist them in clearing the Work area.

Site cleanup of individual areas identified in the Health and Safety Plan shall be performed no more than 30 days in advance of performing other Work in each area.

The refuse generated by the site cleanup shall become the property of the Contractor and shall be removed from the project. Personal property shall be handled as required by this Specification and applicable laws.

Removal, Storage and Return of Personal Property

Personal property may include radios, audio and video equipment, sleeping bags, tents, stoves and cooking utensils, lanterns, flashlights, bed rolls, tarps, foam, canvas, mats, blankets, pillows, medication, personal papers, photographs, books and other reading materials, luggage, backpacks or other storage containers, clothing, towels, shoes, toiletries and cosmetics, clocks and watches, and eye glasses. Personal property does not include building materials such as wood products, metal, or rigid plastic.

Personal property items that are not refuse, contaminated, illegal or hazardous shall be removed from the Work area and stored at a location near the project site for return to the property owner. Items shall be placed in large transparent plastic bags and stored in a manner that protects them from adverse weather and theft. Reasonable efforts shall be made to place all items from each encampment into a separate bag. Each bag shall be labeled with an inventory to include a brief description of the contents, a description of the location that it was removed from, and the date that it was removed from the Work area. The Contractor shall not open closed items of personal property unless, in its determination, it is necessary to do so to protect public safety.

The Contractor shall retain the property for 70-days.

If the name and contact information of the owner of a personal property item is identified on that item, then for a period of not less than 10-days after removing the property from the Work area, the Contractor shall attempt to notify the apparent owner of the property and make arrangements for the owner to claim the property.

The Contractor shall release the property to any individual who claims ownership provided they are able to establish ownership by identifying the property and its approximate location. The Contractor shall maintain a record of all property that is claimed. The record shall include a description of the property, the date claimed, and the name of the claimant.

If personal property is not claimed within 70-days of removal from the encampment, then the property shall become the property of the Contractor and shall be removed from the project.

Site Preservation

The Contractor shall preserve the site after initial cleanup of biological and physical hazards.

On a daily basis and prior to performing any Work in areas where pedestrians or encampments may be present, the Contractor shall verify that the Work area is cleared of all persons not associated with the project. Individuals may seek shelter in dumpsters, equipment, under blankets, or other places hidden from

view. Individuals may be disabled, or under the influence of alcohol or drugs and it should not be assumed that loud construction noise will wake them.

If the worksite becomes unsanitary or unsafe due to new encampments or new biological and associated physical hazards after initial cleanup is completed, then the Contractor shall perform additional site assessment, additional notification and additional cleanup.

The Engineer may authorize additional site preservation measures. The nature and frequency of these measures will be as agreed to by the Engineer. Additional site preservation measures may include the use of fencing, lighting, or security, provided it is approved in advance by the Engineer. Work performed without Engineer authorization will not be eligible for payment.

Measurement

No trespassing signs will be measured per each.

Payment

Payment will be made for the following bid items when they are included in the proposal:

"No Trespassing Sign", per each.

The unit contract price per each "No Trespassing Sign" shall be full payment for all Work required to furnish, install, maintain and remove the signs.

"Health and Safety Plan", lump sum.

The lump sum unit contract price for "Health and Safety Plan" shall be full payment for all Work associated with the preparation and implementation of the Health and Safety Plan including the initial and follow up assessment(s) for initial site cleanup, worker training and personal protective equipment, and providing required notifications.

"FA-Site Cleanup of Bio. And Physical Hazards", by force account as provided in Section 1-09.6.

Removal and disposal of biological and physical hazards; removal of individuals and encampments; removal, storage, and return of personal property; disposal of unclaimed personal property; additional site assessment, notifications, worker training and personal protective equipment required after the initial site cleanup is completed; and site preservation Work authorized by the Engineer will be paid for by force account in accordance with Section 1-09.6.

For the purpose of providing a common proposal for all bidders, the Contracting Agency has entered an amount for the item "FA-Site Cleanup of Bio. And Physical Hazards" in the bid proposal to become a part of the total bid by the Contractor.

1-07.5.GR1

Environmental Regulations

1-07.5.INST1.GR1
Section 1-07.5 is supplemented with the following:

1-07.5.OPT1.GR1

(September 20, 2010)

Environmental Commitments

The following Provisions summarize the requirements, in addition to those required elsewhere in the Contract, imposed upon the Contracting Agency by the various documents referenced in the Special Provision **Permits and Licenses**. Throughout the work, the Contractor shall comply with the following requirements:

1-07.5.OPT1(A).FR1

(August 4, 2014)

The Contractor shall submit a written notification to the Engineer no later than 10 calendar days prior to beginning any ground disturbing activities *** $$1$$ ***. The Contractor shall not commence any such ground disturbing activities until the monitor is present.

1-07.5.OPT1(B).FR1

(April 1, 2019)

The Contractor shall notify the Engineer a minimum of *** $$1$$ *** calendar days prior to commencing any work in sensitive areas, mitigation areas, and wetland buffers. Installation of construction fencing is excluded from this notice requirement.

1-07.5.OPT1(C).FR1

(April 1, 2019)

No *** $$1$$ *** is allowed within *** $$2$$ *** feet of *** $$3$$ ***.

1-07.5.OPT2.GR1

(August 3, 2009)

Payment

All costs to comply with this special provision for the environmental commitments and requirements are incidental to the contract and are the responsibility of the Contractor. The Contractor shall include all related costs in the associated bid prices of the contract.

1-07.5(1).GR1

General

1-07.5(1).INST1.GR1

Section 1-07.5(1) is supplemented with the following:

1-07.5(1).OPT1.FR1

(October 3, 2022)

In-Water Operations Along Marine Shorelines

In-Water Operations along Marine Shorelines shall meet the requirements from *** $$1$$ ***.

The Contractor’s vessels and equipment operating in support of the Work shall be in adequate water depth and shall use the minimum required propulsion to prevent impacts from propeller wash and grounding to seagrass, kelp, and forage fish spawning beds as shown in the Plans. The Contractor shall not conduct activities that may cause scouring within, or other types of sediment transfer out of or into the

seagrass, kelp, and forage fish spawning beds. At no time shall any vessel or temporary floating work contact the ground.

The Contractor shall not deploy anchors or spuds in seagrass or kelp. The Contractor shall maintain anchor cable tension, set and retrieve anchors vertically, and prevent mooring cables from dragging to avoid impacts to seagrass and kelp.

To minimize shading of seagrass, the Contractor shall relocate vessels moored over seagrass every fourth day when working within the allowed working dates listed in *** $$2$$ ***.

The Contractor shall not allow debris or any type of fuel, solvent or lubricant to enter the water.

1-07.5(2).GR1

State Department of Fish And Wildlife

1-07.5(2).INST1.GR1

Section 1-07.5(2) is supplemented with the following:

1-07.5(2).OPT1.GR1

(April 2, 2018)

The following Provisions summarize the requirements, in addition to those required elsewhere in the Contract, imposed upon the Contracting Agency by the Washington State Department of Fish and Wildlife. Throughout the work, the Contractor shall comply with the following requirements:

1-07.5(2).OPT1(A).FR1

(April 2, 2018)

The Contractor may begin Work below the Ordinary High Water Line on *** $$1$$ *** and must complete all the Work by *** $$2$$ ***.

1-07.5(2).OPT2.GR1

(April 2, 2018)

All costs to comply with this special provision are incidental to the Contract and are the responsibility of the Contractor. The Contractor shall include all related costs in the associated bid prices of the Contract.

1-07.5(3).INST1.GR1

Section 1-07.5(3) is supplemented with the following:

1-07.5(3).OPT1.GR1

(April 2, 2018)

The following Provisions summarize the requirements, in addition to those required elsewhere in the Contract, imposed upon the Contracting Agency by the Washington State Department of Ecology. Throughout the work, the Contractor shall comply with the following requirements:

1-07.5(3).OPT1(A).FR1

(August 3, 2009)

A mixing zone is established within which the turbidity standard is waived during actual in-water work. The mixing zone is established to only temporarily allow

exceeding the turbidity criteria (such as a few hours or days) and is not authorization to exceed the turbidity standard for the entire duration of the construction. The mixing zone shall not exceed *** $$1$$ *** feet downstream from the construction area.

1-07.5(3).OPT1(B).GR1

(April 1, 2019)

Stormwater, dewatering water, or other authorized non-stormwater discharges that has come into contact with pH modifying substances such as concrete rubble, cast concrete or amended soils, need to be maintained between 6.5 – 8.5 standard units (su). If pH exceeds 8.5 su, the Contractor shall immediately discontinue work and initiate treatment to prevent discharges outside the acceptable range from occurring. All neutralization methods used shall be in accordance with the permit. Work may resume once treatment has been implemented and pH of the stormwater or authorized non-stormwater discharge is between 6.5 - 8.5 su or it can be demonstrated that high pH waters will not discharge to surface waters.

Stormwater, dewatering water, and other authorized non-stormwater discharges are monitored weekly for compliance with the turbidity benchmark (25 nephelometric turbidity units (ntu)) and the phone reporting trigger value (250 ntu) by the Contracting Agency. When the turbidity benchmark is breached, the best management practices (BMPs) installed on-site are not working adequately and need to be adapted, maintained or more BMPs shall be installed. When the turbidity phone reporting trigger value is breached, immediate action is required in order to lower the turbidity to ≤25 ntu or to eliminate the discharge. Daily follow-up discharge samples will be collected at all locations where a discharge of 250 ntu or higher was collected unless the discharge was stopped or eliminated.

1-07.5(3).OPT2.GR1

(April 2, 2018)

All costs to comply with this special provision are incidental to the Contract and are the responsibility of the Contractor. The Contractor shall include all related costs in the associated bid prices of the Contract.

1-07.5(4).GR1

Air Quality

1-07.5(4)C.GR1

Asbestos Containing Material

1-07.5(4)C.INST1.GR1

Section 1-07.5(4)C is supplemented with the following:

1-07.5(4)C.OPT1.FR1

(October 4, 2021)

Asbestos Good Faith Investigation

An asbestos Good Faith Investigation (GFI) has been conducted for this project and it has been determined that known Asbestos Containing Material (ACM), and/or Presumed Asbestos Containing Material (PACM), will be disturbed by the

work on this project. The asbestos GFI has been provided in Appendix *** $$1$$ ***.

1-07.5(4)C.OPT2.FR1

(October 4, 2021)

Asbestos Good Faith Investigation

An asbestos Good Faith Investigation (GFI) has been conducted for this project and it has been determined to a reasonable certainty that no known Asbestos Containing Material (ACM) will be disturbed by the work on this project. The asbestos GFI has been provided as Appendix *** $$1$$ ***.

1-07.5(5).GR1

U.S. Army Corps of Engineers

1-07.5(5).INST1.GR1

Section 1-07.5(5) is supplemented with the following:

1-07.5(5).OPT1.GR1

(April 2, 2018)

The following Provisions summarize the requirements, in addition to those required elsewhere in the Contract, imposed upon the Contracting Agency by the U.S. Army Corps of Engineers. Throughout the work, the Contractor shall comply with the following requirements:

1-07.5(5).OPT1(B).FR1

(February 25, 2013)

Temporary fills at *** $$1$$ *** must be removed within *** $$2$$ *** calendar days of beginning placement of these fills. This time period may be extended with approval from the Engineer. Requests to extend must be received a minimum of 45 days prior to the expiration of number of days listed above, since the extension is subject to concurrence by the U.S. Army Corps of Engineers.

1-07.5(5).OPT1(C).GR1

(February 25, 2013)

Temporary structures and dewatering of areas under the jurisdiction of the U.S. Army Corps of Engineers must maintain normal downstream flows and prevent upstream and downstream flooding to the maximum extent practicable.

1-07.5(5).OPT1(D).GR1

(August 3, 2009)

Heavy equipment working in wetlands or mudflats must be placed on mats or other measures taken to minimize soil disturbance as approved by the Engineer.

1-07.5(5).OPT1(F).GR1

(February 6, 2023)

The Contractor shall dispose of all creosoted timber, creosote piling and associated debris as shown in the Plans in accordance with current federal, state, and local regulations and provisions, and following Best Management Practices. Handling shall meet the Minimum Functional Standards for Solid Waste Handling, Chapter 173-304 WAC. Disposal shall be made in a landfill which meets the liner and leachate standards of the Criteria for Municipal Solid Waste Landfills, Chapter 173-351 WAC. The Contractor shall provide receipts

from the disposal facility to the Engineer. If the material is transported to a transfer station, the Contractor shall obtain documentation indicating that final disposal will comply with the standards referenced above.

1-07.5(5).OPT2.GR1
(April 2, 2018)
All costs to comply with this special provision are incidental to the Contract and are the responsibility of the Contractor. The Contractor shall include all related costs in the associated bid prices of the Contract.

1-07.5(6).GR1
U.S. Fish and Wildlife Service and National Marine Fisheries Service

1-07.5(6).INST1.GR1
Section 1-07.5(6) is supplemented with the following:

1-07.5(6).OPT1.GR1
(April 2, 2018)
The following Provisions summarize the requirements, in addition to those required elsewhere in the Contract, imposed upon the Contracting Agency by the U.S. Fish/Wildlife Services and the National Marine Fisheries Service. Throughout the work, the Contractor shall comply with the following requirements:

1-07.5(6).OPT1(B).GR1
(April 2, 2018)
The Contractor shall place temporary storage piles of erosive materials outside the 100-year floodplain during the rainy season (October 1 through June 1). Material that will be used within 12 hours of deposition is exempt from this requirement. The Contractor shall employ best management practices to prevent sediment delivery to waterbodies, wetlands, or conveyances that drain to such features.

1-07.5(6).OPT1(C).FR1
(April 2, 2018)
The Contractor shall not allow temporary floating work platforms to run aground. Anchors and chains shall never contact fish spawning areas in freshwater or eelgrass, kelp, macro algae, or intertidal wetlands as indicated in the Plans. Shading eelgrass, kelp, or macro algae beds by work platforms shall not exceed *** $$1$$ *** days.

1-07.5(6).OPT1(D).GR1
(April 2, 2018)
The Contractor shall provide concrete truck chute cleanout areas to contain fresh concrete and wash water. The Contractor shall dispose of the waste material at a facility permitted to take such waste.

1-07.5(6).OPT1(E).GR1
(April 2, 2018)
The Contractor shall not use creosote-treated wood below the Ordinary High Water Mark.

1-07.5(6).OPT1(F).GR1

(April 2, 2018)

The Contractor shall remove piles by directly pulling, using vibratory devices, or by cutting the piles below ground level to minimize localized turbidity. If use of a clamshell bucket is necessary due to pile breakage, turbidity curtains will be employed by the Contractor.

1-07.5(6).OPT1(G).GR1

(April 2, 2018)

The Contractor shall remove piles and place them directly into a receptacle that prevents sediment or other material from entering waters of the state.

1-07.5(6).OPT1(H).FR1

(April 2, 2018)

Contracting Agency staff will monitor sound pressure during in-water pile driving of steel piles, including H-piles, and sheet piles. Results that exceed *** $$1$$ *** will require the Contractor to adjust work methods or employ additional best practices to safely proceed.

1-07.5(6).OPT1(I).FR1

(April 2, 2018)

The Contractor shall direct temporary lights for night work away from *** $$1$$ ***.

1-07.5(6).OPT1(J).FR1

(April 2, 2018)

The Contractor shall conduct night Work only during the period from 2 hours after sunset to 2 hours before sunrise. Setting up and taking down traffic control are exempt from these time restrictions. Refer to the following website, using the City of *** $$1$$ *** for sunrise and sunset times:

http://www.sunrisesunset.com/usa/washington.asp

1-07.5(6).OPT1(K).FR1

(April 2, 2018)

The Contractor shall conduct night Work only during the period from 1 hour after sunset to 1 hour before sunrise. Setting up and taking down traffic control are exempt from these time restrictions. Refer to the following website, using the City of *** $$1$$ *** for sunrise and sunset times:

http://www.sunrisesunset.com/usa/washington.asp

1-07.5(6).OPT1(L).FR1

(April 2, 2018)

The Contractor must cease Work 2 hours before sunrise. Setting up and taking down traffic control are exempt from these time restrictions. Refer to the following website, using the City of *** $$1$$ *** for sunrise times:

http://www.sunrisesunset.com/usa/washington.asp

1-07.5(6).OPT1(M).FR1

(April 2, 2018)

When night and day time Work is required, the Contractor shall not perform Work from 1 hour before sunrise to 2 hours after sunrise and no Work from 2 hours before sunset to 1 hour after sunset. Setting up and taking down traffic control are exempt from these time restrictions. Refer to the following website, using the City of *** $$1$$ *** for sunrise and sunset times:

http://www.sunrisesunset.com/usa/washington.asp

1-07.5(6).OPT1(N).FR1

(April 2, 2018)

When night and day time Work is required, the Contractor shall not perform Work from 1 hour before sunrise to 2 hours after sunrise. Setting up and taking down traffic control are exempt from these time restrictions. Refer to the following website, using the City of *** $$1$$ *** for sunrise and sunset times:

http://www.sunrisesunset.com/usa/washington.asp

1-07.5(6).OPT1(O).GR1

(April 2, 2018)

The Contractor shall develop a Type 2 Working Drawing to ensure that trash and food waste is collected daily and contained in secured garbage receptacles.

1-07.5(6).OPT1(P).FR1

(September 3, 2019)

Between April 1 and September 22, the Contractor *** $$1$$ *** are restricted to between two hours after sunrise and two hours before sunset. Setting up and taking down traffic control are exempt from these time restrictions. Refer to the following website, using the City of *** $$2$$ *** for sunrise and sunset times:

http://www.sunrisesunset.com/usa/washington.asp

1-07.5(6).OPT1(Q).GR1

(September 7, 2021)

Galvanizing and zinc coatings shall not be used below the 100 year mean recurrence interval water surface.

1-07.5(6).OPT2.GR1

(April 2, 2018)

All costs to comply with this special provision are incidental to the contract and are the responsibility of the Contractor. The Contractor shall include all related costs in the associated bid prices of the contract.

1-07.5(6).OPT3.FR1

(November 2, 2022)

Bird Protection and Monitoring

Description

This Work includes preparing a Project-specific Bird Protection Plan, implementation of the Bird Protection Plan, updating the Bird Protection Plan, surveying, monitoring, and reporting of bird activity, actions required in the event nests and species are surveyed and encountered, and Contractor training.

Construction Requirements

No onsite Work may begin on the Project until the Bird Protection Plan has been accepted by the Engineer.

The Contractor shall maintain a copy of the Bird Protection Plan at the Work site and update as necessary to reflect the conditions as the Work progresses.

The Contractor shall take precautions to prevent birds from nesting on bridges, structures, equipment, or other nesting habitat that would be modified or disturbed by Project construction.

The Contractor shall conduct site monitoring and shall report the results of their inspections. From March 15 to September 15, the Contractor shall conduct, at minimum, three inspections during the work week; once on Monday, Wednesday, and Friday, to identify nest starts. The Contractor shall indicate their intended inspection schedule in their Bird Protection Plan.

The Contractor shall remove nest starts as soon as they are discovered in accordance with their Project-specific Bird Protection Plan. If an active nest (i.e., one that has eggs or chicks) is found, the Contractor must immediately stop all associated Work and contact the Engineer before implementing the relevant Project-specific Bird Protection Plan measures. Active nest removal shall not proceed prior to notifying to and receiving approval from the Engineer.

The Contractor shall notify the Engineer if a bird nest is discovered or suspected. The Contractor shall also notify the Engineer if a breeding raptor (or nest or nest start) is suspected or discovered. If a raptor nest (including unoccupied ones outside the breeding season) is found, it shall not be removed.

From September 16 to March 14, the Contractor may discontinue weekly inspections and reports, but shall remove old nests in accordance with the Project-specific Bird Protection Plan. In the rare instance that an active nest is discovered during this time, the Migratory Bird Treaty Act (MBTA) requirements apply and the Contractor must adhere to the Project-specific Bird Protection Plan and applicable Contract provisions. However, the Contractor shall not be responsible for the removal of active nests during this time period.

The Contractor shall train all project staff. The Contractor shall provide a list of training for all Project staff as part of their Bird Protection Plan. The Contractor training shall include an overview of the MBTA and the Bald and Golden Eagle Protection Act, how to identify nesting activity, and what to do if a nest is discovered.

Submittals

The Contractor shall prepare a Project-specific Bird Protection Plan and submit it to the Engineer no later than 10 days after the execution of the Contract. The Plan shall be a Type 2 Working Drawing and apply to *** $$1$$ *** during the active nesting season described as March 15 to September 15.

The Contractor’s Project-specific Bird Protection Plan shall be prepared and implemented by a qualified biologist. The biologist shall be available to work during day or night to lead, direct, or carry out monitoring, inspection, and

activities described in the Project-specific Bird Protection Plan. The Bird Protection Plan shall include the following information on the biologist:

1. Evidence of the qualification for the designated Biologist and a backup Biologist. The evidence of qualification will include at a minimum a bachelor's degree in biology, zoology, natural resource management, environmental science, or a related degree with a science emphasis.

2. Resumé of each biologists' work experience including:

    a. Description of applicable projects over a five-year period to include a description of the work experience to identify birds and bird nests with the associated projects.

    b. Duration of each project including start date and finish date.

    c. Position held for each applicable project.

    d. Location of each project to include 2 years in the Pacific Northwest.

    e. References, including the name and contact information for each project.

The Project-specific Bird Protection Plan shall also include:

1. Bird species identified by the Contracting Agency in the MBTA Assessment Report (Appendix *** $$2$$ ***).

2. Precautions and timeframes taken or to be taken to prevent birds from nesting on bridges, structures, equipment or other nesting habitat that would be modified or disturbed by project construction.

3. Methods, materials, and equipment used to remove nest starts, which are described as partial or complete nests that don't contain eggs or chicks.

4. Containment methods to prevent removed nesting materials from contributing to air or water pollution.

5. Disposal of nesting materials removed in accordance with Section 2-03.3(7)C.

6. Communicating, notifying, and documenting:

    a. Name and contact information of the Contractor's qualified biologist and one qualified emergency back-up biologist.

    b. Name and contact information of the Engineer.

c. Describe notification, communication, and documentation procedures to follow in the event an active nest (i.e., one that has eggs or chicks) or unanticipated species upon the discovery of a nest.

d. Describe notification to follow in the event a raptor nest (even unoccupied ones outside the breeding season) is discovered.

7. The list of Contractor employees that have received Bird Protection training.

Once a week, the Contractor shall submit a Type 1 Working Drawing to the Engineer, detailing their findings from the prior week's inspections.

Payment

Payment will be made for the following bid item when included in the proposal:

"Bird Protection and Monitoring", Lump Sum.
The lump sum Contract price for "Bird Protection and Monitoring" shall be full pay for all the Work as specified.

1-07.6.GR1

Permits and Licenses

1-07.6.INST1.GR1

Section 1-07.6 is supplemented with the following:

1-07.6.OPT1.FR1

(January 2, 2018)

The Contracting Agency has obtained the below-listed permit(s) for this project. A copy of the permit(s) is attached as an appendix for informational purposes. Copies of these permits, including a copy of the Transfer of Coverage form, when applicable, are required to be onsite at all times.

Contact with the permitting agencies, concerning the below-listed permit(s), shall be made through the Engineer with the exception of when the Construction Stormwater General Permit coverage is transferred to the Contractor, direct communication with the Department of Ecology is allowed. The Contractor shall be responsible for obtaining Ecology's approval for any Work requiring additional approvals (e.g. Request for Chemical Treatment Form). The Contractor shall obtain additional permits as necessary. All costs to obtain and comply with additional permits shall be included in the applicable Bid items for the Work involved.

*** $$1$$ ***

1-07.6.OPT3.GB1

United States Coast Guard

1-07.6.OPT3(A).FB1

(September 3, 2019)

The Contracting Agency has obtained a United States Coast Guard Bridge Permit *** $$1$$ *** for this project.

The Contractor shall furnish, install, maintain, and remove all temporary navigation lights, signs, signals, and any other warning devices required by the Coast Guard and as required for public safety on all falsework, cofferdams, or other temporary structure in the waterway.

The Contractor shall comply with all Coast Guard requirements inclusive of the following Bridge Permit conditions:

1. The construction of falsework, cofferdams or other obstructions, if required, shall be in accordance with plans submitted to and approved by the Commander, 13th Coast Guard District, prior to construction of the bridge. All work shall be so conducted that the free navigation of the waterway is not unreasonably interfered with and the present navigable depths are not impaired. Timely notice of any and all events that may affect navigation shall be given to the District Commander during construction of the bridge. The channel or channels through the structure shall be promptly cleared of all obstructions placed therein or caused by the construction of the bridge to the satisfaction of the District Commander, when in the District Commander's judgment the construction work has reached a point where such action should be taken, but in no case later than 90 calendar days after the bridge has been opened to traffic.

2. *** $$2$$ ***

The Contractor shall notify the Coast Guard in writing, with a copy to the Engineer, of the work start date at least seven calendar days before beginning any site work and shall at that time designate the Contractor's authorized representative, and work phone number, for coordination on matters that relate to Coast Guard approvals and requirements.

The Contractor's applications for required Coast Guard construction approvals for this project shall include, but not be limited to, cofferdams, falsework, temporary navigation lighting, work bridges, and other obstructions. These applications shall be submitted to the Coast Guard by the Contractor, with a copy to the Engineer, a minimum of 30 calendar days in advance of the scheduled work. A schedule of when the work is to be performed and when the obstructions are to be permanently removed shall be a part of the Contractor's application.

The Contractor shall provide the Coast Guard and the Engineer with prompt verbal notice, followed by written notice, of any subsequent changes to this proposed schedule.

A copy of all Coast Guard approvals shall be provided to the Engineer upon receipt but not later than prior to beginning work on the items of work involved.

By the 20th of each month, the Contractor shall furnish the Engineer a schedule of the work expected to be performed in the next two months. The Engineer will transmit this information through the Bridge and Structures Office to the Coast Guard so that interested users of the waterway can be notified.

The Coast Guard contact is:

Bridge Administrator
Thirteenth Coast Guard District

915 Second Avenue Suite 3510
Seattle, WA 98174-1067
D13-pf-d13bridges@uscg.mil
Telephone: (206) 220-7282

All costs in connection with furnishing, installing, maintaining, and removing temporary navigation lights, signs, signals, or other warning devices shall be included in the contract prices for the items of work involved.

All costs incurred in obtaining the required Coast Guard approvals and in complying with all requirements specified herein shall be included in the contract prices for the items of work involved.

All costs in connection with delays in the construction caused by the Contractor's failure to obtain the necessary Coast Guard approvals shall be at the Contractor's expense.

1-07.6.OPT3(B).GB1

(September 3, 2019)

The Contractor shall comply with all United States Coast Guard requirements.

The Contractor shall submit a Type 3 Working Drawing consisting of a Navigation Work Plan at least 60-calendar days prior to beginning activities and operations affecting any part of the waterway in the vicinity of the bridge work. The Navigation Work Plan shall include, at a minimum, the following:

1. Lead Contractor contact for the project, with associated email and phone number.

2. Scheduled on-site start work date and finish work date.

3. Days and times of operation over the nominal work week.

4. Dates and times of stages of work, as applicable for operations involving sequential or staged activities.

5. Location of the Work by latitude and longitude, river mile, and geographic point of land, with latitude and longitude expressed in degrees, minutes, seconds, and thousandths of seconds.

6. Identification and description of barges, vessels and equipment present in the waterway, if any, to facilitate operations. The description shall include vessel type, vessel name (as applicable), means of voice contact (VHF frequencies, cell phone number, etc.) to the vessel, means of anchoring and mooring the vessel and the location of such anchoring and mooring, the extent to which the vessel is encroaching into the defined navigation channel, and lighting support vessels in accordance with the Coast Guard Rules of the Road as applicable.

7. Point of contact phone number available for 24-hour-seven-days-a-week contact from local mariners through the duration of the project.

8. Detailed identification of work operation hazards to mariners, if any, created by operations (cables, buoys, machinery, tools, tows, containment and platform

structures, falling debris, etc.), including details such as size, diameter, color as applicable.

9. Precautions regarding the in-water vessels, equipment, and work operation hazards, if any, affecting local mariners such as operating speed and wake, clearance distance, etc.

10. Systems and equipment causing a reduction in the available vertical clearance beneath the bridge, if any, such as containment and platform systems and supports and the equipment necessary to install, maintain, and remove such systems, and the identification of any falling debris hazard to waterway traffic.

11. Description of advisory signage and lighting to be implemented by the Contractor to advise local mariners of the operations, reduced clearances, and presence of work operation hazards, as applicable. The description shall include the advisory message, and placement and orientation of the signage and flashing amber lighting (4-seconds/15 per minute).

The Engineer will submit the Navigation Work Plan to the US Coast Guard contact identified below for concurrent review. Approval from the US Coast Guard and the Engineer is required prior to the US Coast Guard issuing a Local Notice to Mariners advising of the operations, and allowing the operations to commence.

The Contractor shall contact the US Coast Guard for requirements related to the mooring of barges, placement of log booms, and all other equipment that could be a hazard to waterway users.

Provisions shall be made for the removal, on 2 hours notice, of all equipment that would block or partially block, the navigable portion of the waterway.

The US Coast Guard contact is:

Bridge Administrator
Thirteenth Coast Guard District
915 Second Avenue Suite 3510
Seattle, WA 98174-1067
D13-pf-d13bridges@uscg.mil
Telephone: (206) 220-7282

All costs incurred in contacting the US Coast Guard and in complying with all the requirements specified herein shall be included in the contract prices for the items of work involved.

All costs in connection with delays in the construction caused by the Contractor's failure to contact the US Coast Guard shall be at the Contractor's expense.

1-07.7.GR1

Load Limits

1-07.7.INST1.GR1

Section 1-07.7 is supplemented with the following:

1-07.7.OPT3.FR1
(March 13, 1995)
The State has made arrangements with *** $$1$$ *** for the Contractor's use of the *** $$2$$ *** shown in the Plans as a haul route for materials coming from *** $$3$$ *** Site *** $$4$$ *** and used on this project. The Contractor shall comply with all existing legal restrictions.

If the Contractor selects different haul routes than those designated, the Contractor shall, at the Contractor's expense, make all arrangements for the use of the haul routes.

1-07.7.OPT4.FR1
(March 13, 1995)
The Contractor shall also comply with the further restrictions imposed by the owner of the roads as follows:

*** $$1$$ ***

1-07.7.OPT5.GR1
(March 13, 1995)
Whenever the Contractor obtains materials from a source other than that provided by the Contracting Agency, or provides a source for materials not designated to come from a source provided by the State and the location of the source necessitates hauling on other than State Highways, the Contractor shall, at the Contractor's expense, make all arrangements for the use of the haul routes.

1-07.7.OPT6.GR1
(March 13, 1995)
If the sources of materials provided by the Contractor necessitates hauling over roads other than State Highways, the Contractor shall, at the Contractor's expense, make all arrangements for the use of the haul routes.

1-07.8.GR1
High-Visibility Apparel

1-07.8.INST1.GR1
The third and fourth paragraphs of Section 1-07.8 are revised to read

1-07.8.OPT1.2026.GR1
(November 4, 2024)
High-visibility garments shall always be the outermost garments worn in a manner to ensure 360 degrees of uninterrupted background and retroreflective material encircling the torso.

High-visibility garments shall be labeled as, and in a condition compliant with the ANSI/ISEA 107-2015 publication entitled “American National Standard for High-Visibility Safety Apparel and Accessories,” or equivalent revisions.

1-07.8(1).GR1
Traffic Control Personnel

1-07.8(1).INST1.GR1
Section 1-07.8(1) is revised to read:

1-07.8(1).OPT1.2026.GR1

(November 4, 2024)

All personnel performing the Work described in Section 1-10 (including traffic control supervisors, flaggers, and others performing traffic control labor of any kind) shall comply with the following:

1. During daylight hours with clear visibility, workers shall wear a high-visibility ANSI/ISEA 107 Type R Class 2 or 3 garment with background material that are fluorescent yellow-green, fluorescent orange-red, or fluorescent red in color; and a high visibility hardhat that is white, yellow, yellow-green, orange, or red in color; and

2. During hours of darkness (½ hour before sunset to ½ hour after sunrise) or other low-visibility conditions (snow, fog, etc.), workers shall wear a high-visibility ANSI/ISEA 107 Type R Class 2 or 3 garment with background material that are fluorescent yellow-green, fluorescent orange-red, or fluorescent red in color; a high-visibility lower garment meeting ANSI/ISEA 107 Class E, and a high visibility hardhat marked with at least 12 square inches of retroreflective material applied to provide 360 degrees of visibility.

1-07.9.GR1

Wages

1-07.9(1).GR1

General

1-07.9(1).INST1.GR1

Section 1-07.9(1) is supplemented with the following:

1-07.9(1).OPT1.GR1

(January 6, 2025)

The Federal wage rates incorporated in this contract have been established by the Secretary of Labor under United States Department of Labor General Decision No. WA20250001.

The State rates incorporated in this contract are applicable to all construction activities associated with this contract.

1-07.9(1).OPT2.FR1

(January 6, 2025)

The Federal wage rates for Highway Construction incorporated in this contract have been established by the Secretary of Labor under United States Department of Labor General Decision No. WA20250001. These rates are applicable to highway construction.

The Federal wage rates for Building Construction incorporated in this contract have been established by the Secretary of Labor under United States Department of Labor General Decision No. *** $$1$$ ***. These rates are applicable to building construction.

The State rates incorporated in this contract are applicable to all construction activities associated with this contract.

1-07.9(1).OPT3.FR1

(May 11, 2010)

The Federal wage rates for Building Construction incorporated in this contract have been established by the Secretary of Labor under United States Department of Labor General Decision No. *** $$1$$ ***. These rates are applicable to building construction.

The State rates incorporated in this contract are applicable to all construction activities associated with this contract.

1-07.9(1).OPT5.FR1

(January 6, 2025)

The Federal wage rates for Highway Construction incorporated in this contract have been established by the Secretary of Labor under United States Department of Labor General Decision No. WA20250001. These rates are applicable to highway construction.

The Federal wage rates for Heavy Construction incorporated in this contract have been established by the Secretary of Labor under United States Department of Labor General Decision No. *** $$1$$ ***. These rates are applicable to heavy construction.

The State rates incorporated in this contract are applicable to all construction activities associated with this contract.

1-07.9(1).OPT6.FR1

(January 6, 2025)

The Federal wage rates for Highway Construction incorporated in this contract have been established by the Secretary of Labor under United States Department of Labor General Decision No. WA20250001. These rates are applicable to highway construction.

The Federal wage rates for Heavy Construction incorporated in this contract have been established by the Secretary of Labor under United States Department of Labor General Decision No. *** $$1$$ ***. These rates are applicable to heavy construction.

The Federal wage rates for Building Construction incorporated in this contract have been established by the Secretary of Labor under United States Department of Labor General Decision No. *** $$2$$ ***. These rates are applicable to building construction

The State rates incorporated in this contract are applicable to all construction activities associated with this contract.

1-07.9(3).GR1

Apprentices

1-07.9(3).INST1.GR1

Section 1-07.9(3) is supplemented with the following:

1-07.9(3).OPT1.GR1

(September 3, 2024)

Apprentice Utilization

This Contract includes an Apprentice Utilization Requirement. Fifteen percent or more of project Labor Hours shall be performed by Apprentices. Apprentice Utilization will be determined using the L&I online Prevailing Wage Intent & Affidavit (PWIA) system.

Definitions

For the purposes of this specification the following definitions apply:

1. Apprentice is a person enrolled in a State-approved Apprenticeship Training Program.

2. Apprentice Utilization is the Apprentice labor hours expressed as a percentage of the project Labor Hours based on certified payrolls or the affidavit of wages paid, whichever is least. The percentage is not rounded up.

3. Apprentice Utilization Requirement is the minimum percentage of apprentice labor hours required by the Contract.

4. Good Faith Efforts (GFE) describes the Contractor's efforts to meet the Apprentice Utilization Requirement including but not limited to the specific steps as described elsewhere in this specification.

5. Labor Hours are the total hours performed by all workers receiving an hourly wage who are subject to prevailing wage requirements for Work performed on the Contract as defined by RCW 39.04.310. Labor Hours are determined based on the scope of work performed by the individuals, rather than the title of their occupations in accordance with WAC 296-127.

6. State-approved Apprenticeship Training Program is an apprenticeship training program approved by the Washington State Apprenticeship Council.

Electronic Reporting

The Contractor shall use the PWIA System to submit the "Apprentice Utilization Plan" and GFE documentation. Reporting instructions are available in the application.

Apprentice Utilization Plan

The Contractor shall submit an "Apprentice Utilization Plan" by filling out the Apprentice Utilization Plan form (WSDOT Form 424-004) within 30 calendar days of execution, demonstrating how and when they intend to achieve the Apprentice Utilization Requirement. The Plan shall be in sufficient detail for the Engineer to track the Contractor's progress in meeting the utilization requirements and be updated and resubmitted as the Work progresses or when ordered by the Engineer.

If the Contractor is unable to demonstrate ability to meet the Apprentice Utilization Requirement in their Apprentice Utilization Plan, they must use the PWIA system to submit GFE documentation for review and comment with their Apprentice Utilization

Plan. The Contractor shall actively seek out opportunities to meet the Apprentice Utilization Requirement during the construction Work.

Contacts

The Contractor may obtain information on State-approved Apprenticeship Training Programs at:

https://secure.lni.wa.gov/arts-public/#/program-search

Compliance

In the event the Contractor is unable to achieve the Apprentice Utilization Requirement, the Contractor shall use the PWIA system to submit GFE documentation for review and approval. If GFE documentation was previously submitted as part of the Apprentice Utilization Plan, it shall be updated and resubmitted. The GFE documentation for Apprentice Utilization based on certified payrolls shall be submitted after Substantial Completion but no later than 30 days after Physical Completion. After all affidavits of wages paid have been submitted, if the Apprentice Utilization based on the affidavits of wages paid is less than that of the Apprentice Utilization based on certified payrolls, a GFE shall be submitted based on the lower Apprentice Utilization.

If the Contractor fails to submit GFE documentation or if the Engineer does not approve the GFE, the Contractor will be subject to disciplinary actions as allowed under WAC 468-16-180.

Good Faith Efforts

The GFE shall describe in detail why the Contractor is not or was not able to attain the Apprentice Utilization Requirement. The GFE documentation shall include:

1. Documentation of ongoing correspondence for solicitation of Apprentices from a State-approved Apprenticeship Training Program(s). To be considered ongoing, the correspondence shall be not less than once a quarter, beginning at the start of Work and continuing every three months thereafter. The response from the solicited State-Approved Apprenticeship Training Program(s) when there is a lack of availability of Apprentices shall be included in the correspondence.

And one or more of the following:

2. Documentation that shows Contract requirements for TERO, Special Training or Disadvantage Business Enterprise requirements affect the ability to obtain Apprentice Labor Hours on the Contract.

3. Documentation demonstrating what efforts the Contractor has taken to require subcontractors to solicit and employ Apprentices. Documentation could be posters placed on site, emphasis in subcontracts about employing Apprentices, letters, memos or other correspondence from Contractor to subcontractor that put an emphasis on employing Apprentices.

4. Documentation of other obstacles the Contractor faced that may demonstrate or solidify a satisfactory explanation of not meeting the Apprenticeship Utilization Requirement.

Contractors may receive a GFE credit for graduated Apprentice hours through the end of the calendar year for all projects worked on as long as the Apprentice remains continuously employed with the same Contractor they were working for when they graduated. If an Apprentice graduates during employment on a project of significant duration, they may be counted towards a GFE credit for up to one year after their graduation or until the end of the project (whichever comes first). Determination of whether or not Contract requirements were met in good faith will be made by subtracting the hours from the journeyman total reported hours for the project and adding them to the apprentice hour total. If the new utilization percentage meets the Contract requirement, the Contractor will be reported as meeting the requirement in good faith.

Payment

All costs incurred by the Contractor for complying with this specification shall be included in the Contract prices for the Bid items of Work involved.

1-07.11.GR1

Requirements for Nondiscrimination

1-07.11.INST1.GR1

Section 1-07.11 is supplemented with the following:

1-07.11.OPT2.GR1

(October 3, 2022)

Disadvantaged Business Enterprise Participation

The Disadvantaged Business Enterprise (DBE) requirements of 49 CFR Part 26 and USDOT's official interpretations (i.e., Questions & Answers) apply to this Contract. As such, the requirements of this Contract are to make affirmative efforts to solicit DBEs, provide information on who submitted a Bid or quote and to report DBE participation monthly as described elsewhere in these Contract Provisions. No preference will be included in the evaluation of Bids/Proposals, no minimum level of DBE participation shall be required as a Condition of Award and Bids/Proposals may not be rejected or considered non-responsive on that basis.

DBE Abbreviations and Definitions

Broker – A business firm that provides a bona fide service, such as professional, technical, consultant or managerial services and assistance in the procurement of essential personnel, facilities, equipment, materials, or supplies required for the performance of the Contract, or, persons/companies who arrange or expedite transactions.

Certified Business Description – Specific descriptions of work the DBE is certified to perform, as identified in the Certified Firm Directory, under the Vendor Information page.

Certified Firm Directory – A database of all Minority, Women, and Disadvantaged Business Enterprises. The on-line Directory is available to Contractors for their use in identifying and soliciting interest from DBE firms. The database is located under the Firm Certification section of the Diversity Management and Compliance System web page at: https://omwbe.diversitycompliance.com.

Commercially Useful Function (CUF)
49 CFR 26.55(c)(1) defines commercially useful function as: "*A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, you must evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors.*"

Contract – For this Special Provision only, this definition supplements Section 1-01.3. 49 CFR 26.5 defines contract as: "… a legally binding relationship obligating a seller to furnish supplies or services (including, but not limited to, construction and professional services) and the buyer to pay for them. For purposes of this part, a lease is considered to be a contract."

Disadvantaged Business Enterprise (DBE) – A business firm certified by the Washington State Office of Minority and Women's Business Enterprises, as meeting the criteria outlined in 49 CFR 26 regarding DBE certification.

Force Account Work – Work measured and paid in accordance with Section 1-09.6.

Manufacturer (DBE) – A DBE firm that operates or maintains a factory or establishment that produces on the premises the materials, supplies, articles, or equipment required under the Contract. A DBE Manufacturer shall produce finished goods or products from raw or unfinished material or purchase and substantially alters goods and materials to make them suitable for construction use before reselling them.

Regular Dealer (DBE) – A DBE firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials or supplies required for the performance of a Contract are bought, kept in stock, and regularly sold to the public in the usual course of business. To be a Regular Dealer, the DBE firm must be an established regular business that engages in as its principal business and in its own name the purchase and sale of the products in question. A Regular Dealer in such items as steel, cement, gravel, stone, and petroleum products need not own, operate or maintain a place of business if it both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by long-term formal lease agreements and not on an ad-hoc basis. Brokers, packagers, manufacturers' representatives, or other persons who arrange or expedite transactions shall not be regarded as Regular Dealers within the meaning of this definition.

DBE Goals
No DBE goals have been assigned as part of this Contract.

Affirmative Efforts to Solicit DBE Participation

The Contractor shall not discriminate on the grounds of race, color, sex, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. DBE firms shall have an equal opportunity to compete for subcontracts in which the Contractor enters into pursuant to this Contract.

Contractors are encouraged to:

1. Advertise opportunities for subcontractors or suppliers in a timely and reasonably designed manner to provide notice of the opportunity to DBEs capable of performing the Work. All advertisements should include a Contract Provision encouraging participation by DBE firms. This may be accomplished through general advertisements (e.g. newspapers, journals, etc.) or by soliciting Bids/Proposals directly from DBEs.

2. Establish delivery schedules that encourage participation by DBEs and other small businesses.

3. Participate with a DBE as a joint venture.

DBE Eligibility/Selection of DBEs for Reporting Purposes Only

Contractor may take credit for DBEs utilized on this Contract only if the firm is certified for the Work being performed, and the firm performs a commercially useful function (CUF).

Absent a mandatory goal, all DBE participation that is attained on this project will be considered as “race neutral” participation and shall be reported as such.

Crediting DBE Participation

All DBE subcontractors shall be certified before the subcontract on which they are participating is executed.

Be advised that although a firm is listed in the directory, there are cases where the listed firm is in a temporary suspension status. The Contractor shall review the OMWBE Suspended DBE Firms list. A DBE firm that is included on this list may not enter into new contracts that count towards participation.

DBE participation is only credited upon payment to the DBE.

The following are some definitions of what may be counted as DBE participation.

DBE Prime Contractor

Only take credit for that portion of the total dollar value of the Contract equal to the distinct, clearly defined portion of the Work that the DBE Prime Contractor performs with its own forces and is certified to perform.

DBE Subcontractor

Only take credit for that portion of the total dollar value of the subcontract equal to the distinct, clearly defined portion of the Work that the DBE performs with its own forces. The value of work performed by the DBE includes the cost of supplies and materials purchased by the DBE and equipment leased by the

DBE, for its work on the contract. Supplies, materials or equipment obtained by a DBE that are not utilized or incorporated in the contract work by the DBE will not be eligible for DBE credit.

The supplies, materials, and equipment purchased or leased from the Contractor or its affiliate, including any Contractor's resources available to DBE subcontractors at no cost, shall not be credited.

DBE credit will not be given in instances where the equipment lease includes the operator. The DBE is expected to operate the equipment used in the performance of its work under the contract with its own forces. Situations where equipment is leased and used by the DBE, but payment is deducted from the Contractor's payment to the DBE is not allowed.

If a DBE subcontracts a portion of the Work of its contract to another firm, the value of the subcontracted Work may be credited only if the DBE's Lower-Tier subcontractor is also a DBE. Work subcontracted to a non-DBE shall not be credited.

Count expenditures toward race/gender-neutral participation only if the DBE is performing a CUF on the contract.

DBE Subcontract and Lower Tier Subcontract Documents

There must be a subcontract agreement that complies with 49 CFR Part 26 and fully describes the distinct elements of Work committed to be performed by the DBE. The subcontract agreement shall incorporate requirements of the primary Contract. Subcontract agreements of all tiers, including lease agreements shall be readily available at the project site for the Engineer review.

DBE Service Provider

The value of fees or commissions charged by a DBE Broker, a DBE behaving in a manner of a Broker, or another service provider for providing a bona fide service, such as professional, technical, consultant, managerial services, or for providing bonds or insurance specifically required for the performance of the contract will only be credited as DBE participation, if the fee/commission is determined by the Contracting Agency to be reasonable and the firm has performed a CUF.

Temporary Traffic Control

If the DBE firm is being utilized in the capacity of only "Flagging", the DBE firm must provide a Traffic Control Supervisor (TCS) and flagger, which are under the direct control of the DBE. The DBE firm shall also provide all flagging equipment (e.g. paddles, hard hats, and vests).

If the DBE firm is being utilized in the capacity of "Traffic Control Services", the DBE firm must provide a TCS, flaggers, and traffic control items (e.g., cones, barrels, signs, etc.) and be in total control of all items in implementing the traffic control for the project. In addition, if the DBE firm utilizes the Contractor's equipment, such as Transportable Attenuators and Portable Changeable Message Signs (PCMS) no DBE credit can be taken for supplying and operating the items.

Trucking

DBE trucking firm participation may only be credited as DBE participation for the value of the hauling services, not for the materials being hauled unless the trucking firm is also certified as a supplier. In situations where the DBE's work is priced per ton, the value of the hauling service must be calculated separately from the value of the materials in order to determine DBE credit for hauling.

The DBE trucking firm must own and operate at least one licensed, insured and operational truck on the contract. The truck must be of the type that is necessary to perform the hauling duties required under the contract. The DBE receives credit for the value of the transportation services it provides on the Contract using trucks it owns or leases, licenses, insures, and operates with drivers it employs.

The DBE may lease additional trucks from another DBE firm. The Work that a DBE trucking firm performs with trucks it leases from other certified DBE trucking firms qualify for 100% DBE credit

The trucking Work subcontracted to any non-DBE trucking firm will not receive credit for Work done on the project. The DBE may lease trucks from a non-DBE truck leasing company, but can only receive credit as DBE participation if the DBE uses its own employees as drivers.

DBE credit for a truck broker is limited to the fee/commission that the DBE receives for arranging transportation services.

Truck registration and lease agreements shall be readily available at the project site for the Engineer review.

DBE Manufacturer and DBE Regular Dealer

One hundred percent (100%) of the cost of the manufactured product obtained from a DBE Manufacturer can count as DBE participation.

Sixty percent (60%) of the cost of materials or supplies purchased from a DBE Regular Dealer may be credited as DBE participation. If the role of the DBE Regular Dealer is determined to be that of a pass-through, then no DBE credit will be given for its services. If the role of the DBE Regular Dealer is determined to be that of a Broker, then DBE credit shall be limited to the fee or commission it receives for its services. Regular Dealer status and the amount of credit is determined on a Contract-by-Contract basis.

Regular Dealer DBE firms must be approved before being used on a project. The WSDOT Approved Regular Dealer list published on WSDOT's Office of Equal Opportunity (OEO) web site must include the specific project for which approval is being requested. The Regular Dealer must submit the Regular Dealer Status Request form a minimum of five days prior to being utilized on the specific project.

Purchase of materials or supplies from a DBE which is neither a manufacturer nor a regular dealer, (i.e. Broker) only the fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or

transportation charges for the delivery of materials or supplies required on a job site, can count as DBE participation provided the fees are not excessive as compared with fees customarily allowed for similar services. Documentation will be required to support the fee/commission charged by the DBE. The cost of the materials and supplies themselves cannot be counted toward as DBE participation.

Note: Requests to be listed as a Regular Dealer will only be processed if the requesting firm is a material supplier certified by the Office of Minority and Women's Business Enterprises in a NAICS code that falls within the 42XXXX NAICS Wholesale code section.

Procedures Between Award and Execution

After Award and prior to Execution, the Contractor shall provide the additional information described below. Failure to comply shall result in the forfeiture of the Bidder's Proposal bond or deposit.

1. A list of all firms who submitted a Bid or quote in attempt to participate in this project whether they were successful or not. Include the business name and mailing address.

   Note: The firms identified by the Contractor may be contacted by the Contracting Agency to solicit general information as follows: age of the firm and average of its gross annual receipts over the past three-years.

Procedures After Execution

Commercially Useful Function (CUF)

The Contractor may only take credit for the payments made for Work performed by a DBE that is determined to be performing a CUF. Payment must be commensurate with the work actually performed by the DBE. This applies to all DBEs performing Work on a project, whether or not the DBEs are COA, if the Contractor wants to receive credit for their participation. The Engineer will conduct CUF reviews to ascertain whether DBEs are performing a CUF. A DBE performs a CUF when it is carrying out its responsibilities of its contract by actually performing, managing, and supervising the Work involved. The DBE must be responsible for negotiating price; determining quality and quantity; ordering the material, installing (where applicable); and paying for the material itself. If a DBE does not perform "all" of these functions on a furnish-and-install contract, it has not performed a CUF and the cost of materials cannot be counted toward DBE COA Goal. Leasing of equipment from a leasing company is allowed. However, leasing/purchasing equipment from the Contractor is not allowed. Lease agreements shall be readily available for review by the Engineer.

In order for a DBE traffic control company to be considered to be performing a CUF, the DBE must be in control of its work inclusive of supervision. The DBE shall employ a Traffic Control Supervisor who is directly involved in the management and supervision of the traffic control employees and services.

The DBE does not perform a CUF if its role is limited to that of an extra participant in a transaction, contract, or project through which the funds are passed in order to obtain the appearance of DBE participation.

The following are some of the factors that the Engineer will use in determining whether a DBE trucking company is performing a CUF:

- The DBE shall be responsible for the management and supervision of the entire trucking operation for which it is responsible on the Contract. The owner demonstrates business related knowledge, shows up on site and is determined to be actively running the business.

- The DBE shall with its own workforce, operate at least one fully licensed, insured, and operational truck used on the Contract. The drivers of the trucks owned and leased by the DBE must be exclusively employed by the DBE and reflected on the DBE's payroll.

- Lease agreements for trucks shall indicate that the DBE has exclusive use of and control over the truck(s). This does not preclude the leased truck from working for others provided it is with the consent of the DBE and the lease provides the DBE absolute priority for use of the leased truck.

- Leased trucks shall display the name and identification number of the DBE.

Joint Checking

A joint check is a check between a subcontractor and the Contractor to the supplier of materials/supplies. The check is issued by the Contractor as payer to the subcontractor and the material supplier jointly for items to be incorporated into the project. The DBE must release the check to the supplier, while the Contractor acts solely as the guarantor.

A joint check agreement must be approved by the Engineer and requested by the DBE involved using the DBE Joint Check Request Form (form # 272-053) prior to its use. The form must accompany the DBE Joint Check Agreement between the parties involved, including the conditions of the arrangement and expected use of the joint checks.

The approval to use joint checks and the use will be closely monitored by the Engineer. To receive DBE credit for performing a CUF with respect to obtaining materials and supplies, a DBE must "be responsible for negotiating price, determining quality and quantity, ordering the material and installing and paying for the material itself." The Contractor shall submit DBE Joint Check Request Form for the Engineer approval prior to using a joint check.

Material costs paid by the Contractor directly to the material supplier is not allowed. If proper procedures are not followed or the Engineer determines that the arrangement results in lack of independence for the DBE involved, no DBE credit will be given for the DBE's participation as it relates to the material cost.

Prompt Payment
Prompt payment to all subcontractors shall be in accordance with Section 1-08.1. Prompt Payment requirements apply to progress payments as well as return of retainage.

Reporting
The Contractor and all subcontractors/suppliers/service providers that utilize DBEs to perform work on the project, shall maintain appropriate records that will enable the Engineer to verify DBE participation throughout the life of the project.

Refer to Section 1-08.1 for additional reporting requirements associated with this Contract.

Decertification
When a DBE is "decertified" from the DBE program during the course of the Contract, the participation of that DBE shall continue to count as DBE participation as long as the subcontract with the DBE was executed prior to the decertification notice. The Contractor is obligated to substitute when a DBE does not have an executed subcontract agreement at the time of decertification.

Consequences of Non-Compliance
Each contract with a Contractor (and each subcontract the Contractor signs with a subcontractor) must include the following assurance clause:

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

(1) Withholding monthly progress payments;

(2) Assessing sanctions;

(3) Liquidated damages; and/or

(4) Disqualifying the Contractor from future bidding as non-responsible.

Payment
Compensation for all costs involved with complying with the conditions of this Specification and any other associated DBE requirements is included in payment for the associated Contract items of Work, except otherwise provided in the Specifications.

1-07.11.OPT3.FR1

(September 3, 2024)

Disadvantaged Business Enterprise Participation

General
The Disadvantaged Business Enterprise (DBE) requirements of 49 CFR Part 26 and USDOT's official interpretations (i.e., Questions & Answers) apply to this Contract.

Demonstrating compliance with these Specifications is a Condition of Award (COA) of this Contract. Failure to comply with the requirements of this Specification may result in your Bid being found to be irregular in accordance with Section 1-02.13, resulting in rejection or other sanctions as provided by the Contract.

DBE Abbreviations and Definitions

Certified Business Description - The approved business description that supplements the North American Industry Classification System (NAICS) code listed in OMWBE's directory of certified firms.

Certified Business Directory - A database of all Minority, Women, and Disadvantaged Business Enterprises currently certified by Washington State. The on-line Directory is available to Bidders for their use in identifying and soliciting interest from DBE firms. The database is located under the Firm Certification section of the Diversity Management and Compliance System web page at: https://omwbe.diversitycompliance.com.

Commercially Useful Function (CUF) - A firm performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by performing, managing, and supervising the work involved as defined in 49 CFR 26.55(c)(1). To perform a commercially useful function, the firm must also be responsible, with respect to materials and supplies used on the contract, for ordering, negotiating price, paying for, determining quality and quantity, and installing (where applicable) for the material itself.

The DBE firm does not perform a CUF if its role is limited to that of an extra participant in a transaction, contract, or Project through which the funds are passed to obtain the appearance of DBE participation.

Consultant, DBE – An individual, partnership, firm, or corporation who meet the definition of a DBE which has been retained under a contract to provide technical or professional services.

DBE Commitment - The dollar amount and scope of work the Bidder indicates on each line of their DBE Utilization Certification (WSDOT Form 272-056) for each DBE firm. These Commitments will be incorporated into the Contract and shall be considered Contract requirements.

DBE Condition of Award (COA) Goal - An assigned numerical amount specified as a percentage of the Contract. At Bid, this is the minimum amount that the Bidder must commit to by submission of the DBE Utilization Certification form and, if necessary, by GFE Documentation.

Disadvantaged Business Enterprise (DBE) - A business that is owned and operated independently from other businesses and is certified by the Washington State Office of Minority and Women's Business Enterprises, as meeting the criteria outlined in 49 CFR 26 regarding DBE certification.

Force Account Work - Work measured and paid in accordance with Section 1-09.6.

Good Faith Efforts (GFE) - Efforts to achieve the DBE COA Goal or other requirements of this Provision which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement.

Subcontractor, DBE - An individual, partnership, firm, corporation, or joint venture who meet the definition of a DBE and who is sublet part of the Contract.

Supplier, DBE - A Manufacturer, Regular Dealer, Distributor, or Transaction Facilitator who provides supplies or materials for the Contract. The role a Supplier performs is determined on a contract-by contact basis.

Manufacturer, DBE - A DBE firm that operates or maintains a factory or establishment that produces on the premises the materials, supplies, articles, or equipment required under the Contract. A DBE Manufacturer shall produce finished goods or products from raw or unfinished material or purchase and substantially alters goods and materials to make them suitable for construction use before reselling them.

Regular Dealer, DBE - A DBE firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials or supplies required for the performance of a Contract are bought, kept in stock, and regularly sold to the public in the usual course of business. To be a Regular Dealer, the DBE firm must be an established regular business that engages in as its principal business and in its own name the purchase and sale of the products in question. A Regular Dealer in such items as steel, cement, gravel, stone, and petroleum products need not own, operate or maintain a place of business if it both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by long-term formal lease agreements and not on an ad-hoc basis. Brokers, packagers, manufacturers' representatives, or other persons who arrange or expedite transactions shall not be regarded as Regular Dealers within the meaning of this definition.

Distributor, DBE - An established DBE firm that engages in the regular sale or lease of the items specified by the contract. A DBE Distributor assumes responsibility for the items it purchases once they leave the point of origin, making it liable for any loss or damage not covered by the carrier's insurance. The Distributor must demonstrate ownership of the items in question and assure all risk for loss or damage during transportation, evidenced by the terms of the purchase order or bill of lading from a third party, indicating Free on Board (FOB) at the point of origin or similar terms that transfer responsibility of the items in question to the DBE distributors.

Transaction Facilitator, DBE - A DBE firm (packagers, brokers, manufacturer's representatives, etc.) who provides a bona fide service arranging, facilitating, or expediting transactions but does not qualify as a Manufacturer, a Regular Dealer, or a Distributor.

DBE COA Goal

The Contracting Agency has established a DBE COA Goal for this Contract in the amount of: *** $$1$$ ***, which applies to the final Contract Amount.

If the Contractor cannot meet the DBE COA Goal, GFE Documentation is required.

Demonstrating compliance with the DBE COA Goal is a Condition of Award of this Contract.

Procedures Prior to Award

Approval of Regular Dealers and Distributors

DBE firms proposed to be used as either a Regular Dealer or a Distributor must be approved before being listed as a COA/used on a project. The Approved Regular Dealer list published on WSDOT's Office of Equity and Civil Rights (OECR) web site must include the specific project for which approval is being requested. For purposes of the DBE COA Goal participation, the Regular Dealer/Distributor must submit the DBE Regular Dealer/Distributor Affirmation Form (USDOT OMB Control 508v3) a minimum of five calendar days prior to bid opening. The DBE Regular Dealer/Distributor Affirmation Form is located at:

https://www.transportation.gov/mission/civil-rights/dbe-regular-dealer-distributor-affirmation

Requests to be listed as a Regular Dealer/Distributor will only be processed if the requesting firm is a material supplier certified by the Office of Minority and Women's Business Enterprises in a NAICS code that falls within the 42XXXX NAICS Wholesale code section.

Disadvantaged Business Enterprise Utilization

To be eligible for award of the Contract, the Bidder shall properly complete and submit a Disadvantaged Business Enterprise (DBE) Utilization Certification with the Bidder's sealed Bid Proposal, as specified in Section 1-02.9 Delivery of Proposal. The Bidder's DBE Utilization Certification must clearly demonstrate how the Bidder intends to meet the DBE COA Goal. A DBE Utilization Certification (WSDOT Form 272-056) is included in the Proposal package for this purpose as well as instructions on how to properly fill out the form.

The Bidder is advised that the items listed below when listed in the Utilization Certification must have their amounts reduced to the percentages shown and those reduced amounts will be the amount applied towards meeting the DBE COA Goal.

1. Force account at 50%

2. Regular dealer at 60%

3. Distributor at 40% of the cost of the materials or supplies

4. Transaction Facilitator not more than 5% of the goods or services

In the event of arithmetic errors in completing the DBE Utilization Certification, the amount listed to be applied towards the DBE COA Goal for each DBE shall govern and the DBE total amount shall be adjusted accordingly.

Note: Bid Proposals submitted that do not contain a DBE Utilization Certification Form that demonstrates how the Bidder intends to meet the DBE COA Goal will be considered irregular in accordance with Section 1-02.13 and will be rejected.

Disadvantaged Business Enterprise Written Confirmation Document(s)
The Bidder shall submit a Disadvantaged Business Enterprise (DBE) Written Confirmation Document (completed and signed by the DBE) for each DBE firm listed in the Bidder's completed DBE Utilization Certification. Failure to do so will result in the associated participation being disallowed, which will cause the Bid to be considered irregular in accordance with Section 1-02.13 and will be rejected.

The Confirmation Documents provide confirmation from the DBEs that they are participating in the Contract as provided in the Bidder's Commitment. The Confirmation Documents must be consistent with the Utilization Certification.

A DBE Written Confirmation Document (WSDOT Form 422-031) is included in the Proposal package for this purpose. The form(s) shall be received as specified in the special provisions for Section 1-02.9 Delivery of Proposal.

It is prohibited for the Bidder to require a DBE to submit a Written Confirmation Document with any part of the form left blank. Should the Contracting Agency determine that an incomplete Written Confirmation Document was signed by a DBE, the associated DBE participation may not be allowed.

DBE Bid Item Breakdown
The Bidder shall submit a DBE Bid Item Breakdown Form (WSDOT Form 272-054) as specified in the Special Provisions for Section 1-02.9, Delivery of Proposal.

Selection of Successful Bidder/Good Faith Efforts (GFE)
The successful Bidder shall be selected on the basis of having submitted the lowest responsive Bid, which demonstrates a good faith effort to achieve the DBE COA Goal. The Contracting Agency, at any time during the selection process, may request a breakdown of the bid items and amounts that are counted towards the overall contract goal for any of the DBEs listed on the DBE Utilization Certification.

GFE to achieve the DBE COA Goal may be accomplished in one of two ways:

1. <u>By meeting the DBE COA Goal</u>
   Submission of the DBE Utilization Certification, supporting DBE Written Confirmation Document(s) showing the Bidder has obtained enough DBE participation to meet or exceed the DBE COA Goal and the DBE Bid Item Breakdown.

2. <u>By documentation that the Bidder made adequate GFE to meet the DBE COA Goal</u>
   The Bidder may demonstrate a GFE in whole or part through GFE Documentation only in the event a Bidder's efforts to solicit sufficient DBE participation have been unsuccessful. The Bidder must supply

GFE Documentation in addition to the DBE Utilization Certification, supporting DBE Written Confirmation Document(s) and the DBE Bid Item Breakdown form.

In the case where a Bidder is awarded the contract based on demonstrating adequate GFE Documentation, the advertised DBE COA Goal will not be reduced. The Bidder shall demonstrate a GFE during the life of the Contract to attain the advertised DBE COA Goal.

The Contracting Agency will review the GFE Documentation and will determine if the Bidder made an adequate good faith effort.

Procedures Between Award and Execution

DBE Trucking Credit Form

The Bidder shall submit a DBE Trucking Credit Form (WSDOT Form 272-058), as specified in the Special Provisions for Section 1-03.3.

The DBE Trucking Credit Form is required for all DBE Firms performing as a subcontractor for "Trucking" or "Hauling" and are performing a part of a bid item. For example, if the item of Work is Structure Excavation including Haul, and another firm is doing the excavation and the DBE Trucking firm is doing the haul, the form is required. For a DBE subcontractor that is responsible for an entire item of work that may require some use of trucks, the form is not required.

Procedures after Execution

Commercially Useful Function (CUF)

The Contractor may only take credit for the payments made for Work performed by a DBE that is determined to be performing a CUF. Payment must be commensurate with the work actually performed by the DBE. This applies to all DBEs performing Work on a project, whether or not the DBEs are COA, if the Contractor wants to receive credit for their participation. The Engineer will conduct CUF reviews to ascertain whether DBEs are performing a CUF. A DBE performs a CUF when it is carrying out its responsibilities of its contract by actually performing, managing, and supervising the Work involved. The DBE must be responsible for negotiating price; determining quality and quantity; ordering the material, installing (where applicable); and paying for the material itself. If a DBE does not perform "all" of these functions on a furnish-and-install contract, it has not performed a CUF and the cost of materials cannot be counted toward DBE COA Goal. Leasing of equipment from a leasing company is allowed. However, leasing/purchasing equipment from the Contractor is not allowed. Lease agreements shall be provided prior to the subcontractor beginning Work. Any use of the Contractor's equipment by a DBE will not be credited as countable participation.

The DBE does not perform a CUF if its role is limited to that of an extra participant in a transaction, contract, or project through which the funds are passed in order to obtain the appearance of DBE participation.

In order for a DBE traffic control company to be considered to be performing a CUF, the DBE must be in control of its work inclusive of supervision. The DBE shall employ a Traffic Control Supervisor who is directly involved in the management and supervision of the traffic control employees and services.

The following are some of the factors that the Engineer will use in determining whether a DBE trucking company is performing a CUF:

1. The DBE shall be responsible for the management and supervision of the entire trucking operation for which it is responsible on the contract. The owner demonstrates business related knowledge, shows up on site and is determined to be actively running the business.

2. The DBE itself shall own and operate at least one fully licensed, insured, and operational truck used on the Contract. The drivers of the trucks owned and leased by the DBE must be exclusively employed by the DBE and reflected on the DBE's payroll.

3. Lease agreements for trucks shall indicate that the DBE has exclusive use of and control over the truck(s). This does not preclude the leased truck from working for others provided it is with the consent of the DBE and the lease provides the DBE absolute priority for use of the leased truck.

4. Leased trucks shall display the name and identification number of the DBE.

Truck Unit Listing Log

In addition to the subcontracting requirements of Section 1-08.1, each DBE trucking firm shall submit supplemental information consisting of a completed primary DBE/FSBE Truck Unit Listing Log (WSDOT Form 350-077) and all Rental/Lease agreements (if applicable). The supplemental information shall be submitted in an electronic format to the Engineer prior to any trucking services being performed for DBE credit. Incomplete or incorrect supplemental information will be returned for correction. The corrected Primary Truck Unit Listing Log and any Updated Primary Truck Unit Listing Logs shall be submitted and accepted by the Engineer no later than ten calendar days of utilizing applicable trucks. Failure to submit or update the DBE Truck Unit Listing Log may result in trucks not being credited as DBE participation.

Each DBE trucking firm shall complete a daily DBE/FSBE Truck Unit Listing Log (WSDOT Form 350-077) for each day that the DBE performs trucking services for DBE credit. The Daily Truck Unit Listing Log forms shall be submitted by Friday of the week after the Work was performed by email to the following email address for the region administering the Contract:

Eastern Region - ERRegionOEO@wsdot.wa.gov
North Central Region - NCRegionOEO@wsdot.wa.gov
Northwest Region - NWRegionOEO@wsdot.wa.gov
Olympic Region - ORegionOEO@wsdot.wa.gov
South Central Region - SCRegionOEO@wsdot.wa.gov
Southwest Region - SWRegionOEO@wsdot.wa.gov
Washington State Ferries - FerriesOEO@wsdot.wa.gov

Joint Checking

A joint check is a check between a subcontractor and the Contractor to the supplier of materials/supplies. The check is issued by the Contractor as payer to the subcontractor and the material supplier jointly for items to be incorporated into the project. The DBE must release the check to the supplier, while the Contractor acts solely as the guarantor.

A joint check agreement must be approved by the Engineer and requested by the DBE involved using the DBE Joint Check Request Form (WSDOT Form #272-053) prior to its use. The form must accompany the DBE Joint Check Agreement between the parties involved, including the conditions of the arrangement and expected use of the joint checks.

The approval to use joint checks and the use will be closely monitored by the Engineer. To receive DBE credit for performing a CUF with respect to obtaining materials and supplies, a DBE must "be responsible for negotiating price, determining quality and quantity, ordering the material, installing and paying for the material itself." The Contractor shall submit DBE Joint Check Request Form to the Engineer and be in receipt of written approval prior to using a joint check.

Material costs paid by the Contractor directly to the material supplier are not allowed. If proper procedures are not followed or the Engineer determines that the arrangement results in lack of independence for the DBE involved, no DBE credit will be given for the DBE's participation as it relates to the material cost.

Prompt Payment

Prompt payment to all subcontractors shall be in accordance with Section 1-08.1. Prompt payment requirements apply to progress payments as well as return of retainage.

Reporting

The Contractor and all subcontractors of any tier, suppliers, service providers, and professional services that utilize DBEs to perform work on the project, shall maintain appropriate records that will enable the Engineer to verify DBE participation throughout the life of the project.

Refer to Section 1-08.1 for additional reporting requirements associated with this Contract.

Crediting DBE Participation

General

Subcontractors proposed as COA must be certified prior to the due date for bids on the Contract. All non-COA DBE subcontractors shall be certified before the subcontract on which they are participating is executed.

DBE participation is only credited upon payment to the DBE.

DBE Prime Contractor and Subcontractor Participation

Only take credit for the Work that the DBE contractor performs with its own forces and is certified to perform.

If the Prime Contractor, subcontractor, or lower tier subcontractor DBE subcontracts a portion of the Work of its contract to another firm, the value of the subcontracted Work may be counted toward the DBE Commitments only if the lower-tier subcontractor is also a DBE.

Work subcontracted to a lower-tier subcontractor that is a DBE may be counted toward the DBE Commitments only if the lower-tier subcontractor self performs a minimum of 30 percent of the Work subcontracted to them.

Work subcontracted by a DBE contractor to a non-DBE does not count towards the DBE COA Goal.

DBE Consultants

A DBE firm providing a bona fide service, such as professional, technical, or managerial services, specifically required for the performance of the contract will be credited as DBE participation

Force Account Work

When the Bidder elects to utilize force account Work to meet the DBE COA Goal, as demonstrated by listing this force account Work on the DBE Utilization Certification form, for the purposes of meeting DBE COA Goal, only 50% of the Proposal amount shall be credited toward the Bidder's Commitment to meet the DBE COA Goal.

One hundred percent of the actual amounts paid to the DBE for the force account Work shall be credited towards the DBE COA Goal or DBE participation.

Temporary Traffic Control Participation

If the DBE firm only provides "Flagging", the DBE firm must provide a traffic control supervisor (TCS) and flagger(s), which are under the direct control of the DBE. The DBE firm shall also provide all flagging equipment for its employees (e.g., paddles, hard hats, and vests).

If the DBE firm provides "Traffic Control Services", the DBE firm must provide a TCS, flaggers, and traffic control items (e.g., cones, barrels, signs, etc.) and be in total control of all items in implementing the traffic control for the project.

Trucking Participation

DBE trucking firm participation may only be credited as DBE participation for the value of the hauling services, not for the materials being hauled unless the trucking firm is also certified as a supplier of those materials. In situations where the DBE's work is priced per ton, the value of the hauling service must be calculated separately from the value of the materials in order to determine DBE credit for hauling

The DBE trucking firm must own and operate at least one licensed, insured and operational truck on the contract. The truck must be of the type that is necessary to perform the hauling duties required under the contract. The DBE receives credit for the value of the transportation services it provides on the Contract using trucks it owns or leases, licenses, insures, and operates with drivers it employs.

The DBE may lease additional trucks from another DBE firm. The DBE who leases additional trucks from another DBE firm receives credit for the value of the transportation services the lessee DBE provides on the Contract.

The trucking Work subcontracted to any non-DBE trucking firm will not receive credit for Work done on the project.

The DBE may lease trucks from a truck leasing company (recognized truck rental center) but can only receive credit towards DBE participation if the DBE uses its own employees as drivers.

DBE Supplier

The credit of a DBE Supplier is decided on a contract-by-contract basis based on what the role the proposed DBE Supplier will be performing. OECR will make determinations on whether a Supplier qualifies as a Regular Dealer, Distributor, or Transaction Facilitator based on their role for the Contract.

Manufacturer - One hundred percent (100%) of the cost of the manufactured product obtained from a DBE manufacturer may count towards the DBE COA Goal.

Regular Dealer - Sixty percent (60%) of the cost of materials or supplies purchased from a DBE Regular Dealer may be credited toward the DBE Goal.

Distributor – Forty percent (40%) of the cost of materials or supplies purchased from a DBE Distributor may be credited toward the DBE Goal.

Transaction Facilitator - only the fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on the job site, may toward the DBE COA Goal provided the fees are not excessive as compared with fees customarily allowed for similar services. The reasonable fee shall not exceed 5 percent of the total cost of the goods or services. Documentation will be required to support the fee/commission charged by the DBE. The cost of the materials and supplies themselves cannot be counted toward the DBE Goal.

Changes in COA Work Committed to DBE

The Contractor shall utilize the COA DBEs to perform the work and supply the materials for which each is committed unless prior written approval by the Engineer has been received by the Contractor. The Contractor shall not be entitled to any payment for work or material completed by the Contractor or subcontractors that was committed to be completed by the COA DBEs in the DBE Utilization Certification form.

Changes

In the event a change results in a reduction to Work committed to a COA DBE, the Contractor shall substitute other remaining Work to that COA DBE, if possible, to avoid a change to the total dollar amount to be applied towards the goal committed to that COA DBE. If there is a reduction to the total dollar amount to be applied towards the goal for a COA DBE Commitment, regardless of the reason, it shall be viewed as DBE termination, and subject to the termination

procedures below. A notification to the DBE shall occur as soon as possible but no later than two weeks after the Contractor is aware of the upcoming change.

Original Quantity Underruns
In the event that Work committed to a DBE firm as part of the COA underruns the original planned quantities the Contractor may be required to substitute other remaining Work to another DBE.

Contractor Proposed DBE Substitutions
Requests to substitute a COA DBE must be for good cause (see DBE termination process below) and requires prior written approval of the Engineer. After receiving a termination with good cause approval, the Contractor may only replace a DBE with another certified DBE. When any changes between Contract Award and Execution result in a substitution of COA DBE, the substitute DBE shall be certified prior to the bid opening on the Contract.

DBE Termination
Termination of a COA DBE (or an approved substitute DBE) is only allowed in whole or in part for good cause and with prior written approval of the Contracting Agency. If the Contractor terminates a COA DBE without the prior written approval of the Contracting Agency, the Contractor shall not be entitled to payment for work or material committed to, but not performed/supplied by the COA DBE. In addition, sanctions may apply as described elsewhere in this specification.

Prior to requesting approval to terminate a COA DBE, the Contractor shall give notice in writing to the DBE with a copy to the Engineer of its intent to request to terminate DBE Work and the reasons for doing so. The DBE shall have five (5) days to respond to the Contractor's notice. The DBE's response shall either support the termination or advise the Engineer and the Contractor of the reasons it objects to the termination of its subcontract.

If the request for termination is approved, the Contractor is required to substitute with another DBE to perform at least the same amount of work as the DBE that was terminated (or provide GFE Documentation). A plan to replace the COA DBE Commitment amount shall be submitted to the Engineer within 2 days of the approval of termination. The plan to replace the Commitment shall provide the same detail as that required in the DBE Utilization Certification.

As mentioned above, the Contractor must have good cause to terminate a COA DBE.

Good cause typically includes situations where the DBE subcontractor is unable or unwilling to perform the work of its subcontract. Good cause may exist if:

1. The DBE fails or refuses to execute a written contract.

2. The DBE fails or refuses to perform the Work of its subcontract in a way consistent with normal industry standards.

3. The DBE fails or refuses to meet the Contractor's reasonable nondiscriminatory bond requirements.

4. The DBE becomes bankrupt, insolvent, or exhibits credit unworthiness.

5. The DBE is ineligible to work on public works projects because of suspension and debarment proceedings pursuant to federal law or applicable State law.

6. The DBE is ineligible to receive DBE credit for the type of work involved.

7. The DBE voluntarily withdraws from the project and provides written notice of its withdrawal.

8. The DBE's work is deemed unsatisfactory by the Engineer and not in compliance with the Contract.

9. The DBE's owner dies or becomes disabled with the result that the DBE is unable to complete its Work on the Contract.

Good cause does not exist if:

1. The Contractor seeks to terminate a COA DBE so that the Contractor can self-perform the Work.

2. The Contractor seeks to terminate a COA DBE so the Contractor can substitute another DBE contractor or non-DBE contractor after Contract Award.

3. The failure or refusal of the COA DBE to perform its Work on the subcontract results from the bad faith or discriminatory action of the Contractor (e.g., the failure of the Contractor to make timely payments or the unnecessary placing of obstacles in the path of the DBE's Work).

Decertification

When a DBE is "decertified" from the DBE program during the course of the Contract, the participation of that DBE shall continue to count as DBE participation as long as the subcontract with the DBE was executed prior to the decertification notice. The Contractor is obligated to substitute when a DBE does not have an executed subcontract agreement at the time of decertification.

Good Faith Effort (GFE) Documentation

GFE Documentation is required and will be evaluated whenever the Contractor is unable to fulfill the program requirement. This evaluation may need to be repeated when:

1. Determining award of a Contract that has COA goal,

2. When a COA DBE is terminated and substitution is required, and

3. Prior to Physical Completion when determining whether the Contractor has satisfied its DBE commitments.

49 CFR Part 26, Appendix A is intended as general guidance and does not, in itself, demonstrate adequate good faith efforts. The following is a list of types of actions, which would be considered as part of the Bidder's GFE Documentation to achieve DBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

1. Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the Work of the Contract. The Bidder must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The Bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

2. Selecting portions of the Work to be performed by DBEs in order to increase the likelihood that the DBE COA Goal will be achieved. This includes, where appropriate, breaking out contract Work items into economically feasible units to facilitate DBE participation, even when the Bidder might otherwise prefer to perform these Work items with its own forces.

3. Providing interested DBEs with adequate information about the Plans, Specifications, and requirements of the Contract in a timely manner to assist them in responding to a solicitation.

    a. Negotiating in good faith with interested DBEs. It is the Bidder's responsibility to make a portion of the Work available to DBE subcontractors and suppliers and to select those portions of the Work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the Plans and Specifications for the Work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the Work.

    b. A Bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as the DBE COA Goal into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a Bidder's failure to meet the DBE COA Goal, as long as such costs are reasonable. Also, the ability or desire of a Bidder to perform the Work of a Contract with its own organization does not relieve the Bidder of the responsibility to make Good Faith Efforts. Bidders are not,

however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

4. Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The Bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the Bidder's efforts to meet the DBE COA Goal.

5. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or Bidder.

6. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

7. Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, State, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

8. GFE Documentation must include copies of each DBE and non-DBE subcontractor quotes submitted to the Bidder when a non-DBE subcontractor is selected over a DBE for Work on the Contract. (ref. updated DBE regulations - 26.53(b)(2)(vi) & App. A)

Administrative Reconsideration of GFE Documentation

A Bidder has the right to request reconsideration if the GFE Documentation submitted with their Bid was determined to be inadequate or without merit. If, during the life of the Contract, the Contractor submits an additional GFE Documentation and the Contracting Agency's GFE Documentation review determines a GFE Documentation is inadequate or has no merit, the Contractor has the right to request reconsideration of the Contracting Agency's determination.

1. The Bidder must request reconsideration within 48 hours of notification of GFE Documentation being inadequate or without merit, or the Bidder forfeits the right to reconsideration.

2 The reconsideration decision on the adequacy or merit of the Bidder's GFE Documentation shall be made by an official who did not take part in the original determination.

3 Only original GFE Documentation submitted as a supplement to the Bid will be considered. The Bidder shall not introduce new documentation at the reconsideration hearing.

4 The Bidder shall have the opportunity to meet in person with the official for the purpose of setting forth the Bidder's position as to why the GFE Documentation demonstrates a sufficient effort.

5 The reconsideration official shall provide the Bidder with a written decision on reconsideration within five working days of the hearing explaining the basis for their finding.

Consequences of Non-Compliance

Breach of Contract

Each contract with a Contractor (and each subcontract the Contractor signs with a subcontractor) must include the following assurance clause:

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

(1) Withholding monthly progress payments;

(2) Assessing sanctions;

(3) Liquidated damages; and/or

(4) Disqualifying the Contractor from future bidding as non-responsible.

If the Contractor or any subcontractor, of any tier, supplier, service providers, or professional services is deemed to be in non-compliance, the Contractor will be informed in writing by the Engineer that sanctions will be imposed for failure to meet the DBE COA Commitment and/or submit documentation of good faith efforts. The notice will state the specific sanctions to be imposed which may include impacting a Contractor or other entity's ability to participate in future contracts.

Sanctions

If it is determined that the Contractor's failure to meet all or part of the DBE COA Commitment is due to the Contractor's inadequate good faith efforts throughout the life of the Contract, including failure to submit timely, required Good Faith Efforts information and documentation, the Contractor may be required to pay DBE penalty equal to the amount of the unmet Commitment, in addition to the sanctions outlined in Section 1-07.11(5).

Payment

Compensation for all costs involved with complying with the conditions of this Specification and any other associated DBE requirements is included in payment for the associated Contract items of Work, except otherwise provided in the Specifications.

1-07.11.OPT4.FR1

(November 2, 2022)

Special Training Provisions

General Requirements

The Contractor's equal employment opportunity, affirmative action program shall include the requirements set forth below. The Contractor shall provide on-the-job training aimed at developing trainees to journey-level status in the trades involved. The number of training hours shall be *** $$1$$ ***. Trainees shall not be assigned less than 400 hours per individual per Contract. The Contractor may elect to accomplish training as part of the work of a subcontractor, however, the Prime Contractor shall retain the responsibility for complying with these Special Provisions (achieving the training goal). When the Contractor's training plan includes trainees for subcontractors or lower-tier subcontractors, this special provision shall be included in the subcontract.

Trainee Approval

The Contractor shall make every effort to employ/enroll minority and women trainees to the extent such persons are available within a reasonable recruitment area. This training provision is not intended and shall not be used to discriminate against any applicant for training, whether that person is a minority, woman or otherwise. A non-minority male trainee or apprentice may be approved provided the following requirements are met:

1. The Contractor is otherwise in compliance with the contract's Equal Employment Opportunity (EEO) and On-the-Job Training (OJT) requirements and provides documentation of the efforts taken to fill the specific training position with either minorities or females

2. or, if not otherwise in compliance, furnishes evidence of his/her systematic and direct recruitment efforts in regard to the position in question and in promoting the enrollment and/or employment of minorities and females in the craft which the proposed trainee is to be trained

3. and the Contractor has made a good faith effort towards recruiting of minorities and women. As a minimum good faith efforts shall consist of the following:

    a. Distribution of written notices of available employment opportunities with the Contractor and enrollment opportunities with its unions. Distribution should include but not be limited to; minority and female recruitment sources, WSDOT's OJT Support Services Coordinator, and minority and female community organizations.

    b. Records documenting the Contractor's efforts and the outcome of those efforts, to employ minority and female applicants and/or refer them to unions.

    c. Records reflecting the Contractor's efforts in participating in developing minority and female on-the-job training opportunities, including upgrading programs and apprenticeship opportunities.

d. Distribution of written notices to unions and training programs disseminating the Contractor's EEO policy and requesting cooperation in achieving EEO and OJT obligations (and their written responses). For assistance in locating trainee candidates, the Contractor may call WSDOT's OJT Support Services Coordinator at (360) 705-7090 or email ojtssinfo@wsdot.wa.gov.

No employee shall be employed as a trainee in any classification in which the employee has successfully completed a training course leading to journey-level worker status or in which the employee has been employed as a journey-level worker. The Contractor's records shall document the methods for determining the trainee's status and findings in each case. When feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

For the purpose of this specification, acceptable training programs are those employing trainees/apprentices registered with the following:

1. Washington State Department of Labor & Industries — State Apprenticeship Training Council (SATC) approved apprenticeship agreement:

    a. Pursuant to RCW 49.04.060, an apprenticeship agreement shall be;

        i. an individual written agreement between an employer and apprentice
        ii. a written agreement between (an employer or an association of employers) and an organization of employees describing conditions of employment for apprentices
        iii. a written statement describing conditions of employment for apprentices in a plant where there is no bona fide employee organization.

    All such agreements shall conform to the basic standards and other provisions of RCW Chapter 49.04.

2. Apprentices must be registered with U.S. Department of Labor — Apprenticeship Training, Employer, and Labor Services (ATELS) approved program.

    Or

3. Non-ATELS/SATC programs that have been submitted to the Contracting Agency for approval by the FHWA for the specific project.

Obligation to Provide Information

Upon starting a new trainee, the Contractor shall furnish the trainee a copy of the approved program the Contractor will follow in providing the training. Upon completion of the training, the Contractor shall provide the Contracting Agency with a certification showing the type and length of training satisfactorily completed by each trainee.

Training Program Approval

The Training Program shall meet the following requirements:

1. The Training Program (DOT Form 272-049) must be submitted to the Engineer for approval **prior to commencing contract work** and shall be resubmitted when modifications to the program occur.

2. The minimum length and type of training for each classification will be as established in the training program as approved by the Contracting Agency.

3. The Training Program shall contain the trades proposed for training, the number of trainees, the hours assigned to the trade and the estimated beginning work date for each trainee.

4. Unless otherwise specified, Training Programs will be approved if the proposed number of training hours equals the training hours required by contract and the trainees are not assigned less than 400 hours each.

5. After approval of the training program, information concerning each individual trainee and good faith effort documentation shall be submitted (on DOT Form 272-050).

6. Flagging programs will not be approved. Other programs that include flagging training will only be approved if the flagging portion is limited to an orientation of not more than 20 hours.

7. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower-level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Some off-site training is permissible as long as the training is an integral part of an approved training program.

8. It is normally expected that a trainee will begin training on the project as soon as feasible after start of work, utilizing the skill involved and remain on the project as long as training opportunities exist in the work classification or the trainee reaches journey-level status. It is not required that all trainees be on board for the entire length of the contract. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

9. Wage Progressions: Trainees will be paid at least the applicable ratios or wage progressions shown in the apprenticeship standards published by the Washington State Department of Labor and Industries. In the event that no training program has been established by the Department of Labor and Industries, the trainee shall be paid in accordance with the provisions of RCW 39.12.021, which reads as follows:

   > Apprentice workers employed upon public works projects for whom an apprenticeship agreement has been registered and approved with the State Apprenticeship Council pursuant to RCW 49.04, must be paid at

least the prevailing hourly rate for an apprentice of that trade. Any worker for whom an apprenticeship agreement has not been registered and approved by the State Apprenticeship Council shall be considered to be a fully qualified journey-level worker, and, therefore, shall be paid at the prevailing hourly rate for journey-level worker.

Compliance

In the event that the Contractor is unable to accomplish the required training hours but can demonstrate a good faith effort to meet the requirements as specified, then the Contracting Agency will adjust the training goals accordingly.

Noncompliance and Sanctions

When a contractor violates EEO provisions of the contract, the Contracting Agency may impose damages in accordance with WSDOT's Equal Opportunity Compliance Program and the FHWA 1273. These damages consist of additional administrative costs including, but not limited to, the inspection, supervision, engineering, compliance, and legal staff time and expenses necessary for investigating, reporting, and correcting violations, as well as loss of federal funding, if any. Damages attributable to a contractor's violations of the EEO provisions may be deducted from progress payments due the Contractor. Before any money is withheld, the Contractor will be provided with a notice of the basis of the violations, the amount to be withheld and provided an opportunity to respond. The monetary value of the sanction will be calculated on a case-by-case basis and based on the damages incurred by the Contracting Agency.

The Contracting Agency's decision to recover damages for an EEO violation does not limit its ability to suspend or revoke the contractor's pre-qualification status or seek other remedies as allowed by federal or state law. In appropriate circumstances, the Contracting Agency may also refer the Contractor to other state or federal authorities for additional sanctions.

Requirements for Non ATELS/SATC Approved Training Programs

Contractors who are not affiliated with a program approved by ATELS or SATC may have their training program approved (by FHWA) provided that the program is submitted for approval on DOT Form 272-049, and the following standards are addressed and incorporated in the Contractor's program:

1. The program establishes minimum qualifications for persons entering the training program.

2. The program shall outline the work processes in which the trainee will receive supervised work experience and training on-the-job and the allocation of the approximate time to be spent in each major process. The program shall include the method for recording and reporting the training completed shall be stated.

3. The program shall include a numeric ratio of trainees to journey-level worker consistent with proper supervision, training, safety, and continuity of employment. The ratio language shall be specific and clear as to application in terms of job site and workforce during normal operations (normally considered to fall between 1:10 and 1:4).

4. The terms of training shall be stated in hours. The number of hours required for completion to journey-level worker status shall be comparable to the apprenticeship hours established for that craft by the SATC. The following are examples of programs that are currently approved:

CRAFT	HOURS
Laborer	4,000
Ironworker	6,000
Carpenter	5,200-8,000
Construction Electrician	8,000
Operating Engineer	6,000-8,000
Cement Mason	5,400
Teamster	2,100

5. The method to be used for recording and reporting the training completed shall be stated.

Measurement

The Contractor may request that the total number of "training" hours for the contract be increased subject to approval by the Contracting Agency. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other sources do not prohibit other reimbursement. Reimbursement to the Contractor for off-site training as indicated previously may only be made when the Contractor does one or more of the following and the trainees are concurrently employed on a Federal-aid project:

1. contributes to the cost of the training,

2. provides the instruction to the trainee,

3. pays the trainee's wages during the off- site training period.

Reimbursement will be made upon receipt of a certified invoice that shows the related payroll number, the name of trainee, total hours trained under the program, previously paid hours under the contract, hours due this estimate, and dollar amount due this estimate. The certified invoice shall show a statement indicating the Contractor's effort to enroll minorities and women when a new enrollment occurs. If a trainee is participating in a SATC/ATELS approved apprenticeship program, a copy of the certificate showing apprenticeship registration must accompany the first invoice on which the individual appears. Reimbursement for training occurring prior to approval of the training program will be allowed if the Contractor verbally notifies the Engineer of this occurrence at the time the apprentice/trainee commences work. A trainee/apprentice, regardless of craft, must have worked on the contract for at least 20 hours to be eligible for reimbursement.

Training hours that are not in compliance with the approved training plan will not be measured.

Payment

The Contractor will be reimbursed under the item "Training" per hour for each hour of approved training provided under the Contract.

1-07.11.OPT6.FR1

(March 20, 2025)

Public Works Small and Veteran Businesses (PWSVB) and Minority and Women's Business Enterprises (MWBE) Participation

General Statement

The participation of minority, public works small, veteran-owned, and women business enterprises are an important strategic objective for the State of Washington. Contractors shall not create barriers to open and fair opportunities for all businesses, including MWBEs and PWSVBs, to participate in the Work on this Contract.

PWSVB and MWBE Abbreviations and Definitions

Broker - A business firm that provides a bona fide service, that assists in the procurement of personnel, facilities, equipment, materials, or supplies required for the performance of the Contract; or persons/companies who arrange or expedite transactions (i.e., arranging a transaction or service but does not provide a work product or enhancement).

Commercially Useful Function (CUF) – A firm performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by performing, managing, and supervising the work involved. To perform a commercially useful function, the firm must also be responsible, with respect to materials and supplies used on the contract, for ordering, negotiating price, paying for, determining quality and quantity, and installing (where applicable) for the material itself.

The PWSVB or MWBE firm does not perform a CUF if its role is limited to that of an extra participant in a transaction, contract, or Project through which the funds are passed to obtain the appearance of PWSVB or MWBE participation.

Good Faith Efforts – Efforts to achieve either the PWSVB Condition of Award (COA) goals at the time of Bid or the PWSVB Commitments in the PWSVB Plan at the completion of the project. The efforts will demonstrate, by their scope, intensity, and appropriateness to the objective, that the bidder can reasonably be expected to fulfill the program requirement.

Manufacturer (PWSVB or MWBE) – An PWSVB or MWBE firm that operates or maintains a factory or establishment that produces on the premises the materials, supplies, articles, or equipment required under the Contract. A Manufacturer shall produce finished goods or products from raw or unfinished material or purchase and substantially alters goods and materials to make them suitable for construction use before reselling them.

Minority Business Enterprise (MBE) – A minority owned business meeting the requirements of RCW 39.19 and WAC 326-20 and certified by the Washington State Office of Minority & Women's Business Enterprises.

Minority owned businesses can be located by searching the directory:

https://omwbe.wa.gov/directory-certified-businesses

Minority and Women's Business Enterprises (MWBE) - The combined term to refer to both a Minority Business Enterprises (MBEs) and Women's Business Enterprises (WBEs).

MWBE Goals (Voluntary) – Efforts to provide MWBE opportunities are encouraged in accordance with these Specifications and RCW 39.19.

Goals for voluntary MWBE participation have been established as a percentage of Contractor's total Bid amount.

The Contracting Agency has established the following two voluntary goals:

Minority	10%
Women	6%

Public Works Small Business Enterprise (PWSBE) – A public works small business meeting the requirements of RCW 39.19 and WAC 326-20 and certified by the Washington State Office of Minority & Women's Business Enterprises. Public Works Small businesses can be located by searching the directory:

https://omwbe.wa.gov/directory-certified-businesses

Public Works Small and Veteran Businesses (PWSVB) – The combined term to refer to both Public Works Small Business Enterprises (PWSBEs) and Veteran-Owned businesses (VOBs).

PWSVB COA Goals – At the time of bid, this is the minimum dollar amount of participation that the Bidder must commit to by submission of the PWSVB Plan and/or by Good Faith Effort (GFE). Each goal is expressed as a percentage of the Bid amount (as shown on the Proposal). There are two separate COA Goals that must be met: one for Public Works Small Business Enterprises and one for Veteran-Owned Businesses.

The Contracting Agency has established the following two enforceable COA Goals:

Public Works Small Business Enterprise (PWSBE) Goal	*** $$1$$ ***
Veteran-Owned Business (VOB) Goal	*** $$2$$ ***

PWSVB Commitment – The dollar amount and scope of work the Bidder indicates on each line of their PWSVB Plan (WSDOT Form 226-018) for each PWSBE or VOB firm. These Commitments will be incorporated into the Contract and shall be considered Contract requirements.

Public Works Small and Veteran Business Plan (PWSVB Plan) - The Plan that shows the dollar amount of the commitments for both Public Works Small Business Enterprises and Veteran-Owned Businesses to meet the PWSVB COA Goals.

Subcontractor, PWSVB or MWBE – An individual, partnership, firm, corporation, or joint venture who meet the definition of a Minority, Public Works Small, Women, or Veteran-Owned Business and who is sublet part of the Contract.

Supplier, PWSVB or MWBE – A firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials or supplies required for the

performance of a Contract are bought, kept in stock, and regularly sold to the public in the usual course of business. To be a Supplier, the PWSVB or MWBE firm must be an established business that engages in as its principal business and in its own name the purchase and sale of the products in question. A Supplier in such items as steel, cement, gravel, stone, and petroleum products need not own, operate, or maintain a place of business if it both owns and operates distribution equipment for the products. Any supplementing of suppliers' own distribution equipment shall be by long-term formal lease agreements and not on an ad-hoc basis. Brokers, packagers, manufacturers' representatives, or other persons who arrange or expedite transactions shall not be regarded as Suppliers within the meaning of this definition.

Veteran-Owned Business (VOB) – A veteran-owned business meeting the requirements of RCW 43.60A.010 and certified by the Department of Veterans Affairs. Veteran-Owned businesses can be located at:

https://www.dva.wa.gov/veterans-service-members-and-their-families/veteran-owned-businesses

Women Business Enterprise (WBE) – A women owned business meeting the requirements of RCW 39.19 and WAC 326-20 and certified by the Washington State Office of Minority & Women's Business Enterprises.

Women owned businesses can be located by searching the directory:

https://omwbe.wa.gov/directory-certified-businesses

Procedures Prior to Award

PWSVB Goals (Enforceable)

PWSVB COA Goals

The Contractor shall submit their PWSVB Plan (WSDOT Form 226-018) to demonstrate attainment of the PWSBE and VOB COA Goals. PWSBE and VOB Goals are independent. Work shown in the PWSVB Plan shall not apply to both PWSBE and VOB Goals. If the Contractor cannot meet these goals, a Good Faith Effort (GFE) is required.

Demonstrating compliance with the PWSBE and VOB COA Goals is a Condition of Award of this Contract. Failure to comply with these requirements may result in the Bid being found nonresponsive.

PWSVB Commitment

The Contractor is required to utilize each PWSBE or VOB firm identified on their PWSVB Plan (WSDOT Form 226-018) for each scope of work and dollar amount listed. A firm that is registered as both a PWSBE and VOB may split the total commitment between VOB and PWSBE to attain the PWSBE and VOB COA Goals.

PWSVB Plan

To be eligible for award of the Contract, the Bidder shall properly complete and submit a Public Works Small and Veteran Business Plan (PWSVB Plan). The PWSVB Plan shall be submitted on WSDOT Form 226-018. The Bidder's PWSVB Plan shall be submitted as specified in Section 1-02.9. The PWSVB Plan must clearly demonstrate how the Bidder intends to meet both the PWSBE

and VOB COA Goals. A PWSVB Plan (WSDOT Form 226-018) and instructions on how to properly fill out the form are included in the Proposal package.

When the Bidder elects to utilize force account Work to meet the PWSBE or VOB COA Goals, as shown on its PWSVB Plan, the Bidder shall not commit more than 50% of the force account bid item amount.

In the event of arithmetic errors in completing the PWSVB Plan, the amount listed to be applied towards the PWSBE or VOB Goals for each PWSVB firm shall govern and the PSSVB total amount shall be adjusted accordingly.

To be eligible for inclusion in the PWSVB Plan, PWSBE or VOB firms committed must be certified as described herein prior to the due date for bids on the Contract.

Written Confirmation

Prior to the award of the Contract and as specified in Section 1-02.9, the Contractor shall submit the PWSVB Subcontractor Written Confirmation Form (WSDOT Form 226-017) documentation from each PSSVB firm listed on the PWSVB Plan confirming their participation on the Contract for each amount listed in the PWSVB Plan.

Selection of Successful Bidder/Good Faith Efforts (GFE)

The Contracting Agency will consider as non-responsive and will reject any Bid Proposal submitted that does not contain a properly completed PWSVB Plan that shows compliance with the PWSBE and VOB COA goals.

Compliance with the PWSVB COA Goals requirements may be accomplished in one of two ways:

1. <u>By meeting the PWSVB COA Goals</u>
   Submission of the PWSVB Plan, showing the Bidder has obtained enough PWSBE or VOB participation to meet or exceed each of the PWSVB COA Goals

2. <u>By documentation that the Bidder made adequate GFE to meet the PWSVB COA Goals</u>

The Bidder may demonstrate a GFE in whole or part through GFE documentation ONLY IN THE EVENT a Bidder's efforts to solicit sufficient PWSVB participation have been unsuccessful. The Bidder must supply GFE documentation in addition to the PWSVB Plan.

GFE documentation shall be submitted as specified in Section 1-02.9.

Document Submittal Requirements

The Contracting Agency will review the GFE documentation and will determine if the Bidder made an adequate GFE.

GFE Documentation Prior to Award

GFE is evaluated when determining award of a Contract that has PWSVB COA Goals. The efforts employed by the Bidder should be commercially reasonable

and demonstrate they are actively and aggressively trying to fulfill the established PWSVB COA Goals. Mere pro forma efforts are not commensurate with a GFE.

The following is a list of types of actions, which would be considered as part of the Bidder's GFE to achieve PWSVB participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases:

1. Soliciting through all reasonable and available means (e.g., attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified PWSVB firms who have the capability to perform the Work of the Contract. The Bidder must solicit this interest within sufficient time to allow the PWSVB to respond to the solicitation. The Bidder must determine with certainty if the PWSVB firms are interested by taking appropriate steps to follow up initial solicitations.

2. Selecting portions of the Work to be performed by PWSVBs to increase the likelihood that the PWSVB COA Goals will be achieved. This includes, where appropriate, breaking out Contract Work items into economically feasible units to facilitate PWSVB participation, even when the Bidder might otherwise prefer to perform these Work items with its own forces.

3. Providing interested PWSVBs with adequate information about the Plans, Specifications, and requirements of the Contract in a timely manner to assist them in responding to a solicitation.

    a. Negotiating in good faith with interested PWSVBs. It is the Bidder's responsibility to make a portion of the Work available to PWSVBs and to select those portions of the Work or material needs consistent with the available PWSVBs, to facilitate PWSVB participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of PWSVBs that were considered; a description of the information provided regarding the Plans and Specifications for the Work selected for subcontracting; and evidence as to why additional agreements could not be reached for PWSVB firms to perform the Work.

    b. A Bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including PWSVB subcontractors, and would take a firm's price and capabilities as well as the PWSVB COA Goals into consideration. However, the fact that there may be some additional costs involved in finding and using PWSVBs is not in itself sufficient reason for a Bidder's failure to meet the PWSVB COA Goals, as long as such costs are reasonable. Also, the ability or desire of a Bidder to perform the Work of a Contract with its own organization does not relieve the Bidder of the responsibility to make a GFE. Bidders are not, however, required to accept higher quotes from PWSVB firms if the price difference is excessive or unreasonable.

4. Not rejecting PWSVB firms as being unqualified without sound reasons based on a thorough investigation of their capabilities. The Bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the Bidder's efforts to meet the PWSVB COA Goals.

5. Making efforts to assist interested PWSVB firms in obtaining bonding, lines of credit, or insurance as required by the recipient or Bidder.

6. Making efforts to assist interested PWSVB firms in obtaining necessary equipment, supplies, materials, or related assistance or services.

7. Effectively using the services of available organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of PWSVB firms.

8. Documentation of GFE must include copies of each PWSVB and non-PWSVB subcontractor quotes submitted to the Bidder when a non-PWSVB subcontractor is selected over a PWSVB for Work on the Contract.

Administrative Reconsideration of GFE Documentation Prior to Award
A Bidder has the right to request reconsideration if the GFE documentation submitted with their Bid was determined to be inadequate:

1. The Bidder must request within 48 hours of notification of being nonresponsive or forfeit the right to reconsideration.

2. The reconsideration decision on the adequacy of the Bidder's GFE documentation shall be made by an official who did not take part in the original determination.

3. Only original GFE documentation submitted as a supplement to the Bid shall be considered. The Bidder shall not introduce new documentation at the reconsideration hearing.

4. The Bidder shall have the opportunity to meet in person with the official for the purpose of setting forth the Bidder's position as to why the GFE documentation demonstrates a sufficient effort.

5. The reconsideration official shall provide the Bidder with a written decision on reconsideration within five working days of the hearing explaining the basis for their finding and at least 48 hours prior to award.

Procedures After Execution

MWBE Plan

The Contractor shall submit a MWBE Participation Plan as a Type 2 Working Drawing within 21 days after execution. The plan shall include the information identified in the guidelines at:

https://wsdot.wa.gov/sites/default/files/2021-10/OEOWSDOTParticpationPlanDraftingGuidelines.pdf

The Contractor shall submit an updated MWBE Participation Plan annually on the date the original Participation Plan was submitted. The Contractor shall provide a 30-calendar day review period for WSDOT review and comment on all MWBE Participation Plan submittals.

Commercially Useful Function (CUF)

For PWSVB and MWBE subcontractor and lower tier subcontractors, a valid subcontract must fully describe the Scope of Work committed to be performed by the firm. The subcontract shall incorporate requirements of the Contract. Subcontracts of all tiers, including lease agreements, shall be made available upon request.

The Contractor may only take credit for the payments made for work performed by a PWSVB or MWBE that is determined to be performing a CUF. Payment must be commensurate with the work performed by the PWSVB or MWBE. A PWSVB or MWBE that does not perform all of its responsibilities on a contract has not performed a CUF and their work cannot be counted toward PWSVB or MWBE Goals.

Leasing of equipment from a leasing company is allowed. However, leasing/purchasing equipment from the Contractor is not allowed. Lease agreements shall be readily available for review by the Engineer.

For a PWSVB or MWBE traffic control company to be considered to be performing a CUF, the firm must be in control of its work inclusive of supervision. The firm shall employ a Traffic Control Supervisor who is directly involved in the supervision of the traffic control employees and services.

Crediting Participation

Participation will be evaluated to determine if the Contractor has met both the PWSVB Commitments and MWBE Goals at completion of the project.

All non-COA PWSVB firms and MWBE firms shall be certified before the subcontract on which they are participating is executed.

When a PWSVB or MWBE firm loses its certification, the participation of that PWSVB or MWBE firm shall continue to count as PWSVB or MWBE participation as long as the subcontract with the PWSVB or MWBE firm was executed prior to the date the PWSVBE or MWBE firm lost its certification.

Only take credit for that portion of the total dollar value of the work that is equal to the distinct, clearly defined portion of the Work that the PWSVB or MWBE performs with its own forces. The value of work performed by the PWSVB or

MWBE includes the cost of supplies and materials purchased by the PWSVB or MWBE and equipment leased by the PWSVB or MWBE, for its work on the Contract. Supplies, materials, or equipment obtained by a PWSVB or MWBE that are not utilized or incorporated in the Contract work by the PWSVB or MWBE will not be eligible for PWSVB or MWBE credit.

The supplies, materials, and equipment purchased or leased from the Prime Contractor or its affiliate, including any Contractor's resources available to PWSVB or MWBE subcontractors at no cost, shall not be credited.

PWSVB or MWBE credit will not be given in instances where the equipment lease includes the operator. The PWSVB or MWBE is expected to operate the equipment used in the performance of its work under the contract with its own forces. Situations where equipment is leased and used by the PWSVB or MWBE, but payment is deducted from the Contractor's payment to the PWSVB or MWBE is not allowed.

PWSVB Commitment
Payments to each PWSBE or VOB firm shall demonstrate that the Commitments amounts have been met as shown on the SVB Plan.

Participation is credited to the PWSVB Commitments upon payment to the PWSBE or VOB.

MWBE Goals
Amounts paid to a MWBE will be credited to every MWBE Goal for which they are eligible. Participation may be credited for more than one category.

Participation is credited to the MWBE Goals upon payment to the eligible MWBE.

Prime Contractor Credit for Participation (PWSVB or MWBE)
Only take credit for that portion of the Work performed that the PWSVB or MWBE Prime Contractor did not sublet to other firms.

Subcontractor Credit for Participation
When the Prime contractor, subcontractor or lower tier subcontractor are part of a PWSVB or MWBE Plan, the following apply:

1. If a Prime Contractor, subcontractor, or lower tier subcontractor subcontracts a portion of the Work of its contract to another firm, the value of the subcontracted Work may be counted toward the PWSBE or VOB Commitments based on the following conditions:

    a. If a PWSBE Prime Contractor, subcontractor, or lower tier subcontractor subcontracts to a PWSBE the value can count toward the PWSBE Commitment.

    b. If a PWSBE Prime Contractor, subcontractor or lower tier subcontractor subcontracts to a non-PWSBE, the value cannot count toward the PWSBE Commitment.

c. If a VOB Prime Contractor, subcontractor, or lower tier subcontractor subcontracts with a VOB the value can count toward the VOB Commitment.

d. If a VOB Prime Contractor, subcontractor, or lower tier subcontractor subcontracts with a non-VOB the value cannot count toward the VOB Commitment.

e. Work subcontracted to a non-PWSVB does not count towards the PWSVB Commitments.

2. If a Prime Contractor, subcontractor, or lower tier subcontractor subcontracts a portion of the Work of its contract to another firm, the value of the subcontracted Work may be counted toward the MWBE Goals based on the following conditions:

a. Work subcontracted to a non-MWBE cannot be counted toward the MWBE goals.

b. Work subcontracted to another MWBE can be counted toward every MWBE goal for which the firm holds a certification.

c. Work subcontracted by a MWBE firm who also is a PWSVB, will be credited toward the PWSVB Commitment as described in section 1.

d. Work subcontracted to a non-MWBE cannot be counted toward the MWBE goals.

Broker Credit for Participation

When a PWSVB or MWBE participates as a broker (i.e., arranging a transaction or service but does not provide a work product or enhancement), only the dollar value of the reasonable fee may count toward the PWSVB Commitments or MWBE Goals. For purposes of PWSVB or MWBE Brokers, a reasonable fee shall not exceed 5 percent of the total cost of the goods or services brokered.

Manufacturer and Supplier Credit for Participation

If materials or supplies are obtained from a PWSVB or MWBE Manufacturer, one hundred percent (100%) of the cost of materials or supplies can count toward the PWSVB Commitments or MWBE Goals.

One hundred percent (100%) of the cost of materials or supplies purchased from a PWSVB or MWBE Supplier may be credited toward meeting the PWSVB Commitments or MWBE Goals. If the role of the PWSVB or MWBE Supplier is determined to be that of a pass-through, then no credit will be given for its services. If the role of the PWSVB or MWBE Supplier is determined to be that of a Broker, then credit shall be limited to the fee or commission it receives for its services, subject to the provision listed in “Broker Credit for Participation.”

Force Account Work
One hundred percent (100%) of the actual amounts paid to a PWSVB or MWBE shall count toward the PWSVB Commitments or MWBE Goals.

Service Provider Credit for Participation
When a PWSVB or MWBE participates as a service provider or consultant and provides a bona fide service such as professional, technical, consultant, or managerial services, 100% of the total cost counts toward the PWSVB Commitments or MWBE Goals if the firm performs a CUF.

Trucking Credit for Participation
PWSVB or MWBE trucking firm participation may only be credited as participation for the value of the hauling services, not for the materials being hauled unless the trucking firm is also certified as a supplier. In situations where the firm's work is priced per ton, the value of the hauling service must be calculated separately from the value of the materials in order to determine credit for hauling.

The PWSVB or MWBE trucking firm must own and operate at least one licensed, insured, and operational truck on the contract. The truck must be of the type that is necessary to perform the hauling duties required under the contract. The firm receives credit for the value of the transportation services it provides on the Contract using trucks it owns or leases, licenses, insures, and operates with drivers it employs.

The PWSVB or MWBE firm may lease additional trucks from another SVBE or MWBE firm. The Work that a PWSVB or MWBE trucking firm performs with trucks it leases from other certified trucking firms qualify for 100% credit.

The trucking Work subcontracted to any non-PWSVB or MWBE trucking firm will not receive credit for Work done on the project. The PWSVB or MWBE trucking firm may lease trucks from a non-PWSVB or MWBE truck leasing company but can only receive credit as PWSVB or MWBE participation if the PWSVB or MWBE firm uses its own employees as drivers.

PWSVB or MWBE credit for a truck broker is limited to the fee/commission that the firm receives for arranging transportation services, subject to the provision listed in "Broker Credit for Participation."

Reporting Participation for Credit
The Contractor and any subcontractor, supplier, service provider, broker, or manufacturer of any tier that utilize PWSVB or MWBE firms to perform Work on the project, shall maintain appropriate records that will enable the Engineer to verify PWSVB and MWBE participation throughout the life of the project.

Refer to Section 1-08.1 for additional reporting requirements associated with this contract. The Contractor shall report amounts paid in accordance with Section 1-08.1 in order to receive credit for participation.

Joint Checks

A joint check is a check between a Subcontractor and the Contractor to the supplier of materials/supplies. The check is issued by the Contractor as payer to the Subcontractor and the material supplier jointly for items to be incorporated into the project. The PWSVB or MWBE must release the check to the supplier, while the Contractor acts solely as the guarantor.

A joint check agreement must be approved by the Engineer and requested by the PWSVB or MWBE involved using the DBE Joint Check Request Form (WSDOT Form #272-053) prior to its use. The form must accompany the PWSVB or MWBE Joint Check Agreement between the parties involved, including the conditions of the arrangement and expected use of the joint checks.

The approval to use joint checks and the use will be closely monitored by the Engineer. To receive PWSVB or MWBE credit for performing a CUF with respect to obtaining materials and supplies, the PWSVB or MWBE must "be responsible for negotiating price, determining quality and quantity, ordering the material, installing and paying for the material itself." The Contractor shall submit DBE Joint Check Request Form for the Engineer approval prior to using a joint check.

Material costs paid by the Contractor directly to the material supplier are not allowed. If proper procedures are not followed or the Engineer determines that the arrangement results in lack of independence for the SVBE or MWBE involved, no SVBE or MWBE credit will be given for the participation as it relates to the material cost.

Changes in PWSVB Commitment

The Contractor shall utilize the PWSVB Commitment (COA) firms to perform all of the Work and supply all of the materials for which each is committed unless otherwise approved in writing by the Engineer. Any reduction in the Work committed to any PWSVB Commitment (COA) firm, or performance of Work previously designated for a PWSVB Commitment (COA) firm by any other firm or by the Contractor's own forces, shall be considered a termination, and requires the prior written consent of the Engineer. Termination requests shall be submitted in writing to the Engineer, who shall either grant or deny such request in writing. No termination shall become effective unless and until the Engineer provides written approval. Changes to PWSVB Commitments will be documented in accordance with Section 1-04.4 and shall be considered amendments to the Contractor's PWSVB Plan.

Approval of PWSBE Termination

Termination of a PWSVB Commitment (COA) firm is only allowed in whole or in part for good cause and with written approval of the Engineer. If a PWSVB Commitment (COA) firm is terminated without the written approval of the Engineer, the Contractor shall not be entitled to payment for Work or material committed to, but not performed/supplied by, the PWSVB Commitment (COA) firm. In addition, the Contractor may be subject to the remedies set forth elsewhere in this Special Provision.

Prior to requesting approval to terminate a PWSVB Commitment (COA) firm, the Contractor shall give notice in writing to the PWSVB Commitment

(COA) firm with a copy to the Engineer of its intent to request to terminate PWSVB Commitment (COA) Work and shall cite the cause for doing so, with supporting documentation. The PWSVB Commitment (COA) firm shall have five (5) days to respond to the Contractor's notice. The PWSVB Commitment (COA) firm's response shall either support the termination or advise the Engineer and the Contractor of the reasons it objects to the termination.

Cause for Termination

The Contractor must have good cause to terminate a PWSVB Commitment (COA) firm. Good cause includes situations where the PWSVB Commitment (COA) firm is unable or unwilling to perform the work of its subcontract. Good cause may exist if:

1. The PWSVB Commitment (COA) firm fails or refuses to execute a written contract.

2. The PWSVB Commitment (COA) firm fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards.

3. The PWSVB Commitment (COA) firm fails or refuses to meet the Contractor's reasonable nondiscriminatory bond requirements.

4. The PWSVB Commitment (COA) firm becomes bankrupt, insolvent, or exhibits credit unworthiness.

5. The PWSVB Commitment (COA) firm is ineligible to work on public works projects because of suspension and debarment proceedings pursuant to federal law or applicable State law.

6. The PWSVB Commitment (COA) firm is ineligible to receive PWSVB COA credit for the type of work involved.

7. The PWSVB Commitment (COA) firm voluntarily withdraws from the project and provides written notice of its withdrawal.

8. The PWSVB Commitment (COA) firm's work is deemed unsatisfactory by the Engineer and not in compliance with the Contract.

9. The PWSVB Commitment (COA) firm's owner dies or becomes disabled with the result that the PWSVB Commitment (COA) firm is unable to complete its work on the Contract.

Good cause does not exist if:

1. The Contractor seeks to terminate a PWSVB Commitment (COA) firm so that the Contractor can self-perform the work.

2. The Contractor seeks to terminate a PWSVB Commitment (COA) firm so the Contractor can substitute another PWSVB firm or non-PWSVB firm after Contract Award.

3. The failure or refusal of the PWSVB Commitment (COA) firm to perform its work on the subcontract results from the bad faith or discriminatory action of the Contractor (e.g., the failure of the Contractor to make timely payments or the unnecessary placing of obstacles in the path of the PWSVB Commitment (COA) firm's Work).

Owner-Initiated Changes

In instances where the Engineer makes changes that result in changes to Work that was part of a PWSVB Commitment, the Contractor may be directed to substitute for the Work. The Contractor shall notify the Engineer if any owner-initiated change impacts the PWSVB commitment, prior to any changes to the Contract. Changes will be addressed in accordance with Section 1-04.4.

Contractor-Initiated Changes

The Contractor cannot change the scope or reduce the amount of Work as part of a PWSVB Commitment without good cause. Reducing a PWSVB Commitment is viewed as a partial termination, and therefore subject to the termination procedures above.

Quantity Underruns

If a variation in estimated quantities occurs that affects a PWSVB Commitment, that unmet Commitment will not be considered a termination, provided that the Contractor can demonstrate that the variation in quantities directly impacted the Commitment. The Contractor shall provide such documentation if requested by the Engineer.

The Contractor may be required to substitute other remaining Work to another PWSVB firm to meet the dollar amounts committed to in their PWSVB Plan.

Good Faith Effort (GFE) Documentation After Execution

If the Contractor fails to fulfill the PWSVB Commitment to in their PWSVB Plan, a Good Faith Effort shall be submitted for approval. GFE documentation shall follow the requirements for GFE Documentation Prior to Award.

In addition, the GFE shall address the impact of overruns and underruns on the ability of the Contractor to meet the dollar amounts committed to in their PWSVB Plan. Overruns and underruns may be considered a reason for not attaining the PWSVB dollar amounts committed to in their PWSVB Plan. The GFE shall include enough information for the Engineer to evaluate the impact the overrun or underrun had on the PWSVB participation.

Administrative Reconsideration of GFE Documentation After Execution

When the Contracting Agency's GFE documentation review determines a GFE has no merit, the Contractor has the right to request reconsideration of the Contracting Agency's determination.

1. The Contractor must request reconsideration within five (5) working days of notification of GFE documentation being deemed inadequate.

2. The reconsideration decision on the adequacy of the Contractor's GFE documentation shall be made by an official who did not take part in the original determination.

3. Only original GFE documentation submitted shall be considered. The Contractor shall not introduce new documentation at the reconsideration hearing.

4. The Contractor shall have the opportunity to meet in person with the official for the purpose of setting forth the Contractor's position as to why the GFE documentation demonstrates a sufficient effort.

5. The reconsideration official shall provide the Contractor with a written decision on reconsideration within five (5) working days of the hearing, explaining the basis for their finding.

Remedies for Failure to Meet PWSVB Requirements

Upon completion of a project, a Prime Contractor Performance Report will document whether the Contractor met the Commitments in their PWSVB Plan or GFE. Failure to meet the Commitments in the PWSVB Plan or provide an acceptable GFE may lead to the following:

1. Suspension of a Contractor's prequalification; and/or

2. Withholding from the Contractor of an amount up to the value of the un-met PWSBE or VOB Commitments

Failure to utilize the PWSVB Commitment (COA) firms listed in the PWSVB Plan for the Work for which they were listed, unless termination was approved in in writing by the Contracting Agency, will be reflected on the Prime Contractor Performance Report.

Payment

Compensation for all costs involved with complying with the conditions of this Special Provision and any other associated PWSVB or MWBE requirements are included in payment for the associated Contract items of Work, except otherwise provided in the Specifications.

1-07.11.OPT7.FR1

(October 3, 2022)

Federal Small Business Enterprise Participation

The Federal Small Business Enterprise (FSBE) Program is an element of the Disadvantaged Business Enterprise (DBE) in accordance with the requirements of 49 CFR Part 26.39. Failure to comply with the requirements of this Specification may result in sanctions as provided by the Contract.

FSBE Abbreviations and Definitions

Broker – A business firm that provides a bona fide service, such as professional, technical, consultant or managerial services and assistance in the procurement of essential personnel, facilities, equipment, materials, or supplies required for the performance of the Contract; or, persons/companies who arrange or expedite transactions.

Certified Business Description – Specific descriptions of work the FSBE is certified to perform, as identified in the Certified Firm Directory, under the Vendor Information page.

Certified Firm Directory – A database of all Minority, Women, and Disadvantaged Business Enterprises, including those identified as a FSBE, currently certified by Washington State. The on-line Directory is available to Bidders for their use in identifying and soliciting interest from FSBE firms. The database is located under the Firm Certification section of the Diversity Management and Compliance System web page at: https://omwbe.diversitycompliance.com.

Firms certified by OMWBE as SBE, DBE can be used to fulfill the FSBE mandatory goal on a project.

Commercially Useful Function (CUF) – 49 CFR 26.55(c)(1) defines commercially useful function as: "A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, you must evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors."

FSBE – A firm certified by OMWBE as meeting Federal requirements of a small business enterprise. All firms on the OMWBE Certified Firm Directory with the designation of SBE or DBE are FSBEs.

Good Faith Efforts – Efforts to achieve the FSBE Goal or other requirements of this part which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement.

Manufacturer (FSBE) – A FSBE firm that operates or maintains a factory or establishment that produces on the premises the materials, supplies, articles, or equipment required under the Contract. A FSBE Manufacturer shall produce finished goods or products from raw or unfinished material or purchase and substantially alters goods and materials to make them suitable for construction use before reselling them.

Reasonable Fee (FSBE) – For purposes of Brokers or service providers a reasonable fee shall not exceed 5% of the total cost of the goods or services brokered.

Regular Dealer (FSBE) – A FSBE firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials or supplies required for the performance of a Contract are bought, kept in stock, and regularly sold to the public in the usual course of business. To be a Regular Dealer, the FSBE firm must be an established regular business that engages in as its principal business and in its own name the purchase and sale of the products in question. A Regular Dealer in such items as steel, cement, gravel, stone, and petroleum products need not own, operate or maintain a place of business if it both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by long-term formal lease agreements and not on an ad-hoc basis. Brokers, packagers, manufacturers' representatives, or other persons who arrange or expedite transactions shall not be regarded as Regular Dealers within the meaning of this definition.

FSBE Goal

The Contracting Agency has established a FSBE Goal for this Contract in the amount of: *** $$1$$ ***

Crediting FSBE Participation

All FSBE subcontractors shall be certified before the subcontract on which they are participating is executed.

FSBE participation is only credited upon payment to the FSBE.

The following are some definitions of what may be counted as FSBE participation.

FSBE Prime Contractor

Only take credit for that portion of the total dollar value of the Contract equal to the distinct, clearly defined portion of the Work that the FSBE Prime Contractor performs with its own forces and is certified to perform.

FSBE Subcontractor

Only take credit for that portion of the total dollar value of the subcontract that is equal to the distinct, clearly defined portion of the Work that the FSBE performs with its own forces and is certified to perform. The value of work performed by the FSBE includes the cost of supplies and materials purchased by the FSBE and equipment leased by the FSBE, for its work on the contract. Supplies, materials or equipment obtained by a FSBE that are not utilized or incorporated in the contract work by the FSBE will not be eligible for FSBE credit.

The supplies, materials, and equipment purchased or leased from the Contractor or its affiliate, including any Contractor's resources available to FSBE subcontractors at no cost, shall not be credited.

FSBE credit will not be given in instances where the equipment lease includes the operator. The FSBE is expected to operate the equipment used in the performance of its work under the contract with its own forces. Situations where

equipment is leased and used by the FSBE, but payment is deducted from the Contractor's payment to the FSBE is not allowed.

When the subcontractor is a FSBE, the following apply:

1. If a FSBE subcontracts a portion of the Work of its contract to another firm, the value of the subcontracted Work may be counted toward the FSBE Goal only if the lower-tier subcontractor is also a FSBE.

2. Work subcontracted to a non-FSBE does not count towards the FSBE Goal nor FSBE participation.

FSBE Subcontract and Lower Tier Subcontract Documents
There must be a subcontract agreement that complies with 49 CFR Part 26 and fully describes the distinct elements of Work committed to be performed by the FSBE.

FSBE Service Provider
The value of fees or commissions charged by a FSBE firm behaving in a manner of a Broker, or another service provider for providing a bona fide service, such as professional, technical, consultant, managerial services, or for providing bonds or insurance specifically required for the performance of the contract will only be credited as FSBE participation, if the fee/commission is determined by the Contracting Agency to be reasonable and the firm has performed a CUF.

Temporary Traffic Control
If the FSBE firm is being utilized in the capacity of only "Flagging", the FSBE firm must provide a Traffic Control Supervisor (TCS) and flagger, which are under the direct control of the FSBE. The FSBE firm shall also provide all flagging equipment (e.g. paddles, hard hats, and vests).

If the FSBE firm is being utilized in the capacity of "Traffic Control Services", the FSBE firm must provide a TCS, flaggers, and traffic control items (e.g., cones, barrels, signs, etc.) and be in total control of all items in implementing the traffic control for the project.

Trucking
FSBE trucking firm participation may only be credited as FSBE participation for the value of the hauling services, not for the materials being hauled unless the trucking firm is also certified as a supplier of those materials. In situations where the FSBE's work is priced per ton, the value of the hauling service must be calculated separately from the value of the materials in order to determine FSBE credit for hauling

The FSBE trucking firm must own and operate at least one licensed, insured and operational truck on the contract. The truck must be of the type that is necessary to perform the hauling duties required under the contract. The FSBE receives credit for the value of the transportation services it provides on the Contract using trucks it owns or leases, licenses, insures, and operates with drivers it employs.

The FSBE may lease additional trucks from another FSBE firm. The FSBE who leases additional trucks from another FSBE firm receives credit for the value of the transportation services the lessee FSBE provides on the Contract.

The trucking Work subcontracted to any non-FSBE trucking firm will not receive credit for Work done on the project.

The FSBE may lease trucks from a truck leasing company (recognized truck rental center), but can only receive credit towards FSBE participation if the FSBE uses its own employees as drivers.

FSBE Manufacturer and FSBE Regular Dealer

One hundred percent (100%) of the cost of the manufactured product obtained from a FSBE manufacturer can count as FSBE participation. If the manufacturer is a FSBE, participation may count towards the FSBE Goal.

Sixty percent (60%) of the cost of materials or supplies purchased from a FSBE Regular Dealer may be credited as FSBE Participation. If the role of the FSBE Regular Dealer is determined to be that of a Broker, then FSBE credit shall be limited to the fee or commission it receives for its services. Regular Dealer status and the amount of credit is determined on a Contract-by-Contract basis. If the regular dealer is a FSBE, participation may count towards the FSBE Goal.

FSBE firms proposed to be used as a Regular Dealer must be approved before being used on a project. The WSDOT Approved Regular Dealer list published on WSDOT's Office of Equal Opportunity (OEO) web site must include the specific project for which approval is being requested. For purposes of FSBE Goal participation, the Regular Dealer must submit the Regular Dealer Status Request form and receive approval prior to providing any equipment or materials or the signing of a purchase order, invoice, or subcontract.

Purchase of materials or supplies from a FSBE which is neither a manufacturer nor a regular dealer, (i.e. Broker) only the fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site, can count as FSBE participation provided the fees are not excessive as compared with fees customarily allowed for similar services. Documentation will be required to support the fee/commission charged by the FSBE. The cost of the materials and supplies themselves cannot be counted toward as FSBE participation.

Good Faith Effort Documentation

GFE is evaluated prior to Physical Completion when determining whether the Contractor has satisfied its FSBE Goal.

The Contracting Agency will measure GFE using the guidance in 49 CFR Part 26, Appendix A. The following is a list of the types of actions which may be considered as part of the Contractor's GFE to achieve FSBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

1. Solicited through all reasonable and available means the interest of all certified FSBEs who had the capability to perform the Work of the Contract. The Contractor must have solicited this interest within sufficient time to allow the FSBEs to respond to the solicitation. The Contractor must have determined with certainty that the FSBEs were interested by taking appropriate steps to follow up initial solicitations with potential FSBEs.

2. Selected portions of the Work to be performed by FSBEs in order to increase the likelihood that the FSBE Goal would be achieved. This includes, where appropriate, breaking out contract Work items into economically feasible units to facilitate FSBE participation, even when the Contractor might otherwise prefer to perform these Work items with its own forces.

3. Provided interested FSBEs with adequate information about the Plans, Specifications, and requirements of the Contract in a timely manner to assist them in responding to a solicitation.

    a. Negotiated in good faith with interested FSBEs. It is the Contractor's responsibility to make a portion of the Work available to FSBE subcontractors and suppliers and to select those portions of the Work or material needs consistent with the available FSBE subcontractors and suppliers, so as to facilitate FSBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of FSBEs that were contacted; a description of the information provided regarding the Plans and Specifications for the Work selected for subcontracting; and evidence as to why additional agreements could not be reached for FSBEs to perform the Work.

    b. A Contractor using good business judgment would consider a number of factors in negotiating with subcontractors, including FSBE subcontractors, and would take a firm's price and capabilities as well as the FSBE Goal into consideration. The fact that there may be some additional costs involved in finding and using FSBEs is not in itself sufficient reason for a Bidder's failure to meet the FSBE Goal, as long as such costs are reasonable. Also, the ability or desire of a Contractor to perform the Work of a Contract with its own organization does not relieve the Contractor of the responsibility to make Good Faith Efforts. Contractors are not, however, required to accept higher quotes from FSBEs if the price difference was excessive or unreasonable.

4. Not rejecting FSBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The Contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the Contractor's efforts to meet the FSBE Goal.

5. Made efforts to assist interested FSBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.

6. Made efforts to assist interested FSBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

7. Effectively used the services of available minority/women community organizations; minority/women contractors' groups; local, State, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of FSBEs.

8. Documentation of GFE must include copies of each FSBE and non-FSBE subcontractor quotes submitted to the Bidder when a non-FSBE subcontractor is selected over a FSBE for Work on the Contract.

Procedures after Execution

Commercially Useful Function (CUF)

The Contractor may only take credit for the payments made for Work performed by a FSBE that is determined to be performing a CUF. Payment must be commensurate with the work actually performed by the FSBE. This applies to all FSBEs performing Work on a project, if the Contractor wants to receive credit for their participation. The Engineer will conduct CUF reviews to ascertain whether FSBEs are performing a CUF. A FSBE performs a CUF when it is carrying out its responsibilities of its contract by actually performing, managing, and supervising the Work involved. The FSBE must be responsible for negotiating price; determining quality and quantity; ordering the material, installing (where applicable); and paying for the material itself. If a FSBE does not perform "all" of these functions on a furnish-and-install contract, it has not performed a CUF and the cost of materials cannot be counted toward FSBE Goal. Leasing of equipment from a leasing company is allowed. However, leasing/purchasing equipment from the Contractor is not allowed. Lease agreements shall be provided prior to the Subcontractor beginning Work. Any use of the Contractor's equipment by a FSBE may not be credited as countable participation.

The FSBE does not perform a CUF if its role is limited to that of an extra participant in a transaction, contract, or project through which the funds are passed in order to obtain the appearance of FSBE participation.

In order for a FSBE traffic control company to be considered to be performing a CUF, the FSBE must be in control of its work inclusive of supervision. The FSBE shall employ a Traffic Control Supervisor who is directly involved in the management and supervision of the traffic control employees and services.

The following are some of the factors that the Engineer will use in determining whether a FSBE trucking company is performing a CUF:

- The FSBE shall be responsible for the management and supervision of the entire trucking operation for which it is responsible on the contract. The owner demonstrates business related knowledge, shows up on site and is determined to be actively running the business.

- The FSBE itself shall own and operate at least one fully licensed, insured, and operational truck used on the Contract. The drivers of the trucks owned and leased by the FSBE must be exclusively employed by the FSBE and reflected on the FSBE's payroll.

- Lease agreements for trucks shall indicate that the FSBE has exclusive use of and control over the truck(s). This does not preclude the leased truck from working for others provided it is with the consent of the FSBE and the lease provides the FSBE absolute priority for use of the leased truck.

- Leased trucks shall display the name and identification number of the FSBE.

Truck Unit Listing Log

In addition to the subcontracting requirements of Section 1-08.1, each FSBE trucking firm shall submit supplemental information consisting of a completed Primary UDBE/DBE/FSBE Truck Unit Listing Log (WSDOT Form 350-077) and all Rental/Lease agreements (if applicable). The supplemental information shall be submitted in an electronic format to the Engineer prior to any trucking services being performed for FSBE credit. Incomplete or incorrect supplemental information will be returned for correction. The corrected Primary Truck Unit Listing Log and any Updated Primary Truck Unit Listing Logs shall be submitted and accepted by the Engineer no later than ten calendar days of utilizing applicable trucks. Failure to submit or update the DBE Truck Unit Listing Log may result in trucks not being credited as FSBE participation.

Each FSBE trucking firm shall complete a Daily Truck Unit Listing Log for each day that the FSBE performs trucking services for FSBE credit. The Daily Truck Unit Listing Log forms shall be submitted by Friday of the week after the Work was performed by email to the following email address for the region administering the Contract:

Eastern Region - ERRegionOEO@wsdot.wa.gov
North Central Region - NCRegionOEO@wsdot.wa.gov
Northwest Region - NWRegionOEO@wsdot.wa.gov
Olympic Region - ORegionOEO@wsdot.wa.gov
South Central Region - SCRegionOEO@wsdot.wa.gov
Southwest Region - SWRegionOEO@wsdot.wa.gov
Washington State Ferries - FerriesOEO@wsdot.wa.gov

Joint Checking

A joint check is a check between a subcontractor and the Contractor to the supplier of materials/supplies. The check is issued by the Contractor as payer to the subcontractor and the material supplier jointly for items to be incorporated into the project. The FSBE must release the check to the supplier, while the Contractor acts solely as the guarantor.

A joint check agreement must be approved by the Engineer and requested by the FSBE involved using the DBE Joint Check Request Form (WSDOT Form #272-053) prior to its use. The form must accompany the FSBE Joint Check

Agreement between the parties involved, including the conditions of the arrangement and expected use of the joint checks.

The approval to use joint checks and the use will be closely monitored by the Engineer. To receive FSBE credit for performing a CUF with respect to obtaining materials and supplies, a FSBE must "be responsible for negotiating price, determining quality and quantity, ordering the material, installing and paying for the material itself." The Contractor shall submit DBE Joint Check Request Form for the Engineer approval prior to using a joint check.

Material costs paid by the Contractor directly to the material supplier are not allowed. If proper procedures are not followed or the Engineer determines that the arrangement results in lack of independence for the FSBE involved, no FSBE credit will be given for the FSBE's participation as it relates to the material cost.

Prompt Payment

Prompt payment to all subcontractors shall be in accordance with Section 1-08.1. Prompt payment requirements apply to progress payments as well as return of retainage.

Subcontracts

Prior to a FSBE performing Work on the Contract, an executed subcontract between the FSBE and the Contractor shall be submitted to the Engineer. The executed subcontracts shall be submitted by email to the following email address for the region administering the Contract:

Eastern Region – ERRegionOEO@wsdot.wa.gov
North Central Region – NCRegionOEO@wsdot.wa.gov
Northwest Region – NWRegionOEO@wsdot.wa.gov
Olympic Region – ORegionOEO@wsdot.wa.gov
South Central Region – SCRegionOEO@wsdot.wa.gov
Southwest Region – SWRegionOEO@wsdot.wa.gov
Washington State Ferries – FerriesOEO@wsdot.wa.gov

Reporting

The Contractor and all subcontractors/suppliers/service providers that utilize FSBEs to perform work on the project, shall maintain appropriate records that will enable the Engineer to verify FSBE participation throughout the life of the project.

Refer to Section 1-08.1 for additional reporting requirements associated with this contract.

Decertification

When a FSBE is "decertified" from the FSBE program during the course of the Contract, the participation of that FSBE shall continue to count as FSBE participation as long as the subcontract with the FSBE was executed prior to the decertification notice. The Contractor is obligated to substitute when a FSBE does not have an executed subcontract agreement at the time of decertification.

Sanctions

If it is determined that the Contractor's failure to meet all or part of the FSBE Goal is due to the Contractor's inadequate good faith efforts throughout the life of the Contract, including failure to submit timely, required Good Faith Efforts information and documentation, the Contractor may be required to pay FSBE penalty equal to the amount of the unmet Goal, in addition to the sanctions outlined in Section 1-07.11(5).

Payment

Compensation for all costs involved with complying with the conditions of this Specification and any other associated FSBE requirements is included in payment for the associated Contract items of Work, except otherwise provided in the Specifications.

1-07.12.GR1

Federal Agency Inspection

1-07.12.INST1.GR1

Section 1-07.12 is supplemented with the following:

1-07.12.OPT1.GR1

(October 3, 2023)

Required Federal Aid Provisions

The Required Contract Provisions Federal Aid Construction Contracts (FHWA 1273) Revised October 23, 2023 and the amendments thereto supersede any conflicting provisions of the Standard Specifications and are made a part of this Contract; provided, however, that if any of the provisions of FHWA 1273, as amended, are less restrictive than Washington State Law, then the Washington State Law shall prevail.

The provisions of FHWA 1273, as amended, included in this Contract require that the Contractor insert the FHWA 1273 and amendments thereto in each subcontract, together with the wage rates which are part of the FHWA 1273, as amended. Also, a clause shall be included in each subcontract requiring the subcontractors to insert the FHWA 1273 and amendments thereto in any lower tier subcontracts, together with the wage rates. The Contractor shall also ensure that this section, REQUIRED FEDERAL AID PROVISIONS, is inserted in each subcontract for subcontractors and lower tier subcontractors. For this purpose, upon request to the Engineer, the Contractor will be provided with extra copies of the FHWA 1273, the amendments thereto, the applicable wage rates, and this Special Provision.

1-07.12.OPT2.FR1

(October 3, 2022)

Indian Preference and Tribal Ordinances

This project is located on the *** $$1$$ ***. It is the Contractor's responsibility to contact the person and/or office listed in this special provision to determine whether any tribal laws or taxes apply. If the tribal laws and taxes do apply, the Contractor shall comply with them in accordance with Section 1-07.1. For informational purposes only, the Work on this project that falls within Tribal Lands is shown on the Summary of Quantities in Group(s) *** $$2$$ ***.

Tribal Employment Rights Ordinances (TEROs) may utilize a variety of tools to encourage Indian employment. These tools may include, but are not limited to, TERO fees, Indian

hiring preference, Indian-owned business subcontracting preference and/or an Indian training requirement. Other requirements may be a Tribal business license, a required compliance plan and/or employee registration requirements. Every tribe is different and each may be willing to work cooperatively with the Contractor to develop a strategy that works for both parties. For specific details, the Contractor should contact *** $$3$$ ***.

The state recognizes the sovereign authority of the tribe and supports the tribe's efforts to enforce its rightful and legal ordinances and expects the Contractor to comply and cooperate with the tribe. The costs related to such compliance shall be borne solely by the Contractor, who is advised to contact the tribal representative listed above, prior to submitting a bid, to assess the impact of compliance on the project.

Although Indian preference cannot be compelled or mandated by the Contracting Agency, there is no limitation whereby voluntary Contractor or subcontractor-initiated preferences are given, if otherwise lawful. 41 CFR 60-1.5(a)7 provides as follows:

> Work on or near Indian reservations --- It shall not be a violation of the equal opportunity clause for a construction or non-construction Contractor to extend a publicly announced preference in employment to Indians living on or near an Indian reservation in connection with employment opportunities on or near an Indian reservation. The use of the word *near* would include all that area where a person seeking employment could reasonably be expected to commute to and from in the course of a work day. Contractors or subcontractors extending such a preference shall not, however, discriminate among Indians on the basis of religion, sex, or tribal affiliation, and the use of such a preference shall not excuse a Contractor from complying with the other requirements as contained in the August 25, 1981 Department of Labor, Office of Federal Contract Compliance Programs, Government Contractors Affirmative Actions Requirements.

1-07.15.GR1

Temporary Water Pollution Prevention

1-07.15(1).GR1

Spill Prevention, Control, and Countermeasures Plan

1-07.15(1).INST1.GR1

Section 1-07.15(1) is supplemented with the following:

1-07.15(1).OPT1.GR1

(November 2, 2022)

The Contractor shall immediately notify the Engineer and the WSF Terminal Supervisor of any spill, including, but not limited to, petroleum products, hydraulic fluid, chemical materials or liquids, and sewage. If neither the Engineer nor the WSF Terminal Supervisor is available, the Contractor shall immediately notify the WSF Operations Center at (206) 515-3456.

1-07.16.GR1

Protection and Restoration of Property

1-07.16(1).GR1

Private/Public Property

1-07.16(1)C.GR1

Private Property

1-07.16(1)C.INST1.GR1

Section 1-07.16(1)C is supplemented with the following:

1-07.16(1)C.OPT1.GR1

(October 3, 2022)

The Contractor shall not access the worksite from adjacent properties without permission from the Engineer. The Contractor shall submit a Type 2 Working Drawing to the Engineer in accordance with Section 1-05.3 prior to accessing the project site from adjacent properties. The Working Drawing shall include the methods, materials, equipment, and restoration measures used to access the worksite.

1-07.16(1)C.OPT2.GR1

(October 3, 2022)

The Contractor is not to use adjoining property without first obtaining written permission from adjacent property owner(s), and notifying the Engineer, in writing, when such permission has been granted prior to occupying or using adjoining property.

1-07.16(2).GR1

Vegetation Protection and Restoration

1-07.16(2).INST1.GR1

Section 1-07.16(2) is supplemented with the following:

1-07.16(2).OPT1.GR1

(August 2, 2010)

Vegetation and soil protection zones for trees shall extend out from the trunk to a distance of 1 foot radius for each inch of trunk diameter at breast height.

Vegetation and soil protection zones for shrubs shall extend out from the stems at ground level to twice the radius of the shrub.

Vegetation and soil protection zones for herbaceous vegetation shall extend to encompass the diameter of the plant as measured from the outer edge of the plant.

1-07.16(4).GR1

Archaeological and Historical Objects

1-07.16(4).INST1.GR1

Section 1-07.16(4) is supplemented with the following:

1-07.16(4).OPT1.GR1

(December 6, 2004)

The project area potentially contains archaeological or historical objects that may have significance from a historical or scientific standpoint. To protect these objects from damage or destruction, the Contracting Agency, at its discretion and expense, may monitor the Contractor’s operations, conduct various site testing and perform recovery and removal of such objects when necessary.

The Contractor may be required to conduct its operations in a manner that will accommodate such activities, including the reserving of portions of the work area for site testing, exploratory operations and recovery and removal of such objects as directed by the Engineer. If such activities are performed by consultants retained by the Contracting Agency, the Contractor shall provide them adequate access to the project site.

Added work necessary to uncover, fence, dewater, or otherwise protect or assist in such testing, exploratory operations and salvaging of the objects as ordered by the Engineer shall be paid by force account as provided in Section 1-09.6. If the discovery and salvaging activities require the Engineer to suspend the Contractor's work, any adjustment in time will be determined by the Engineer pursuant to Section 1-08.8.

To provide a common basis for all bidders, the Contracting Agency has entered an amount for the item "Archaeological and Historical Salvage" in the Proposal to become a part of the total bid by the Contractor.

1-07.17.GR1

Utilities and Similar Facilities

1-07.17.INST1.GR1

Section 1-07.17 is supplemented with the following:

1-07.17.OPT1.FR1

(April 2, 2007)

Locations and dimensions shown in the Plans for existing facilities are in accordance with available information obtained without uncovering, measuring, or other verification.

The following addresses and telephone numbers of utility companies known or suspected of having facilities within the project limits are supplied for the Contractor's convenience:

*** $$1$$ ***

1-07.17.OPT2.FR1

(October 3, 2022)

Locations and dimensions shown in the Plans for existing facilities are in accordance with available information obtained without uncovering, measuring, or other verification.

Public and private utilities, or their Contractors, will furnish all work necessary to adjust, relocate, replace, or construct their facilities unless otherwise provided for in the Plans or these Special Provisions. Such adjustment, relocation, replacement, or construction will be done during the prosecution of the work for this project. It is anticipated that utility adjustment, relocation, replacement, or construction within the project limits will be completed as follows:

*** $$1$$ ***

The Contractor shall attend a mandatory utility preconstruction meeting with the Engineer, all affected subcontractors, and all utility owners and their Contractors prior to beginning onsite work.

The following addresses and telephone numbers of utility companies or their Contractors that will be adjusting, relocating, replacing or constructing utilities within the project limits are supplied for the Contractor's use:

*** $$2$$ ***

*** $$3$$ ***

1-07.18.GR1

Public Liability and Property Damage Insurance

1-07.18(5).GR1

Required Insurance Policies

1-07.18(5).INST1.GR1

The first sentence of Item No. 1 of Section 1-07.18(5) is revised to read:

1-07.18(5).OPT1.FR1

(November 20,2023)

1. Owners and Contractors Protective (OCP) Insurance providing bodily injury and property damage liability coverage, with limits of *** $$1$$ *** per occurrence and per project in the aggregate for each policy period, which will be written solely on Insurance Services Office (ISO) form CG0009 1204, together with Washington State Department of Transportation amendatory endorsement CG 2908 0999, specifying the Contracting Agency, the State, the Governor, the Commission, the Secretary, the Department and all officers and employees of the State as named insured.

1-07.18(5).OPT2.GR1

(September 7, 2021)

Item number 1 of Section 1-07.18(5) is deleted.

1-07.18(5).INST2.GR1

The first sentence of Item No. 2 of Section 1-07.18(5) is revised to read:

1-07.18(5).OPT3.GR1

(September 7, 2021)

2. Commercial General Liability (CGL) Insurance written under ISO Form CG0001 with minimum limits of $1,000,000 per occurrence and in the aggregate for each one-year policy period.

1-07.18(5).OPT4.FR1

(September 7, 2021)

2. Commercial General Liability (CGL) Insurance written under ISO Form CG0001 with minimum limits of *** $$1$$ *** per occurrence and in the aggregate for each 1-year policy period.

1-07.18(5).INST3.GR1

Section 1-07.18(5) is supplemented with the following:

1-07.18(5).OPT5.GR1

(October 3, 2022)

Builder's Risk Insurance

Builder's Risk Insurance providing Broad Perils (All Risk) coverage upon any work at the site, to the full insurable value thereof. This insurance shall include the Contractor, its subcontractors of every tier, and the State of Washington as named insured on the policy. Coverage shall be included for all materials and supplies to be incorporated into the work at the jobsite, while in transit to the jobsite, or while stored away from the jobsite.

1-07.18(5).OPT6.FR1

(October 3, 2022)

The Contractor shall obtain Contractor's Pollution Liability Insurance (CPL) with minimum "per project" limits of *** $$1$$ *** per occurrence and in the aggregate for claims, including investigation, defense, or settlement costs and expenses for bodily injury and property damage (including natural resources damages and loss of use of tangible property that has not been physically injured) arising out of:

a. Pollution conditions caused or made worse by the Contractor's performance of the Work, including clean-up costs for a newly caused condition or a historical condition that is made worse; and;

b. The vicarious liability of subcontractors of any tier.

The Contractor shall be Named Insured and the Contracting Agency, the State, the Governor, the Commission, the Secretary, the Department, all officers and employees of the State, and their respective members, directors, officers, employees, agents, and consultants (collectively the "Additional Insureds") shall be included as Additional Insureds, or, as appropriate, a Named Insured, under this policy and coverage.

1-07.23.GR1

Public Convenience and Safety

1-07.23(1).GR1

Construction Under Traffic

1-07.23(1).INST1.GR1

Section 1-07.23(1) is supplemented with the following:

1-07.23(1).OPT1.FB1

(March 13, 1995)

During the hours that cleaning and painting operations are actually in progress, traffic may be restricted as follows:

*** $$1$$ ***

Whenever the Contractor's operations require lane reductions restricting the flow of traffic on multiple lanes in the same direction, the Contractor shall furnish, maintain, and operate a sequential arrow sign, for each lane closure, as specified in the Special Provision **SEQUENTIAL ARROW SIGN**.

If the Engineer determines that such lane restrictions are causing traffic congestion, the Contractor shall open all lanes to traffic until the congestion is eliminated.

For movable span structures, the Contractor's operations shall be arranged to permit the opening of the moveable span whenever required by marine traffic.

Bridge sidewalks shall be kept clear and open to maintain safe pedestrian traffic.

1-07.23(1).OPT4.GR1

(December 6, 2004)

The portion of Section 1-07.16(1) that prohibits the merging of construction vehicles with public traffic from an access gained through adjacent properties is rescinded, provided the Contractor's submittal is approved as required below.

Access for Construction

The Contractor may enter and leave the traveled way, auxiliary lanes or shoulders at approved locations other than established legal movements. To obtain approval of such an access location, the Contractor shall submit a request to the Engineer. The Contractor's request shall be submitted to the Engineer at least 30 calendar days prior to the time the use of the access will be required. This submittal shall include a vicinity map indicating the interstate stationing at the centerline of the access, distances from the end of ramp tapers of existing interchanges and a traffic control plan conforming with the requirements specified in Section 1-10.2(2). The access shall meet the following requirements:

- Access to and from the worksite adjacent to a multi-lane facility will only be allowed to and from a closed lane.

- The merging point of construction vehicles and public traffic shall provide a Decision Sight Distance for the traveling public of 1,640 ft in urban areas and 1,360 ft in rural areas.

- In urban areas the access shall not be located within 3,280 ft of the end of a ramp taper, or the centerline of a road approach. In rural areas the access shall not be located within 2,720 ft of the end of a ramp taper or the centerline of a road approach.

- Median crossings within 1.5 miles of the access point shall not be used in conjunction with the access.

- No new median crossings shall be created for use in conjunction within 1.5 miles of the access point.

- Short-duration shoulder stops in the construction zone, utilizing light vehicles properly equipped with warning flashers, will be allowed without a lane closure.

- When in use the access location shall have traffic control in place as per Section 1-10. Unauthorized use of the access from adjacent property is to be prohibited by the use of signing and/or flaggers as conditions warrant.

- The continuity of the existing drainage system shall be maintained through the access site.

- Air borne particulates created as a result of using the access shall be effectively controlled.

- The access location shall not adversely affect wetlands or other sensitive areas.

At the completion of the project, the Contractor shall restore the area of the access site to its original, pre-contract, condition. Any damage to the traveled way, shoulders, auxiliary lanes, side slopes or other items caused by the access shall be repaired. All work to comply with this provision or to build, maintain, provide erosion control, control airborne particulates, ensure that drainage continues through the access site, provide traffic control when necessary, remove the temporary access and restore the surrounding area when no longer required for use are the responsibility of the Contractor. The Contractor shall include all related costs in the bid prices of the contract.

1-07.23(1).OPT5.FR1

(November 4, 2024)

Lane, ramp, shoulder, and roadway closures are only permitted as follows:

*** $$1$$ ***

If the Engineer determines the permitted closure hours adversely affect traffic, the Engineer may adjust the hours accordingly. The Engineer will notify the Contractor in writing of any change in the closure hours. Exceptions to these restrictions are listed below and when applicable take precedence over closures listed above. The Engineer may also consider on a case-by-case basis additional exceptions following a written request by the Contractor.

Lane, ramp, shoulder, and roadway closures are not allowed on any of the following:

1. A holiday,

2. A holiday weekend; holidays that occur on Friday, Saturday, Sunday or Monday are considered a holiday weekend. A holiday weekend includes Saturday, Sunday, and the holiday.

3. After *** $$2$$ *** on the day prior to a holiday or holiday weekend, and

4. Before *** $$3$$ *** on the day after the holiday or holiday weekend.

5. The two-hour period prior to and the two-hour period after the following special events:

   *** $$4$$ ***

   It shall be the Contractor's responsibility to obtain the dates and times of all events.

Traffic Delays

When Automated Flagger Assistance Devices (AFADs) or flaggers are used to control traffic, traffic shall not be stopped for more than *** $$5$$ *** minutes at any time. All traffic congestion shall be allowed to clear before traffic is delayed again.

If the delay becomes greater than *** $$6$$ *** minutes, the Contractor shall immediately begin to take action to cease the operations that are causing the delays. If the *** $$7$$ *** minute delay limit has been exceeded, as determined by the Engineer, the Contractor shall provide to the Engineer, a written proposal to revise their work operations to meet the *** $$8$$ *** minute limit. This proposal shall be accepted by the Engineer prior to resuming any work requiring traffic control.

There shall be no delay to medical, fire, or other emergency vehicles. The Contractor shall alert all flaggers and personnel of this requirement.

General Restrictions

Construction vehicles using a closed traffic lane shall travel only in the normal direction of traffic flow unless expressly allowed in an accepted traffic control plan. Construction vehicles shall be equipped with flashing or rotating amber lights.

No two consecutive on-ramps, off-ramps, or intersections shall be closed at the same time and only one ramp at an interchange shall be closed, unless specifically shown in the Plans.

Roads or ramps that are designated as part of a detour shall not be closed or restricted during the implementation of that detour, unless specifically shown in the Plans.

Controlled Access

No special access or egress shall be allowed by the Contractor other than normal legal movements or as shown in the Plans.

Contractor’s vehicles of 10,000 GVW or greater shall not exit or enter a lane open to public traffic except as follows:

Egress and ingress shall only occur during the hours of allowable lane closures, and:

1. For exiting an open lane of traffic, by decelerating in a lane that is closed during the allowable hours for lane closures.

2. For entering an open lane of traffic, by accelerating in a closed lane during the allowable hours for lane closures.

Traffic control vehicles are excluded from the gross vehicle weight requirement. If placing construction signs will restrict traveled lanes, then the work will be permitted during the hours of allowable lane closures.

Advance Notification

The Contractor shall notify the Engineer in writing of any traffic impacts related to lane closure, shoulder closure, sidewalk closure, or any combination for the week by 12:00 p.m. (noon) Wednesday the week prior to the stated impacts.

The Contractor shall notify the Engineer in writing ten working days in advance of any traffic impacts related to full roadway closure, ramp closure, or both.

The Contractor shall notify the Engineer in writing of any changes to the stated traffic impacts a minimum of 48 hours prior to the traffic impacts.

1-07.23(1).OPT6.GR1

(April 14, 2014)

Physical reductions of the width of thru travelling lanes are subject to the following restrictions:

The Contractor shall not reduce the travelled way to a single lane with a clear width of less than 16 feet for a duration that exceeds 4 calendar days without prior approval of the Engineer. The Contractor shall submit a request for a width reduction that exceeds 4 calendar days to the Engineer no later than 30 calendar days prior to the start of the proposed width reduction. At a minimum, this request shall include:

1. Schedule showing the planned beginning date and end date of the width reduction.
2. Plans showing the limits and cross-sections showing the clear distance provided during the width reduction.
3. Details of available detour routes.
4. Plan to provide temporary windows of a minimum 16 foot width periodically during the width reduction, where possible.

The Engineer will reply, in writing, to the request within 7 calendar days. The Contractor shall immediately notify the Engineer if there are any changes to the schedule for the width reduction.

1-07.23(1).OPT7.FR1

(October 3, 2022)

Public Notification

The Contractor shall furnish and install information signs that provide advance notification of a ramp closure, roadway closure, or both, a minimum of *** $$1$$ *** working days prior to the closure. Sign locations, messages, letter sizes, and sign sizes are shown in the Plans.

The Contractor shall notify *** $$2$$ ***, in writing, a minimum of *** $$3$$ *** working days prior to each closure. The Contractor shall furnish copies of these notifications to the Engineer.

1-07.23(1).OPT8.FR1

(October 3, 2022)

Maintenance and Protection of Ferry Traffic

*** $$1$$ *** is a single-slip terminal. The slip must remain fully operational during all phases of construction.

The Contractor shall not interfere with terminal or vessel operations of the slips such that ferries do not arrive or depart on time. Every effort shall be made to ensure that construction materials and equipment remain within the bounds of designated staging areas as outlined in the Special Provisions.

The Contractor shall promptly and diligently remove any equipment, workers, or materials from the traveled way and shall promptly and diligently move any vessels, equipment, materials, or workers from the slip a minimum of 10 minutes prior to the scheduled or anticipated arrival of a ferry until 5 minutes subsequent to the departure of the ferry.

A safe environment for ferry operations, including vessels, vehicles, Washington State Ferries employees, and passengers — both offshore and on the dock — shall be maintained at all times.

The Contractor shall shield welding activities from ferries to protect the vision of the captains to the satisfaction of the Engineer. Welding activities shall be shielded to protect the safety of all persons in the area. Shielding is defined as surrounding the work area with a material through which light or spark are not transmitted.

The Contractor shall assign one employee to monitor approaching vessels and alert other workers to evacuate the work area if required. The worker will be equipped with an air horn or similar device suitable to warn workers and a radio capable of communicating with the ferry vessel captains.

Temporary steel plates shall not be used on the vehicle or pedestrian traveled way in any location for more than three calendar days.

Payment

All costs associated with maintenance and protection of traffic shall be incidental to and included in all other items of work.

1-07.23(1).OPT9.GR1

(October 3, 2022)

Maintenance and Protection of Ferry Traffic

The Contractor shall maintain access to and from the ferry vessels for both pedestrian and vehicular traffic at all times. The Contractor shall promptly and diligently remove any equipment, employees, or materials that would impede or delay ferry vessel arrivals or departures. The Contractor shall provide and maintain such barriers, barricades, signs, and lighting necessary to protect and safeguard pedestrians and vehicles as shown in the Plans. The Contractor shall keep all sidewalks, crosswalks, and other pedestrian routes and access points open and clear at all times unless permitted otherwise by the Engineer in an approved traffic control plan.

Temporary steel plates shall not be used on the vehicle or pedestrian traveled way in any location for more than three calendar days.

Payment

All costs associated with maintenance and protection of traffic shall be incidental to and included in other items of work.

1-07.23(1).OPT10.GR1

(September 3, 2024)

If July 4 occurs on a Tuesday, the prior Monday is considered to be part of a holiday weekend. If July 4 occurs on a Thursday, the following Friday is considered to be part of a holiday weekend.

1-07.24.GR1

Rights of Way

1-07.24.INST1.GR1

Section 1-07.24 is supplemented with the following:

1-07.24.OPT1.FR1

(March 13, 1995)

The Contracting Agency has not completed the acquisition of title to the following described property:

*** $$1$$ ***

The Contractor shall not perform any work within these limits until ordered to do so by the Engineer. The Contracting Agency has estimated that the above described property will be available *** $$2$$ ***.

1-07.24.OPT2.GR1

(October 3, 2022)

Sundry Site Plan

The Sundry Site Plan is included in the Plans for the benefit of the Contractor. It is meant to give a graphical representation of the properties in the vicinity of the project site.

The Sundry Site Plan gives information necessary for locating Right-of-Way (R/W) lines, construction permit boundaries and permanent or construction easements.

Areas identified within R/W are made available to the Contractor for use as indicated in the Plans and Special Provisions.

1-07.28.GR1

Railroads

1-07.28.INST1.GR1

Section 1-07.28 is supplemented with the following:

1-07.28.OPT1.FR1

(October 3, 2022)

Additional Requirements for Working with the Railroad

The term Railroad Company shall be understood to mean each of the following railroad companies:

*** $$1$$ ***

The Contractor shall keep the right of way and ditches of the Railroad Company open and clean from any deposits or debris resulting from its operations. The Contractor shall be

responsible for the cost to clean and restore ballast of the Railroad Company which is disturbed or becomes fouled with dirt or materials when such deposits or damage result from the Contractor's operations, except as provided elsewhere.

The Contractor shall cooperate with the Railroad Company and so conduct operations that the necessary reconstruction of its facilities and the removal of existing facilities can be accomplished without interruption of service.

1-07.28.OPT2.FR1

(October 3, 2022)

The Contracting Agency has or will enter into an agreement with the Railroad Company as specified in these provisions as contained in Appendix *** $$1$$ ***.

1-07.28.OPT3.FR1

(October 3, 2022)

Construction Work by Railroad Company

The work by the Railroad Company as described below will be performed by the Railroad Company with its own forces at no cost to the Contractor:

*** $$1$$ ***

1-07.28(1).GR1

General

1-07.28(1).INST1.GR1

Section 1-07.28(1) is supplemented with the following:

1-07.28(1).OPT1.FR1

(October 3, 2022)

Contractor's Right of Entry Agreement

The Contractor shall obtain a Right of Entry Agreement from the railroad. For all matters regarding the Contractor's Right of Entry Agreement, the Contractor shall contact:

*** $$1$$ ***

The Contracting Agency has furnished a SAMPLE Contractor's Right of Entry Agreement in Appendix *** $$2$$ ***. The SAMPLE Contractor's Right of Entry Agreement is an example which represents the Contracting Agency's assessment of the likely terms and conditions prior to Advertisement for Bids. The final terms and conditions will be determined by the Railroad Company after Contract Execution.

The Contractor is at sole risk for the amount of time it takes to obtain the Right of Entry Agreement from the Railroad Company. Delays in obtaining the right of entry agreement shall not be eligible for a time extension or an equitable adjustment.

1-07.28(2).GR1

Submittals and Working Drawings

1-07.28(2).INST1.GR1

Section 1-07.28(2) is supplemented with the following:

1-07.28(2).OPT1.FR1

(October 3, 2022)

The Engineer will require up to *** $$1$$ *** calendar days from the date a Working Drawing is received until it is returned to the Contractor. If a submittal is returned unapproved and then resubmitted, then an additional review time for each subsequent resubmittal of up to *** $$2$$ *** calendar days will be required.

1-07.28(6).GR1

Railroad Protective Services

1-07.28(6).INST1.GR1

Section 1-07.28(6) is supplemented with the following:

1-07.28(6).OPT1.FR1

(October 3, 2022)

The Contractor shall notify the Railroad Company a minimum of *** $$1$$ *** in advance of whenever the Contractor is about to perform Work within Railroad Company property or within 25 feet of the centerline of tracks to enable the Railroad Company to provide flagging or other protective services.

The Railroad Company's contact to schedule flagging or other protective services is:

*** $$2$$ ***

1-07.28(8).GR1

Measurement and Payment

1-07.28(8).INST1.GR1

Section 1-07.28(8) is revised to read:

1-07.28(8).OPT1.GR1

(October 3, 2022)

The Contracting Agency will make payments to the Railroad for protective services unless:

1. Such services result from the Contractor's failure to comply with the terms and conditions of its contract with the Contracting Agency or with its Contractor's Right of Entry Agreements with the Railroad Company.

2. The Contractor fails to obtain authorization from the Engineer prior to coordinating with the Railroad Company for any flagging requiring overtime payments as specified under Railroad Safety and Flagging.

3. The Contractor arranges for assignment of a railroad flagger and alters project work so that a flagger is no longer needed, and adequate advance notice is not provided to the Railroad Company of such change in the need for a flagger (i.e., causing the Railroad Company to dispatch a flagger billable to the project when one is not required).

4. The Contractor causes an emergency, as specified under Railroad Operations.

5. Protective services are required as a result of a request to the Railroad Company for the Contractor's convenience.

6. The Contract provides for a bid item in the Contract.

All costs to comply with this Section, unless otherwise stated, are incidental to the Contract and are the responsibility of the Contractor. The Contractor shall include all related costs in the unit Bid prices of the Contract.

1-08.GR1

Prosecution and Progress

1-08.1.GR1

Subcontracting

1-08.1.INST1.GR1

Section 1-08.1 is supplemented with the following:

1-08.1.OPT1.GR1

(October 3, 2022)

Prior to any subcontractor or lower-tier subcontractor beginning work, the Contractor shall submit to the Engineer a certification (WSDOT Form 420-004) that a written agreement between the Contractor and the subcontractor or between the subcontractor and any lower tier subcontractor has been executed. This certification shall also guarantee that these subcontract agreements include all the documents required by the Special Provision **Federal Agency Inspection**.

A subcontractor or lower-tier subcontractor will not be permitted to perform any work under the contract until the following documents have been completed and submitted to the Engineer:

1. Request to Sublet Work (WSDOT Form 421-012), and
2. Contractor and Subcontractor or Lower Tier Subcontractor Certification for Federal-aid Projects (WSDOT Form 420-004).

The Contractor shall submit a completed Monthly Retainage Report (WSDOT Form 272-065) within 15 calendar days after receipt of every monthly progress payment until every subcontractor and lower tier subcontractor's retainage has been released. This form shall be submitted to the Engineer by email to the following email address for the region administering the Contract:

Eastern Region – ERRegionOEO@wsdot.wa.gov
North Central Region – NCRegionOEO@wsdot.wa.gov
Northwest Region – NWRegionOEO@wsdot.wa.gov
Olympic Region – ORegionOEO@wsdot.wa.gov
South Central Region – SCRegionOEO@wsdot.wa.gov
Southwest Region – SWRegionOEO@wsdot.wa.gov
Washington State Ferries – FerriesOEO@wsdot.wa.gov

The Contractor's records pertaining to the requirements of this Special Provision shall be open to inspection or audit by representatives of the Contracting Agency during the life of the contract and for a period of not less than three years after the date of acceptance of

the contract. The Contractor shall retain these records for that period. The Contractor shall also guarantee that these records of all subcontractors and lower-tier subcontractors shall be available and open to similar inspection or audit for the same time period.

1-08.1.OPT3.GR1

(March 13, 1995)

Qualifications of Building Contractor

If the Contractor is not prequalified for building construction or cannot demonstrate satisfactory experience in constructing the general type of building included in the project, it will be mandatory that the building work be subcontracted to a firm which can meet one or both of these criteria.

1-08.1(2).GR1

Self-Performance Requirements

1-08.1(2).INST1.GR1

The third paragraph of Section 1-08.1(2) is revised to read:

1-08.1(2).OPT1.2026.GR1

(November 4, 2024)

Self-performance requirements of other subcontractors, such as DBE, PWSVB, or MWBE, shall apply only when included elsewhere in the Contract. In the event of a conflict between specifications, the highest required minimum percentage for self-performance shall take precedence.

1-08.1(3).GR1

Subcontractor Approval

1-08.1(3).INST1.GR1

The second sentence in the first paragraph of Section 1-08.1(3) is revised to read:

1-08.1(3).OPT1.GR1

(November 4, 2024)

Each request to subcontract shall be submitted through Unifier, Request to Sublet.

1-08.3.GR1

Progress Schedule

1-08.3(1).GR1

Progress Schedule Types

1-08.3(2).GR1

General Requirements

1-08.3(2)B.GR1

Type B Progress Schedules

1-08.3(2)B.INST1.GR1

Section 1-08.3(2)B is supplemented with the following:

1-08.3(2)B.OPT1.FR1

(November 20, 2023)

In addition to information required in Items 1 through 13, the Progress Schedule shall include the following milestones and/or activities:

*** $$1$$ ***

1-08.4.GR1

Prosecution of Work

1-08.4.INST1.GR1

The first sentence of Section 1-08.4 is revised to read:

1-08.4.OPT1.FR1

(August 3, 2015)

The Contractor shall commence onsite work on or before *** $$1$$ *** and shall notify the Engineer in writing a minimum of 10 calendar days in advance of the date on which the Contractor intends to begin work.

1-08.4.OPT2.GR1

(August 7, 2006)

The Contractor shall begin work no earlier than the begin work date stated in the written notice provided by the Engineer. The Engineer will provide a minimum of 10 calendar days written notice for the date identified as the first working day.

1-08.4.OPT3.FR1

(August 7, 2006)

The Contractor shall begin work no earlier than *** $$1$$ ***.

1-08.4.OPT4.GR1

(******)

The Contractor shall begin Work within 21 calendar days from the date of execution of the Contract by the Contracting Agency or on July 1, 2025, whichever is later, unless otherwise approved in writing. The Contractor shall not begin work earlier than July 1, 2025.

1-08.5.GR1

Time for Completion

1-08.5.INST1.GR1

The third paragraph of Section 1-08.5 is revised to read:

1-08.5.OPT1.FR1

(August 7, 2006)

Contract time shall begin on the date stated in the written notice provided to the Contractor. In no case shall the beginning of contract time be prior to ***$$1$$*** or later than *** $$2$$ ***.

1-08.5.OPT2.FR1

(August 7, 2006)

Contract time shall begin on the first working day. The first working day shall be *** $$1$$ ***.

1-08.5.OPT3.GR1

(******)

Contract time shall begin on the first working day following the 21st calendar day after the date the Contracting Agency executes the Contract or on July 1, 2025, whichever is later. If the Contractor starts Work on the project at an earlier date, then Contract time shall begin on the first working day when on-site Work begins.

1-08.5.INST2.GR1

Section 1-08.5 is supplemented with the following:

1-08.5.OPT7.FR1

(March 13, 1995)

This project shall be physically completed within *** $$1$$ *** working days.

1-08.5.OPT8.FR1

(March 13, 1995)

This project shall be physically completed in its entirety within *** $$1$$ *** working days and the temporary traffic signal portion of the project shall be physically completed within the first *** $$2$$ *** working days.

1-08.5.OPT9.FR1

(December 4, 2006)

This project shall be physically completed within *** $$1$$ *** working days.

Contract time shall begin on the first working day the Contractor starts onsite work or *** $$2$$ ***, whichever occurs first.

1-08.5.OPT10.FR1

(March 13, 1995)

This project shall be physically completed within *** $$1$$ *** working days. Contract time shall commence on the first working day:

1. Following 60 calendar days after contract execution; or,

2. That the Engineer and the Contractor agree to start work after approval of construction materials is obtained, whichever occurs first.

The Contractor is allowed a maximum of 60 calendar days after execution of the contract to obtain approvals for construction materials

1-08.5.OPT11.FR1

(July 2, 2024)

Incentive for Early Completion

It is essential that the Contracting Agency has full and unrestricted use of the facilities at the earliest possible time. As an incentive to the Contractor, the Contracting Agency will pay the Contractor *** $$1$$ *** for each working day remaining in the contract after the established *** $$2$$ *** Completion Date, but not to exceed an amount equal to *** $$3$$ ***.

The days eligible for the incentive will be calculated by subtracting the working days elapsed through the date of *** $$4$$ *** completion from the total working days established in the Special Provision **TIME FOR COMPLETION**.

1-08.6.GR1

Suspension of Work

1-08.6.INST1.GR1

Section 1-08.6 is supplemented with the following:

1-08.6.OPT1.FR1

(January 3, 2017)

Contract time may be suspended for the HMA mix design evaluation report or for procurement of critical materials (Procurement Suspension). In order to receive a Procurement Suspension, the Contractor shall within 21 calendar days after execution by the Contracting Agency, submit all HMA mix designs not already on the QPL according to Section 5-04.2(1) or place purchase orders for all materials deemed critical by the Contracting Agency for Physical Completion of the Contract. The Contractor shall provide a copy of the completed WSDOT Form 350-042 indicating the date the mix design was submitted, or copies of purchase orders for the critical materials. Such purchase orders shall disclose the purchase order date and estimated delivery dates for such critical material.

The Contractor shall show the HMA mix design evaluation report or procurement of the critical materials listed below as activities in the Progress Schedule. If the approved Progress Schedule indicates that acceptance of the HMA mix designs or materials procurement are critical activities, and if the Contractor has provided documentation that purchase orders are placed for the critical materials within the prescribed 21 calendar days, then Contract time will be suspended upon Physical Completion of all critical work except that work dependent upon the below listed critical materials:

*** $$1$$ ***

Charging of Contract time will resume upon the Contractor's receipt of a WSDOT mix design evaluation report or delivery of the critical materials to the Contractor, notification that the critical materials are ready for delivery to the Contractor from the Contracting Agency's Materials Laboratory, or *** $$2$$ *** calendar days after execution by the Contracting Agency, whichever occurs first.

No additional Procurement Suspension will be provided if the Contractor's HMA mix designs did not meet Contract requirements and are resubmitted.

1-08.6.OPT2.FR1

(February 6, 2023)

Contract time may be suspended for procurement of critical materials (Procurement Suspension). In order to receive a Procurement Suspension, the Contractor shall within 21 calendar days after execution by the Contracting Agency, place purchase orders for all materials deemed critical by the Contracting Agency for physical completion of the contract. The Contractor shall provide copies of purchase orders for the critical materials. Such purchase orders shall disclose the purchase order date and estimated delivery dates for such critical material.

The Contractor shall show procurement of the materials listed below as activities in the Progress Schedule. If the approved Progress Schedule indicates that the materials procurement are critical activities, and if the Contractor has provided documentation that

purchase orders are placed for the critical materials within the prescribed 21 calendar days, then contract time will be suspended upon physical completion of all critical work except that work dependent upon the below listed critical materials:

*** $$1$$ ***

Charging of contract time will resume upon delivery of the critical materials to the Contractor or *** $$2$$ *** calendar days after execution by the Contracting Agency, whichever occurs first.

1-08.9.GR1

Liquidated Damages

1-08.9.INST1.GR1

Section 1-08.9 is supplemented with the following:

1-08.9.OPT1.FR1

(September 8, 2020)

Liquidated damages in the amount of *** $$1$$ *** per working day will be assessed for failure to physically complete the Contract within the physical completion time specified.

1-08.9.OPT2.FR1

(March 13, 1995)

Liquidated damages in the amount of *** $$1$$ *** per working day will be assessed for failure to physically complete the temporary traffic signal portion of the contract within the physical completion time specified. Liquidated damages in an amount based upon the original contract amount and original time, will be assessed for failure to physically complete the entire project within the physical completion time specified. Such damages will accrue separately for each phase or stage of work. In the event damages occur on a concurrent date, the larger of the two damages will apply for such days.

1-08.9.OPT3.FR1

(April 6, 2009)

Delayed completion of *** $$1$$ *** will result in impacts to the traveling public, increase fuel consumption, increase vehicle operating costs, increase pollution, and cause other inconveniences and harm.

Accordingly, the Contractor agrees:

1. To pay *** $$2$$ *** liquidated damages per *** $$3$$ *** for each *** $$4$$ *** prorated to the nearest *** $$5$$ *** that the work is not completed as specified in *** $$6$$ ***.

2. To authorize the Engineer to deduct these liquidated damages from any money due or coming due the Contractor.

1-09.GR1

Measurement and Payment

1-09.3.GR1

Scope of Payment

1-09.3.INST1.GR1
Section 1-09.3 is supplemented with the following:

1-09.3.OPT1.FR1

(August 7, 2017)

Fuel Cost Adjustment

General

The Contracting Agency will make a fuel cost adjustment, either a credit or a payment, for qualifying changes in the index price of on-highway diesel fuel. The adjustment will be applied to partial payments made according to Section 1-09.9.

The adjustment is not a guarantee of full compensation for fuel price changes. Any adjustment provided by this provision shall not obligate the Contracting Agency for any costs due solely to changes in fuel costs beyond the amount adjusted by this provision. The Contracting Agency does not guarantee that fuel will be available at the base fuel cost or monthly fuel cost. No additional adjustment will be made for rates of fuel consumption or actual fuel types that differ from those specified for the purpose of determining the adjustment.

For the purpose of calculating the adjustment, the Base Fuel Cost shall be the *Weekly* fuel price from the ***U.S. Energy Information Administration*** website. The website location and directions are as follows:

- http://www.eia.gov/petroleum/gasdiesel/
- On the web page, click on the ***West Coast less California***, listed under the heading ***U.S On-Highway Diesel Fuel Prices*(dollar per gallon)*** at the lower end of the web page***.***
- In the pull down box labeled ***Period*** pull down ***Weekly.***
- Click on the fuel price history found under the column heading ***View History*** for the line ***Diesel (On-Highway***) ***– All Types***.
- On this web page obtain the nearest weekly fuel cost for the Monday occurring three weeks prior to the date that bids are opened. This weekly fuel cost becomes the Base Fuel Cost and is fixed for the duration of the Contract and will be used in calculating all adjustments.

The Monthly Fuel Cost shall be the most recent *Monthly* fuel price from the U.S. Energy Information Administration website. The website location and directions are as follows:

- http://www.eia.gov/petroleum/gasdiesel/
- On the web page, click on the ***West Coast less California***, listed under the heading ***U.S On-Highway Diesel Fuel Prices*(dollar per gallon)*** at the lower end of the web page***.***
- In the pull down box labeled ***Period*** pull down ***Monthly.***
- Click on the fuel price history found under the column heading ***View History*** for the line ***Diesel (On-Highway***) ***– All Types***.
- On this web page obtain the most current monthly fuel price.

If the specified index ceases to be available for any reason, the Contracting Agency at its discretion will select and begin using a substitute price source or index to establish the Monthly Fuel Cost.

Measurement

No adjustment will be made if the Monthly Fuel Cost is within 10 percent of the Base Fuel Cost. No adjustment will be made for work performed after the authorized Time for Completion.

If the Monthly Fuel Cost is greater than or equal to 110% of the Base Fuel Cost, then:

Adjustment = (Monthly Fuel Cost – (1.10 x Base Fuel Cost)) x Q

If the Monthly Fuel Cost is less than or equal to 90% of the Base Fuel Cost, then:

Adjustment = (Monthly Fuel Cost – (0.90 x Base Fuel Cost)) x Q

Where Q = Σ ((Fuel Usage Factor for each Eligible Bid Item) x (Quantity paid in the current months progress estimate for each Eligible Bid Item)) for all Eligible Bid Items listed below:

Eligible Bid Item	Fuel Usage Factor
*** $$1$$ ***	*** $$2$$ ***
*** $$3$$ ***	*** $$4$$ ***

Payment

Payment will be made for the following bid item when included in the bid proposal:

"Fuel Cost Adjustment", by calculation.

To provide a common proposal for all bidders, the Contracting Agency has entered an amount in the proposal to become a part of the Contractor's total bid.

1-09.3.OPT2.FR1

(August 6, 2018)

Steel Cost Adjustment

The Contractor may elect to participate in the steel cost adjustments for work permanently incorporated into this Contract. Steel cost adjustment is not a guarantee of full compensation for changes to the cost of steel items; not eligible for all items with steel; and any adjustment provided by this provision will not obligate the Contracting Agency for any costs beyond the amount adjusted by this provision.

This Special Provision provides the option to opt-in to steel cost adjustments for eligible Bid items. The Contractor is provided one opportunity to opt-in and there are no future opt-out provisions. The steel cost adjustment requirements of this Special Provision apply for the duration of the Contract.

General

The Contractor may select Bid items from the list below to be included in the steel cost adjustment. The Contractor is not obligated to select any Bid items or to participate in the steel cost adjustment program. The steel cost adjustment will apply only to the Bid items selected by the Contractor.

Prior to Contract execution the Contractor shall submit the Steel Cost Adjustment Opt-In Bid Item List, WSDOT Form 410-031, to the WSDOT Contract Ad and Award Office. The form is to be received at the WSDOT Bid Room, located at the

Transportation Building, 310 Maple Park Avenue SE, Room 2D20, Olympia, WA 98501-2361 or may be submitted by facsimile to the following FAX number, (360) 705-6966. The Steel Cost Adjustment Opt-In Bid Item List shall be signed by an authorized representative of the Contractor. Should the Contractor fail to return this document as required no Bid items will be eligible for steel cost adjustment.

Steel Index Values

The Contracting Agency will use the Bureau of Labor Statistics (BLS) producer price index (PPI) series Id: WPUSISTEEL1 index value for steel cost adjustments.

The Base Steel Materials Index Value (BV) will be the most recent value published on the BLS website on the day of bid opening. This value will be fixed on the day of bid opening even if the BLS lists this as a preliminary value. The Monthly Steel Materials Index Value (MV) will be the final index value published on the BLS website for any month during the Contract.

Measurement

The Contracting Agency has determined the initial cost basis (ICB) of steel to be *** $$1$$ ***. This cost basis is reflected in the steel cost adjustment calculations below, is non-negotiable and will be taken as a fixed value for the duration of the Contract.

For each month that steel material is incorporated into the permanent Work of the Contract or paid for as Materials on Hand and the MV is more than 110 percent or less than 90 percent of the BV the Contractor shall provide the Engineer with the following for each eligible Bid item by the end of the following month:

1. The weight of steel material for the month, and

2. Documentation of the weight and shipment to the Contractor of the steel material by bills of lading, invoices, or purchase orders.

Should the Contractor not provide the required documentation as specified the following shall apply:

1. Steel material that has an MV that is more than 110 percent of the BV will not be eligible for a steel cost adjustment.

2. The steel cost adjustment for a Bid item with an MV that is less than 90 percent of the BV will be calculated using a weight of steel determined by the Engineer.

Steel materials will not be eligible for cost adjustments until all requirements of the Contract have been met. Steel added to a Contract as part of a Value Engineering Change Proposal will not be eligible for steel cost adjustment. Steel cost adjustments made in accordance with this Special Provision will not be reflected on payments made to the Contractor until after the index value required for the calculation becomes final. Preliminary index values may be used to establish the BV, but will not be used to establish the MV in calculations.

For each Bid Item selected by the Contractor on the Steel Cost Adjustment Opt-In Bid Item List form a cost adjustment evaluation will be made. A cost adjustment will

only be made if the MV for the month the Work associated with the Bid Item is performed differs by more than ten-percent from the BV.

The steel cost adjustment will be determined as follows:

1. If the MV is within ten-percent of the BV, there will be no adjustment.

2. If the MV is more than 110-percent of the BV, then

$$CA = (((MV - BV) \div BV) - 0.10) \times (ICB \times WS)$$

3. If the MV is less than 90-percent of the BV, then

$$CA = (((MV - BV) \div BV) + 0.10) \times (ICB \times WS)$$

Where:

CA = Cost Adjustment, dollars
MV = Monthly Steel Materials Index Value from BLS for the month determined above
BV = Base Steel Materials Index Value taken as the most recent value published on the BLS website on the day of bid opening.
ICB = Initial Cost Basis of steel per pound
WS = Weight of steel (in pounds) eligible for cost adjustment

The following Bid Items are eligible for the steel cost adjustment program for this Project:

*** $$2$$ ***

Payment
Payment will be made for the following bid item when included in the bid proposal:

"Steel Cost Adjustment", by calculation.

To provide a common proposal for all bidders, the Contracting Agency has entered an amount in the proposal to become a part of the Contractor's total bid.

1-09.8.GR1
Payment For Material On Hand

1-09.8.INST1.GR1
The last paragraph of Section 1-09.8 is revised to read:

1-09.8.OPT1.GR1
(August 3, 2009)
The Contracting Agency will not pay for material on hand when the invoice cost is less than $2,000. As materials are used in the work, credits equaling the partial payments for them will be taken on future estimates. Each month, no later than the estimate due date, the Contractor shall submit a letter to the Engineer that clearly states: 1) the amount originally paid on the invoice (or other record of production cost) for the items on hand, 2) the dollar amount of the material incorporated into each of the various work items for the

month, and 3) the amount that should be retained in material on hand items. If work is performed on the items and the Contractor does not submit a letter, all of the previous material on hand payment will be deducted on the estimate. Partial payment for materials on hand shall not constitute acceptance. Any material will be rejected if found to be faulty even if partial payment for it has been made.

1-09.9.GR1

Payments

1-09.9(1).GR1

Retainage

1-09.9(1).INST1.GR1

Section 1-09.9(1) content and title is deleted and replaced with the following:

1-09.9(1).OPT1.GR1

(June 27, 2011)

Vacant

1-10.GR1

Temporary Traffic Control

1-10.1.GR1

General

1-10.1.INST1.GR1

Section 1-10.1 is supplemented with the following:

1-10.1.OPT1.FR1

(April 1, 2013)

The Contracting Agency will provide the following labor, equipment and/or materials resources to the Contractor for use on the project.

*** $$1$$ ***

The Contractor shall notify the Engineer when each resource is to be utilized and shall provide a minimum of *** $$2$$ *** working days advance notice to allow any necessary arrangements to be made.

1-10.1.OPT2.FR1

(May 20, 2020)

The Contracting Agency has arranged for the Washington State Patrol (WSP) to perform the following tasks during the project:

*** $$1$$ ***

There shall be no entitlement for any impacts for any reason as a result of WSP personnel.

WSP personnel may not be used for any other work without prior acceptance from the Engineer. The acceptance will identify the added work allowed, the terms under which the WSP personnel may be used for the added work, and how the cost of the added work will be shared by the Contractor and Contracting Agency.

This resource is provided at no additional cost to the Contractor for the initial *** $$2$$ *** hours and includes all costs (e.g., WSP labor, vehicle miles, etc.). Additional hours of WSP personnel may be requested by the Contractor. If allowed by the Engineer, the cost for these hours will be shared by the Contracting Agency and the Contractor. The Contractor's share of the cost for additional hours will be one-half of the amount billed by the law enforcement agency.

All costs for cancelled work due to unsuitable weather will be shared by the Contracting Agency and the Contractor. The Contractor's share of the cost for cancelled work will be one-half of the amount billed by the law enforcement agency, regardless of when the actual work occurs. All costs for cancelled work for any other reason shall be the full responsibility of the Contractor.

The Contractor's share of costs for additional hours of uniformed law enforcement personnel will be credited to the Contracting Agency under the bid item "WSP Reimbursement", by calculation.

1-10.1(1).GR1

Materials

1-10.1(1)(9-35).GR1

Temporary Traffic Control Materials

Section 9-35 is supplemented with the following:

1-10.1(1)(9-35).OPT1.GR1

(January 10, 2022)

Automated Flagger Assistance Devices

Automated Flagger Assistance Devices (AFADs) shall meet the requirements of the MUTCD Red/Yellow Lens Automated Flagger Assistance Devices.

1-10.1(1)(9-35).OPT2.GR1

(October 3, 2022)

Temporary portable transverse rumble strips must be either the black RoadQuake 2 or the black RoadQuake 2F Folding Temporary Portable Rumble Strip manufactured by Plastic Safety Systems, Inc., all black Traffix Alert High Speed Rumble Strip manufactured by Traffix Devices or an approved equal.

Devices submitted for approval shall meet the following criteria:

1. Length will be a minimum of 11 feet long.
2. Width will be a minimum of 10 inches.
3. Provides a bevel on leading edge.
4. Weighs a minimum of 100 lbs.
5. No greater than ¾-inch profile height.
6. Flexible along the length of the strip to facilitate conformity to the road surface.

7. Withstands temperatures 0 to 180 degrees Fahrenheit without degradation in deployment, use or safety.

8. Function on roads with posted speed limits up to 70 mph; and retain original placement with minimal movement such that performance is not compromised.

9. Deemed safe by the manufacturer for use by motorcycles.

1-10.1(1)(9-35).OPT3.GR1

(November 4, 2024)

Mobile Barrier Trailer System

Mobile Barrier Trailer (MBT) system shall be as manufactured by Mobile Barriers LLC.

The MBT system submitted for approval shall meet the following criteria:

1. Be a MASH Test Level 3 compliant rigid wall barrier trailer that can be used with a standard semi-tractor.

2. Be equipped with an impact attenuator that is MASH Test Level 3 compliant.

3. Provide protection of a work area of up to 100 feet, excluding the impact attenuator and semi-tractor.

4. Include a minimum 9.5kW generator, integrated work area lighting, and 120/240V power outlets throughout the barrier.

5. Include a programmable matrix message/arrow board.

6. Have LED clearance and side-marker lights mounted on the barrier trailer.

7. Be colored safety yellow or orange.

8. Have flashing or rotating amber lights.

Contact information for MBT systems:

Mobile Barriers LLC
24918 Genesee Trail Road
Golden, CO 80401
Phone: (303) 526-5995
E-mail: sales@mobilebarriers.com
Website: www.mobilebarriers.com

1-10.1(1)(9-35).OPT4.FR1

(November 4, 2024)

Road Zipper System™

The Road Zipper System™ shall be a Lindsay Transportation Solutions LLCs Road Zipper System consisting of one Barrier Transfer Machine (BTM) and *** $$1$$ *** linear feet of 18” CRTS concrete barrier (BARRIER).

The system shall be leased from:

Lindsay Transportation Solutions, LLC.
18135 Burke Street, Suite 100
Omaha, NE 68002
Phone 402-889-5453
Toll Free: 866-404-5049
Website: https://www.lindsay.com/usca/en/infrastructure/

1-10.1(1)(9-35.4).GR1

Sequential Arrow Signs

Section 9-35.4 is supplemented with the following:

1-10.1(1)(9-35.4).OPT1.GR1

(January 6, 2025)

GPS and Remote Communications Requirements

Sequential Arrow Signs (Arrow Boards) on this project shall also have the following communication abilities:

1. Arrow Boards capable of transmitting or providing Work Zone Data Exchange (WZDx) Specification compliant data feeds from the arrow board or the Arrow Boards central server to the Contracting Agency.

2. Arrow Boards shall transmit its GPS coordinates (latitude and longitude) with an accuracy of 30-foot diameter of its actual location.

3. Arrow Boards shall transmit its GPS coordinates and display mode of operation data to a compatible publicly accessible navigation app service.

4. Arrow Boards shall transmit status and location as follows:

    a. Mode change within 2 minutes.

    b. Location (if moved more than 500 feet) within 2 minutes.

    c. Health checks every 60 minutes.

    d. Current display mode posted on Board (e.g., left or right chevron, arrow direction, four corner flash, etc.).

    e. Transport vs Display mode.

1-10.1(1)(9-35.8).GR1

Vacant

Section 9-35.8 is revised to read:

1-10.1(1)(9-35.8).OPT1.GR1

(March 20, 2025)

Radar Speed Display Sign

Radar Speed Display Signs (RSDS) shall consist of a fully self-contained see-through trailer with power supply and an LED speed indicator display with a one-

direction radar. Above or below the display shall be the message “YOUR SPEED” or “YOUR SPEED IS” in letters of 5 to 8 inches in height. The lowest portion of the display shall be high enough to be visible over concrete barriers or safety drums and a 36”x48” speed limit sign as shown on the approved traffic control plan shall be mounted above the speed display.

The radar speed measurement shall provide a minimum detection distance of 1000 ft. and have an accuracy of +/ - 1 mile per hour. The radar shall be mounted so detection will function when located behind concrete barrier or drums.

The numeric speed display range shall be 0 to 99 MPH with numerals of 18 inches in height minimum, amber in color with a black background with automatic dimming for nighttime operations.

A speed indicator display violation alert shall not be displayed. Flashing of the displayed detected speed is not allowed. The speed indicator shall have a maximum speed cutoff. Detected speeds more than 25 MPH over the posted speed shall not be displayed and speeds under 25 MPH shall not be displayed.

The unit shall have traffic data collection capabilities. Traffic data shall be collected and transmitted to the Engineer upon request.

1-10.1(1)(9-35.14).GR1

Portable Temporary Traffic Control Signal

1-10.1(1)(9-35.14).OPT1.2026.GR1

The first sentence of the second paragraph of Section 9-35.14 is revised to read:

(November 4, 2024)
The PTSS shall be capable of operating under traffic actuated, fixed time, and manual control.

The first sentence of the sixth paragraph of Section 9-35.14 is revised to read:

(November 4, 2024)
Each PTSS shall include vehicle detection.

1-10.2.GR1

Traffic Control Management

1-10.2.INST1.GR1

Section 1-10.2 is supplemented with the following:

1-10.2.OPT1.GR1

(November 2, 2022)

Work Zone Safety Contingency

Enhancements to improve the effectiveness of the accepted traffic control plans to increase the safety of the work zones shall be discussed on a weekly basis between the Contractor and the Contracting Agency. Enhancements shall be mutually agreed upon by the Contractor and Engineer prior to performing any Work to implement the enhancement.

Enhancements do not include the use of Uniformed Police Officers or WSP, address changes to the allowed work hour restrictions, or changes to the staging plans in the Contract (if applicable). If allowed by the Engineer, these items will be addressed in accordance with Section 1-04.4.

The Contractor shall be solely responsible for submitting any traffic control plan revision to implement the enhancement in accordance with Section 1-10.2(2).

1-10.2(1).GR1

General

1-10.2(1).INST1.GR1

Section 1-10.2(1) is supplemented with the following:

1-10.2(1).OPT1.GR1

(October 3, 2022)

The Traffic Control Supervisor shall be certified by one of the following:

The Northwest Laborers-Employers Training Trust
27055 Ohio Ave.
Kingston, WA 98346
(360) 297-3035
https://www.nwlett.edu

Evergreen Safety Council
12545 135th Ave. NE
Kirkland, WA 98034-8709
1-800-521-0778
https://www.esc.org

The American Traffic Safety Services Association
15 Riverside Parkway, Suite 100
Fredericksburg, Virginia 22406-1022
Training Dept. Toll Free (877) 642-4637
Phone: (540) 368-1701
https://atssa.com/training

Integrity Safety
13912 NE 20th Ave.
Vancouver, WA 98686
(360) 574-6071
https://www.integritysafety.com

US Safety Alliance
(904) 705-5660
https://www.ussafetyalliance.com

K&D Services Inc.
2719 Rockefeller Ave.
Everett, WA 98201
(800) 343-4049
https://www.kndservices.net

1-10.2(1).OPT2.GR1

(January 5, 2015)

The primary TCS shall have a minimum of 500 hours of experience providing traffic control as a TCS or traffic control labor on multilane highways with a speed limit of 55 mph or greater. The Contractor shall submit a certification of the TCS's experience with the TCS designation. Documentation of experience shall be available upon request by the Engineer.

1-10.3.GR1

Traffic Control Labor, Procedures and Devices

1-10.3.INST1.GR1

Section 1-10.3 is supplemented with the following:

1-10.3.OPT1.FR1

(May 20, 2020)

Contractor Provided Uniformed Police Officers

The Contractor shall provide, direct, and monitor Uniformed Police Officers having jurisdiction to control traffic in accordance with the Plans. A uniformed police officer (UPO) is a sworn police officer from a local law enforcement agency or a Washington State Patrol officer. The UPO shall provide traffic control as shown in an accepted traffic control plan.

The following contact information for potential service providers is supplied for the Contractor's convenience:

*** $$1$$ ***

1-10.3(3).GR1

Traffic Control Devices

1-10.3(3).INST1.GR1

Section 1-10.3(3) is supplemented with the following:

1-10.3(3).OPT1.GR1

(January 10, 2022)

Automated Flagger Assistance Devices

General

Where shown on an accepted traffic control plan, the Contractor shall provide, operate and maintain AFADs.

An AFAD is a self-contained, portable traffic control system that enables a flagger to avoid standing on the roadway while still controlling road users alternating through a single open lane.

AFAD Operation

Each AFAD shall be controlled only by a flagger who has been trained on the operation of the AFADs by a manufacturer or supplier representative in addition to the requirements in accordance with Section 1-10.3(1)A. The flagger shall be positioned to visually see both the AFAD and approaching traffic. When this is not feasible, digital alternatives are allowable. The flagger is prohibited from

leaving the AFAD unattended at any time while the AFAD is in operation and controlling traffic.

If AFAD repairs are required, the Contractor shall control traffic with flaggers and stop/slow paddles and the AFAD shall be repaired or replaced within 48 hours.

AFAD Location and Use

An AFAD shall only be used in situations where there is only one lane of approaching traffic in the direction to be controlled. AFADs shall not be used within 1500 feet of existing or temporary traffic signals. When used at night, the AFAD location shall be illuminated in accordance with Section 1-10.3(1)A.

The AFAD may be positioned up to the edge of the open travel lane without any lateral clearance, but only the AFAD gate arm can be within the open travel lane when traffic is being stopped. The AFAD shall be delineated by at least 3 transverse channelization devices in advance when not within a closed lane or shoulder.

The “STOP HERE ON RED” R10-6 (24”x36”, B/W) or R10-6a (24”x36”, B/W) sign may be attached to the AFAD below the Red/Yellow lens. The AFAD may have a supplemental amber LED changeable message sign with minimum 10-inch characters attached to provide road users additional information, provided it does not block any signal display or signage.

The Engineer may order adjustments to the location as needed based on traffic and field conditions. The Contractor shall avoid placing the AFAD within or immediately following horizontal and/or vertical curves when feasible.

Setup and Takedown

During the setup and take down operation of the work area, the AFAD display shall be set to a yellow flash mode when the signal heads are deployed into normal operating position.

Except during setup prior to use and removal after use, the AFAD shall be removed from the work zone clear zone when not in use unless protected by barrier or guardrail.

1-10.3(3).OPT2.GR1

(January 2, 2018)

Radar Speed Display Sign

Where shown on an approved traffic control plan or where ordered by the Engineer, the Contractor shall provide, operate, and maintain radar speed display signs (RSDS). A RSDS shall be placed with a minimum of 4 ft. of lateral clearance to edge of a travelled lane and be delineated by channelization devices. The Contractor shall remove the RSDS from the clear zone when not in use unless protected by barrier or guardrail.

1-10.3(3).OPT3.FR1

(April 15, 2024)

Smart Work Zone System

Where shown on an approved traffic control plan, the Contractor shall provide, operate, maintain, and remove a Smart Work Zone System. A Smart Work Zone

System (SWZS) uses portable roadside sensor information to display real-time dynamic work zone traffic information and instructions to motorists on a series of Portable Changeable Message Signs (PCMSs) approaching a work zone.

The SWZS shall be capable of communicating three types of work zone traffic information:

1. **Queue detection warning** for slowed or queued traffic ahead.

2. **Dynamic lane merge** guidance to use all open lanes up to the lane closure tapers and zipper merge instructions during times of congestion.

3. **Work zone travel delay** for current work zone delays in minutes.

In locations with multiple SWZS setups each setup shall be capable of operating independently. One SWZS Technician may operate all systems concurrently.

Vendor
The Contractor shall select an independent vendor listed below to provide the SWZS as shown on an approved SWZS Plan:

Highway Specialties LLC
Phone: (360) 437-1900
Website: https://www.highwayspecialties.com

Hill and Smith Inc.
Phone: (302) 328-3220
Website: https://www.hillandsmith.com/portfolio_category/its-smart-work-zone/

ICONE by ICONE Products
Phone: (315) 626-6800
Website: http://iconeproducts.com/

Road-Tech Safety Services, Inc.
Phone: (888) 762-3832
Website: https://www.road-tech.com/

SolarTech
Phone: (610) 391-8600
Website: http://solartechnology.com/

Street Smart
Phone: (888) 653-6800
Website: https://www.streetsmartrental.com/smart-work-zones/

Superior Traffic Services
Phone: (888) 928-5999
https://www.superiortrafficservices.com/

Ver-Mac
Phone: (888) 488-7446
Website: https://www.ver-mac.com/en/jamlogic-software/smart-work-zones

WANCO
Phone: (800) 972-0755
Website: https://www.wanco.com

Devices and Communications

The Contractor and/or Vendor shall provide all devices necessary to operate the system in accordance with the accepted traffic control plans and these specifications.

The traffic sensors shown in the traffic control plans in advance of lane closure tapers are used to operate the SWZS by detecting vehicle speed approaching the lane closures, where queuing is expected. Typically, these traffic sensors use Doppler radar technology.

Separate side-fire traffic sensor(s), Wavetronix SmartSensor HD or similar accepted by the Engineer, shall be post-mounted or trailer-mounted to obtain traffic volume/speed data where shown in the traffic control plans. If not shown, then the side-fire traffic sensor shall be placed after the final lane closure taper but before lanes are reopened or any open on-ramps to measure the following:

1. Traffic volume, in vehicles per hour per open lane

2. Speed – time graph used to determine the median & 85th percentile speed in each open lane

The Contractor shall use and relocate as necessary side-fire traffic sensor(s) at locations compatible with lane closures. As an alternative, multiple side-fire traffic sensors can be used throughout the project limits provide the traffic volume/speed data remains accurate.

A vendor website or other wireless remote system is required for monitoring SWZS functions and remote management of PCMS messages.

Technician

The Vendor shall provide a technician skilled in the operation of all system equipment and software. The technician may be an employee of the Vendor or someone trained and authorized by the Vendor to operate the system. The technician shall be independent of the Contractor and Traffic Control Supervisor but shall collaborate and coordinate as appropriate. The technician shall be on site while the SWZS is in use and able to respond to system issues in person.

Duties of the Technician include, but are not limited to, the following:

1. Program the automated, real-time operation of the SWZS with traffic sensor trigger speed thresholds and PCMS messages shown on the approved SWZS Plan.

2. Service, debug, troubleshoot, and maintain all SWZS components.

3. Maintain SWZS equipment maintenance logs.

4. Collect and process system data and provide data as described below:

a. **System Data** – System data shall include:

i. Data in table format of traffic volume (vehicles per hour per each open lane), 50th-percentile traffic speed of all open lanes, and 85th-percentile traffic speed of all open lanes for 15-minute intervals organized by Day and Hour of day for each SWZS implementation measured by the side-fire traffic sensor.

ii. Day and Hour of day each traffic sensor was triggered, and the message displayed on each PCMS while the SWZS is in use.

b. **Agency Access to System Data** – Provide password protected access to the Engineer and identified Agency personnel to the System Data via a dedicated website or other wireless remote system.

c. **Provide System Data to Agency** – At the completion of the Project, provide System Data logs in an electronic format approved by the Engineer.

5. Immediately respond to all system failures in accordance with the **Smart Work Zone System Failure Protocol** section of these Specifications.

Operation

Operate the SWZS according to the following:

Scheduled Use

Use a dynamic lane merge, queue detection warning, and work zone travel delay system on the following roadway(s), locations, and work operations:

*** $$1$$ ***

Installation, Relocation, Removal, and Storage

The Contractor shall store, install, relocate, and remove all the SWZS components as follows:

1. Install all components with the SWZS Technician's concurrence at least 30 minutes prior to commencing the first lane closure

2. Relocate components as necessary with the SWZS Technician's concurrence

3. Assist the Technician as needed when the Smart Work Zone System Failure Protocol occurs

4. Remove all components within the Work Zone Clear Zone within 60 minutes when no longer required unless components are placed behind guardrail or barrier.

Initial SWZS Turn-On Meeting
The Contractor shall arrange a meeting at least one week before the initial system turn-on.

The meeting shall include the Contractor, Traffic Control Manager, Traffic Control Supervisor, Alternative Traffic Control Supervisor (if applicable), SWZS Technician, and WSDOT Project Engineering Office staff.

During this meeting, the following topics should be discussed at a minimum:

1. Provide and review the approved traffic control plans, including lane closure plans and the associated SWZS plan that will be used.

2. Review roles and responsibilities for implementation of the SWZS.

3. Provide contact information for critical personnel.

4. Provide a schedule of the anticipated operation times, dates and durations for the initial operation.

5. Review Measurement and Payment for duties related to SWZS installation, operation, and removal.

SWZS Operation Coordination and Collaboration
The Contractor shall notify the Engineer at least 72 hours in advance of using the SWZS including providing a schedule of the anticipated operation times, dates and durations for each subsequent operation.

The Contractor's Traffic Control Management shall coordinate and collaborate as needed for the successful implementation of the SWZS and associated lane closures. Any delays and associated costs due to implementing the SWZS shall be at the Contractor's expense.

Smart Work Zone System Failure Protocol
In the event of a failure, perform the following protocol:

1. **SWZS Technician** – Upon discovery of the malfunction, perform the following:

   a. Immediately notify Contractor Traffic Control Management.

   b. Begin troubleshooting the SWZS to address the malfunction.

   c. If the malfunction is not resolved within 15 minutes, notify Contractor Traffic Control Management. The SWZS shall be taken out of service and repaired within 12 hours of the malfunction.

2. **Contractor Traffic Management** – After receiving the initial notification of the malfunction, perform the following:

   a. Notify the Traffic Control Supervisor.

b. Prepare crews to immediately implement the Emergency PCMS Implementation if the malfunction is not resolved within 15 minutes.

c. Notify the Engineer of the malfunction and failure protocol status.

d. Collaborate with SWZS Technician to provide replacement parts needed to make repairs to the SWZS within 12 hours of the system or a system component malfunction.

3. **Emergency PCMS Implementation** – If the SWZS Technician has not resolved the issue within 15 minutes, perform following failure protocol:

a. Install two PCMSs as described below until the SWZS is repaired, functioning properly, and back in service or until all lane closures have been reopened. The PCMSs may be from the SWZS if needed.

i. PCMS #1: Maintain positioned 0.5 ± mile in advance of traffic queue, relocated as necessary, except when no traffic queue is present. PCMS #1 may be truck-mounted.

Phase 1	Phase 2
SLOW OR	NEXT
STOPPED	#
TRAFFIC	MILES

Where "#" is the approximate queue length rounded up to the nearest mile

ii. PCMS #2: Place 1.5 ± mile in advance of first lane closure taper. Program message as appropriate. Phase 1 is to describe the current lane closure in place. Phase 2 is to describe the distance ahead to the beginning of the first lane closure rounded up to the nearest 0.5 mile interval. For example, if a double right lane closure is 1.5 mile ahead, the PCMS message would be: "2 RIGHT LANES CLOSED" / "1.5 MILE AHEAD".

1-10.3(3).OPT4.FR1

(April 15, 2024)

Queue Warning System

Where shown on an accepted traffic control plan, the Contractor shall provide, operate, maintain, and remove a Queue Warning System. A Queue Warning System (QWS) uses portable roadside sensor information to display real-time traffic queue information to motorists on Portable Changeable Message Signs (PCMS) approaching a work zone. QWS is a simplified smart work zone system intended for work zone queues up to 2 miles, measured from the first lane closure taper, but may be modified for queuing up to 3 miles by extending spacing between the two PCMSs from 1± mile to 1.5 ± mile spacing and adjusting the PCMS messages. Traffic sensor placement remains unchanged.

The QWS shall be capable of communicating two types of work zone traffic information:

1. **Queue detection warning** for slowed or queued traffic ahead.

2. **Dynamic lane merge** guidance to use all open lanes up to the lane closure tapers and to take turns at merges during times of congestion.

In locations with multiple QWS setups each setup shall be capable of operating independently. One QWS Technician may operate all systems concurrently.

Vendors

The Contractor shall select an independent vendor listed below to provide a QWS as shown on an accepted traffic control plan:

Highway Specialties LLC
Phone: (360) 437-1900
Website: https://www.highwayspecialties.com

Hill and Smith Inc.
Phone: (302) 328-3220
Website: https://www.hillandsmith.com/portfolio_category/its-smart-work-zone/

ICONE by ICONE Products
Phone: (315) 626-6800
Website: http://iconeproducts.com/

Road-Tech Safety Services, Inc.
Phone: (888) 762-3832
Website: https://www.road-tech.com/

SolarTech
Phone: (610) 391-8600
Website: http://solartechnology.com/

Street Smart
Phone: (888) 653-6800
Website: https://www.streetsmartrental.com/smart-work-zones/

Superior Traffic Services
Phone: (888) 928-5999
Website: https://www.superiortrafficservices.com

Ver-Mac
Phone: (888) 488-7446
Website: https://www.ver-mac.com/en/jamlogic-software/smart-work-zones

WANCO
Phone: (800) 972-0755
Website: https://www.wanco.com

Devices and Communications

The Contractor and/or Vendor shall provide all devices necessary to operate the system in accordance with the accepted traffic control plans and these specifications.

The traffic sensors shown in the traffic control plans in advance of lane closure tapers are used to operate the SWZS by detecting vehicle speed approaching the lane closures, where queuing is expected. Typically, these traffic sensors use Doppler radar technology.

A vendor website or other wireless remote system is required for monitoring QWS functions and remote management of PCMS messages.

Technician

The Vendor shall provide a technician skilled in the operation of all system equipment and software. The technician may be an employee of the Vendor or someone trained and authorized by the Vendor to operate the system. The technician may be Contractor or subcontractor personnel, including the Traffic Control Supervisor. The technician is not required be on site while the QWS is in use but must be able to respond to any system issues remotely.

Duties of the Technician or trained traffic control personnel include, but are not limited to, the following:

1. Program the automated, real-time operation of the QWS with traffic sensor trigger speed thresholds and PCMS messages shown on the accepted traffic control plan or in these Specifications.

2. Service, debug, troubleshoot, and maintain all QWS components.

3. Maintain QWS equipment maintenance logs.

4. Immediately respond to all system failures in accordance with the **Queue Warning System Failure Protocol** section of these Specifications.

Operation

Operate the QWS according to the following:

Scheduled Use

Use the QWS on the following roadway(s), locations, and work operations:

*** $$1$$ ***

Installation, Relocation, Removal, and Storage

The Contractor or subcontractor shall store, install, relocate, and remove all the QWS components as follows:

1. Install all QWS components with the QWS Technician's concurrence prior to commencing the first lane closure.

2. Relocate components as necessary with the QWS Technician's concurrence.

3. Assist the Technician as needed when the Queue Warning System Failure Protocol occurs.

4. Remove all components within the Work Zone Clear Zone when no longer required unless components are placed behind guardrail or barrier.

QWS Operation Coordination and Collaboration

The Contractor shall notify the Engineer at least 72 hours in advance of using the QWS including providing a schedule of the anticipated operation times, dates and durations for each subsequent operation.

The Contractor's Traffic Control Management shall coordinate and collaborate as needed for the successful implementation of the QWS and associated lane closures. Any delays and associated costs due to implementing the QWS shall be at the Contractor's expense.

Queue Warning System Failure Protocol

In the event of a failure that is not resolved within 15 minutes, reprogram QWS PCMSs to display the following message for the remainder of the Scheduled Use duration:

PCMS 1		**PCMS 2**	
Phase 1	Phase 2	Phase 1	Phase 2
WATCH	NEXT	(Lane)	1
FOR SLOW	2	(Closure)	MILE
TRAFFIC	MILES	(Description)	AHEAD
2.0 SEC	**2.0 SEC**	**2.0 SEC**	**2.0 SEC**
PCMS 1 placed 2± miles from first lane closure taper		PCMS 2 placed 1± mile from first lane closure taper	

(Lane Closure Description) message is similar to LEFT LANE CLOSED or LEFT 2 LANES CLOSED.

If the QWS as modified for queuing up to 3 miles, then modify the messaging as follows:

PCMS 1		**PCMS 2**	
Phase 1	Phase 2	Phase 1	Phase 2
WATCH	NEXT	(Lane)	1.5
FOR SLOW	3	(Closure)	MILES
TRAFFIC	MILES	(Description)	AHEAD
2.0 SEC	**2.0 SEC**	**2.0 SEC**	**2.0 SEC**
PCMS 1 placed 3± miles from first lane closure taper		PCMS 2 placed 1.5± miles from first lane closure taper	

1-10.3(3).OPT5.GR1

(October 3, 2022)

Temporary Portable Transverse Rumble Strips

Where shown on a traffic control plan, the Contractor shall provide, install, and maintain temporary portable transverse rumble strips.

Temporary portable transverse rumble strips may be used on two-way, two-lane roadways in conditions requiring traffic to stop.

Do not place temporary portable transverse rumble strips on sharp horizontal or vertical curves, through pedestrian crossings or on bicycle routes. When placed on roadways used by bicyclists a minimum clear path of 4 feet shall be provided at each edge of the roadway or on each paved shoulder if feasible.

The Contractor shall remove the temporary portable transverse rumble strips in their entirety when they are no longer needed.

All damage caused by removing temporary portable transverse rumble strips shall be repaired by the Contractor at no additional cost to the Contracting Agency.

1-10.3(3).OPT6.GR1

(November 4, 2024)

Mobile Barrier Trailer System

As shown on a traffic control plan or directed by the Engineer, the Contractor shall provide, transport, install, relocate, and maintain a mobile barrier trailer (MBT) system. The mobile barrier system shall be available, on-site, for the entire duration of their projected use.

The Contractor shall provide a semi-tractor truck operator to haul and operate the MBT system and a MBT system technician qualified to set up and operate the features of the MBT system. Both workers shall have completed a minimum of 4 hours of training on use and operation of the MBT system from the MBT system manufacturer within the past 2 years.

Placement, movement, and removal of a MBT system shall be within a stationary lane closure. The MBT system shall be placed in a closed lane adjacent to the active work space. The MBT shall be placed parallel to the adjacent open lane.

The wall of the mobile barrier shall not encroach into the adjacent open lane. Work area lights shall not produce any glare to traffic. Channelizing devices shown adjacent to the mobile barrier shall be removed. Place the channelizing devices back as the mobile barrier moves within the work zone.

Do not use the MBT to guide traffic across lanes or shoulders.

When the MBT system is not in use, it shall be located outside the work zone clear zone or placed behind a barrier or guardrail.

Submittals

Within 21 calendar days of execution of the contract, the Contractor shall submit proof of rental agreement or ownership documentation for the MBT system.

Working Drawings

The Contractor shall submit the MBT system information, as a Type 1 Working Drawing. The information shall include the following:

1. FHWA's acceptance letter for compliance with MASH Test Level 3

2. Manufacturer’s instructions

1-10.3(3).OPT7.GR1

(November 4, 2024)

Road Zipper System™

This Work consists of supplying, transporting, installing, relocating, and maintaining the Road Zipper System as shown on the traffic control plans.

The Contractor shall notify the Engineer in writing a minimum of 15 working days in advance of the pick up date. The Contractor shall load the Road Zipper System on trailers, lowboys, or similar conveyances and haul it between the pickup location and the job site.

The Contractor shall be responsible for furnishing the accepted personnel and equipment necessary for loading and unloading the Road Zipper System. The locations for initial placement of the system shall be accepted by the Engineer. When the Engineer determines that the Road Zipper System is no longer required, the Contractor shall return the system to Lindsay Transportation Solutions, LLC.

The Contractor shall submit Type 1 Working Drawing listing the Road Zipper System operators and mechanics certified by Lindsay to the Engineer for acceptance. Certified operators and mechanics shall have been trained in the manufacturer's recommended operations, maintenance, and repair procedures for the Road Zipper System. Training shall be obtained through Lindsay and be completed prior to the initial pickup date. Only accepted personnel shall operate, maintain, or repair the Road Zipper System.

On-site storage locations for the BTM are shown on the accepted traffic control plans. The BTM shall be stored at these locations when not actively moving the BARRIER.

Road Zipper System Operation

All proposed positions of the BARRIER will be shown on the accepted traffic control plans. The BTM shall be used to move the BARRIER for access to the construction or to change traffic lane configuration site only during the lane closure or traffic switch hours specified in the subsection Public Convenience and Safety of the Special Provision LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC. Traffic control devices shown on the accepted traffic control plans shall be in place prior to the BARRIER shift.

Road Zipper System Maintenance and Repair

The Contractor shall be responsible for fueling, lubricating, and performing all maintenance on the BTM recommended by the manufacturer. BARRIER shall be inspected daily for cracks, chips, spalls, dirt, and traffic marks. The Contractor shall be responsible for the repair or replacement of the BTM and any section of BARRIER damaged while in the Contractor's possession at no cost to the Contracting Agency.

1-10.3(3)B.GR1

Sequential Arrow Signs (Arrow Boards)

1-10.3(3)B.INST1.GR1

Section 1-10.3(3)B is supplemented with the following:

1-10.3(3)B.OPT1.GR1

(January 6, 2025)

Initial Arrow Board Turn-On Meeting

The Contractor shall arrange a meeting at least one week before the initial Arrow Board turn-on.

The meeting shall include the Contractor, Traffic Control Manager, Traffic Control Supervisor, Alternative Traffic Control Supervisor (if applicable), and WSDOT Project Engineering Office staff.

During this meeting, the Contractor shall perform the following:

1. A complete and thorough demonstration to show that communication elements listed in Section 9-35.4 are operating properly.

2. A complete and thorough demonstration to show the data feed is being received by the Contracting Agency.

Arrow Board Failure

If Arrow Board repairs are required, the Contractor shall control traffic with Arrow Board without GPS and remote communication abilities, and the Arrow Board needing repairs shall be repaired or replaced within 48 hours.

Arrow Boards shall be deactivated immediately when the unit is not in use in accordance with the accepted traffic control plan.

Any data service costs for communications will be included in the unit cost per hour for Sequential Arrow Sign.

1-10.4.GR1

Measurement

1-10.4(2).GR1

Item Bids With Lump Sum for Incidentals

1-10.4(2).INST1.GR1

Section 1-10.4(2) is supplemented with the following:

1-10.4(2).OPT2.GR1

(January 10, 2022)

"Automated Flagger Assistance Device" will be measured by the hour for the time that each AFAD is operating as shown on the accepted traffic control plan.

1-10.4(2).OPT3.GR1

(January 2, 2018)

"Radar Speed Display Sign" will be measured by the hour for the time that each sign is operating as shown on an approved Traffic Control Plan.

1-10.4(2).OPT5.GR1

(September 7, 2021)

“Operation of Smart Work Zone System” will be measured by the hour the system is actively operating as defined in Section 1-10.3(3) as supplemented in these special provisions. When the smart work zone system malfunctions for longer than 15-minutes or if the smart work zone system is not used in accordance with the applicable approved Smart Work Zone System traffic control plan, no measurement will be made for the smart work zone system for that hour. Payment for all other Work to implement and decommission the SWZS will be made under the applicable items shown in the Proposal.

1-10.4(2).OPT6.GR1

(May 20, 2020)

"Contractor Provided Uniformed Police Officer" will be measured by the hour.

1-10.4(2).OPT7.GR1

(September 7, 2021)

“Operation of Queue Warning System” will be measured by the hour each system is actively operating as defined in Section 1-10.3(3) as supplemented in these special provisions. When the Queue Warning System malfunctions for longer than 15 minutes or is not used in accordance with the applicable accepted traffic control plan, no measurement will be made for the queue warning system for that hour. Payment for all other Work to implement and decommission the Queue Warning System will be made under the applicable items shown in the Proposal.

1-10.4(2).OPT8.GR1

(October 3, 2022)

“Temporary Portable Transverse Rumble Strips” will be measured per each one time for each array consisting of three rumble strips in operation at any one time. This price shall include installation, maintaining, and relocating throughout the life of the project and final removal from the project site.

1-10.4(2).OPT9.GR1

(November 4, 2024)

“Mobile Barrier Trailer System” will be measured by the day for the time that mobile barrier system is installed as shown on a traffic control plan. A day will begin at midnight (12:00 AM) and end at 11:59 PM. Portions of a day will be rounded up.

1-10.4(2).OPT10.GR1

(November 4, 2024)

“Operating the BTM” will be measured by the hour for the time that the BTM is operating on the job site as shown on the accepted traffic control plans.

1-10.4(3).GR1

Reinstating Unit Items With Lump Sum Traffic Control

1-10.4(3).INST1.GR1

The first sentence of the first paragraph of Section 1-10.4(3) is revised to read:

1-10.4(3).OPT1.2026.GR1

(March 20, 2025)

The Bid Proposal may establish the project as lump sum, in accordance with Section 1-10.4(1) and also include one or more of the items included above in Section 1-10.4(2).

1-10.5.GR1

Payment

1-10.5(1).GR1

Lump Sum Bid for Project (No Unit Items)

1-10.5(1).INST1.GR1

In Section 1-10.5(1), the paragraph following the bid item “Project Temporary Traffic Control”, lump sum is revised to read:

1-10.5(1).OPT1.2026.GR1

(November 4, 2024)

The lump sum Contract payment shall be full compensation for all costs incurred by the Contractor in performing the Contract Work defined in Section 1-10 except for costs compensated by Bid Proposal items reinstated as described in Section 1-10.5(3).

1-10.5(2).GR1

Item Bids with Lump Sum for Incidentals

1-10.5(2).INST1.GR1

Section 1-10.5(2) is supplemented with the following:

1-10.5(2).OPT1.GR1

(November 20, 2023)

“Automated Flagger Assistance Device”, per hour.

The unit Contract price, when applied to the number of hours measured for this item in accordance with Section 1-10.4(2), shall be full pay to provide, maintain and remove the AFAD as described including transporting, installing and resetting the devices.

All costs for controlling AFADs shall be included in the unit Contract price per hour for “Flaggers”.

1-10.5(2).OPT2.GR1

(January 2, 2018)

“Radar Speed Display Sign”, per hour.

The unit Contract price, when applied to the number of units measured for this item in accordance with Section 1-10.4(2), shall be full compensation for all costs incurred by the Contractor in performing the Work for procuring all radar speed display signs required for the project and for transporting these signs to and from the project.

1-10.5(2).OPT3.GR1

(September 7, 2021)

“Operation of Smart Work Zone System”, per hour.

The unit Contract price, when applied to the number of units measured for this item in accordance with Section 1-10.4(2) shall be full compensation for all costs incurred by the Contractor, SWZS Vendor, and SWZS Technician for mobilizing and demobilizing the smart work zone system components; the hardware, software, traffic sensors, and other required equipment; maintenance data logs; traffic data logs; Contracting Agency access to Smart Work Zone System data; and wireless

system operations including Contracting Agency access. Payment for all other Work to implement and decommission the SWZS will be made under the applicable items shown in the Proposal.

1-10.5(2).OPT4.GR1

(September 7, 2021)

"Operation of Queue Warning System", per hour.

The unit Contract price, when applied to the number of units measured for this item in accordance with Section 1-10.4(2) shall be full compensation for all costs incurred by the Contractor, Vendor, and/or Queue Warning System Technician for mobilizing and demobilizing the queue warning system components; the hardware, software, traffic sensors, and other required Queue Warning System equipment; maintenance data logs; traffic data logs; and wireless system operations including Contracting Agency access. Payment for all other Work to implement and decommission the Queue Warning System will be made under the applicable items shown in the Proposal.

1-10.5(2).OPT5.GR1

(May 20, 2020)

"Contractor Provided Uniformed Police Officer", per hour.

The unit Contract price per hour for "Contractor Provided Uniformed Police Officer" shall be full pay for performing the Work as specified and as shown in the Plans, including all costs for arrangement for and supervision of a uniformed law enforcement personnel and vehicles to participate in the Contractor's traffic control activities.

1-10.5(2).OPT6.GR1

(October 3, 2022)

"Temporary Portable Transverse Rumble Strips", per each.

The unit Contract price, when applied to the number of units measured for this item in accordance with Section 1-10.4(2), shall be full compensation for all costs incurred by the Contractor in performing the Work as described.

1-10.5(2).OPT7.GR1

(November 2, 2022)

"Work Zone Safety Contingency", by force account.

All costs as authorized by the Engineer will be paid for by force account as specified in Section 1-09.6.

For purpose of providing a common proposal for all bidders, the Contracting Agency has entered an amount for the item "Work Zone Safety Contingency" in the Proposal to become a part of the Contractor's total bid.

The Engineer may choose to use existing bid items for the implementation of the agreed upon enhancement.

1-10.5(2).OPT8.GR1

(July 2, 2024)

"WSP Reimbursement", by calculation.

"WSP Reimbursement" will be calculated and paid for as described in Section 1-10.1.

1-10.5(2).OPT9.GR1

(November 4, 2024)

"Mobile Barrier Trailer System", per day.

The unit Contract price shall be full compensation for all costs incurred by the Contractor in performing the Work.

1-10.5(2).OPT10.GR1

(November 4, 2024)

"The Road Zipper System", lump sum.

The lump sum Contract payment for "The Road Zipper System" shall be full pay for all costs associated with leasing the system, transporting the system to the jobsite, placing the BARRIER in its initial position in accordance with the accepted traffic control plans, fueling, lubricating, and performing maintenance of BTM, and returning the system to Lindsay upon completion of the project.

"Operating the BTM", per hour.

The unit Contract price per hour for "Operating the BTM" shall be full pay for operating the BTM to move the BARRIER as shown on the accepted traffic control plans.

DIVISION2.GR2

Division 2
Earthwork

2-01.GR2

Clearing, Grubbing, and Roadside Cleanup

2-01.1.GR2

Description

2-01.1.INST1.GR2

Section 2-01.1 is supplemented with the following:

2-01.1.OPT1.FR2

(March 13, 1995)

Clearing and grubbing on this project shall be performed within the following limits:

*** $$1$$ ***

2-01.3.GR2

Construction Requirements

2-01.3(1).GR2

Clearing

2-01.3(1).INST1.GR2

Item number 1 of Section 2-01.3(1) is revised to read:

2-01.3(1).OPT1.GR2

(April 2, 2018)

1. Trees identified for removal shall be felled into the Contracting Agency right of way or areas that will be cleared of vegetation.

2-01.3(4).GR2

Roadside Cleanup

2-01.3(4).INST1.GR2

Section 2-01.3(4) is supplemented with the following:

2-01.3(4).OPT1.FR2

(January 5, 1998)

*** $$1$$ ***

2-01.5.GR2

Payment

2-01.5.INST1.GR2

The first and second paragraphs of Section 2-01.5 are revised to read:

2-01.5.OPT1.FR2

(August 7, 2017)

Payment will be made for the following bid items when they are included in the proposal:

All costs for clearing and grubbing on this project shall be included in the *** $$1$$ ***.

2-02.GR2

Removal of Structures and Obstructions

2-02.1.GR2

Description

2-02.1.INST1.GR2

Section 2-02.1 is supplemented with the following:

2-02.1.OPT1.GR2

(March 13, 1995)

This work shall consist of removing miscellaneous traffic items.

2-02.1.OPT2.GR2

(October 4, 2021)

Removal and Disposal of Asbestos Material

This work shall consist of removing, handling, and disposing of Asbestos Containing Material and Presumed Asbestos Containing Material identified in the Good Faith Investigation (GFI). The Contractor shall remove and dispose of asbestos in any and all areas as identified in the GFI.

2-02.1.OPT3.GR2

(March 13, 1995)

This work shall consist of removing portions of an existing box culvert in preparation for extending the box culvert.

2-02.1.OPT5.GR2

(February 25, 2021)

Decommissioning Wells

The Contractor shall decommission wells at the locations as shown in the Plans.

2-02.GR2

Removal of Structures and Obstructions

2-02.2.INST1.GR2

Section 2-02.2 is supplemented with the following:

2-02.2.OPT1.GR2

(February 25, 2021)

Materials shall conform to WAC 173-160-381 for the type of well scheduled for decommissioning.

2-02.3.GR2

Construction Requirements

2-02.3.INST1.GR2

Section 2-02.3 is supplemented with the following:

2-02.3.OPT1.FR2

(September 7, 2021)

Removal of Obstructions

The following miscellaneous Obstructions shall be removed and disposed of:

*** $$1$$ ***

2-02.3.OPT2.FR2

(March 13, 1995)

Removing Miscellaneous Traffic Items

The following miscellaneous traffic items shall be removed and disposed of:

*** $$1$$ ***

2-02.3.OPT3.FR2

(June 6, 2022)

Removal and Disposal of Hazardous Material

Hazardous material is suspected to exist on this project. Approximate limits of contamination are identified in the Plans. The site history, prior studies and/or test results indicate a potential for encountering *** $$1$$ ***.

Copies of the environmental reports are available for review at https://ftp.wsdot.wa.gov/contracts/. All necessary permits for this work will be furnished by the Contracting Agency. The Contractor is responsible for all work, records, and reports required to perform the work described in this section. The Contracting Agency will perform all testing of suspected hazardous or contaminated material.

The Contractor shall notify the Engineer 10 working days prior to beginning work in the area identified in the Plans as contaminated. The Contractor shall notify the Engineer

immediately if contamination is discovered in areas other than those identified in the Plans or is suspected through observations such as an oily sheen or discolored soils that may or may not emit strong chemical odors.

Contaminated Soil and Hazardous Material

The Engineer will determine the limits of excavation required. All material that is designated by the Engineer to be removed shall be handled and stored in a manner that prevents the spread of contamination to adjacent soil or water. Separate stockpiles shall be maintained for known hazardous or contaminated material and for suspected hazardous or contaminated material. The Contractor shall transport hazardous or contaminated material and dispose of it at a permitted facility. The Contractor shall provide the Engineer with a copy of the shipping manifest or bill of lading indicating the amount of material hauled to disposal and bearing the disposal site operator's confirmation for receipt of the material. Manifests shall be submitted in accordance with Section 1-07.5(7).

Contaminated Water

All water that is removed from the areas of contamination, including free water that leaches from contaminated soil stockpiles or water that is suspected of being contaminated, shall be collected, handled and stored in a manner that prevents the spread of contamination to adjacent soil or water. The Contractor shall transport contaminated water and dispose of it at a permitted facility. The Contractor shall provide the Engineer with a copy of the shipping manifest or bill of lading indicating the amount of material hauled to disposal and bearing the disposal site operator's confirmation for receipt of the material. Manifests shall be submitted in accordance with Section 1-07.5(7).

2-02.3.OPT4.GR2

(October 4, 2021)

Removal and Disposal of Asbestos Material

Prior to performance of any contract work, the Contractor shall obtain all permits from and provide notification to, the Washington State Department of Labor and Industries, the Washington State Department of Ecology, the local clean air agency, and other permitting and regulatory agencies with jurisdiction over the work involving asbestos as the laws, rules, and regulations require.

Prior to commencing asbestos related work, the Contractor shall submit as a Type 1 Working Drawing any and all written verification of approvals and notifications that have been given and/or obtained from the required jurisdictional agencies. The Contractor shall include a schedule of activities for all work involving asbestos removal as part of the Type 1 Working Drawing. Asbestos related work shall also be shown on the Contractor's project progress schedule.

The Contractor shall designate a Washington State Certified Asbestos Supervisor (CAS), certified in accordance with WAC 295-65-012, to supervise the asbestos removal and to ensure that the handling and removal of asbestos is accomplished by certified asbestos workers, pursuant to Washington State Department of Labor and Industries standards. The Contractor shall ensure that the removal and disposal of asbestos meets the requirements of EPA regulation 40 CFR Part 61, local health department regulations, and all other applicable regulations.

The Contractor shall ensure the safety of all workers, visitors to the site, and the public in accordance with all applicable laws, rules, and regulations.

2-02.3.OPT5.GR2

(October 4, 2021)

Removal and Disposal of Asbestos Material

In the event suspected Asbestos Containing Material (ACM) is encountered, the Contractor shall immediately notify the Engineer and the provisions of Section 1-04.7 shall apply. Prior to commencing asbestos related work, the Contractor shall obtain all permits from and provide notification to, the Washington State Department of Labor and Industries, the Washington State Department of Ecology, the local clean air agency, and other permitting and regulatory agencies with jurisdiction over the work involving asbestos as the laws, rules, and regulations require.

The ACM shall only be disturbed under the supervision of a Washington State Certified Asbestos Supervisor (CAS). The CAS shall be certified in accordance with WAC 295-65-012.

The CAS shall supervise the asbestos removal and ensure that the handling and removal of asbestos is accomplished by certified asbestos workers and in accordance with Washington State Department of Labor and Industries standards. The Contractor shall ensure that the removal and disposal of asbestos meets the requirements of EPA regulation 40 CFR Part 61, local health department regulations, and all other applicable regulations.

No asbestos is expected to be encountered. However, if the Contractor believes they have encountered asbestos, they shall immediately notify the Engineer in accordance with Section 1-04.7.

2-02.3.OPT6.FB2

(June 26, 2000)

Salvage of Removed Structure Items

All *** $$1$$ *** of the existing bridge or structure being removed shall remain the property of the Contracting Agency.

The Contractor shall transport the specified salvaged items to the following location:

$$2$$

The Contractor shall stack the material where directed by the Engineer. The Contractor shall contact the Engineer at least five working days prior to scheduled delivery of the items to confirm delivery arrangements.

2-02.3.OPT7.GR2

(February 25, 2021)

Decommissioning of Wells

1. Protect the well in place until decommissioned.

2. The Contractor shall provide the Department of Ecology (Ecology) a Notice of Intent (NOI) prior to decommissioning a well. A pdf of the NOI shall be provided to the Engineer within 24 hours of submittal to Ecology. A pdf of any Ecology required well reports shall be provided to the Engineer within 24 hours of submittal to the Ecology. Well reports shall include tag numbers, coordinates or other data required by Ecology for incorporation into the Ecology database for wells.

3. Licensed well drillers shall be utilized in accordance with Chapter 18.104 RCW, the Washington Well Construction Act.

4. The Contractor shall comply with WAC 173-160-381 which describes the standards for decommissioning a well.

5. The Contractor shall comply with WAC 173-160-261 requiring all dug wells to have a proper cap to prevent injury and contamination.

6. The Contractor shall comply with local laws pertaining to the decommissioning of wells.

7. This Work shall be completed prior to physical completion of the project or as agreed upon with the Engineer.

2-02.3(2).GB2

Removal of Bridges, Box Culverts, and other Drainage Structures

2-02.3(2).INST1.GB2

Section 2-02.3(2) is supplemented with the following:

2-02.3(2).OPT1.FB2

(June 26, 2000)

The Contractor shall remove existing Bridge *** $$1$$ *** after routing traffic onto *** $$2$$ ***.

2-02.3(2).OPT2.FB2

(June 26, 2000)

The Contractor shall remove existing Bridge ***$$1$$*** in stages as shown in the Plans.

2-02.3(2).OPT3.FB2

(June 26, 2000)

The Contractor shall remove the following portions of Bridge *** $$1$$ ***, as shown in the Plans:

*** $$2$$ ***

2-02.3(2).OPT7.FB2

(June 26, 2000)

Removal Limits in Water

The existing piers of Bridge *** $$1$$ *** within the wetted perimeter of the *** $$2$$ *** which do not conflict with new construction shall be removed to elevation *** $$3$$ ***. All broken concrete, and other bridge removal debris shall be removed from the bottom of the *** $$4$$ ***.

2-02.3(2).OPT10.GB2

Use of Explosives

2-02.3(2).OPT10(B).FB2

(January 2, 2018)

The Contractor may use explosives in the demolition of *** $$1$$ ***.

If explosives are used for any removal operation, the Contractor shall:

1. Conform with Section 1-07.22, including providing notice of the time and duration of the blasting operation to all residents and property owners within the safety zone.

2. Submit a Type 2 Working Drawing consisting of a detailed blasting plan.

3. Perform a pre-blast survey to document the pre-blast condition of all structures within the safety zone, and provide copies of the pre-blast survey to the Engineer.

4. Obtain permits and approvals from all applicable governmental agencies.

The blasting plan shall include, at a minimum, the following:

1. Show all stages of the demolition work.

2. Show details of all “pre-weakening” of the bridge, including locations and extent of the Structure modifications.

3. Specify the explosive and charge type and quantity.

4. Specify the firing sequence.

5. Specify the fall direction and fall sequence of the bridge, and show locations and details of all cables and structure attachments used for control.

6. Show details of drill holes and explosive placement.

7. Specify types of ground vibration monitoring equipment and show the locations of such equipment.

8. Specify how noise and shock waves are kept to a minimum.

9. Specify fragment, dust, and debris control.

10. Name, address, and phone number(s) of the licensed explosives expert supervising the operation.

11. Specify safety and security procedures, including, but not limited to, the following:

    a. Methods of storage and transportation.

    b. Measures taken to secure the blasting materials at all times, including all non-working hours.

    c. Measures taken to secure the bridge site at all times during and after installation of all charges and after blasting.

d. Safeguards against accidental discharge.

e. Safety zone limits.

f. Barricade locations.

g. Location of firing device, warning signals, warning signs.

h. Communication procedures for notifying the Engineer, nearby residents, and all personnel of impending blasting.

The Contractor shall enlist a licensed, experienced explosives expert to supervise all stages of explosive work, including hole drilling and explosive placement, safety procedures, and blasting operations.

At least five to ten working days prior to the scheduled blast, a pre-blast conference shall be held to discuss the blasting plan, all pre-blast preparations of the bridge, the pre-blast, blast, and post-blast procedures, and the responsibilities and activities of the personnel and equipment involved. Those attending shall include, at a minimum, the project superintendent, the licensed explosives expert assigned to supervise the work, and the work crew leaders responsible for performing the pre-blast and post-blast activities.

Traffic shall not be allowed in the vicinity during blasting operations.

All damage as a result of the Contractor's blasting operations shall be repaired by the Contractor at no additional expense to the Contracting Agency in accordance with Sections 1-07.13 and 1-07.14.

2-02.3(2).OPT11.GB2

(January 2, 2018)

Requirements for Closing Bridge to Traffic Prior to Beginning Removal

The Contractor shall not close the existing bridge to traffic, and shall not begin bridge removal operations, until the following conditions are met:

1. The Contractor's bridge demolition plan Working Drawing submittal has been processed and all comments from the Engineer have been addressed.

2. The Contractor has received the Engineer's acceptance of all shop drawings and materials submittals for materials required for the work to be executed during the closure.

3. The Contractor has submitted a Type 1 Working Drawing consisting of a report on the status of material delivery. The report shall specify the materials already available at the site, the materials yet to arrive at the site, and the scheduled delivery dates of the materials yet to arrive at the site, with written verification from the supplier or copies of confirmed purchase orders indicating the delivery dates of the materials yet to arrive at the site.

4. The Contractor shall provide an updated progress schedule in accordance with Section 1-08.3 confirming that the scheduled delivery of materials will

meet the schedule to complete the work within the allowed time. The Contractor shall supplement the progress schedule with a written narrative describing the assumed production rates and planned resource allocations that support the bridge construction activity durations provided in the progress schedule.

5. The Contractor has received the Engineer's concurrence to proceed.

2-02.3(2).OPT12.GR2

(June 26, 2000)

Removing Portions of Existing Box Culvert

The Contractor shall remove, to the limits shown in the Plans, the existing wingwalls, wingwall footings, aprons, and parapet walls of the box culvert to be extended.

2-02.3(3).GR2

Removal of Pavement, Sidewalks, Curbs, and Gutters

2-02.3(3).INST1.GR2

Section 2-02.3(3) is supplemented with the following:

2-02.3(3).OPT1.FR2

(September 8, 1997)

The approximate thickness of the *** $$1$$ *** pavement is *** $$2$$ ***.

2-02.4.GR2

Measurement

2-02.4.INST1.GR2

Section 2-02.4 is supplemented with the following:

2-02.4.OPT1.GR2

(December 4, 2006)

Hazardous material excavation including haul will be measured by the cubic yard. All excavated material will be measured in the position it occupied before the excavation was performed. An original ground measurement will be taken using cross-section or digital terrain modeling survey techniques. The original ground will be compared with a survey of the excavation area taken after the work is completed.

2-02.4.OPT2.GR2

(September 8, 1997)

Pavement removal will be measured by the square yard.

2-02.4.OPT3.GR2

(October 25, 1999)

Sidewalk removal will be measured by the square yard.

2-02.4.OPT4.GR2

(September 8, 1997)

Curb removal will be measured by the linear foot.

2-02.5.GR2
Payment

2-02.5.INST1.GR2
Section 2-02.5 is revised by the following:

2-02.5.OPT1.FR2
(August 7, 2017)
Payment will be made for the following bid item when it is included in the proposal.

All costs for the removal of structures and obstructions shall be included in *** $$1$$ ***.

2-02.5.INST2.GR2
Section 2-02.5 is supplemented with the following:

2-02.5.OPT2.GR2
(February 25, 2021)
“Decommissioning Wells”, lump sum including all Work as specified and payment to regulatory agencies for any associated fees for monitoring or decommissioning of wells.

2-02.5.OPT7.GR2
(December 4, 2006)
“Hazardous Material Handling And Disposal”, by force account as provided in Section 1-09.6.

All costs associated with storing stockpiled hazardous waste and contaminated soils, collecting, handling and storing contaminated water, loading the stockpiled material into the hauling conveyance for transport to the disposal site, and transporting and disposing of hazardous or contaminated materials at an approved facility will be paid by force account under the item “Hazardous Material Handling And Disposal”.

To provide a common basis for all bidders, the Contracting Agency has entered an amount in the proposal to become a part of the Contractor’s total bid.

“Hazardous Material Excavation Incl. Haul”, per cubic yard.
The unit contract price for “Hazardous Material Excavation Incl. Haul” shall be full pay for all costs associated with excavating the material designated to be removed, hauling it to the stockpile location, and stockpiling the excavated material.

2-02.5.OPT8.GR2
(September 30, 1996)
"Removing Miscellaneous Traffic Item", lump sum.

2-02.5.OPT11.GR2
(September 30, 1996)
"Removal and Disposal of Asbestos Material", lump sum.

2-02.5.OPT12.GR2
(June 26, 2000)
"Removing Portion of Conc. Box Culv.", lump sum.

The lump sum contract price for "Removing Portion of Conc. Box Culv." shall be full pay for preparing the box culvert for the extension by removing and disposing of all concrete and other debris specified.

2-02.5.OPT13.FR2
(September 30, 1996)
"Removing *** $$1$$ *** Pavement", per square yard.

2-02.5.OPT15.GR2
(June 26, 2000)
All costs in connection with removing the box culvert wingwalls, footings, aprons, and parapet wall and disposing of concrete and other debris as specified shall be included in the unit contract prices for the items of work involved in the extension of the box culvert(s).

2-02.5.OPT16.FR2
(November 3, 1999)
"Removing *** $$1$$ *** Sidewalk", per square yard.

2-02.5.OPT17.FR2
(September 8, 1997)
"Removing *** $$1$$ *** Curb", per linear foot.

2-03.GR2
Roadway Excavation and Embankment

2-03.3.GR2
Construction Requirements

2-03.3(2).GR2
Rock Cuts

2-03.3(2).INST1.GR2
Section 2-03.3(2) is supplemented with the following:

2-03.3(2).OPT1.GR2
(September 7, 2021)
Rock Slope Scaling and Removal and Disposal of Rock Slope Scaling Debris
The Contractor shall remove loose rock and soil from the existing rock slope locations shown in the Plans or as specified by the Engineer, and shall remove and dispose of all rock slope scaling debris generated by the work.

Equipment
Rock slope scaling shall be performed with scaling bars, portable hydraulic wedges, air pillows, hand drills, splitters, and other mechanical or hand tools demonstrated to be effective in performing the work to the satisfaction of the Engineer.

Submittals
The Contractor shall submit a rock slope scaling plan as a Type 2 Working Drawing. The rock slope scaling plan shall include, but not be limited to, the following:

1. Documented work experience of all rock slope scaling supervisors and scalers scheduled to be working on the project. Rock slope scaling supervisors shall have at least 1,500 hours of documented experience as a rock slope scaler. Rock slope scalers shall have at least 1,000 hours of documented experience as a rock slope scaler.

2. The proposed construction sequence and schedule.

3. The type of tools and equipment to be used for rock scaling purposes.

4. The number of rock slope scaling crews to be employed on the project, with a rock slope scaling crew defined as one qualified scaling supervisor and two qualified scalers.

5. Operation plan for collection, removal and disposal of all rock slope scaling debris generated by the rock slope scaling work.

6. Operation plan for protection of roadway surface, railroad facilities, structures, utilities, and other facilities adjacent to the rock slope scaling locations.

7. If the Roadway is exposed to the collection of rock slope scaling debris, the submittal shall include the equipment and procedure to be used to clear the Roadway for public use between rock slope scaling operations.

The Contractor shall not begin rock slope scaling operations until receiving the Engineer's approval of the rock slope scaling plan.

Rock Slope Scaling Construction Requirements

As a first item of work, the Contractor shall clear the rock slope of trees and woody vegetation within the work zone within 15 feet of the slope crest or as otherwise specified by the Engineer. Clearing shall conform to Sections 2-01.1 and 2-01.3(1), and the requirement that the vegetation shall be close cut, leaving the root wad intact.

The Contractor shall conduct rock slope scaling operations in accordance with the details shown in the Plans, the traffic control restrictions and requirements shown in the Plans and specified in the Special Provisions, and the rock slope scaling plan as approved by the Engineer. The size and work experience of the rock slope scaling crew as defined above shall be maintained at all times.

Rock slope scaling shall begin at the top of the rock slope and work shall proceed down slope, removing loose rock and soil as the work progresses. The extent of rock slope scaling shall be as shown in the Plans and as adjusted in the field by the Engineer.

Rock Slope Scaling Debris Collection and Removal

The Contractor shall collect, remove and dispose of all rock slope scaling debris generated by the work, including all rock debris within the limits of the project present at the base of the slope at the beginning of the project. Ditches and

benches shall be cleared of all rock slope scaling debris and returned to original functional condition as specified by the Engineer

The Contractor shall break up any rocks that are too large to transport into manageable sized pieces for haul.

Rock slope scaling debris collection and removal shall be conducted in accordance with the traffic control restrictions and requirements shown in the Plans and specified in the Special Provisions, and the rock slope scaling plan as approved by the Engineer.

Except when the Plans or Special Provisions specify a Contracting Agency provided site for disposal of all or specific portions of the rock slope scaling debris, all rock slope scaling debris shall be disposed of at a site conforming to Section 2-03.3(7)C.

2-03.3(7).GR2

Disposal Of Surplus Material

2-03.3(7).INST1.GR2

Section 2-03.3(7) is supplemented with the following:

2-03.3(7).OPT1.FR2

(March 13, 1995)

Surplus materials may be disposed of within the Contracting Agency furnished site, as detailed in the Plans. For informational purposes the maximum capacity of this site is *** $$1$$ *** cubic yards, neat line measurement.

2-03.3(7).OPT2.FR2

(March 13, 1995)

Surplus materials may be disposed of by widening embankments at the following locations, as may be designated by the Engineer :

*** $$1$$ ***

For informational purposes the maximum capacity of the embankment widening sites is *** $$2$$ *** cubic yards, neat line measurement

2-03.3(7).OPT3.GR2

(March 13, 1995)

The Contractor is not required to utilize the Contracting Agency provided site(s), and may make arrangements, at the Contractor's expense, for the disposal of waste materials, and shall protect the Contracting Agency from all damages arising from the Contractor's waste disposal operations.

2-03.3(7).OPT4.GR2

(March 13, 1995)

It is anticipated that the waste site(s) provided by the Contracting Agency will not be of sufficient size or capacity to dispose of all excess materials. Therefore, it will be necessary for the Contractor to make arrangements, at the Contractor's expense, for the disposal of excess waste materials and shall protect the Contracting Agency from all damages that may arise from the waste disposal operations.

2-03.3(14).GR2

Embankment Construction

2-03.3(14)C.GR2

Compacting Earth Embankments

2-03.3(14)C.INST1.GR2

Section 2-03.3(14)C is supplemented with the following:

2-03.3(14)C.OPT1.GR2

(March 13, 1995)

All embankments, except waste embankments, shall be compacted using Method A.

2-03.3(14)I.GB2

Embankments at Bridge And Trestle Ends

2-03.3(14)I.INST1.GB2

Section 2-03.3(14)I is supplemented with the following:

2-03.3(14)I.OPT1.FB2

(March 13, 1995)

The approach embankments at the ends of *** $$1$$ *** shall be constructed *** $$2$$ *** before undertaking the construction of the end piers.

2-03.4.GR2

Measurement

2-03.4.INST1.GR2

Section 2-03.4 is supplemented with the following:

2-03.4.OPT1.GR2

(March 13, 1995)

The embankment widening for guardrail will be measured by the cubic yard, between the original roadway slope and the neat lines of the widened embankment.

2-03.4.OPT2.GR2

(September 3, 2024)

Only one determination of the original ground elevation will be made on this project. Measurement for roadway excavation and embankment will be based on the original ground elevations recorded previous to the award of this contract.

If discrepancies are discovered in the ground elevations which will materially affect the quantities of earthwork, the original computations of earthwork quantities will be adjusted accordingly.

Earthwork quantities will be computed, either manually or by means of electronic data processing equipment, by use of the average end area method or by the finite element analysis method utilizing digital terrain modeling techniques.

Electronic Design Files will be available by request for the Bidder’s inspection before the opening of Bids.

2-03.4.OPT3.GR2
(March 13, 1995)
Only one determination of the original ground elevation will be made on this project. Measurement for roadway excavation and embankment will be based on the original ground elevations recorded previous to the award of this contract. Control stakes will be set during construction to provide the Contractor with all essential information for the construction of excavation and embankments.

If discrepancies are discovered in the ground elevations which will materially affect the quantities of earthwork, the original computations of earthwork quantities will be adjusted accordingly.

Earthwork quantities will be computed, either manually or by means of electronic data processing equipment, by use of the average end area method or by the finite element analysis method utilizing digital terrain modeling techniques.

Copies of the ground cross-section notes will be available for the bidder's inspection, before the opening of bids, at the Engineer's office and at the Region office.

Upon award of the contract, copies of the original ground cross-sections will be furnished to the successful bidder on request to the Engineer.

2-03.4.OPT4.GR2
(April 5, 2010)
Rock slope scaling will be measured by the crew hour.

Rock slope scaling debris removal including haul will be measured by the cubic yard in the hauling conveyance at the point of removal from the work site.

2-03.5.GR2
Payment

2-03.5.INST1.GR2
Section 2-03.5 is supplemented with the following:

2-03.5.OPT1.GR2
(September 30, 1996)
"Embankment in Place", per cubic yard.

The unit contract price per cubic yard shall be full pay to perform the work as specified, including terracing the existing slope.

2-03.5.OPT2.FR2
(March 13, 1995)
All costs in connection with the preparation of waste sites and waste deposits shall be included in the *** $$1$$ ***.

2-03.5.OPT3.GR2
(April 5, 2010)

"Rock Slope Scaling", per crew hour.
The unit contract price per crew hour for "Rock Slope Scaling" shall be full pay for performing the work as specified.

"Rock Slope Scaling Debris Removal Incl. Haul", per cubic yard.
The unit contract price per cubic yard for "Rock Slope Scaling Debris Removal Incl. Haul" shall be full pay for performing the work as specified, including collection, removal and disposal of all rock debris within the limits of the project present at the base of the slope at the beginning of the project.

All costs in connection with felling of trees and woody vegetation from the site as specified, and collection, removal and disposal of all trees and woody vegetation cut and removed from the slope, shall be included in the lump sum contract price for "Clearing and Grubbing".

2-06.GR2
Subgrade Preparation

2-06.3.GR2
Construction Requirements

2-06.3(1).GR2
Subgrade For Surfacing

2-06.3(1).INST1.GR2
Section 2-06.3(1) is supplemented with the following:

2-06.3(1).OPT1.GR2
(March 13, 1995)
The subgrade shall be trimmed with an automatically controlled machine.

2-06.3(1).OPT2.GR2
(March 13, 1995)
A subgrade trimmer is not required but all portions of Section 2-03 shall apply as though a subgrade trimmer were specified.

2-09.GR2
Structure Excavation

2-09.3.GR2
Construction Requirements

2-09.3(1).GR2
General Requirements

2-09.3(1)C.GR2
Removal of Unstable Base Material

2-09.3(1)C.INST1.GR2
Section 2-09.3(1)C is supplemented with the following:

2-09.3(1)C.OPT1.FB2

(September 8, 2020)

If the soil in the footing excavation *** $$1$$ *** is disturbed and becomes unsuitable before placement of the concrete footing, the Contractor shall excavate below the plan grade a maximum of 1 foot, as determined by the Engineer, and backfill with gravel backfill for foundations.

2-09.3(3).GR2

Construction Requirements, Structure Excavation, Class A

2-09.3(3)B.GR2

Excavation Using Open Pits – Extra Excavation

2-09.3(3)B.INST1.GR2

Section 2-09.3(3)B is supplemented with the following:

2-09.3(3)B.OPT1.FB2

(September 7, 2021)

Extra excavation and open pit excavation, as defined in this section, will not be allowed at the following location(s):

*** $$1$$ ***

Shoring for the excavation sites specified above shall be Structural Shoring in accordance with Section 2-09.3(3)D. The Contractor shall submit Type 2E Working Drawings consisting of shoring plans in accordance with Section 2-09.3(3)D.

2-09.3(3)B.OPT2.FR2

(April 1, 2019)

The Contracting Agency has identified the following areas where the Contractor may dig open pits or perform extra excavation without shoring or cofferdams provided slope stability is evaluated using limit equilibrium methods:

*** $$1$$ ***

Submittals and Design Requirements

At the locations identified above, the temporary excavation slopes shall be designed by an engineer or engineering geologist licensed in Washington State. The Contractor shall submit Type 2E Working Drawings for the areas identified above. The Type 2E Working Drawings may address each site individually, as groups, or in entirety. The design shall use limit equilibrium slope stability methods and software and shall be completed in conformance with the WSDOT *Geotechnical Design Manual* M 46-03. The design shall be based on site specific conditions and shall include a stability assessment of interim or intermediate stages if they are used and shall include all applicable surcharge loads including those from construction equipment or stock piled materials. Required submittal elements include, at a minimum, the following:

1. A plan view showing the limits of the excavation and its relationship to traffic, Structures, utilities and other pertinent project elements. If the

stability of the excavation requires no-load zones or equipment setback distances, those shall be shown on the plan view.

2. A typical or controlling cross section showing the proposed excavation, original ground line, and locations of traffic, existing Structures, utilities, site constraints, surcharge loads, or other conditions that could affect the stability of the slope. If the stability of the excavation requires no-load zones or equipment setback distances, those shall be shown in cross section.

3. A summary clearly describing subsurface conditions and groundwater conditions, sequencing considerations, and governing assumptions.

4. Supporting calculations for the design of the excavation, the soil and material properties selected for design, and the justification for the selection for those properties, in accordance with the WSDOT *Geotechnical Design Manual* M 46-03.

5. Safety factors, or load and resistance factors used, and justification for their selection, in accordance with the WSDOT *Geotechnical Design Manual* M 46-03, and referenced AASHTO design manuals.

6. A monitoring plan to evaluate the excavation performance throughout its design life.

7. Any supplemental subsurface explorations made by the Contractor to meet the requirements for geotechnical design of excavation slopes, in accordance with the WSDOT *Geotechnical Design Manual* M 46-03.

2-09.3(3)D.GR2

Shoring And Cofferdams

2-09.3(3)D.INST1.GR2

Section 2-09.3(3)D is supplemented with the following:

2-09.3(3)D.OPT1.GB2

(March 13, 1995)

The Contractor shall protect the existing pavement from damage due to the Contractor's operations and shall shore all excavation adjacent to the existing pavement.

2-09.3(3)D.OPT2.GB2

(August 2, 2010)

The Contractor shall protect the existing track and facilities of the Railroad Company from damage due to the Contractor's operations, and shall shore all excavation adjacent to the existing railroad track. Shoring shall be steel sheet piling designed for a Cooper E-80 loading according to the American Railway Engineering and Maintenance Association (AREMA) Manual For Railway Engineering. Damage to the railroad track or railroad facilities, due to the Contractor's operations, will be repaired by the Railroad at the Contractor's expense.

2-09.3(3)D.OPT3.FB2

(March 13, 1995)

Because of the nearness of the work to the existing *** $$1$$, *** the Contractor shall protect the *** $$2$$ *** during the *** $$3$$ ***.

2-09.4.GR2

Measurement

2-09.4.INST1.GR2

The subsection **Lower Limits** of Section 2-09.4 is supplemented with the following:

2-09.4.OPT1.GB2

(January 4, 2010)

Under girders, at end pier embankments, the lower limit will follow a line parallel to the bottom of the girders and three feet below them.

2-12.GR2

Construction Geosynthetic

2-12.1.GR2

Description

2-12.1.INST1.GR2

Section 2-12.1 is supplemented with the following:

2-12.1.OPT1.GR2

(November 17, 1997)

Geosynthetic Reinforced Slope

The Contractor shall furnish and construct geosynthetic reinforced slopes in accordance with the details shown in the Plans, these specifications, or as directed by the Engineer.

2-12.2.GR2

Materials

2-12.2(9-03.14).GR2

Borrow

Section 9-03.14 is supplemented with the following:

2-12.2(9-03.14).OPT1.FR2

(November 17, 1997)

Borrow for Geosynthetic Reinforced Slope

All backfill material used in the reinforced soil zone of the geosynthetic reinforced slope shall be free draining, free from organic or otherwise deleterious material and shall conform to the gradation for *** $$1$$ *** borrow, except that the percent passing a No. 200 sieve shall be 7 to 12 percent, and the SE shall be 15 minimum. The material shall be substantially free of shale or other soft, poor durability particles, and shall not contain recycled materials, such as glass, shredded tires, portland cement concrete rubble, or asphaltic concrete rubble. The backfill material shall meet the following requirements:

Property	Test Method	Allowable Test Value
Los Angeles Wear, 500 rev.	AASHTO T 96	35 percent max.
Degradation	WSDOT Test Method 113	15 min.
pH	AASHTO T 289-91	4.5 to 9

Reinforced slope backfill material satisfying these gradation, durability and chemical requirements shall be classified as nonaggressive.

2-12.2(9-07.7).GR2

Welded Wire Reinforcement

Section 9-07.7 is supplemented with the following:

2-12.2(9-07.7).OPT1.GR2

(February 6, 2023)

Welded wire fabric for the slope facing, including all facing anchor pins and tie-bars, shall conform to the requirements of AASHTO M 336. Welded wire fabric, anchor pins, and tie-bars shall be galvanized after fabrication in accordance with ASTM A641 (2 oz./ft^2 minimum). All damage to galvanizing shall be repaired with Galvanizing Repair Paint in accordance with Section 9-08.1(2)B.

2-12.2(9-33.2(2)).GR2

Geosynthetic Properties For Retaining Walls and Reinforced Slopes

Section 9-33.2(2) is supplemented with the following:

2-12.2(9-33.2(2)).OPT1.FR2

(January 2, 2012)

Geosynthetic Properties for Reinforced Slopes

Geotextile reinforcement (primary and secondary) in geosynthetic reinforced slopes shall conform to the properties specified in Tables 7 and 11.

If geogrid reinforcement is used for wrapped face reinforced slope construction, the geotextile material placed at the wall face to retain the backfill material as shown in the Plans shall conform to the properties of Table 7.

Wide strip geosynthetic strengths are minimum average roll values (i.e., the average test results for any sampled roll in a lot shall meet or exceed the values shown in the table). These wide strip strength requirements apply only in the geosynthetic direction perpendicular to the slope face. Wide width tensile strength testing is in conformance with the most recently approved ASTM geosynthetic test procedure (ASTM D4595 for geotextiles, and ASTM D6637 for geogrids), except for geosynthetic sampling and specimen conditioning, which are in accordance with WSDOT Test Methods 914 and 915, respectively.

Table 11: Long-term tensile strength, T_{al}, required for geosynthetic reinforcement used in geosynthetic reinforced slopes.

[3]Slope Location	Vertical Spacing of Primary Reinforcement Layers	Primary Reinforcement Layer Distance from Top of Reinforced slope	[1,2]Minimum Long-Term Tensile Strength, T_{al}, for Primary Reinforcement	[1]Minimum Ultimate Tensile Strength (ASTM D4595 or D6637) for Secondary Reinforcement
$$1$$	***$$2$$***	***$$3$$***	***$$4$$***	1300 lbs/ft.

[1]These long-term tensile strength requirements apply only in the geosynthetic direction perpendicular to the slope face.

[2]T_{al}.shall be determined in accordance with WSDOT Standard Practice T925.

[3]Reinforced slopes ***$$5$$*** are classified as Class ***$$6$$*** structures.

2-12.2(9-33.2(2)).OPT2.GR2

(August 4, 2014)

Geosynthetic Properties for Turf Reinforcement Mat

The turf reinforcement mat shall be a three-dimensional non-degradable polymer mat conforming to the properties indicated in Table 12. All geosynthetic properties are minimum average roll values. The average test results for any sampled roll in a lot shall meet or exceed the values shown in the table.

Table 12: Turf Reinforcement Mat Property Requirements.

Property	Test Method	Minimum Property Requirements
Tensile Strength, Minimum in Machine and X-Machine direction	ASTM D 6818	10 lbs/in.
Thickness	ASTM D 6525	0.5 inch
UV Resistance	ASTM D 4355 @ 500 hours	70%

2-12.2(9-33.4(1)).GR2

Source Approval

Section 9-33.4(1) is supplemented with the following:

2-12.2(9-33.4(1)).OPT1.GR2

(April 5, 2004)

Geosynthetic Reinforced Slope Primary Reinforcement

Geosynthetic products which are qualified for use in geosynthetic reinforced structures for primary reinforcement (Classes 1, 2, or both) are listed in the current Qualified Products List (QPL).

For geosynthetic products proposed for use as primary reinforcement which are not listed in the current QPL, the Contractor shall submit test information and the calculations used in the determination of T_{al} performed in accordance with WSDOT Test Method 925 to the State Materials Laboratory in Tumwater for evaluation. The

Contracting Agency will require up to 30 calendar days after receipt of the information to complete the evaluation.

Source approval for reinforced slope primary reinforcement geosynthetic materials listed in the current QPL, or as approved based on data developed and submitted in accordance with WSDOT Test Method 925, will be based on conformance to the applicable values in Tables 7 and 11.

2-12.2(9-33.4(1)).OPT2.GR2

(April 5, 2004)

Geosynthetic Reinforced Slope Secondary Reinforcement

The Contractor shall submit to the Engineer the following information regarding the geosynthetic secondary reinforcement product(s) proposed for use:

Manufacturer's name and current address,
Full product name,
Geosynthetic structure, including fiber/yarn type, and
Geosynthetic polymer type(s).

If the geosynthetic source has not been previously evaluated or included in the QPL, a sample of each proposed geosynthetic shall be submitted to the State Materials Laboratory in Tumwater for evaluation. A maximum of 14 calendar days will be required for this testing once the samples and required product information arrive at the Materials Laboratory. Source approval will be based on conformance to the applicable values in Tables 7 and 11. Source approval will not be the basis of acceptance of specific lots of material unless the lot sampled can be clearly identified, and the number of samples tested and approved meet the requirements of WSDOT Test Method 914.

2-12.2(9-33.4(1)).OPT3.GR2

(November 17, 1997)

Geosynthetic Reinforced Slope Turf Reinforcement Mat

Approval of source for turf reinforcement mat will be by Manufacturer’s Certificate of Compliance.

2-12.2(9-33.4(3)).GR2

Acceptance Samples

Section 9-33.4(3) is supplemented with the following:

2-12.2(9-33.4(3)).OPT1.GR2

(November 17, 1997)

Geosynthetic Reinforced Slope Primary Reinforcement

Geotextile acceptance testing shall meet the requirements of Table 7, and both geotextile and geogrid acceptance testing shall meet the required ultimate tensile strength T_{ult} as provided in the QPL for the selected product(s). If the selected product(s) are not listed in the current QPL, the result of the testing for T_{ult} must be greater than or equal to T_{ult} as determined from the product data submitted and approved by the State Materials Laboratory during source approval. If the results of the testing show that the reinforced slope primary geosynthetic reinforcement lot does not meet the specified properties, the roll or rolls which were sampled will be rejected, and additional sampling and testing will be performed as specified.

2-12.2(9-33.4(3)).OPT2.GR2

(April 5, 2004)

Geosynthetic Reinforced Slope Secondary Reinforcement

If the results of the testing show that the reinforced slope secondary reinforcement geosynthetic lot does not meet the properties specified in Table 7 (geotextiles only) and Table 11 (geotextiles and geogrids), the roll or rolls which were sampled will be rejected, and additional sampling and testing will be performed as specified.

2-12.2(9-33.4(3)).OPT3.GR2

(November 17, 1997)

Geosynthetic Reinforced Slope Turf Reinforcement Mat

Acceptance of turf reinforcement mat will be by Manufacturer's Certificate of Compliance.

2-12.2(9-33.4(4)).GR2

Acceptance by Certificate of Compliance

Section 9-33.4(4) is supplemented with the following:

2-12.2(9-33.4(4)).OPT1.GR2

(November 17, 1997)

Reinforced Slope

The Contractor shall provide a Manufacturer's Certificate of Compliance to the Engineer, including polymer type in addition to all information as specified, for all quantities of reinforced slope geosynthetic material, including primary and secondary reinforcement materials, and erosion mat material when specified in the Plans.

2-12.3.GR2

Construction Requirements

2-12.3.INST1.GR2

Section 2-12.3 is supplemented with the following:

2-12.3.OPT1.GR2

(November 17, 1997)

Geosynthetic Reinforced Slope Construction Requirements

Submittals

The Contractor shall submit to the Engineer, a minimum of 14 calendar days prior to beginning construction of each reinforced slope, detailed plans for each reinforced slope and as a minimum, the submittals shall include the following:

1. Detailed reinforced slope plans showing the actual lengths proposed for the geosynthetic reinforcing layers and the locations of each geosynthetic product proposed for use in each of the geosynthetic reinforcing layers.

2. The Contractor's proposed reinforced slope construction method, including any proposed forming systems, types of equipment to be used and proposed erection sequence.

3. Manufacturer's Certificate of Compliance, samples of the reinforced slope geosynthetic(s) and sewn seams for the purpose of acceptance as specified.

4. Details of geosynthetic reinforced slope corner construction, including details of the positive connection between the slope sections on both sides of the corner.

5. Details of terminating a top layer of reinforced slope geosynthetic and backfill due to a changing reinforced slope profile.

Approval of the Contractor's proposed reinforced slope construction details and methods shall not relieve the Contractor of their responsibility to construct the reinforced slopes in accordance with the requirements of these Specifications.

Reinforced Slope Construction

The Contractor shall excavate for the reinforced slope in accordance with Section 2-09, and conforming to the limits and construction stages shown in the Plans.

The Contractor shall direct all surface runoff from adjacent areas away from the reinforced slope construction site.

The Contractor shall begin reinforced slope construction at the lowest portion of the excavation and shall place each layer horizontally as shown in the Plans. The Contractor shall complete each layer entirely before beginning the next layer.

Geotextile splices shall consist of a sewn seam or a minimum 1 ft overlap. Geogrid splices shall consist of adjacent geogrid strips butted together and fastened using hog rings, or other methods approved by the Engineer, in such a manner to prevent the splices from separating during geogrid installation and backfilling. The Contractor shall offset geosynthetic splices in one layer from those in the other layers such that the splices shall not line up vertically. Splices parallel to the slope face will not be allowed, as shown in the Plans.

Primary reinforcing geosynthetic shall be cut to the length shown in the Plans. For geogrids, the end of the primary reinforcing located at the face of the slope shall be cut so that the cut ribs extend no more than 0.6 inch but not less than 0.2 inch from the cross ribs. For geogrids, the length of the reinforcement required as shown in the Plans shall be defined as the distance between the geosynthetic facing and the last geogrid node at the end of the reinforcement in the slope backfill.

The Contractor shall stretch out the geosynthetic in the direction perpendicular to the slope face to ensure that no slack or wrinkles exist in the geosynthetic prior to backfilling. Soil piles or the geosynthetic manufacturer's recommended method shall be used to hold the geosynthetic in place until the specified cover material is placed.

The Contractor shall place fill material on the geosynthetic in lifts such that 6 inches minimum of fill material is between the vehicle or equipment tires or tracks and the geosynthetic at all times. The Contractor shall remove all particles within the backfill material greater than 3 inches in size. Turning of vehicles on the first lift above the geosynthetic will not be permitted. The Contractor shall not end dump fill material directly on the geosynthetic without the prior approval of the Engineer.

Should the geosynthetic be damaged or the splices disturbed, the backfill around the damaged or displaced area shall be removed and the damaged strip of geosynthetic replaced by the Contractor at no expense to the Contracting Agency.

The Contractor shall place and compact the reinforced slope backfill in accordance with the reinforced slope construction sequence detailed in the Plans. The minimum compacted backfill lift thickness of the first lift above each geosynthetic layer shall be 6 inches. The maximum compacted lift thickness anywhere within the reinforced slope shall be 10 inches.

The Contractor shall compact each layer to 95 percent of maximum density. The water content of the reinforced slope backfill shall not exceed the optimum water content by more than 3 percent. The Contractor shall not use sheepsfoot rollers or rollers with protrusions. Rollers which weigh more than 6,000 lbs shall be used with the vibrator turned off. The Contractor may use rollers which weigh 6,000 lbs or less with the vibrator turned on with the prior approval of the Engineer.

The Contractor shall construct slope corners at the locations shown in the Plans, and in accordance with the reinforced slope corner construction sequence and method submitted by the Contractor and approved by the Engineer. Slope angle points with an interior angle of less than 150 degrees shall be considered to be a corner. The slope corner shall provide a positive connection between the sections of the reinforced slope on each side of the corner such that the slope backfill material cannot spill out through the corner at any time during the design life of the reinforced slope. The Contractor shall construct the slope corner such that the reinforced slope sections on both sides of the corner attain the full geosynthetic layer embedment lengths shown in the Plans.

Where required by reinforced slope profile grade, the Contractor shall terminate top layers of reinforced slope geosynthetic and backfill in accordance with the method submitted by the Contractor and approved by the Engineer. The end of each layer at the top of the slope shall be constructed in a manner which prevents slope backfill material from spilling out the face of the slope throughout the life of the reinforced slope. If the profile of the top of the slope changes at a rate of 1V:1H or steeper, this change in top of slope profile shall be considered to be a corner.

Tolerances

The Contractor shall complete the base of the reinforced slope excavation to within plus or minus 3 inches of the staked elevations unless otherwise directed by the Engineer. The Contractor shall place the external slope dimensions to within plus or minus 2 inches of that staked on the ground. The Contractor shall space the reinforcement layers vertically to within plus or minus 1 inch of that shown in the Plans.

The completed reinforced slope(s) shall meet the following tolerances:

	Tolerance
Deviation from the design slope and horizontal alignment for the slope face, when measured along a 10-foot straight edge at the midpoint of each reinforced slope layer, shall not exceed:	5 inches
Deviation from the overall design slope	3 inches

per 10 feet of reinforced slope height shall not exceed:

2-12.3.OPT2.FR2

(August 2, 2010)

Turf Reinforced Mat Installation

Splices in the Turf Reinforced Mat shall be butted together and the splice shall be held together with hog rings, or other methods approved by the Engineer, in a manner that will prevent the splice from separating during installation and backfilling.

The face of the reinforced slope shall be cleared of all rocks, dirt clods, vegetation, trash and other obstructions that may cause the mat to bridge the ground surface. The mat shall be unrolled in the direction of water flow with the flat side against the ground.

The turf reinforcement mat shall be anchored at the shoulder of the slope in an anchor trench a minimum of 12 inches deep and 6 inches wide. The anchor trench shall be excavated prior to placing the erosion mat on the slope. Heavy duty steel pins or polyethylene pegs shall be used to anchor the mat to the slope face. Steel pins shall be a minimum 0.2 inch diameter, with a 1.5 inch diameter steel washer secured at the head of the pin. Polyethylene pegs shall be “T” type or have a 1.5 inch diameter washer secured at the head of the peg. All pins or pegs shall be 12 inches long minimum. Hog rings, or other methods approved by the Engineer, shall be used to attach the turf reinforcement mat to the cross ribs of the primary reinforcing at the face of the slope. The ties shall be as durable and strong as the material to which they are tied. The turf reinforcement mat shall be securely attached to the cross ribs by tie(s) centered between the pins or pegs.

Upon completion of the mat installation, *** $$1$$ *** inch(es) of Topsoil Type *** $$2$$ *** shall be spread over the turf reinforcement mat by drop spreader, blower truck, cyclone spreader, or by shovels, rakes, and brooms. The Topsoil shall be lightly raked or brushed into the mat apertures to completely fill the mat thickness. The slope shall be seeded with grass seed by broadcast or hydroseeding in accordance with Sections 8-01 and 9-14, and as specified in the Contract Provisions.

2-12.3.OPT3.GR2

(November 17, 1997)

Geosynthetic Wrapped Slope Facing Construction

The Contractor shall use a temporary form system to minimize sagging of the geosynthetic facing elements during construction. A typical example of a temporary form system and sequence of reinforced slope construction required when using this form are detailed in the Plans.

Geosynthetic reinforcement splices exposed at the slope face shall prevent loss of backfill material through the face. The splicing material exposed at the slope face shall be as durable and strong as the material to which the splices are tied.

The Contractor shall compact the zone within 3 ft of the slope face without causing damage or distortion to the slope face or reinforcing layers by using light mechanical tampers approved by the Engineer.

The wall face shall be stepped vertically rather than using a battered forming system. Boston Ivy shall be placed in the slope face through the geosynthetic reinforcement layers

in the horizontal portion of each step as indicated in the Plans. The first row of ivy plants shall be placed in the bottom layer of the reinforced slope. Rows of plants shall be spaced vertically no more than 16 ft apart. Plants within a row shall be spaced horizontally 6 to 7 ft apart. Holes placed through the reinforcement shall be the minimum size necessary to install the plants.

2-12.3.OPT4.GR2

(November 17, 1997)

Welded Wire Facing Construction

The Contractor shall install welded wire facing as shown in the Plans. Horizontally adjacent facing panels shall be butted together such that no gap between facing panels exists. Butted together facing panel splices shall be offset from each other in adjacent layers so that the splices do not line up with one another from layer to layer.

If secondary geosynthetic reinforcement is specified, secondary reinforcement splices transverse to the slope shall be butted together and the splice shall be held together with hog rings, or other methods approved by the Engineer in the manner that will prevent the splice from separating during geosynthetic installation and backfilling.

The front 3 inches to 6 inches of reinforced slope backfill at the slope face, as shown in the Plans, shall be thoroughly mixed with lime, 16-16-16 fertilizer, and grass seed to create a vegetated face. Lime shall be applied at a rate 6.0 lbs/cy, fertilizer at a rate of 0.7 lbs/cy, and grass seed at a rate of 0.4 lbs/cy.

The Contractor shall compact the zone within one meter of the slope face without causing damage or distortion to the slope face or reinforcing layers by using light mechanical tampers approved by the Engineer. The maximum outward bulge of the face between primary reinforcement layers shall not exceed 3 inches.

2-12.3.OPT5.GR2

(November 17, 1997)

Installing Guardrail Posts in Geosynthetic Reinforced Slopes

The Contractor shall install guardrail posts as shown in the Plans after completing the reinforced slopes. The Contractor shall install the posts in a manner that prevents bulging of the slope face and prevents ripping, tearing, or pulling of the geosynthetic reinforcement. Holes through the geosynthetic reinforcement shall be the minimum size necessary for the post. The Contractor shall demonstrate to the Engineer prior to beginning guardrail post installation that the installation method will not rip, tear, or pull the geosynthetic reinforcement.

2-12.4.GR2

Measurement

2-12.4.INST1.GR2

Section 2-12.4 is supplemented with the following:

2-12.4.OPT1.FR2

(January 5, 1998)

Geosynthetic reinforced slope will be measured by the square foot of face of completed reinforced slope, measured in the plane of the slope.

$$1$$ borrow including haul will be measured as specified in Section 2-03.4.

Structure excavation Class B including haul will be measured as specified in Section 2-09.4 and to the limits shown in the Plans.

2-12.5.GR2

Payment

2-12.5.INST1.GR2

Section 2-12.5 is supplemented with the following:

2-12.5.OPT1.FR2

(November 17, 1997)

"Geosynthetic Reinforced Slope", per square foot.

“*** $$1$$ *** Borrow Incl. Haul”, per ton or per cubic yard.

“Structure Excavation Class B Incl. Haul”, per cubic yard.

The unit contract price per square foot for "Geosynthetic Reinforced Slope" shall be full pay to perform the work as specified, including compaction of the backfill material, and furnishing and installing the facing materials, plantings, and any temporary forming system used.

DIVISION3.GR3

Division 3
Aggregate Production and Acceptance

3-01.GR3

Production From Quarry and Pit Sites

3-01.2.GR3

Material Sources, General Requirements

3-01.2.INST1.GR3

Section 3-01.2 is supplemented with the following:

3-01.2.OPT1.GR3

(March 13, 1995)

Permits For Pit Operations In King County

The Contractor is advised that King County may require the Contractor to meet any or all of the following listed conditions before considering issuance of a temporary permit for pit operations within King County:

1. Security fences and locking gates shall be installed where deemed necessary by the King County Department of Building. Cable or wire gates are not acceptable.

2. Hours of operation shall be limited to: 7:00 a.m. to 7:00 p.m.

3. Access roads shall be improved and maintained to the satisfaction of the King County Department of Public Works. A haul road agreement for County road maintenance may be required.

All roads shall be swept, washed, or both, by the Contractor at the Contractor's expense as often as the Department of Building deems necessary.

Property shall have functional access to an arterial level street.

4. All operations will have to be approved by King County Flood Control for drainage plans, Washington State Department of Ecology, and Puget Sound Air Pollution Control Authority.

   Those properties near or adjacent to any water body shall have written approval from the State of Washington Department of Fisheries.

   The Contractor shall obtain a mining reclamation permit from the State of Washington Department of Natural Resources for sites of over three acres in size of disturbed land or resulting in pit walls more than thirty feet high and steeper than one to one slope.

5. No stockpiling of foreign excavated material is permitted on the site except for those materials to be used in the land rehabilitation of the subject property.

6. No signs other than signs required by Chapter 24.42, King County Zoning Code are authorized as a result of the temporary permit.

7. Plans required:

   a. Scale of Plot Plans

Site Size:	less than 10 acres	1 inch = 50 feet
	10 to 100 acres	1 inch = 100 feet
	over 100 acres	1 inch = 200 feet

   b. Contours

      Show existing and proposed contours at 5-foot intervals. If existing and proposed contours are superimposed upon one another it must be clear as to which is which. Plans which incorporate a screening process may be required by the County to distinguish said contours.

      Finished contours must show how the property can be used under the existing zoning. Plans showing daylighting of property to road grade or below with high 2:1 slope walls will no longer be permitted within the R, S, or G zones. The plans must contain large terraces which will permit the lot sizes and roads that are permitted within the zone.

   c. Sections

      Show a minimum of two sections in each direction.

   d. Maximum Slope

Cuts shall not be steeper in slope than two horizontal to one vertical unless the owner furnishes a soils engineering or an engineering geology report certifying that the site has been investigated and indicating that the proposed deviation will not endanger any private property or result in the deposition of debris on any public way or interfere with any existing drainage course.

e. Fill Slopes

No fill shall be made which creates an exposed surface steeper in slope than two horizontal to one vertical.

f. Benches on Slopes

There shall be a 10 foot wide bench sloped into the hillside for every 50 feet in height.

g. Setbacks

Material and vegetation shall be left in its natural state:

50 feet from any FP, A, G, S, or R zoned property;

20 foot setback which includes a 6 foot high planted berm along any public right-of-way;

20 feet from M, B, or CG zoned property;

10 feet from QM or FR zoned property.

Plans shall show type of vegetation existing within the buffer zones.

h. Drainage

All drainage facilities shall be designed to carry surface waters to the nearest practical street, storm drain, or natural water-course. Adequate provision shall be made to prevent any surface waters from damaging the face of an excavation or fill. All slopes shall be protected from surface water runoff from above by berms or swales.

The Contractor is further advised that King County may require conditions which are in addition to the foregoing list and that the County may reject permit applications at its discretion because of the proposed operations proximity to schools, residential neighborhoods, hospitals, arterials, or for other environmental conditions.

When there are discrepancies between the requirements of the State and the County the more stringent specifications shall apply.

Should the Contractor fail to comply with any requirements of a temporary permit obtained in the Contracting Agency's name, the Contracting Agency will take the necessary action to meet these requirements and any costs incurred by the Contracting Agency will be deducted from monies due or to become due the Contractor.

3-01.3.GR3

State Furnished Material Sources

3-01.3.INST1.GR3

Section 3-01.3 is supplemented with the following:

3-01.3.OPT1.FR3

(March 13, 1995)

The following source of stockpiled materials is made available at no cost to the Contractor:

Stockpile Site *** $$1$$, a source for $$2$$, *** is located in the *** $$3$$ of Section $$4$$, Township $$5$$ North, Range $$6$$, *** W.M., as shown in the Plans.

3-01.3.OPT2.FR3

(June 26, 2000)

The following source of materials is made available at no cost to the Contractor:

*** $$1$$ Site $$2$$ *** a source for the production of *** $$3$$ *** is located in the *** $$4$$ of Section $$5$$, Township $$6$$ North, Range $$7$$ *** W.M., as shown in the Plans.

In the event that the Contractor proposes to provide these materials from another source, adjustment of quantities shall be made in accordance with Section 3-01.4(1). Such adjustment will be based on the relative specific gravity of the sources. A specific gravity of *** $$8$$ *** for the State-provided source will be used for comparative purposes. The comparative specific gravity of Contractor provided sources will be determined by AASHTO Test Method T-85 on the Saturated Surface Dry Basis by the Headquarters Materials Laboratory.

3-01.6.GR3

Payment

3-01.6.INST1.GR3

The second paragraph of Section 3-01.6 is supplemented with the following:

3-01.6.OPT1.FR3

(June 03, 1996)

If the Contractor elects not to use the Contracting Agency furnished source(s) of material, the following items of work shall not be performed on this project.

*** $$1$$ ***.

If the Contractor submits unit price(s) in the amount of zero for the above item(s) of work that do not have an estimated amount included in the proposal, the Contracting Agency will accept the Contractor's proposal as being notice of the Contractor's intent not to utilize the Contracting Agency furnished source.

After execution of the contract, should the Contractor decide to utilize the source(s) furnished by the Contracting Agency, the Contractor will be permitted to do so, provided that for those items listed above for which zero has been entered on the proposal, the work required shall be performed at the Contractor's expense.

3-01.6.OPT2.FR3
(March 13, 1995)
The Contractor is advised that while use of the Contracting Agency-furnished materials source(s) is not mandatory, the following items of work in *** $$1$$ Site $$2$$ *** must be performed:

*** $$3$$ ***

3-01.6.OPT3.FR3
(March 13, 1995)
The use of *** $$1$$ Site $$2$$ *** is mandatory and that all work in the site shall be performed.

3-02.GR3
Stockpiling Aggregates

3-02.2.GR3
General Requirements

3-02.2(7).GR3
Removing Aggregates From Stockpiles

3-02.2(7).INST1.GR3
Section 3-02.2(7) is supplemented with the following:

3-02.2(7).OPT1.FR3
(March 13, 1995)
Materials for use on this project are being produced and stockpiled under another contract. The material being produced is shown in the Plans as existing in stockpile at the following location:

*** $$1$$ ***

It is expected that the material will be available to the Contractor in ample time for the Contractor's use. However, any delay shall not constitute a claim by the Contractor against the Contracting Agency for additional compensation. Should the Contractor be delayed by reason of insufficient material in the stockpile, the Contractor will be granted an extension of time equal to the time actually lost by reason of such delay.

3-02.2(7).OPT2.FR3
(March 13, 1995)
*** $$1$$ *** are existing in stockpiles at the location and in the amounts shown in the Plans.

The Contractor may obtain material from other sources provided they are approved by the Engineer and provided the Contractor makes all arrangements and pays all expenses required for the acquisition of the materials.

If the Contractor chooses to use the materials existing in stockpiles, the Contractor shall pay promptly to the Treasurer of *** $$2$$ *** County, as may come due, a sum

owing at the rates specified below based on the quantity of materials allowed by the Engineer on the final or periodic estimates:

*** $$3$$ ***

3-02.5.GR3
Payment

3-02.5.INST1.GR3
Section 3-02.5 is supplemented with the following:

3-02.5.OPT1.FR3
(March 13, 1995)
The unit contract price per cubic yard for *** $$1$$ *** shall be full pay for the purchase, loading, hauling, and placing of materials provided in stockpile or, if so chosen by the Contractor, for the furnishing, hauling, and placing of materials obtained by the Contractor from an approved source of the Contractor's own choice and acquisition.

Payment of money due the Contractor on the final estimate will not be made until the Engineer has furnished the Secretary of Transportation with a certificate to verify that all sums due *** $$2$$ *** from the Contractor for materials have been paid in full.

3-03.GR3
Site Reclamation

3-03.2.GR3
General Requirements

3-03.2(1).GR3
Contracting Agency-Provided Sites

3-03.2(1).INST1.GR3
Section 3-03.2(1) is supplemented with the following:

3-03.2(1).OPT1.GR3
(March 13, 1995)
Site reclamation will be performed by the Contracting Agency on all sites furnished by the Contracting Agency.

3-04.GR3
Acceptance of Aggregate

3-04.2.GR3
Materials

3-04.2(9-03.21(1)C1).GR3
Recycled Concrete Aggregate Approval and Acceptance
Section 9-03.21(1)C1 is supplemented with the following:

3-04.2(9-03.21(1)C1).OPT1.2026.GR3
(March 20, 2025)

Tier 4: For Recycled Concrete Aggregates from Stockpiles of Unknown Sources for Specific Applications	
Approval Requirements	The Reclamation Facility shall be listed on the WSDOT Qualified Products List. The Reclamation Facility shall have a Quality Control Plan (QCP) in accordance with WSDOT QC 10 "Standard Practice for Approval of Reclamation Facilities of Recycled Concrete Aggregates from Stockpiles of Unknown Sources". The Reclamation Facility's QCP shall be submitted through the QPL Engineer and approved by the WSDOT State Materials Laboratory. Once accepted, changes to the QCP will require a new QCP to be submitted for acceptance. The evaluation shall include all requirements associated with the natural occurring aggregate specifications (i.e. an application for Crushed Surfacing shall meet all requirements of Section 9-03.9(3) Crushed Surfacing) including but not limited to aggregate source properties (LA Wear and Degradation) and deleterious material requirements. The Reclamation Facility shall only supply the material type(s) as listed on the Reclamation Facilities QPL page.
Acceptance Requirements	Certification of toxicity characteristics in accordance with Section 9-03.21(1) is required. Field acceptance testing in accordance with Section 3-04 is required. Provide certification in accordance with WSDOT QC 10 for every lot. A lot shall be no larger than 10,000 tons.
Approved to provide one or more of the following Aggregate Materials as listed on the Reclamation Facilities Tier 4 QPL page:	
Tier 1 aggregate materials 9-03.1 Coarse Aggregate for Commercial Concrete, Concrete class 3000, or Cement Concrete Pavement 9-03.9(1) Ballast 9-03.9(2) Permeable Ballast 9-03.9(3) Crushed Surfacing 9-03.12(1)A Gravel Backfill for Foundations Class A	

DIVISION4.GR4

Division 4
Bases

4-04.GR4

Ballast and Crushed Surfacing

4-04.3.GR4

Construction Requirements

4-04.3(5).GR4

Shaping and Compaction

4-04.3(5).INST1.GR4

Section 4-04.3(5) is supplemented with the following:

4-04.3(5).OPT1.GR4

(March 13, 1995)

The top surface of the final lift of surfacing material on each mainline roadway shall be trimmed using a trimming machine that maintains grade and transverses slopes automatically, through sensors that respond to reference lines on both edges of each roadway.

The minimum width to be trimmed shall be the travelled way plus sufficient width for the treads of the paving machine.

The trimmed surface shall be smooth and uniform with no chatter or ripples.

DIVISION5.GR5

Division 5
Surface Treatments and Pavements

5-01.GR5

Cement Concrete Pavement Rehabilitation

5-01.1.GR5

Description

5-01.1.INST1.GR5

Section 5-01.1 is supplemented with the following:

5-01.1.OPT1.GR5

(September 7, 2021)

This work consists of repairing partial depth spalls using polyester concrete.

5-01.2.GR5

Materials

5-01.2.INST1.GR5

Section 5-01.2 is supplemented with the following:

5-01.2.OPT1.GR5

(November 4, 2024)

Partial Depth Spall Repair – Polyester Concrete

The components of the polyester concrete system shall be provided through a single system provider. The polyester concrete system will be accepted based on submittal to the Engineer of a Manufacturer's Certificate of Compliance conforming to Section 1-06.3.

Polyester Concrete Binder

Polyester concrete binder shall have the following properties:

1. Be an unsaturated isophthalic polyester-styrene co-polymer.

2. The binder content shall be 12% +/- 1% of the weight of the dry aggregate.

3. Be used with a promoter that is compatible with suitable methyl ethyl ketone peroxide and cumene hydroperoxide initiators.

4. Meet the requirements of the following tables.

Resin		
Property	**Requirement**	**Test Method**
Viscosity	75 - 200 cps (RVT No.1 Spindle, 20 RPM at 77°F)	ASTM D2196
Specific Gravity	1.05 to 1.10 at 77°F	ASTM D1475

Resin with Initiator		
Property	**Requirement**	**Test Method**
Contain gamma-methacryloxypropyltrimethoxysilane, an organosilane ester silane coupler	>1%	Nuclear Magnetic Resonance
Elongation	35 percent, minimum Type I specimen, thickness 0.25 ± 0.03" at Rate = 0.45 inch/minute.	ASTM D638
	Sample Conditioning: 18/25/50+5/70	ASTM D618
Tensile Strength	2,500 psi, minimum Type I specimen, thickness 0.25 ± 0.03" at Rate = 0.45 inch/minute.	ASTM D638
	2,500 psi, minimum Type I specimen, thickness 0.25 ± 0.03" at Rate = 0.45 inch/minute.	ASTM D618

Primer

Primer for the substrate concrete surface shall be a wax-free low odor, high molecular weight methacrylate primer, and consist of a resin, initiator, and promoter. The primer shall conform to the following requirements:

Resin		
Property	**Requirement**	**Test Method**
Viscosity	25 cps maximum (Brookfield RVT with UL adapter, 50 RPM at 77°F)	ASTM D2196
Volatile Content	30% maximum	ASTM D2369
Specific Gravity	0.90 minimum at 77°F	ASTM D1475
Vapor Pressure	1.0 mm Hg, maximum at 77°F	ASTM D 323

Resin with Initiator		
Property	**Requirement**	**Test Method**
Flash Point	180°F minimum	ASTM D 3278

Initiator for the methacrylate resin shall consist of a metal drier and peroxide. If supplied separately from the resin, the metal drier shall not be mixed with the peroxide directly; a VIOLENT EXOTHERMIC REACTION will occur.

The primer shall be stored in a cool dry place and protected from freezing and exposure to temperature in excess of 100ºF.

Aggregates

The polyester concrete aggregate (coarse and fine) shall be thoroughly washed and kiln dried.

Polyester concrete aggregates shall be manufactured from sand and gravel in accordance with the provisions of Section 3-01. Fine aggregate shall consist of natural sand only. Reclaimed Portland cement concrete aggregate shall not be used.

Polyester concrete aggregate shall have the following properties:

Polyester Concrete Aggregate Gradation	
Sieve Size	**Percent Passing**
½"	100
⅜"	98 minimum
#4	62-85
#8	45-67
#16	29-50
#30	16-36
#50	5-20
#100	0-7
#200	0-3

Properties of Polyester Concrete Aggregate		
Property	**Test Method**	**Requirement**
Los Angeles Wear	AASHTO T96	35% max at 500 rev
Degradation Factor	WSDOT T113	30 minimum
Clay lumps and Friable Particles	AASHTO M6	3.0% by weight
Coal and lignite	AASHTO M6	0.25% by weight
Particles of specific gravity less than 2.0	AASHTO M6	1.0% by weight
Crushed particles	AASHTO T335	<45% Crushed Particles, retained on the No. 8 Sieve
Weighted-average aggregate absorption	AASHTO T84 and T85	<1%
Mohs Hardness	Mohs Hardness Test	≥7
Aggregate shall comply with the following properties at the time of mixing the polyester concrete: The combined aggregate shall have a maximum of 45 percent crushed particles. Fine aggregate shall conform to Section 9-03.13.		

The moisture content of the aggregate shall not exceed one half of the aggregate absorption at the time of mixing with the polyester resin binder.

Sand for Abrasive Finish

Sand for abrasive sand finish shall have the following properties:

1. Be commercial-quality blast sand.

2. Have a minimum of 85 percent passing the No. 8 sieve and a maximum of 10 percent passing the No. 20 sieve when tested under AASHTO Test Method T27.

3. Be kiln dried and protected from moisture until time of placement. At the time of application on the polyester concrete, the moisture content of the sand for abrasive finish shall not exceed 0.5 percent.

5-01.3.GR5

Construction Requirements

5-01.3(5).GR5

Partial Depth Spall Repair

5-01.3(5).INST1.GR5

Section 5-01.3(5) is supplemented with the following:

5-01.3(5).OPT1.GR5

(November 4, 2024)

Partial Depth Spall Repair - Polyester Concrete

Manufacturer's Technical Representative

The Contractor shall have the services of a qualified polyester concrete manufacturer's technical representative physically present at the job site during the first shift of polyester concrete placement. The manufacturer's technical representative shall assist the Contractor in training the Contractor's personnel and providing technical assistance in preparing the concrete surface, applying primer, and mixing, placing, and curing the polyester concrete. If the polyester concrete Work is unsatisfactory, or additional training or technical assistance is needed the Contractor shall have the services of the manufacturer's at the job site for additional time as deemed necessary by the Engineer to correct the deficiency.

Mix Design

The properties of the polyester concrete, when the polyester resin binder and polyester concrete aggregates are combined in the proportions of the approved mix design, shall be as follows:

Property	Test Method	Requirement
Portland Cement Concrete Saturated Surface Dry Bond Strength	California Test 551	500 psi minimum at 24 hrs. and 70°F ± 1°F (without primer, at 12% resin content by weight of the dry aggregate, on Saturated Surface Dry Specimen)
PCC Saturated Surface-Dry Bond Strength (Adhesive)	California Test 551	700 psi, minimum at 24 hours and 70°F ± 1°F (at 12% resin content by

		weight of the dry aggregate), HMWM primed surface
Abrasion Resistance	California Test 550	<2g weight loss (at 12% resin content by weight of the dry aggregate)
Modulus of Elasticity	ASTM C 469	1,000,000 psi to 2,000,000 psi (at 12% resin content by weight of the dry aggregate)
Portland Cement Concrete Dry Surface Bond Strength (Adhesive) – Primer installation window verification	California Test 551	700 psi, minimum at 24 hours and 70° ± 1°F (at 12% resin content by weight of the dry aggregate), HMWM primed surface. polyester concrete placed against primed surface two hours after Primer application.

The Contractor shall prepare and submit a Type 2 Working Drawing consisting of the polyester concrete design mix and mixing procedure. The mix design shall include a recommended initiator percentage for the expected application temperature.

Delivery and Storage of Materials

All components shall be shipped in strong, substantial containers bearing the manufacturers label specifying batch/lot number, brand name, and quantity. If bulk resin is to be used, the Contractor shall notify the Engineer in writing 10 days prior to the delivery of the bulk resin to the job site. Bulk resin is any resin that is stored in containers in excess of 250 gallons.

All components shall be shipped in strong, substantial containers bearing the manufacturers label specifying batch/lot number, brand name, and quantity. If bulk resin is to be used, the Contractor shall notify the Engineer in writing 10 days prior to the delivery of the bulk resin to the job site. Bulk resin is any resin that is stored in containers in excess of 250 gallons.

All materials shall be delivered in their original containers bearing the manufacturer's label, specifying date of manufacturing, batch number, trade name brand, quantity, and mixing ratio. Each shipment of polyester concrete binder and primer shall be accompanied by a Safety Data Sheet (SDS). Bulk resin containers shall be identified by one of the following methods

1. A label on each container as specified above, or

2. A marking on each container that uniquely identifies the container, accompanied by documentation that unequivocally identifies the Manufacturer’s Certificate of Compliance that is associated with the material in that container.

Equipment and Containment

The Contractor shall submit a Type 1 Working Drawing consisting of all equipment for cleaning the concrete and steel surfaces and mixing and applying the polyester concrete.

The primer, and abrasive blasting materials, shall be contained and restricted to the surface receiving the polyester concrete only, and shall not escape to the surrounding environment. The Contractor shall submit a Type 1 Working Drawing consisting of the method and materials used to collect and contain the primer, and abrasive blasting materials.

Surface Preparation

Removal of the existing pavement shall not damage any pavement to be left in place. Any existing pavement that is to remain that has been damaged shall be repaired at the Contractor's expense. If jackhammers are used for removing pavement, they shall not weigh more than 30 pounds, and chipping hammers shall not weigh more than 15 pounds. All power driven hand tools used for the removal of pavement shall be operated at angles less than 45 degrees as measured from the surface of the pavement to the tool. The patch limits shall extend beyond the spalled area a minimum of 3 inches. Repair areas shall be kept square, rectangular or circular. Repair areas that are within 12 inches of another repair area shall be combined.

A vertical cut shall be made to a minimum depth of 2 inches around the perimeter to be patched using a saw or core drill as marked by the Engineer. The Contractor shall remove material within the perimeter of the saw cut to a depth of 2 inches, or to sound concrete as determined by the Project Engineer.

The concrete surfaces shall be prepared by removing all material which may act as a bond breaker between the surface and the polyester concrete. The surfaces to receive the polyester concrete shall be sand blasted and all loose material removed. All sandblasting residue shall be removed.

Spall repair shall not be done in areas where dowel bars are encountered.

When a partial depth repair is placed directly against an adjacent longitudinal joint, a bond-breaking material such as polyethylene film, roofing paper, or other material as accepted by the Engineer shall be placed between the existing concrete and the area to be patched.

Working transverse joints or cracks adjacent to or within the repair area require placement of a compressible insert. The new joint or crack shall be formed to the same width as the existing joint or crack. The compressible joint material shall be placed into the existing joint 1 inch below the depth of repair. The compressible insert shall extend at least 3 inches beyond each end of the patch boundaries.

Patches that abut the Lane/Shoulder joint require placement of a formed edge, along the slab edge, even with the surface.

If the concrete surfaces become contaminated, the contaminated areas shall be re-cleaned by abrasive blasting at the Contractor's expense.

Precautions shall be taken to ensure that no dust or debris leaves the roadway and that all traffic is protected from rebound and dust. Appropriate shielding shall be provided as required at no additional cost to the Contracting Agency and shall be approved by the Engineer. The Contractor shall reseal all joints in accordance with Section 5-05.3(8)B.

Primer Application

Application of the primer and the polyester concrete shall not begin if rain is forecast within 12-hours of completion of the Work. The area receiving the primer shall be dry and had no rain within the past 12 hours. Immediately prior to applying the primer, loose material shall be removed using oil and moisture free compressed air.

The Contractor shall apply the primer to the prepared concrete and steel surfaces before placing the polyester concrete.

The primer shall be worked into the concrete in a manner to assure complete coverage of the area receiving polyester concrete.

If the primed surface becomes contaminated, the contaminated area shall be cleaned by abrasive blasting and re-primed.

The primer shall not be allowed to run into drainage structures, joints or working cracks.

Mixing Components

The components of the polyester concrete binder shall be thoroughly blended just prior to mixing with the aggregate. The polyester concrete shall be thoroughly mixed prior to placing.

The Contractor shall prevent any cleaning chemicals from reaching the polyester concrete mix during the mixing operations.

Polyester Concrete Placement

Under no circumstances shall any primer or polyester concrete be allowed to run into drainage structures, joints or working cracks.

Place polyester concrete within two hours of placing the primer.

Polyester concrete shall be placed within 15 minutes following initiation. Polyester concrete that is not placed within this time shall be discarded.

The surface temperature of the area receiving the polyester concrete shall be the same as specified for the primer.

The polyester concrete shall be consolidated in accordance with the manufacturer’s recommendations.

Finished Polyester Concrete Surface

All repair areas shall be struck off level with the adjacent concrete. Forms shall be coated with suitable bond release agent to permit ready release of forms.

Sand for abrasive finish shall be broadcast onto surface to uniformly cover any smooth or glossy areas immediately after finishing and before resin gelling occurs. The completed surface shall be free of any smooth or glossy areas. After the polyester concrete has cured, any smooth or glossy areas shall be repaired by the Contractor in the manner recommended by the System Provider and approved by the Engineer at no additional cost. The surface texture of polyester concrete shall be uniform and impervious to moisture.

Curing

The polyester concrete shall be cured in accordance with the manufacturer's recommendations. The Contractor shall measure the compressive strength of the cured polyester concrete with a rebound hammer in accordance with ASTM C 805.

The readings of the rebound hammer used shall be correlated to the compressive strength of the polyester concrete product in accordance with ASTM C 805 Section 5.4, and the Contractor shall submit a Type 1 Working Drawing of this correlation.

Traffic and equipment shall not be permitted on the polyester concrete until it achieves a compressive strength of 2,500 psi (or higher, if specified in the plans) based on the rebound hammer manufactures correlation of rebound number to compressive strength for the rebound hammer used.

5-01.3(9).GR5

Cement Concrete Pavement Grinding

5-01.3(9).INST1.GR5

Section 5-01.3(9) is supplemented with the following:

5-01.3(9).OPT1.GR5

(April 1, 2013)

The Contractor shall grind a test section 1500 foot long across the full width of a lane for evaluation by the Engineer to determine if the Work meets the Specifications. If the Specifications have been met the Contractor may proceed with the remaining cement concrete pavement grinding. If the Specifications have not been met, the Contractor shall make adjustments and another test section shall be completed.

5-01.3(10).GR5

Pavement Smoothness

5-01.3(10).INST1.GR5

Section 5-01.3(10) is supplemented with the following:

5-01.3(10).OPT1.GR5

(February 6, 2023)

This Contract includes Weigh-in-Motion (WIM) sensors and additional surface smoothness requirements within the WIM evaluation area.

The WIM evaluation area is 400 feet in length, beginning 275 feet before the WIM Site Index Station. The width of the WIM evaluation area includes all lanes where sensors are present and extends 0.75 feet beyond the edge of the lane(s).

The completed surface shall be sufficiently smooth such that a 6-inch diameter circular plate, 0.125 inches thick, cannot be passed beneath a 16-foot straightedge placed on the surface parallel to the centerline of the roadway, when evaluated as described in ASTM E1318-09 (2017), Section 6.1.5.

Deviations within the WIM evaluation area that are in excess of these requirements will not be accepted and shall be corrected by one of the following methods:

1. Remove and replace the final roadway surface layer, or

2. Remove material from high places by grinding with an accepted grinding machine, or

3. By other method accepted by the Engineer.

Correct defects until there are no deviations anywhere within the WIM evaluation area that are greater than allowable tolerances.

5-02.GR5
Bituminous Surface Treatment

5-02.3.GR5
Construction Requirements

5-02.3(3).GR5
Application of Emulsified Asphalt and Aggregate

5-02.3(3).INST1.GR5
Section 5-02.3(3) is supplemented with the following:

5-02.3(3).OPT1.FR5
(August 5, 2013)
The grades of emulsified asphalt to be used for New Construction bituminous surface treatments shall be *** $$1$$ *** for the first application and *** $$2$$ *** for the second application.

5-02.3(3).OPT2.FR5
(August 5, 2013)
The grade of emulsified asphalt to be used for bituminous surface treatment Seal Coats shall be *** $$1$$. ***.

5-02.4.GR5
Measurement

5-02.4.INST1.GR5
Section 5-02.4 is supplemented with the following:

5-02.4.OPT2.GR5

(March 13, 1995)

The additional cost involved in the construction of bituminous surface treatment for road approach will be measured per each for each road approach treated, regardless of location, length, width or design.

5-02.5.GR5

Payment

5-02.5.INST1.GR5

Section 5-02.5 is supplemented with the following:

5-02.5.OPT2.GR5

(February 5, 2001)

"Bituminous Surface Treatment For Road Approach", per each.

The unit contract price per each for "Bituminous Surface Treatment For Road Approach" shall be in addition to payments made for the mineral aggregate and asphalt.

5-02.5.OPT3.GR5

(August 5, 2013)

CRS-2P Cost Price Adjustment

The Contracting Agency will make a CRS-2P Cost Price Adjustment, either a credit or a payment, for qualifying changes in the reference cost of asphalt binder. The adjustment will be applied to partial payments made according to Section 1-09.9 for the following bid items when they are included in the proposal:

"Emulsified Asphalt CRS-2P"

The adjustment is not a guarantee of full compensation for changes in the cost of emulsified asphalt CRS-2P. The Contracting Agency does not guarantee that emulsified asphalt CRS-2P will be available at the reference cost.

The Contracting Agency will establish the asphalt binder reference cost twice each month and post the information on the Agency website at: https://wsdot.wa.gov/business-wsdot/contracts/about-public-works-contracts/payments-reporting/asphalt-binder-reference-cost. The reference cost will be determined using posted prices furnished by Poten & Partners, Inc. If the selected price source ceases to be available for any reason, then the Contracting Agency will select a substitute price source to establish the reference cost.

The base cost established for this contract is the reference cost posted on the Agency website for the period immediately preceding the bid opening date.

Adjustments will be based on the most current reference cost for Western Washington or Eastern Washington as posted on the Agency website, depending on where the work is performed. For work completed after all authorized working days are used, the adjustment will be based on the posted reference cost during which contract time was exhausted. The adjustment will be calculated as follows:

No adjustment will be made if the reference cost is within 5% of the base cost.

If the reference cost is greater than or equal to 105% of the base cost, then

Adjustment = (Current Reference Cost – (1.05 x Base Cost)) x (Q x 0.65).

If the reference cost is less than or equal to 95% of the base cost, then
Adjustment = (Current Reference Cost – (0.95 x Base Cost)) x (Q x 0.65).

Where Q = total tons of Emulsified Asphalt CRS-2P paid in the current month's progress payment.

"CRS-2P Cost Price Adjustment", by calculation.

"CRS-2P Cost Price Adjustment" will be calculated and paid for as described in this section. For the purpose of providing a common proposal for all bidders, the Contracting Agency has entered an amount in the proposal to become a part of the total bid by the Contractor.

5-02.5.OPT4.GR5

(January 3, 2017)

AC-15P Cost Price Adjustment

The Contracting Agency will make an AC-15P Cost Price Adjustment, either a credit or a payment, for qualifying changes in the reference cost of asphalt binder. The adjustment will be applied to partial payments made according to Section 1-09.9 for the following bid items when they are included in the proposal:

"Modified Asphalt Cement AC-15P"

The adjustment is not a guarantee of full compensation for changes in the cost of modified asphalt cement AC-15P. The Contracting Agency does not guarantee that modified asphalt cement AC-15P will be available at the reference cost.

The Contracting Agency will establish the asphalt binder reference cost twice each month and post the information on the Agency website at: https://wsdot.wa.gov/business-wsdot/contracts/about-public-works-contracts/payments-reporting/asphalt-binder-reference-cost. The reference cost will be determined using posted prices furnished by Poten & Partners, Inc. If the selected price source ceases to be available for any reason, then the Contracting Agency will select a substitute price source to establish the reference cost.

The base cost established for this contract is the reference cost posted on the Agency website for the period immediately preceding the bid opening date.

Adjustments will be based on the most current reference cost for Western Washington or Eastern Washington as posted on the Agency website, depending on where the work is performed. For work completed after all authorized working days are used, the adjustment will be based on the posted reference cost during which contract time was exhausted. The adjustment will be calculated as follows:

No adjustment will be made if the reference cost is within 5% of the base cost.

If the reference cost is greater than or equal to 105% of the base cost, then
Adjustment = (Current Reference Cost – (1.05 x Base Cost)) x Q .

If the reference cost is less than or equal to 95% of the base cost, then

Adjustment = (Current Reference Cost – (0.95 x Base Cost)) x Q .

Where Q = total tons of Modified Asphalt Cement AC-15P paid in the current month's progress payment.

"AC-15P Cost Price Adjustment", by calculation.

"AC-15P Cost Price Adjustment" will be calculated and paid for as described in this section. For the purpose of providing a common proposal for all bidders, the Contracting Agency has entered an amount in the proposal to become a part of the total bid by the Contractor.

5-04.GR5

Hot Mix Asphalt

5-04.2.GR5

Materials

5-04.2(2).GR5

Mix Design – Obtaining Project Approval

5-04.2(2).INST1.GR5

Section 5-04.2(2) is supplemented with the following:

5-04.2(2).OPT1.FR5

(January 3, 2011)

ESAL's

The number of ESAL's for the design and acceptance of the HMA shall be *** $$1$$ *** million.

5-04.2(9-03.8(7)).GR5

HMA Tolerances, Specification Limits and Adjustments

The second paragraph of item number 1 of Section 9-03.8(7) is revised to read:

5-04.2(9-03.8(7)).OPT1.GR5

(September 8, 2020)

These tolerance and specification limits constitute the allowable limits as described in Section 1-06.2. The tolerance limit for aggregate shall not exceed the limits of the control points, except the No. 8 tolerance is ± 4% from the JMF, the No. 200 tolerance is ± 2.0% from the JMF with a minimum of 2% and a maximum of 8.0% passing the No. 200 sieve, other tolerance limits for sieves designated as 100 percent passing will be 99-100.

5-04.3.GR5

Construction Requirements

5-04.3.INST1.GR5

Section 5-04.3 is supplemented with the following:

5-04.3.OPT4.FR5

(January 3, 2017)

The expected percentage of new asphalt binder in the HMA is *** $$1$$ ***. Should the actual percentage of new asphalt binder required by the job mix formula for HMA produced with Agency-provided aggregate vary by more than plus or minus 0.3-percent an adjustment in payment will be made. The adjustment in payment (plus or minus) will be based on the invoice cost to the Contractor. When RAP and/or RAS are used in the production of HMA the adjustment will be reduced by the percentage of RAP and/or RAS asphalt binder. No adjustment will be made when the Contractor elects not to use a Contracting Agency provided source.

5-04.3(1).GR5

Weather Limitations

5-04.3(1).INST1.GR5

The first sentence of Section 5-04.3(1) is revised to read:

5-04.3(1).OPT1.FR5

(August 3, 2009)

HMA for wearing course shall not be placed on any travelled way from *** $$1$$ *** and through March 31st of the following year without written approval from the Engineer.

5-04.3(3).GR5

Equipment

5-04.3(3)C.GR5

Pavers

5-04.3(3)C.INST1.GR5

Section 5-04.3(3)C is supplemented with the following:

5-04.3(3)C.OPT1.GR5

(April 4, 2016)

Reference lines will be required for both outer edges of the traveled way for each mainline roadway for vertical control in accordance with Section 5-04.3(3)C.

5-04.3(3)D.GR5

Material Transfer Device or Material Transfer Vehicle

5-04.3(3)D.OPT1.GR5

(April 4, 2016)

Section 5-04.3(3)D is deleted in its entirety.

5-04.3(3)D.INST1.GR5

Section 5-04.3(3)D including title is revised to read:

5-04.3(3)D.OPT2.GR5

(August 1, 2011)

Material Transfer Vehicle

Direct transfer of HMA from the hauling equipment to the paving machine will not be allowed in the top 0.30-feet of the pavement section of hot mix asphalt (HMA) used in traffic lanes with a depth of 0.08-feet or greater. A material

transfer vehicle (MTV) shall be used to deliver the HMA from the hauling equipment to the paving machine. HMA placed in irregularly shaped and minor areas such as road approaches, tapers, and turn lanes are excluded from this requirement.

The MTV shall mix the HMA after delivery by the hauling equipment and prior to lay down by the paving machine. Mixing of the HMA shall be sufficient to obtain a uniform temperature throughout the mixture.

5-04.3(9).GR5

HMA Mixture Acceptance

5-04.3(9).INST1.GR5

Section 5-04.3(9) is supplemented with the following:

5-04.3(9).OPT1.FR5

(August 1, 2016)

Visual Evaluation

The following HMA will be accepted by visual evaluation:

*** $$1$$ ***

5-04.3(10).GR5

HMA Compaction Acceptance

5-04.3(10).INST1.GR5

The column in Table 14 of Section 5-04.3(10), titled “Statistical Evaluation of HMA Compaction is Required for”, is supplemented with the following:

5-04.3(10).OPT1.GR5

(April 3, 2017)

- Any HMA for which the specified course thickness is greater than 0.10 feet and the HMA is placed in the shoulder.

5-04.3(10)D.GR5

HMA Compaction – Visual Evaluation

5-04.3(10)D.INST2.GR5

The last sentence in Section 5-04.3(10)D is revised to read:

5-04.3(10)D.OPT1.GR5

(April 4, 2016)

HMA that is used for preleveling shall be compacted with a pneumatic tire roller unless otherwise approved by the Engineer.

5-04.3(12).GR5

Joints

5-04.3(12).INST1.GR5

Section 5-04.3(12) is supplemented with the following:

5-04.3(12).OPT1.GR5

(January 5, 2004)

The HMA overlay shall be feathered to produce a smooth riding connection to the existing pavement.

HMA utilized in the construction of the feathered connections shall be modified by eliminating the coarse aggregate from the mix at the Contractor's plant or the commercial source or by raking the joint on the roadway, to the satisfaction of the Engineer.

5-04.3(13).GR5

Surface Smoothness

5-04.3(13).INST1.GR5

The first four paragraphs of Section 5-04.3(13) are revised to read:

5-04.3(13).OPT1.FR5

(January 5, 2015)

Pavement surface smoothness for this project will include International Roughness Index (IRI) testing that will be completed by the Contracting Agency. The Contracting Agency will perform the IRI testing on each through lane, climbing lane, and passing lane, greater than one mile in length and these lanes will be subject to incentive/disincentive adjustments. IRI testing for a lane will be reported every 0.01 mile by averaging the IRI data for the left and right wheelpath within the section.

Bridge approaches and bridge decks that are located within the lanes specified to be tested and are paved with HMA will be included in the IRI testing. Bridge structures, approach slabs and 0.02 miles on either side of the bridge structures and approach slabs will be eligible for price adjustment incentives and excluded from disincentive adjustments.

Ramps, shoulders and tapers will not be included in IRI testing for pavement smoothness and will not be subject to incentive adjustments. They will be subject to parallel and transverse 10-foot surface requirements, corrective work and disincentive adjustments.

Upon completion of the paving operation the Contractor shall notify the Engineer that the roadway is ready for IRI testing. Notification shall not take place until the following conditions are met for all lanes to be tested on the project:

1. All lanes are open to traffic, unrestricted and in their final configuration.

2. All permanent pavement markings are in place or temporary pavement markings to the satisfaction of the Engineer.

If requested by the Engineer the Contractor shall sweep the roadway immediately prior to testing. If the sweeping is needed as a result of the Contractor’s operation it shall be the responsibility and expense of the Contractor. Should the Contracting Agency not be able to complete the testing as a result of the Contractor’s Work the testing will be rescheduled and any additional costs to the Contracting Agency will be deducted from monies due or that may become due the Contractor.

It is the intent that the testing will be completed and the results provided to the Contractor within 30 calendar days of the Contractor's notification that the roadway is ready for testing. If weather or other conditions exist which are determined by the Engineer to be unsuitable for IRI testing of the pavement then the testing will be deferred until favorable conditions are available and the 30 calendar days extended.

Provided that all other Work required for Substantial Completion has been completed; the day following the Contractor's notification that the roadway is ready for IRI testing through the day the IRI data is provided to the Contractor will be nonworking days in accordance with Section 1-08.5.

Corrective work for pavement smoothness may be taken by the Contractor prior to IRI testing. After completion of the IRI testing the Contractor shall measure the smoothness of each 0.01 mile section with an IRI greater than 125 with a 10-foot straightedge within 14 calendar days or as approved by the Engineer. The Contractor shall identify all locations that require corrective work and provide the straight edge measurements at each location that exceeds the allowable limit to the Engineer. If all measurements in a 0.01 section comply with the smoothness requirements the Contractor shall provide the maximum measurement to the Engineer and a statement that corrective work is not required. Unless approved by the Engineer, corrective work shall be taken by the Contractor for pavement identified by the Contractor or Engineer that does not meet the following requirements:

1. The completed surface of all courses shall be of uniform texture, smooth, uniform as to crown and grade, and free from defects of all kinds.

2. The completed surface of the wearing course shall not vary more than ⅛ inch from the lower edge of a 10-foot straightedge placed on the surface parallel to the centerline.

3. The completed surface of the wearing course shall vary not more than ¼ inch in 10 feet from the rate of transverse slope shown in the Plans.

All corrective work shall be completed at no additional expense, including traffic control, to the Contracting Agency. Pavement shall be repaired by one or more of the following methods:

1. Diamond grinding; repairs shall not reduce pavement thickness by more than ¼ inch.

2. Removal and replacement of the HMA wearing course.

3. By other method approved by the Engineer.

For repairs following IRI testing the repaired area shall be checked by the Contractor with a 10-foot straightedge to ensure it no longer requires corrective work. With approval of the Engineer a lightweight profiler, California profilograph or other device may be used in place of the 10-foot straight edge.

If correction of the roadway as listed above either will not or does not produce satisfactory results as to smoothness or serviceability the Engineer may accept the completed pavement and a credit will be calculated in accordance with Section 5-

04.5(1). Under these circumstances the decision whether to accept the completed pavement or to require corrective work as described above shall be vested entirely in the Engineer.

During the last review of this roadway, which was conducted on *** $$1$$ ***, by the Contracting Agency the following IRI (inches/mile) values were obtained. The IRI values are informational only and are average IRI values for 0.10 mile sections. Additional information may be available for review at the Engineer's Office.

***

SR	Begin Milepost	End Milepost	IRI Running Avg NB/EB (Inch/mile)	IRI Running Avg SB/WB (Inch/mile)
$$2$$	$$3$$	$$4$$	$$5$$	$$6$$

***

5-04.3(13).INST2.GR5

The second sentence of Section 5-04.3(13) is deleted and replaced with the following:

5-04.3(13).OPT2.FR5

(March 13, 1995)

The completed surface of the wearing course of the following sections of Roadway shall not vary more than 1/4 inch from the lower edge of a 10-foot straightedge placed on the surface parallel to centerline:

1. *** $$1$$ ***

The completed surface of the wearing course of all other sections of Roadway shall not vary more than 1/8 inch from the lower edge of a 10-foot straightedge placed on the surface parallel to centerline.

5-04.3(13).INST3.GR5

The second sentence of Section 5-04.3(13) is revised to read:

5-04.3(13).OPT3.GR5

(January 5, 2004)

The completed surface of the wearing course shall not vary more than 1/4 inch from the lower edge of a 10-foot straightedge placed on the surface parallel to centerline.

5-04.3(13).INST4.GR5

Section 5-04.3(13) is supplemented with the following:

5-04.3(13).OPT4.GR5

(February 6, 2023)

This Contract includes Weigh-in-Motion (WIM) sensors and additional surface smoothness requirements within the WIM evaluation area.

The WIM evaluation area is 400 feet in length, beginning 275 feet before the WIM Site Index Station. The width of the WIM evaluation area includes all lanes where sensors are present and extends 0.75 feet beyond the edge of the lane(s).

The completed surface shall be sufficiently smooth such that a 6-inch diameter circular plate, 0.125 inches thick, cannot be passed beneath a 16-foot straightedge placed on the surface parallel to the centerline of the roadway, when evaluated as described in ASTM E1318-09 (2017), Section 6.1.5.

Deviations within the WIM evaluation area that are in excess of these requirements will not be accepted and shall be corrected by one of the following methods:

1. Remove and replace the final roadway surface layer, or

2. Remove material from high places by grinding with an accepted grinding machine, or

3. By other method accepted by the Engineer.

Correct defects until there are no deviations anywhere within the WIM evaluation area that are greater than allowable tolerances.

5-04.3(14).GR5

Planing Bituminous Pavement

5-04.3(14).INST1.GR5

Section 5-04.3(14) is supplemented with the following:

5-04.3(14).OPT1.FR5

(January 5, 2004)

The Contractor shall perform the planing operations no more than *** $$1$$ *** calendar days ahead of the time the planed area is to be paved with HMA, unless otherwise allowed by the Engineer in writing.

5-04.3(14).OPT2.GR5

(January 5, 2004)

At the start of the planing operation the Contractor shall plane a 500 foot test section to be evaluated by the Engineer for compliance with the surface tolerance requirements. The test section shall have a minimum width of 10 feet. If the planing is in accordance with the surface tolerance requirements, the Contractor may begin production planing. If the planing is not in conformance with the surface tolerance requirements, the Contractor shall make adjustments to the planing operation and then plane another test section.

If at any time during the planing operation the Engineer determines the required surface tolerance is not being achieved, the Contractor shall stop planing. Planing shall not resume until the Engineer is satisfied that specification planing can be produced or until successful completion of another test section. The forward speed during production planing shall not exceed the speed used for the test section.

The completed surface after planing and prior to paving shall not vary more than 1/4 inch from the lower edge of a 10-foot straightedge placed on the surface parallel or transverse to the centerline. The planed surface shall have a matted texture and the difference between the high and low of the matted surface shall not exceed 1/8 inch.

Pavement repair operations, when required, shall be accomplished prior to planing.

5-04.3(14).OPT3.GR5

(March 13, 1995)

Vertical Edge Planing

During planing of bituminous pavement in the travelled lanes, the Contractor shall coordinate the planing and paving operations such that the planed roadway surface shall not remain unpaved at the end of the work day. The Contractor shall have a contingency plan to ensure that no planed areas remain unpaved due to equipment breakdown or other emergency.

5-04.3(14).OPT4.GR5

(August 3, 2009)

Beveled Edge Planing

A beveled edge shall be constructed in areas that will not be paved during the same work shift.

The Contractor shall use a beveled cutter on the mandrel of the planing equipment, or other approved method(s), to eliminate the vertical edge(s). The beveled edge(s) shall be constructed at a 4:1 slope.

5-04.5.GR5

Payment

5-04.5.INST2.GR5

Section 5-04.5 is supplemented with the following:

5-04.5.OPT1.FR5

(January 5, 2015)

"Smoothness Compliance Adjustment" by calculation.

Smoothness Compliance Adjustments

Section 5-04.5(1) is supplemented with the following:

Smoothness Compliance Adjustments will be based on the requirements in Section 5-04.3(13) and the following calculations:

1. Final IRI acceptance and incentive/disincentive payments for pavement smoothness will be calculated on an IRI value per 0.10 mile in accordance with the price adjustment schedule.

    a. For sections of a lane that are a minimum of 0.01 mile and less than 0.10 mile, the price adjustment will be calculated using the average of the 0.01 mile IRI values and the price adjustment prorated for the length of the section.

b. For bridges, approach slabs and 0.02 miles on either side the price adjustment will be calculated independently from other measured lanes.

c. IRI values per 0.01 miles that were measured prior to corrective work will be included in the 0.10 mile price adjustment for sections with corrective work.

2. A smoothness compliance adjustment will be calculated in the sum of minus $250.00 for each and every section of single traffic lane 0.01 miles in length in that does not meet the 10-foot straight edge requirements in Section 5-04.3(13).

The price adjustment schedule for this contract shall be *** $$1$$ ***.

Price Adjustment Schedule

IRI for each 0.10 mi. section	Pay Adjustment Schedule 1	Pay Adjustment Schedule 2	Pay Adjustment Schedule 3
in. / mi.	**$ / 0.10 mi.**	**$ / 0.10 mi.**	**$ / 0.10 mi.**
< 30	600	600	600
30	600	600	600
31	580	580	580
32	560	560	560
33	540	540	540
34	520	520	520
35	500	500	500
36	480	480	480
37	460	460	460
38	440	440	440
39	420	420	420
40	400	400	400
41	380	380	380
42	360	360	360
43	340	340	340
44	320	320	320
45	300	300	300
46	280	280	280
47	260	260	260
48	240	240	240
49	220	220	220
50	200	200	200
51	180	180	180
52	160	160	160
53	140	140	140
54	120	120	120
55	100	100	100
56	80	80	80
57	60	60	60
58	40	40	40

59	20	20	20
60	0	0	0
61	0	0	0
62	0	0	0
63	0	0	0
64	0	0	0
65	0	0	0
66	-20	0	0
67	-40	0	0
68	-60	0	0
69	-80	0	0
70	-100	0	0
71	-120	0	0
72	-140	0	0
73	-160	0	0
74	-180	0	0
75	-200	0	0
76	-220	-20	0
77	-240	-40	0
78	-260	-60	0
79	-280	-80	0
80	-300	-100	0
81	-320	-120	0
82	-340	-140	0
83	-360	-160	0
84	-380	-180	0
85	-400	-200	0
86	-420	-220	0
87	-440	-240	0
88	-460	-260	0
89	-480	-280	0
90	-500	-300	0
91	-520	-320	0
92	-540	-340	0
93	-560	-360	0
94	-580	-380	0
95	-600	-400	0
96	-620	-420	0
97	-640	-440	0
98	-660	-460	0
99	-680	-480	0
100	-700	-500	0
101	-720	-520	0
102	-740	-540	0
103	-760	-560	0
104	-780	-580	0
105	-800	-600	0
106	-820	-620	0
107	-840	-640	0
108	-860	-660	0

109	-880	-680	0
110	-900	-700	0
111	-920	-720	0
112	-940	-740	0
113	-960	-760	0
114	-980	-780	0
115	-1000	-800	0
116	-1020	-820	0
117	-1040	-840	0
118	-1060	-860	0
119	-1080	-880	0
120	-1100	-900	0
121	-1120	-920	0
122	-1140	-940	0
123	-1160	-960	0
124	-1180	-980	0
≥125	-1200	-1000	0

5-04.5.OPT2.GR5

(January 13, 2021)

Asphalt Cost Price Adjustment

The Contracting Agency will make an Asphalt Cost Price Adjustment, either a credit or a payment, for qualifying changes in the reference cost of asphalt binder. The adjustment will be applied to partial payments made according to Section 1-09.9 for the following bid items when they are included in the proposal:

"HMA Cl. ___ PG ___"
"HMA for Approach Cl. ___ PG ___"
"HMA for Preleveling Cl. ___ PG ___"
"HMA for Pavement Repair Cl. ___ PG ___"
"Commercial HMA"

The adjustment is not a guarantee of full compensation for changes in the cost of asphalt binder. The Contracting Agency does not guarantee that asphalt binder will be available at the reference cost.

The Contracting Agency will establish asphalt binder reference costs twice each month and post the information on the Agency website at: https://wsdot.wa.gov/business-wsdot/contracts/about-public-works-contracts/payments-reporting/asphalt-binder-reference-cost. The reference cost will be determined using posted prices furnished by Poten & Partners, Inc. If the selected price source ceases to be available for any reason, then the Contracting Agency will select a substitute price source to establish the reference cost.

Price adjustments will be calculated one time per month. No price adjustment will be made if the Current Reference Cost is within +/-5% of the Base Cost. Reference costs for projects located in Eastern versus Western Washington shall be selected from the column in the WSDOT website table labeled "Eastern", or "Western", accordingly. The adjustment will be calculated as follows:

If the reference cost is greater than or equal to 105% of the base cost, then Asphalt Cost Price Adjustment = (Current Reference Cost – (1.05 x Base Cost)) x (Q x 0.056).

If the reference cost is less than or equal to 95% of the base cost, then Asphalt Cost Price Adjustment = (Current Reference Cost – (0.95 x Base Cost)) x (Q x 0.056).

Where: **Current Reference Cost** is selected from the website table based on the "Date Effective" that immediately precedes the current month's progress estimate end date. For work completed after all authorized working days are used, the adjustment will be based on the posted reference cost during which contract time was exhausted.

Base Cost is selected from the website table based on the "Date Effective" that immediately precedes the contract bid opening date, and shall be a constant for all monthly adjustments.

Q = total tons of all classes of HMA paid in the current month's progress payment.

"Asphalt Cost Price Adjustment", by calculation.
"Asphalt Cost Price Adjustment" will be calculated and paid for as described in this section. For the purpose of providing a common proposal for all bidders, the Contracting Agency has entered an amount in the proposal to become a part of the total bid by the Contractor.

5-04.5.OPT3.GR5
(April 4, 2016)
"Asphalt Binder Revision" by calculation.
"Asphalt Binder Revision" shall be calculated and paid for as described in Section 5-04.3.

5-05.GR5
Cement Concrete Pavement

5-05.1.GR5
Description

5-05.1.INST1.GR5
Section 5-05.1 is supplemented with the following:

5-05.1.OPT1.GR5
(August 6, 2012)
This Work consists of furnishing and placing pigmented, textured, or textured and pigmented cement concrete pavement at the locations and depth as shown in the Plans.

5-05.2.GR5
Materials

5-05.2.INST1.GR5
Section 5-05.2 is supplemented with the following:

5-05.2.OPT1.GR5
(November 20, 2023)
Pigment color for “brick red” cement concrete pavement shall match SAE AMS-STD-595 Color #32169. The pigment shall be incorporated in accordance with the manufacturer’s recommendations.

5-05.2.OPT2.FR5
(November 20, 2023)
Pigment color for cement concrete pavement shall match SAE-AMS-STD-595 Color # *** $$1$$ ***

The pigment shall be incorporated in accordance with the manufacturer’s recommendations.

5-05.3.GR5
Construction Requirements

5-05.3.INST1.GR5
Section 5-05.3 is supplemented with the following:

5-05.3.OPT1.GR5
(August 6, 2012)
Pigmented Cement Concrete
Curing shall be in accordance with Section 5-05.3(13) and be applied to the surface in accordance with the manufacturer's recommendations. If liquid membrane-forming concrete curing compound is used it shall meet the requirements of ASTM C 309 Type 1-D.

The Contractor shall provide a 2 foot by 2 foot sample panel, that has been cured a minimum seven days, showing the color of cement concrete to the Engineer for acceptance before placing any pigmented cement concrete pavement.

5-05.3.OPT2.FR5
(August 6, 2012)
Textured Cement Concrete
Textured cement concrete pavement pattern shall be one chosen from the manufacturers and patterns listed below:

*** $$1$$ ***

A mat or stamp shall be used to imprint the pattern into the concrete surface.

Curing shall be in accordance with Section 5-05.3(13) and be applied to the surface in accordance with the manufacturer's recommendations. If liquid membrane-forming concrete curing compound is used it shall meet the requirements of ASTM C 309 Type 1-D.

5-05.3.OPT3.FR5

(September 3, 2024)

Textured Cement Concrete with Colored Release Agent

Textured cement concrete pavement pattern shall be one chosen from the manufacturers and patterns listed below:

*** $$1$$ ***

A dark gray release agent shall be used with the mat or stamp to imprint the pattern into the concrete surface in accordance with the manufacturer’s recommendations.

Curing shall be in accordance with Section 5-05.3(13)A and be applied to the surface in accordance with the manufacturer's recommendations. The liquid membrane-forming concrete curing compound shall meet the requirements of ASTM C 309 Type 1-D.

5-05.3(1).GR5

Concrete Mix Design for Paving

5-05.3(1).INST1.GR5

Item number 1 of Section 5-05.3(1) is supplemented with the following:

5-05.3(1).OPT1.GR5

(January 2, 2018)

Coarse aggregate derived from the recycling of Cement Concrete Pavement removed from the project may be used as coarse aggregate or blended with coarse aggregate for Cement Concrete Pavement. The Contractor shall remove all bituminous material, joint sealant and backer material from the existing pavement prior to removal for recycling. The recycled concrete aggregates shall meet the requirements of Section 9-03.21(1)B. Cement Concrete Pavement experiencing carbonate silica reaction, sulfate reaction, D cracking or any other conditions that may affect concrete durability shall not be used. Cement Concrete Pavement mix designs using recycled concrete aggregates will require the use of Low Alkali Cement or 25 percent Class F fly ash by total weight of the cementitious materials or the Contractor shall submit evidence that other ASR mitigating measures control expansion in accordance with Section 9-03.1(1).

5-05.3(1).INST2.GR5

Section 5-05.3(1) is supplemented with the following:

5-05.3(1).OPT2.GR5

(November 20, 2023)

Aggregate for Textured Cement Concrete Pavement

Fine aggregate and coarse aggregate shall be a combined gradation in accordance with Section 9-03.1(5) and have a nominal maximum aggregate size equal to ½-inch, ¾-inch, 1-inch, or 1-½-inch sieve.

The Contractor shall select the nominal maximum aggregate size that allows the specified textured cement concrete pavement pattern to be imprinted into the concrete surface to the depth specified for the textured pattern. If the textured cement concrete pattern is unsatisfactory, the Contractor shall remove and replace the concrete pavement at no expense to the Contracting Agency.

5-05.3(12).GR5

Surface Smoothness

5-05.3(12).INST1.GR5

The third paragraph of Section 5-05.3(12) is replaced with the following:

5-05.3(12).OPT1.GR5

(January 7, 2019)

Operate the inertial profiler in accordance with AASHTO R 57. Collect two longitudinal traces, one in each wheel path. Collect profile data in a continuous pass including areas excluded from pay adjustments for each section paved. The Contractor shall determine when each section is to be tested except that the minimum length to be tested shall be 528 feet unless accepted by the Engineer. Where a completed section of concrete pavement abuts a segment to be completed later in the project, the 50 feet adjacent to uncompleted section shall be included in the testing and incentive/disincentive for the uncompleted segment. Provide seven calendar days notice to the Engineer prior to testing.

5-05.3(12).INST2.GR5

Section 5-05.3(12) is supplemented with the following:

5-05.3(12).OPT2.GR5

(February 6, 2023)

This Contract includes Weigh-in-Motion (WIM) sensors and additional surface smoothness requirements within the WIM evaluation area.

The WIM evaluation area is 400 feet in length, beginning 275 feet before the WIM Site Index Station. The width of the WIM evaluation area includes all lanes where sensors are present and extends 0.75 feet beyond the edge of the lane(s).

The completed surface shall be sufficiently smooth such that a 6-inch diameter circular plate, 0.125 inches thick, cannot be passed beneath a 16-foot straightedge placed on the surface parallel to the centerline of the roadway, when evaluated as described in ASTM E1318-09 (2017), Section 6.1.5.

Deviations within the WIM evaluation area that are in excess of these requirements will not be accepted and shall be corrected by one of the following methods:

1. Remove and replace the final roadway surface layer, or

2. Remove material from high places by grinding with an accepted grinding machine, or

3. By other method accepted by the Engineer.

Correct defects until there are no deviations anywhere within the WIM evaluation area that are greater than allowable tolerances.

5-05.3(17).GR5

Opening to Traffic

5-05.3(17).INST2.GR5

Section 5-05.3(17) is revised to read:

5-05.3(17).OPT1.GR5

(August 7, 2017)

Maturity Testing for Concrete Pavement

The pavement shall not be opened to traffic until the Strength-Maturity Relationship (SMR) demonstrates the pavement has a minimum compressive strength of 2,500 psi and approval of the Engineer. The pavement shall be cleaned prior to opening to traffic.

The Contractor shall establish a Maturity Value on the approved concrete mix through the use of a testing program following the WSDOT Maturity Method Test Procedure for estimating concrete strength.

The Contractor shall establish the SMR at least 14 calendar days prior to the production pours. The Contractor shall notify the Engineer 7 days prior to performing the SMR as to the time, date and location where the SMR will be performed. The Contractor shall allow WSDOT the opportunity to place maturity loggers in the test cylinders in order to calibrate the WSDOT maturity meter. A SMR shall be developed for each mix used on the project. Referenced SMRs from previous projects will not be allowed.

The Contractor shall be responsible for the installation of the maturity logger/sensors within the concrete pavement pour area. For panel replacements performed under Section 5-01, place a minimum of four loggers/sensors at two different locations. Two in one of the first few panel replacements and two in the last panel replacement of the day, each day. For continuous concrete paving operations performed under Section 5-05, place a minimum of four loggers/sensors, two at the beginning and two at the end of the concrete pour, each day. The Contractor shall maintain the integrity of the logger/sensors and wires during concrete pouring, finishing and curing operations or until the maturity information is no longer needed.

The Contractor shall perform the Quality Control Procedure to Verify the Strength-Maturity Relationship on days 1 and 2 of concrete placement as indicated in the test procedure.

The Contractor shall develop a Quality Control Plan based on the Strength-Maturity Relationship to monitor and provide remedial action to ensure the concrete meets design strengths.

Any alteration in mix proportions or source or type of any material, in excess of those tolerable by batching variability shall require the development of a new SMR prior to its use at the Contractors time and expense. Alterations include a change in type, source, or proportion of cement, fly ash, coarse aggregate, fine aggregate, or admixtures. A change in water-to-cementitious material ratio greater than 5.0 percent requires the development of a new SMR.

Maturity Method Test Procedure

This test method provides a procedure for estimating concrete strength by means of the maturity method. The maturity method is based on strength gain as a function of

temperature and time. This method is a modification of ASTM C1074 covering the procedures for estimating concrete strength by means of the maturity method.

The maturity method consists of three steps:

- Develop Strength-Maturity Relationship
- Estimate in-place strength
- Verify Strength-Maturity Relationship.

The Nurse-Saul "temperature-time factor (TTF)" maturity index shall be used in this test method, with a datum temperature of 0 ºC (32 ºF).

Apparatus

- If the maturity meter has input capability for datum temperature, verify that the proper value of the datum temperature has been selected prior to each use.
- Intellirock maturity system (or approved equivalent). This system shall include the logger/sensor, handheld reader, and software.
- The data obtained from the maturity meter shall be unalterable and un-interruptible.
- The same brand and type of maturity meters shall be used in the field as those used to develop and verify the strength-maturity relationship.
- Logger/sensor wire grade shall be larger than or equal to 20 awg.

Contractors Procedure to Develop Strength-Maturity Relationship

Step	Action
1	For every concrete design that will be evaluated by the maturity method, prepare a minimum of 21 cylinders in accordance with FOP for AASHTO T 23. Additional cylinders should be cast to avoid having to repeat the procedure. The mixture proportions and constituents of the concrete shall be the same as those of the job concrete whose strength will be estimated using this practice. The minimum size of each batch shall be approximately 3 m^3 (4 yd^3). A mobile mixer may be used for batching provided it is to be used on the project. Calibration documentation shall be provided to the Engineer prior to batching.
2	Fresh concrete testing for each batch shall include concrete placement temperature, slump, and air content in accordance with FOP for AASHTO T 309, FOP for AASHTO T 119, and FOP for AASHTO T 152.
3	Embed loggers/sensors in at least two cylinders. Loggers/sensors shall be placed 2-4 inches from any surface. Activate the loggers/sensors.
4	Cure the cylinders in accordance with FOP for AASHTO T 23.
5	Perform compression strength tests in accordance with FOP for AASHTO T 22 to target 2,500 psi for opening to traffic. In targeting the opening to traffic requirement and to properly characterize and validate the maturity calibration curve at least three target cylinder breaks must be broken prior to 2,500 psi. Test three cylinders at each age and compute the average strength. The cylinders with loggers/sensors may be tested if additional cylinders are needed.

	If a cylinder is obviously defective (for example, out of round, not square, damaged due to handling), the cylinder shall be discarded. If an individual cylinder strength is greater than 10 percent outside the average of three cylinders, the cylinder can be considered defective and be discarded. When two of the three cylinders are defective, a new batch must be evaluated unless additional acceptable cylinders are available.
6	At each test age, record the individual and average values of maturity and strength for each batch on a permanent data sheet
7	Plot the average strengths as a function of the average maturity values, with data points shown. Using a computer spreadsheet program such as Microsoft Excel, calculate a point-to-point interpolation through the data. The resulting curve is the strength-maturity relationship to be used for estimating the strength of the concrete mixture placed in the field. When developing the SMR, the spreadsheet software allows the Contractor to develop the corresponding maturity equation, which defines the SMR. The Engineer should carefully examine the data for "outliers", faulty cylinder breaks, or faulty maturity readings. The Engineer should use judgment to determine if certain points should be discarded, or retested, or whether the entire SMR should be regenerated.

Contractors Procedure to Estimate In-Place Strength

Step	Action
1	Prior to or at the time of concrete placement, install loggers/sensors at the frequency specified. Loggers/sensors shall be placed a minimum of 2 ft. from a panel edge 4 to 5 inches from the panel surface. Loggers/sensors may be tied to reinforcing steel, but should not be in direct contact with the reinforcing steel or formwork.
2	As soon as practical after concrete placement, connect and activate the maturity meter(s).
3	The Contractor shall provide to the Engineer, prior to opening the pavement to traffic, encrypted data files (with software to read the files) of the maturity data from the loggers/sensors. Data shall be provided until the maturity is at a value that is equal to or greater than the required strength for that concrete mixture, as determined by the SMR. Additionally, data shall be provided on a record log.

Contractors Quality Control Procedure to Verify Strength-Maturity Relationship

Step	Action

1	At the specified verification interval make three cylinders in accordance with FOP for AASHTO T 23.
2	Embed a logger/sensor in one cylinder. Loggers/sensors shall be placed 2-4 inches from any surface. Activate the logger/sensor as soon as possible.
3	Cure the cylinders in accordance with FOP for AASHTO T 23.
4	Perform compression strength tests on all three of the cylinders in accordance with FOP for AASHTO T 22 to verify strength and time to reach 2,500 psi for opening to traffic. Compute the average strength of the cylinders. If a cylinder is obviously defective (for example, out of round, not square, damaged due to handling), the cylinder shall be discarded. If any individual cylinder strength is greater than 10 percent outside the average of three cylinders, that cylinder will be considered defective and be discarded. When two of the three cylinders are defective, the verification procedure will have to be repeated starting at step 1.
5	Record on a permanent data sheet the maturity value at the time of compression testing and individual and average strengths established from the cylinder breaks. Also record the predicted strength based on the SMR established for that particular concrete design, and the percent difference between average and predicted values. The SMR is verified when the predicted strength established from the average SMR and the cylinder breaks are within 10 percent. A copy of the data sheet and an encrypted file for the maturity data shall be provided to the Engineer on a daily basis.

5-05.4.GR5

Measurement

5-05.4.INST1.GR5

Section 5-05.4 is supplemented with the following:

5-05.4.OPT1.GR5

(August 6, 2012)

Pigmented, textured, or textured and pigmented cement concrete pavement will be measured by the square yard placed.

5-05.5.GR5

Payment

5-05.5.INST1.GR5

Section 5-05.5 is supplemented with the following:

5-05.5.OPT2.GR5

(August 6, 2012)

“Pigmented Cement Concrete Pavement”, per square yard

The unit Contract price per square yard for Pigmented Cement Concrete Pavement shall be full pay for all costs incurred to perform the Work in this Specification.

5-05.5.OPT3.GR5
(August 6, 2012)
"Textured Cement Concrete Pavement", per square yard
The unit Contract price per square yard for Textured Cement Concrete Pavement shall be full pay for all costs incurred to perform the Work in this Specification.

5-05.5.OPT4.GR5
(August 6, 2012)
"Textured and Pigmented Cement Concrete Pavement", per square yard
The unit Contract price per square yard for Textured and Pigmented Cement Concrete Pavement shall be full pay for all costs incurred to perform the Work in this Specification.

5-05.5.OPT5.GR5
(August 5, 2013)
All costs in connection with conducting concrete pavement maturity testing and surface cleaning prior to opening to traffic shall be included in the unit Contract price per cubic yard for "Cement Conc. Pavement" and per square yard for "Replace Cement Concrete Panel", if either or both of the items are included in the Contract.

5-SA1.FR5

(August 7, 2017)
JUST IN TIME TRAINING

Description

Just In Time Training (JITT) is a formal class for the joint training of Contractor and Contracting Agency employees that will be associated with the construction or rehabilitation of Cement Concrete Pavement.

Construction Requirements

Training

The Contractor shall provide a JITT instructor who is experienced with the specified pavement construction methods, materials, and tests. The instructor shall not be an employee of the Contractor or the Contracting Agency. JITT shall be at a facility provided by the Contractor unless otherwise agreed to by the Engineer.

The following personnel are required to attend the JITT:

1. Representing the Contractor: The Superintendent, foremen and key construction personnel associated with the work.
2. Representing the Contracting Agency: Up to ***$$1$$*** Contracting Agency staff selected by the Engineer.

JITT shall meet the following requirements:

1. At least 4 hours long or a length agreed to by the Engineer.
2. Cover all aspects of work methods, equipment and materials the Contractor is proposing to use.
3. Conducted within 3 miles of the job site or at a mutually agreed to location.
4. Completed before the start of paving.
5. Conducted during normal working hours.
6. At the Contractors option, JITT may be an extension of a prepaving conference.

Submittals

A minimum of 5 calendar days before JITT the Contractor shall submit to the Engineer the instructor's name and qualifications, the JITT facility's location, and 1 copy each of any course, handout, and presentation materials.

Payment

Payment will be made for each of the following items that are included in the Proposal:

"Just In Time Training", lump sum.

The lump sum Contract payment shall be full compensation for all costs incurred by the Contractor in providing "Just In Time Training".

DIVISION6.GR6

Division 6
Structures

6-01.GR6

General Requirements for Structures

6-01.5.GR6

Work Access and Temporary Structures

6-01.5.INST1.GR6

Section 6-01.5 is re-titled and revised to read:

6-01.5.OPT1.FB6

(April 1, 2019)

Work Access

The Contractor shall construct work access to accommodate all work within the wetted perimeter, or vertically above the sensitive area, of *** $$1$$ ***, as shown in the plans or staked by the Engineer. The Contractor shall construct and remove the work access in accordance with all environmental regulations and permits, including those specified in Sections 1-07.5 and 1-07.6.

Submittals

The Contractor shall submit Type 2 Working Drawings of the work access, except that if the Contractor chooses an access alternative using a work trestle structure, the Working Drawings shall be Type 2E. The Contractor shall design the work access structure to withstand all applicable loads in accordance with accepted design codes. The Contractor shall specify the design code(s) in the design calculations and working drawings.

The Contractor shall include information with the work access submittal on the construction equipment that will use the work access. The Contractor shall specify the type and model of construction equipment to be used, and shall include equipment catalogue cuts with capacities and geometry. The Contractor shall include anticipated wheel or track loads, axle spacings, outrigger geometry and reactions, crane pick angles and reach, and other equipment details.

6-01.5.OPT1(A).FB6

(April 6, 2015)

Waterway Clearance Requirements

One span of the work access structure shall provide more than *** $$1$$ *** horizontal clearance between supporting piers. The bottom of the superstructure of the work access structure shall be at elevation *** $$2$$ *** or higher. All waterborne debris that accumulates against the work access structure shall be removed by the Contractor.

6-01.5.OPT1(B).GB6

(April 6, 2015)

Payment

Payment will be made in accordance with Section 1-09.3 for the following bid item:

"Work Access - ___", lump sum.

6-01.5.OPT2.FB6

(August 6, 2018)

Temporary Bridge

The Contractor shall design, furnish, erect, maintain, and remove a temporary bridge, including substructure, in accordance with this Special Provision and the details shown in the Plans unless otherwise accepted by the Engineer.

Geometric Requirements

The temporary bridge shall conform to the following geometric requirements:

1. The temporary bridge shall be an overall minimum length of *** $$1$$ ***.

2. The minimum width on the temporary bridge between barriers or railings shall be *** $$2$$ ***.

3. The temporary bridge superstructure shall provide a minimum vertical clearance of *** $$3$$ *** to *** $$4$$ ***.

Design Requirements

The temporary bridge shall conform to the following design requirements:

1. The temporary bridge, including the barriers or railings, shall be designed in accordance with the latest edition of the AASHTO LRFD Bridge Design Specifications. Barriers or railings shall be designed to TL-2, minimum, with a minimum height of 32-inches, except where the Plans require a higher test level and railing height. Seismic design shall conform to AASHTO LRFD Seismic Guide Specification Section 3.6.

2. The minimum vehicular live load used for design shall be 75 percent of HL-93, unless otherwise specified in the Contract Plans.

3. The driving surface of the temporary bridge shall be durable, skid resistant deck, with an initial skid number of at least 35 and maintaining a skid number of 26 minimum, in accordance with AASHTO T 242.

4. Notwithstanding the requirements of Section 1-06.1, the materials used by the Contractor to compose the temporary bridge may be salvaged steel, provided that the use of such salvaged steel shall be subject to inspection and approval by the Contractor's engineer of record and acceptance by the Engineer. For salvaged steel materials where the grade of steel cannot be positively identified, the design stresses for the steel shall conform to Section 6-02.3(17)B3.

5. In addition to the criteria specified in Item 1, the temporary bridge substructure shall be designed in accordance with the WSDOT Geotechnical Design Manual (M46-03).

Submittals

The Contractor shall submit Type 3E Working Drawings of the temporary bridge including an erection plan and procedure conforming to Section 6-03.3(7)A.

If the temporary bridge is to be in place for greater than 90 calendar days, the Contractor shall submit a Type 2E Working Drawing consisting of a load rating report prepared in accordance with the AASHTO *Manual for Bridge Evaluation* and WSDOT *Bridge Design Manual LRFD* M23-50 Chapter 13.

Construction and Removal

The Contractor shall construct the temporary bridge in accordance with the working drawings and erection plan as accepted by the Engineer, environmental permit conditions specified in Section 1-07.5 as supplemented in these Special Provisions and as shown in the Plans, and in accordance with the details shown in the Plans. The Contractor shall maintain the temporary bridge, including the driving surface, for the life of the temporary bridge in this project.

All welding, repair welding, and welding inspection, of steel components of the temporary bridge shall conform to the Section 6-03.3(25) and 6-03.3(25)A requirements specified for steel bridges.

After the temporary bridge is no longer needed the Contractor shall remove the temporary bridge.

Payment

Payment will be made in accordance with Section 1-09.3 for the following bid item:

"Temporary Bridge___", lump sum.

6-02.GR6

Concrete Structures

6-02.2.GR6

Materials

6-02.2.INST1.GR6

Section 6-02.2 is supplemented with the following:

6-02.2.OPT2.GB6

(September 8, 2020)

Epoxy Bonding Agent For Surfaces And For Steel Reinforcing Bar Dowels

Epoxy bonding agent for surfaces shall be Type II, as specified in Section 9-26.1. Epoxy bonding agent for steel reinforcing bar dowels shall be either Type I or Type IV, as specified in Section 9-26.1. The grade and class of epoxy bonding agent shall be as recommended by the resin manufacturer.

6-02.2.OPT4.GB6

(November 2, 2022)

Epoxy Crack Sealing Materials

Epoxy sealing paste shall be a thixotropic compound.

Epoxy injection resin shall be a moisture-insensitive, two-component material capable of restoring the structural integrity of a structure by structurally bonding cracks, delaminations and hollow planes. Resin formulations shall be hydrophilic with variable viscosity to allow full depth penetration in cracks having a width of 6 mils and greater.

Epoxy injection resin, when mixed with the hardener in accordance with the manufacturer's written instructions, shall cure to a non-shrink solid material. The material shall be capable of curing in less than 24 hours.

Epoxy injection resin shall have the following physical properties:

Solids Content, by weight (minimum)	98	percent
Viscosity (maximum) at 77F (Brookfield)	700	cps
Compressive Yield Strength (minimum)	12,000	psi
Minimum Flexural Strength (ASTM D 790)	10,000	psi
Bond Strength (minimum)	500	psi

The Contractor shall submit a Type 2 Working Drawing consisting of sample of the material of the epoxy sealing paste and epoxy injection resin together with sufficient directions and technical data for its use.

The Contractor shall submit a Type 1 Working Drawing consisting of the Safety Data Sheet (SDS) for each type of epoxy sealing paste and epoxy injection resin.

6-02.2.OPT26.GB6

(April 6, 2015)

Rapid Cure Silicone Sealant

Rapid cure silicone sealant shall be Dow Corning 902 RCS Joint Sealant.

The Contractor shall deliver the joint sealant to the job site in the sealant manufacturer's original sealed container. Each container shall be marked with the sealant manufacturer's name and lot or batch number. Each lot or batch shall be accompanied by the manufacturer's Safety Data Sheet (SDS), and Manufacturer’s Certificate of Compliance, identifying the lot or batch number, and certifying that the materials conform to the properties stated on the product data sheet.

The backer rod shall be closed cell expanded polyethylene foam as recommended by the sealant manufacturer. The diameter of the backer rod shall be as recommended by the sealant manufacturer for the expansion joint opening at the time of installation.

6-02.2.OPT27.GB6

(April 6, 2015)

Polyester Concrete

Polyester Resin Binder

The resin shall be an unsaturated isophthalic polyester-styrene co-polymer.

Prior to adding the initiator, the resin shall conform to the following requirements:

Viscosity:	75 to 200 cps (20 rpm at 77F, RVT No. 1 spindle)	ASTM D 2196
Specific Gravity:	1.05 to 1.10 at 77F	ASTM D 1475
Styrene Content:	45% to 50% by weight of polyester styrene resin	ASTM D2369

The hardened resin shall conform to the following requirements:

Elongation:	35% minimum w/ thickness 0.25" ± 0.04"	ASTM D 638
Tensile Strength:	2,500 psi minimum w/ thickness 0.25" ± 0.04"	ASTM D 638
Conditioning	18 hours/77F/50% + 5 hours/158F	ASTM D 618

Silane Coupler: 1.0% minimum (by weight of polyester-styrene resin)

The silane coupler shall be an organosilane ester, gammamethacryloxypropyltrimethoxysilane. The promoter/hardeners shall be compatible with suitable methyl ethyl ketone peroxide (MEKP) and cumene hydroperoxide (CHP) initiators. MEKP and CHP initiators shall be used as recommended by the manufacturer.

Polyester resin binder will be accepted based on submittal to the Engineer of a Manufacturer's Certificate of Compliance.

High Molecular Weight Methacrylate (HMWM) Resin

In addition to the viscosity and density properties, and the promoter/initiator system, specified in Section 6-09.2, the HMWM resin for polyester concrete shall conform to the following requirements:

Flash Point:	180F minimum	ASTM D 3278
Tack-Free Time:	400 minutes maximum	California Test 551

Prior to adding initiator, the HMWM resin shall have a maximum volatile content of 30 percent, when tested in conformance with ASTM D 2369.

HMWM resin will be accepted based on submittal to the Engineer of a Manufacturer's Certificate of Compliance.

Aggregate

The aggregate shall be from a WSDOT approved pit site and shall be thoroughly washed and kiln dried.

The aggregate shall conform to Section 9-03.1(5)B for either 1/2-inch or 3/8-inch maximum nominal aggregate size.

The combined aggregate shall have a maximum of 45 percent crushed particles. Fine aggregate shall conform to Section 9-03.13.

Aggregate absorption shall not exceed 1.0 percent. The moisture content of the aggregate shall not exceed one half of the aggregate absorption at the time of mixing with the polyester resin binder. The aggregate temperature shall be between 45F and 100F at the time of mixing.

Sand for Abrasive Finish

The sand for abrasive finish shall conform to Section 6-09.2, and the aggregate moisture content requirements specified above.

6-02.2.OPT28.GB6

(April 6, 2015)

Elastomeric Concrete

Elastomeric concrete shall be one of the following three products:

BASF/Watson Bowman Acme Wabo Crete II

D. S. Brown Delcrete

R. J. Watson Poly-Tron

The elastomeric concrete aggregate shall be as specified, gradated, and packaged by the elastomeric concrete manufacturer.

The primer shall be as recommended by the elastomeric concrete manufacturer.

The Contractor shall deliver the elastomeric concrete components to the job site in the elastomeric concrete manufacturer's original sealed containers. Each container shall be marked with the sealant manufacturer's name and lot or batch number. Each lot or batch shall be accompanied by the manufacturer's Safety Data Sheet (SDS), and Manufacturer's Certificate of Compliance, identifying the elastomeric concrete manufacturer and the lot or batch number, and certifying that the materials conform to the properties stated in the product data sheet.

6-02.2.OPT46.GB6

Bridge Supported Utilities

6-02.2.OPT46(A).GB6
(June 26, 2000)
Inserts shall be of the type and model specified in the Plans. Inserts shall be galvanized in accordance with AASHTO M 111.

6-02.2.OPT46(B).GB6
(September 3, 2019)
Hanger rods, and associated nuts and washers, shall conform to Section 9-06.5(1), and shall be galvanized in accordance with ASTM F2329.

Steel bars and plates shall conform to ASTM A 36 and shall be galvanized in accordance with AASHTO M 111.

6-02.2.OPT46(C).GB6
(September 3, 2019)
Horizontal strut bolts or threaded rods, and associated nuts and washers, shall conform to Section 9-06.5(1), and shall be galvanized in accordance with ASTM F2329.

Pre-formed fabric pads shall be composed of multiple layers of duck, impregnated and bound with high quality oil resistant synthetic rubber, compressed into resilient pads. The pre-formed fabric pads shall conform to latest edition of MIL C 882 and the following requirements. The number of plies shall be as required to produce the specified thickness, after compression and vulcanizing.

Pre-formed fabric pads shall have a shore A hardness of 90$\pm$5 in accordance with ASTM D 2240.

Pre-formed fabric pads for bridge utility supports will be accepted based on the Manufacturer's Certificate of Compliance that the material furnished conforms to these specifications.

6-02.2.OPT46(D).GB6
(June 26, 2000)
Pipe rolls or pipe saddles shall be of the type and model specified in the Plans.

6-02.2.OPT46(E).GB6
(September 3, 2019)
Anchor straps shall conform to ASTM A 36 and shall be galvanized after fabrication in accordance with AASHTO M 111.

Anchor bolts, and associated nuts and washers, shall conform to Section 9-06.5(4), and shall be galvanized in accordance with ASTM F2329.

6-02.2.OPT48.GB6
(April 30, 2001)
Bridge Drain Risers
Spacer bars and riser bars for the drain riser assembly shall conform to ASTM A 36.

6-02.2.OPT58.GB6

(September 8, 2020)

Core Drilled Bridge Deck Drain

Bridge deck drain pipe sleeve shall be any smooth wall, non-perforated, PVC pipe of the diameter and minimum wall thickness specified in the Plans.

Epoxy bonding agent shall be Type II conforming to Section 9-26.1. The grade and class of the epoxy bonding agent shall be as recommended by the bonding agent manufacturer.

6-02.2.OPT60.GB6

(April 6, 2015)

Seismic Retrofit Materials

Components fabricated and constructed for seismic retrofit work shall conform to the following requirements:

6-02.2.OPT60(B).GB6

(April 6, 2015)

Steel pipe shall conform to ASTM A 53, Grade B, Type E or S, galvanized. The pipe shall be Schedule 40, except as otherwise specified in the Plans.

PVC pipe shall be any smooth wall, non-perforated, PVC pipe of the diameter and minimum wall thickness or Schedule specified in the Plans.

6-02.2.OPT60(C).GB6

(November 20, 2023)

Steel bars, plates and shapes shall conform to ASTM A36 except that structural shapes may conform to ASTM A992.

Epoxy bonding agent, where shown in the Plans for bonding steel components to concrete, shall be Type II as specified in Section 9-26.1. The grade and class of epoxy bonding agent shall be as recommended by the bonding agent manufacturer.

All steel components and assemblies for seismic restrainers, except as otherwise specified, shall be galvanized after fabrication in accordance with AASHTO M 111.

Bolts, nuts, and washers shall conform to Section 9-06.5(3) and shall be galvanized after fabrication in accordance with ASTM F2329.

Resin bonded anchors shall conform to Sections 6-02.3(18)A and 9-06.4. Additionally, the threaded anchor rods for seismic retrofit elements shall conform to either ASTM A193 Grade B7 or ASTM F1554 Grade 105, and shall conform to the appropriate supplemental requirements for grade and manufacturer's identification, and charpy impact testing (15-foot-pounds minimum at 40F). Results of the charpy impact testing for the production lot(s) including the anchor rods furnished for seismic retrofit components and assemblies shall be submitted to the Engineer along with the Manufacturer's Certificate of Compliance.

6-02.2.OPT60(D).GB6

(September 8, 2020)

High-strength steel rods for longitudinal seismic restrainer assemblies shall conform to ASTM F 1554 Grade 105, including Supplemental Requirements S2, S3, and S5.

Nuts, and couplers if required, shall conform to ASTM A 563 Grade DH. Washers shall conform to ASTM F 436.

High-strength steel rods and associated couplers, nuts and washers shall be galvanized after fabrication in accordance with ASTM F2329.

6-02.2.OPT60(F).GB6

(September 8, 2020)

Column Jacketing Materials

All metal components shall conform to ASTM A 36, and shall be painted in accordance with Section 6-07.3(9), and Section 6-03.3(30) as supplemented in these Special Provisions. Metal surfaces in contact with grout shall be considered in contact with concrete for the purposes of Section 6-07.3(9).

Grout shall conform to the requirements of Section 9-20.3(4) and the following requirements:

> The grout shall be a pumpable mix capable of filling the annulus between the concrete column and steel column jacket assembly. The grout shall be free of lumps and undispersed cement, and shall not show any visible signs of separation of water and cement during pumping operations.

Aggregate conforming to Section 9-03.1(5) with a maximum aggregate size of 3/8 inch may be used to extend the grout. Mortar shall conform to Section 9-20.4(2).

Epoxy bonding agent for filling grout voids shall be Type II, as specified in Section 9-26.1. The grade and class of epoxy bonding agent shall be as recommended by the bonding agent manufacturer.

6-02.2.OPT61.GB6

(September 8, 2020)

Precast Prestressed Concrete Stay-In-Place Panels

Concrete shall have an initial strength at strand release of at least 5,000 psi, and a 28 day minimum compressive strength as specified in the Plans.

Prestressing reinforcement strand shall conform to Section 9-07.10, except that the diameter shall be as specified in the Plans. The strand shall be provided by a manufacturer and facility capable of producing ½" diameter strand with an average bond pull-out force of 16.0 kips when tested in accordance with ASTM A1081. Test reports for ASTM A1081 shall be submitted with the Manufacturer's Certificate of Compliance, and testing shall have been performed on strand produced within the previous 36 months.

Grout shall conform to Section 9-20.3(2).

Leveling bolts shall conform to Section 9-06.5(1), and shall be galvanized after fabrication in accordance with AASHTO M 232.

Backer rod shall be closed cell expanded polyethylene foam.

6-02.3.GR6

Construction Requirements

6-02.3.INST1.GR6
Section 6-02.3 is supplemented with the following:

6-02.3.OPT1.GB6

(September 7, 2021)

Epoxy Crack Sealing

The materials being used may be dermatetic. The Contractor's contact with and use of the materials shall conform to the requirements specified in the SDS for each material, and all personnel shall be provided with appropriate clothing and protective garments.

All materials shall be stored and protected from ignition sources as recommended by the material manufacturer.

The cracks shall be cleaned of efflorescence, deteriorated concrete and other surface debris, by vacuuming, flushing, routing, sawing or other means as required.

Entry ports shall consist of tubes, tees or other valve devices as recommended by the resin manufacturer. The ports shall be placed at intervals along each crack in accordance with the manufacturer's written instructions for the resin being used. The holes for the entry ports shall be drilled with a hollow bit with an attached vacuum chuck to prevent concrete dust from becoming embedded in the crack.

The exposed crack surfaces and the areas around the entry ports shall be sealed with epoxy sealing paste and cured in accordance with the resin manufacturer's written instructions, to attain a seal capable of withstanding the applied injection pressures.

The Contractor shall furnish the services of a factory trained technical representative to perform the epoxy crack sealing injection.

Injection shall be accomplished with a pressure or injection machine compatible with the resin selected for use and shall begin at the lowest port and continue until there is evidence of the resin at the entry port directly above and adjacent to the port being pumped. When material travel is indicated, the nozzle shall be moved to the port that shows resin. The previously pumped port shall be sealed. Injection shall continue until the crack is completely filled. On wide cracks where resin travel between ports will be rapid, two or more ports may be pumped simultaneously. On exceptionally large cracks, a formulation (dependent upon crack width, ambient temperature, modulus requirements and other variables) of epoxy resin and fine sands shall be used as recommended by the resin manufacturer.

After all ports have been pumped and the crack is full, the epoxy resin shall be cured without disturbance in accordance with the resin manufacturer's written instructions as necessary to ensure development of the full bond capacity of the material.

After the epoxy has cured completely, the epoxy sealing paste and port stems shall be ground flush with the original surface of the concrete.

At the discretion of the Engineer, cores shall be taken after the repair is completed to confirm penetration and bonding. The number and locations of such cores will be as specified by the Engineer. These cores shall be submitted to the Engineer for testing in the State Materials Laboratory. The Contractor shall submit a Working Drawing for repair of core holes in accordance with Section 6-01.16.

6-02.3.OPT2.GB6

Bridge Supported Utilities

6-02.3.OPT2(A).GB6

(August 3, 2015)

The Contractor shall furnish and install inserts for the bridge utility supports as shown in the Plans. The Contractor shall verify that the hanger rods freely hang plumb in their inserts, and shall make adjustments to the inserts as necessary and as accepted by the Engineer prior to utility installation.

6-02.3.OPT2(B).GB6

(June 26, 2000)

The Contractor shall furnish and install the bridge utility supports, and the utility pipe or conduit pipe, as shown in the Plans.

6-02.3.OPT2(C).FB6

(June 26, 2000)

The Utility Company will furnish material for and install *** $$1$$ ***. The Contractor shall install *** $$2$$ *** furnished by the *** $$3$$ ***.

The Contractor shall notify the utility company a sufficient time in advance and shall cooperate with the utility company in order that the utility furnished items may be installed in the structure.

6-02.3.OPT8.GB6

Seismic Retrofit

6-02.3.OPT8(B).GB6

(April 6, 2015)

Seismic Retrofit Demolition Plan

The Contractor shall submit Type 2 Working Drawings showing the method of removing the specified portions of the existing bridges required by the seismic retrofit work. The Working Drawings shall show the sequence of demolition and removal, the type of equipment to be used in all demolition and removal operations, and details of the methods and equipment used for containment, collection, and disposal of all debris. The Working Drawings shall show all stages of demolition.

6-02.3.OPT8(C).GB6

(April 6, 2015)

Column Jacket Installation Plan

The Contractor shall submit Type 2E Working Drawings describing the column jacket installation plan. The submittal shall include at a minimum, the following:

1. Step by step installation procedure.

2. The methods of cleaning and preparing the existing column surfaces prior to installing the column jacket assembly.

3. The methods of containing, collecting, and disposing of the debris generated by cleaning and preparing the existing column surfaces.

4. The methods of containing, collecting, and disposing of all excess grout generated during the grouting process.

5. The locations of grout injection valves, and the methods and materials used to remove them following use, and to fill the void following removal.

6. The method of sealing the gap between the existing column surface and the column jacket assembly prior to grouting.

7. The method and materials used to clamp and brace the column jacket assembly in place during field assembly and grouting.

8. The proposed grout mix with manufacturer's data sheets.

9. The equipment used to pump the grout and monitor the grout pressure and the quantity of grout injected.

10. The method, materials, and equipment used to fill grout voids within the column jacket assembly, and to finish the exposed surface flush after repair.

11. The method, materials, and equipment used to field repair all damaged primer coatings, and to field apply the intermediate and finish coats of paint.

6-02.3.OPT8(D).GB6

(April 6, 2015)

Column Jacket Shop Drawings

The Contractor shall submit column jacket shop drawings as Type 2 Working Drawings. The shop drawings shall include, at a minimum, the following:

1. Plan, elevation, and sections of the jacket system and all components, with all dimensions and tolerances.

2. Field measurements of the existing column(s).

3. All material designations.

4. Location of horizontal and vertical splices.

5. Location of spacers and method of attachment.

6. Welds and welding procedures.

6-02.3.OPT8(E).GB6

(September 8, 2020)

Field Measuring Existing Bridge Columns

The Contractor shall field measure the dimensions (diameter, or width and thickness, as appropriate for column shape) of the existing bridge columns receiving column jackets prior to preparing column jacket assembly shop drawings. The following locations shall be field measured as a minimum for each column:

1. Top of footing or footing pedestal.

2. Bottom of crossbeam.

3. Mid-height of column.

The Contractor shall field measure the column height from top of footing or footing pedestal to bottom of crossbeam for each column.

The Contractor shall tabulate these field measured dimensions and submit them to the Engineer along with the column jacket assembly shop drawings.

Where site conditions, such as traffic control requirements or deeply buried foundations, create difficulties for field measuring buried portions of the bridge columns, the Contractor may request a waiver of the pre-fabrication field measuring requirements for specific columns. If the Engineer concurs with the Contractor's request for a waiver of the pre-fabrication field measuring requirement for specific columns, and for columns identified in the Special Provisions as already designated with a waiver, the Contractor shall:

1. Field measure the diameter, or width and thickness, as appropriate for the column shape, of the above ground portion of the column receiving the waiver.

2. Fabricate the column jacket to a length exceeding the column height (2'-0" or ten percent of the estimated column height, whichever is greater) based on the original plans and other available site data. The shop drawing details shall specify the column jacket fabrication length, and the assumed column height based on the available information.

3. Submit the method, template, and equipment used to field cut the top of the column jacket assembly at installation.

The Contractor shall submit the request for a waiver of the pre-fabrication field measuring requirement prior to preparing column jacket assembly shop drawings, and shall not submit shop drawings until receiving the Engineer's confirmation of the waiver request and completing all field measurements still required.

6-02.3.OPT8(F).FB6

(April 6, 2015)

The column(s) at the Bridge and Pier location(s) specified below has (have) received a waiver of the pre-fabrication field measuring requirement, and no separate waiver request from the Contractor is required for this (these) specific column(s):

*** $$1$$ ***

However, the Contractor shall conform to all other requirements specified above for columns receiving a waiver of the pre-fabrication field measuring requirement.

6-02.3.OPT8(G).FB6

(April 6, 2015)

Field Measuring for Seismic Retrofit Components

The Contractor shall field measure dimensions of existing items and members of Bridge No(s). *** $$1$$ *** prior to preparing shop drawings for fabricated steel components and assemblies.

The Contractor shall field measure dimensions of the following items:

*** $$2$$ ***

The Contractor shall tabulate these field measured dimensions and submit them to the Engineer along with the shop drawing submittals for the corresponding steel components and assemblies.

6-02.3.OPT8(H).GB6

(April 6, 2015)

Removing Portions of Existing Concrete

The Contractor shall remove portions of existing concrete required by the seismic retrofit work in accordance with Section 2-02.3(2)A2 and as shown in the Plans.

The Contractor shall dispose of all materials removed by the demolition operations in accordance with Section 2-02.3.

The Contractor shall roughen, clean, and saturate the existing concrete surfaces bonding to the fresh concrete in accordance with Section 6-02.3(12).

6-02.3.OPT8(J).GB6

(April 6, 2015)

Drilling Holes and Setting Steel Reinforcing Bars, and Placing Concrete

The Contractor shall drill holes for, and set, steel reinforcing bars into the existing concrete as shown in the Plans in accordance with Section 6-02.3(24)C as supplemented in these Special Provisions.

6-02.3.OPT8(K).GB6

(April 6, 2015)

Installing and Tensioning High-Strength Steel Bar Reinforcement

The Contractor shall furnish and install high-strength steel bars as shown in the Plans. The hole through existing concrete shall be core drilled. The concrete surface in contact with the high-strength steel bar bearing plate shall be coated with epoxy bonding agent just prior to stressing the high-strength steel bar. After stressing, the high-strength steel bar shall be grouted in accordance with Section 6-02.3(26)H.

6-02.3.OPT8(L).GB6

(November 20, 2023)

Longitudinal Seismic Restrainers

The Contractor shall submit Type 1 Working Drawings consisting of shop drawings of the steel components of the longitudinal seismic restrainer assemblies in accordance with Section 6-03.3(7).

The Contractor shall core drill holes through the pier diaphragm for the high-strength steel bar as shown in the Plans. The Contractor shall set the PVC pipe in place with epoxy bonding agent as shown in the Plans.

Holes for the resin bonded anchors for the longitudinal seismic restrainer anchorages shall be located and drilled in accordance with Section 6-02.3(18)A, and as follows:

1. The bottom layer of steel reinforcing bars in the slab in the vicinity of the longitudinal seismic restrainer anchorage as shown in the Plans shall be located and marked on the concrete surface.

2. Using the anchorage assembly as a template, the Contractor shall align and slightly shift the anchorage assembly as required so that the holes avoid the existing steel reinforcing bars.

3. The Contractor shall drill holes for the resin bonded anchors with the anchorage assembly in position as a template.

4. If, after shifting the anchorage assembly, conflicts still exist between hole locations and existing steel reinforcing bars, the Contractor may, with the Engineer's approval, core drill holes at the conflict locations.

The surface of the concrete in contact with the anchorage assembly shall be coated with Type II epoxy bonding agent conforming to Section 9-26.2, with the grade and class as recommended by the epoxy bonding agent manufacturer. The longitudinal seismic restrainer anchorage assembly shall be set in place within the set time specified in the manufacturer's data sheet for the epoxy bonding agent.

All longitudinal seismic restrainers at a pier shall be installed so that the free end (the end with the gap as shown in the Plans) shall be on the same side of the pier.

6-02.3.OPT8(M).GB6

(September 8, 2020)

Column Jacketing

The steel column jacket assembly for each column shown in the Plans shall be fabricated in accordance with the shop drawings.

The Contractor shall excavate and shore as required to expose the column surface below ground to the top of the existing footing or footing pedestal. Dirt, debris and any surface attachments shall be removed from the surface of the column in accordance with the Contractor's column jacket installation plan.

For specific columns for which the Engineer confirms a waiver of the pre-fabrication field measuring of the column height dimension, the Contractor shall field measure the column height upon completion of the excavation. The Contractor shall field cut the top of the column jacket assembly using the method, template, and equipment as specified in the pre-fabrication field measuring waiver request submittal.

The Contractor shall position the steel column jacket around the existing column using spacers to center the assembly. The spacers may be welded to the inside of the jacket and, if used, shall be placed and attached as shown in the shop drawings.

Field welded complete penetration groove welds of the column jacket assemblies shall be inspected in accordance with Section 6-03.3(25)A. Field weld inspection shall be performed by a certified welding inspector (CWI). The Contractor shall not begin welding until receiving acceptance of the joint fit-up from the CWI. The CWI shall randomly monitor the intermediate stages of welding. The CWI's daily reports and nondestructive testing reports indicating compliance with contract requirements shall be submitted as a Type 1 Working Drawing upon completion of the last column jacket in the Contract.

The Contractor shall install external grout injection valves for use in filling the cavity with grout. The valves shall be spaced such that the grout will uniformly fill the gap between the jacket assembly and the column surface. The grout pump shall be equipped with a pressure gauge to monitor grout pressures. The grouting equipment shall be sized to enable the grout to be pumped in one continuous operation. The mixer shall be capable of continuously agitating the grout.

The production grout compressive strength shall be measured using four inch diameter by eight inch cylinders, cast and cured in accordance with Section 6-02.3(5)H. The cylinders shall attain a 7-day minimum compressive strength of 4,000 psi.

The gap between the column jacket assembly and the existing column surface at the base of the assembly shall be sealed in accordance with the column jacket installation plan.

The grouting operation shall conform to Section 6-02.3(6)A.

The grouting operation shall begin from the base of the assembly and from the base of each successive lift. The Contractor shall pump grout into the assembly while maintaining a uniform level grout head around the column.

The Contractor shall limit the height of each lift of grout to minimize undulations and displacements of the surface of the column jacket assembly during grouting. For column jacket assemblies of circular (constant radius) cross section, the height of each lift of grout shall be limited to 20 feet maximum, except as otherwise accepted by the Engineer. For column jacket assemblies with cross sections of all other shapes, the height of each lift of grout shall be limited to 8 feet maximum, except as otherwise accepted by the Engineer.

The Contractor may restrain the column jacket assembly within the specified tolerances during grouting operations by using a bracing system in accordance with the column jacket installation plan. Except as otherwise shown in the Plans, restraints for the bracing system shall not pass through the column. Except when a bracing system is used, placement of the next grout lift shall not begin until the previous grout lift has hardened.

The Contractor shall contain and collect all grout outside the column jacket assembly.

When the assembly is completely grouted to the top, the Contractor shall place mortar conforming to Section 9-20.4(2) over the top of the grout at the top of the assembly, and shall slope the mortar to drain.

All clamps, valves, injection ports, lifting ears, and other attachments shall be removed not less than 24 hours after completing grouting operations at the column. The Contractor shall fill all voids with mortar conforming to Section 9-20.4(2), and shall finish them flush with the exterior surface of the column jacket assembly. The Contractor shall not remove the attachments by flame cutting.

Seven calendar days after completing the grouting of a column jacket assembly, the Engineer will inspect the assembly for voids between the steel casing and the grout. The Contractor shall completely fill all voids detected by the Engineer by injecting epoxy bonding agent into the lowest point of each void and venting at the highest point. The exposed epoxy bonding agent shall be finished flush with the exterior surface of the column jacket assembly.

After inspection for voids and epoxy injection of voids is complete, steel surfaces with damaged primer coat shall be repaired with field primer in accordance with Section 6-07.3(9). The primer repair shall be followed by application of the intermediate and finish field coats of paint to all exposed steel surfaces in accordance with Section 6-07.3(9) and Section 6-03.3(30) as supplemented in these Special Provisions.

Backfill shall not be placed against the column jacket assembly until the finish coat of paint is completely cured, based on the cure duration recommended by the paint manufacturer. The Contractor shall fill and compact the excavation with native backfill, except as otherwise specified in the Plans, in accordance with Section 2-09.3(1)E.

6-02.3.OPT9.GB6

(January 7, 2019)

Polyester Concrete

Manufacturer's Technical Representative

The Contractor shall have the services of a qualified polyester concrete manufacturer's technical representative physically present at the job site. The manufacturer's technical representative shall assist the Contractor in training the Contractor's personnel and providing technical assistance in preparing the header blockout surface, applying primer, and mixing, placing, and curing the polyester concrete.

Mix Design

Polyester concrete shall be composed of the following three components – polyester resin binder, high molecular weight methacrylate (HMWM) resin, and aggregate, in accordance with Section 6-02.2 as supplemented in these Special Provisions.

The Contractor shall prepare and submit a Type 1 Working Drawing consisting of the polyester concrete design mix and mixing procedure. The mix design shall include a recommended initiator percentage for the expected application temperature, and the recommended amount of polyester resin binder as a percentage of the dry weight of aggregate. The amount of peroxide initiator used shall result in a polyester concrete set time between 30 and 120 minutes during placement as determined by California Test 551, Part 2, "Method of Test For Determination of Set Time of Concrete Overlay and Patching Materials", by Gilmore Needles. Accelerators or inhibitors may be required as recommended by the polyester resin binder supplier.

Delivery and Storage of Materials

All materials shall be delivered in their original containers bearing the manufacturer's label, specifying date of manufacturing, batch number, trade name brand, and quantity. Each shipment of polyester resin binder and HMWM resin shall be accompanied by a Safety Data Sheet (SDS).

The material shall be stored in accordance with the manufacturer's recommendations.

Sufficient material to perform the entire polyester concrete application shall be in storage at the site prior to any field preparation.

Equipment and Containment

The Contractor shall submit a Type 1 Working Drawing consisting of all equipment for cleaning the concrete and steel surfaces, and mixing and applying the polyester concrete.

The HMWM resin, and abrasive blasting materials, shall be contained and restricted to the surface receiving the polyester concrete only, and shall not escape to the surrounding environment. The Contractor shall submit a Type 1 Working Drawing consisting of the method and materials used to collect and contain the HMWM resin, and abrasive blasting materials.

Surface Preparation

The concrete and steel surfaces shall be prepared by removing all material which may act as a bond breaker between the surface and the polyester concrete. Surface cleaning shall be by abrasive blasting. Precautions shall be taken to ensure that no dust or debris leaves the bridge deck and that all traffic is protected from rebound and dust.

If the concrete or steel surfaces become contaminated, the contaminated areas shall be recleaned by abrasive blasting.

Application of Prime Coat

Application of the HMWM prime coat and the polyester concrete shall not begin if rain is forecast within 12-hours of completion of the Work. The area receiving the prime coat shall be dry and had no rain within the past 12 hours. Immediately prior to applying the prime coat, the surfaces shall be cleaned to remove accumulated dust and any other loose material.

The concrete bridge deck surface shall be between 50F and 85F when applying the prime coat.

The Contractor shall apply one coat of promoted/initiated wax-free HMWM resin to the prepared concrete and steel surfaces immediately before placing the polymer concrete. The promoted/initiated resin shall be worked into the concrete in a manner to assure complete coverage of the area receiving polyester concrete. A one pint sample of each batch of promoted/initiated HMWM resin shall be retained and submitted to the Engineer at the time of primer application.

The prime coat shall cure for 30 minutes minimum before beginning placement of the polyester concrete. Placement of the polymer concrete shall not proceed until the

Engineer verifies that the HMWM resin was properly promoted and initiated, as evidenced by the HMWM batch sample.

If the primed surface becomes contaminated, the contaminated area shall be cleaned by abrasive blasting and reprimed.

Mixing Equipment for Polyester Concrete

Polyester concrete shall be mixed in mechanically operated mixers in accordance with the mix design as approved by the Engineer. The mixer size shall be limited to a nine cubic yard maximum capacity, unless otherwise approved by the Engineer.

The aggregate and resin volumes shall be recorded for each batch along with the date of each recording. A printout of the recordings shall be furnished to the Engineer at the end of each work shift.

The Contractor shall prevent any cleaning chemicals from reaching the polyester mix during the mixing operations.

Mixing Components

The polyester resin binder in the polyester modified concrete shall be approximately 12 percent by weight of the dry aggregate. The Contractor shall specify the exact percentage in the mix design Working Drawing submittal.

The polyester resin binder shall be initiated and thoroughly blended just prior to mixing the aggregate and binder. The polyester concrete shall be thoroughly mixed prior to placing.

Polyester Concrete Placement

The polyester concrete shall be placed within two hours of placing the prime coat.

Polyester concrete shall be placed within 15 minutes following initiation. Polyester concrete that is not placed within this time shall be discarded.

The surface temperature of the area receiving the polyester concrete shall be the same as specified above for the HMWM prime coat.

The polyester concrete shall be consolidated in accordance with the manufacturer's recommendations.

Finished Polyester Concrete Surface

The finished surface of the polyester concrete shall be smooth and uniform as to crown and grade in accordance with Section 6-02.3(10)D3.

Finishing equipment used shall strike off the polyester concrete to the established grade and cross section.

The polyester concrete shall receive an abrasive sand finish. The sand finish shall be applied by hand immediately after strike-off and before gelling occurs. Sand shall be broadcast onto the surface to affect a uniform coverage of a minimum of 0.8 pounds per square yard.

Curing

The polyester concrete shall be cured in accordance with the manufacturer's recommendations. The Contractor shall measure the compressive strength of the cured polyester concrete with a rebound hammer in accordance with ASTM C 805. The readings of the rebound hammer used shall be correlated to the compressive strength of the polyester concrete product in accordance with ASTM C 805 Section 5.4, and the Contractor shall submit a Type 1 Working Drawing of this correlation.

Traffic and equipment shall not be permitted on the polyester concrete until it achieves a compressive strength of 2500 psi based on the rebound hammer readings and the correlation chart for the rebound hammer used.

6-02.3.OPT10.GB6

(January 7, 2019)

Elastomeric Concrete

Elastomeric concrete shall be composed of the following three components – two-component polyurethane resin binder, and aggregate, in accordance with Section 6-02.2 as supplemented in these Special Provisions.

Manufacturer's Technical Representative

The Contractor shall have the services of a qualified elastomeric concrete manufacturer's technical representative physically present at the job site. The manufacturer's technical representative shall assist the Contractor in training the Contractor's personnel and providing technical assistance in preparing the header blockout surface, applying primer, and mixing, placing, and curing the elastomeric concrete.

Delivery and Storage of Materials

All materials shall be delivered in their original containers bearing the manufacturer's label, specifying date of manufacturing, batch number, trade name brand, and quantity. Each shipment of polyurethane resin binder shall be accompanied by a Safety Data Sheet (SDS).

The materials shall be stored in accordance with the manufacturer's recommendations.

Sufficient material to perform the entire elastomeric concrete application shall be in storage at the site prior to any field preparation.

Equipment and Containment

The Contractor shall submit a Type 1 Working Drawing consisting of all equipment for cleaning the concrete and steel surfaces, and mixing and applying the elastomeric concrete.

The abrasive blasting materials shall be contained and restricted to the surface receiving the elastomeric concrete only and shall not escape to the surrounding environment. The Contractor shall submit a Type 1 Working Drawing consisting of the method and materials used to collect and contain the abrasive blasting materials.

Surface Preparation

The concrete and steel surfaces shall be prepared by removing all material which may act as a bond breaker between the surface and the elastomeric concrete,

including the removal of all loose, deteriorated, or otherwise unsound concrete. Steel surfaces shall be cleaned and prepared to an SSPC SP-10 surface condition. Surface cleaning shall be by abrasive blasting.

Precautions shall be taken to ensure that no dust or debris leaves the bridge deck and that all traffic is protected from rebound and dust.

If the concrete or steel surfaces become contaminated, the contaminated areas shall be recleaned by abrasive blasting.

Freshly placed concrete shall be cured for a minimum of 14 calendar days before application of primer and elastomeric concrete.

Application of Prime Coat

Application of the prime coat and the elastomeric concrete shall not begin if rain is forecast within 12-hours of completion of the Work. The area receiving the prime coat shall be dry and had no rain within the past 12 hours. Immediately prior to applying the prime coat, the surfaces shall be cleaned to remove accumulated dust and any other loose material.

The concrete bridge deck surface shall be between 50F and 85F when applying the prime coat.

The Contractor shall apply primer in accordance with the elastomeric concrete manufacturer's recommendations and shall limit the extent of primer application to that surface area that can be covered by a layer of elastomeric concrete before primer cure.

If the primed surface becomes contaminated, the contaminated area shall be cleaned by abrasive blasting and reprimed.

Mixing Components

The Contractor shall mix the elastomeric concrete components and the resultant mixture in accordance with the equipment and procedure recommended by the elastomeric concrete manufacturer.

Elastomeric Concrete Placement

The elastomeric concrete shall be placed on the liquid prime coat within the time limits specified by the manufacturer. Elastomeric concrete shall be placed in layers not to exceed the maximum depth recommended by the elastomeric concrete manufacturer. At locations deep enough to require placement of multiple layers of elastomeric concrete, each layer shall be cured, and the top of the previous layer roughened, as recommended by the elastomeric concrete manufacturer before placement of the next layer.

Elastomeric concrete shall be placed within five minutes of initiation.

The surface temperature of the area receiving the elastomeric concrete shall be the same as specified above for the prime coat.

Finished Elastomeric Concrete Surface

The finished surface of the elastomeric concrete shall be smooth and uniform as to crown and grade in accordance with Section 6-02.3(10)D3.

Finishing tools or equipment used shall strike off the elastomeric concrete to the established grade and cross section.

The finished surface of elastomeric concrete shall receive an abrasive sand finish. The sand finish shall be applied by hand immediately after strike-off and before gelling occurs. Sand shall be broadcast onto the surface to affect a uniform coverage of a minimum of 0.8 pounds per square yard.

Curing

The elastomeric concrete shall be cured in accordance with the manufacturer's recommendations. The Contractor shall measure the compressive strength of the cured elastomeric concrete with a rebound hammer in accordance with ASTM C805. The readings of the rebound hammer used shall be correlated to the compressive strength of the elastomeric concrete product in accordance with ASTM C805 Section 5.4, and the Contractor shall submit a Type 1 Working Drawing of this correlation.

Traffic and equipment shall not be permitted on the elastomeric concrete until it achieves a compressive strength of 2500 psi based on the rebound hammer readings and the correlation chart for the rebound hammer used.

6-02.3(2).GR6

Proportioning Materials

6-02.3(2).INST1.GR6

Section 6-02.3(2) is supplemented with the following:

6-02.3(2).OPT1.GB6

(September 8, 2020)

Expansion Joint Header Concrete

Expansion joint header concrete shall have a minimum compressive strength of 4,000 psi at 28 days. Unless the Plans or Special Provisions specify a different strength, the concrete shall achieve a minimum compressive strength of 2,500 psi based on early break cylinders prior to allowing traffic to pass across the expansion joint.

Type III cement conforming to Section 9-01.2(1) may be used.

The nominal maximum size aggregate shall be 1-1/2 inch.

Section 6-02.3(3) notwithstanding, non-chloride accelerating admixtures conforming to the following specifications may be used:

Admixture	**Specifications**
Accelerating	Section 9-23.6(4)
Water Reducing/Accelerating	Section 9-23.6(6)

6-02.3(6).GR6

Placing Concrete

6-02.3(6)B.GR6

Placing Concrete in Foundation Seals

6-02.3(6)B.INST1.GR6

Section 6-02.3(6)B is supplemented with the following:

6-02.3(6)B.OPT1.GB6

(June 26, 2000)

If, in the opinion of the Engineer, water conditions at the time of construction do not require seals for footing construction, the Engineer may specify that the seals be omitted. In such a case the Contractor shall lower and construct the footing, as shown in the Plans, at the elevation shown in the Plans for the bottom of seal. The height of the pier shaft or columns shall be adjusted accordingly.

No adjustment will be allowed in the unit contract prices for concrete, steel reinforcing bar, and excavation by reason of any increase or decrease in quantities involved due to the deletion of seals.

6-02.3(6)B.OPT2.GB6

(June 26, 2000)

If, in the opinion of the Engineer, water conditions at the time of construction do not require seals for construction, the Engineer may specify that the seals be omitted. In such a case, the Contractor shall excavate only to the bottom of footing elevation and shall construct the footing as shown in the Plans.

No adjustment will be allowed in the unit contract prices for concrete, steel reinforcing bar, and excavation by reason of any increase or decrease in quantities involved due to the deletion of seals.

6-02.3(9).GR6

Precast Concrete Panels

6-02.3(9)A.GR6

Shop Drawings

6-02.3(9)A.INST2.GR6

The list included in the third paragraph of Section 6-02.3(9)A is supplemented with the following:

6-02.3(9)A.OPT6.GB6

(September 8, 2020)

7. Construction sequence and method of forming the precast prestressed concrete stay-in-place panels.

8. Details of additional reinforcement, if any, provided at lifting and support locations.

9. Method and equipment used to support the precast prestressed concrete stay-in-place panels during storage, transporting, and erection.

10. Method used to identify the precast prestressed concrete stay-in-place panel's location for calculating its position accounting for profile grade and transverse slope, and for ensuring correct placement during erection.

11. Erection sequence, including the method of lifting the panels, placing and adjusting the panels to proper alignment and grade, and supporting the panels during leveling and grouting operations.

12. Method for forming the grout pad on the exterior face of the prestressed concrete girder flange, if an alternative method is proposed, and at the interior face of the stay-in-place panel to the dimensions detailed in the Plans.

6-02.3(9)E.GR6

Finishing

6-02.3(9)E.INST1.GR6

Section 6-02.3(9)E is supplemented with the following:

6-02.3(9)E.OPT6.GB6

(September 8, 2020)

The Contractor shall furnish a Class 2 surface finish, as specified in Section 6-02.3(14)B, on all surfaces of the precast prestressed concrete stay-in-place panels, except as otherwise noted. The top surface of all panels shall be textured using a metal tined comb. It shall leave striations in the fresh concrete ¼-inch deep by at least 1/8-inch wide, spaced at 2 to 3 times the groove width apart, and oriented perpendicular to the prestressing strand. The timing and method used shall produce the required texture without displacing larger particles of aggregate. Areas of mortar buildup more than 1/4 inch above the top surface of the panel shall be removed.

6-02.3(9)F.GR6

Tolerances

6-02.3(9)F.INST1.GR6

Section 6-02.3(9)F is supplemented with the following:

6-02.3(9)F.OPT1.GB6

(September 8, 2020)

The precast prestressed concrete stay-in-place panels shall not exceed the following scalar tolerances:

Length (perpendicular to strands):	± 3/16 inch
Width (parallel to strands):	± 1/4 inch
Thickness:	+ 1/4, -1/8 inch
Squareness (difference in diagonal lengths):	± 1/4 inch per 5 feet, ± 1/2" max.

Vertical location of strand group C.G.:	± 1/16 inch
Vertical location of individual strands:	± 1/8 inch
Horizontal location of strands:	± 1/4 inch
Strand or bar projection from ends:	± 1/2 inch
Camber (either upward or downward) at time of placement on structure:	± 1/4 inch per ten feet

Precast prestressed concrete stay-in-place panels with tolerances exceeding those specified above, or with hairline cracks visibly apparent radiating from the strand at the end of the panel and extending more than three inches along the panel will be subject to evaluation by the Engineer for possible rejection.

6-02.3(9)G.GR6

Handling and Storage

6-02.3(9)G.INST1.GR6

Section 6-02.3(9)G is supplemented with the following:

6-02.3(9)G.OPT6.GB6

(September 8, 2020)

Precast prestressed concrete stay-in-place panels shall be maintained in a flat and level position, without any twisting, at all times. Supports shall be oriented transverse to the prestressed strands, extend the full width of the panel, and be located in a manner to minimize elastic and time-dependent deformation of the panels.

Unloading and reloading at a site other than the bridge site will be permitted only under the direct supervision of the Engineer. The panels shall not be stacked, unless otherwise allowed by the Engineer. If such permission is granted, the panel supports shall be in the same vertical plane and shall be of sufficient height to prevent damage to the lifting bar loops. The Contractor shall have received the Engineer's verification that the bottom panel of the stack is flat and level, without any twisting, prior to stacking additional panels. The Contractor shall not stack panels on top of adjacent girders of the structure.

6-02.3(9)I.GR6

Erection

6-02.3(9)I.INST1.GR6

Section 6-02.3(9)I is supplemented with the following:

6-02.3(9)I.OPT6.GB6

(September 8, 2020)

The precast prestressed concrete stay-in-place panels shall be at least 60 days old at the time of placing bridge deck concrete. The Contractor shall place the panels atop the prestressed girders as shown in the Plans, adjusting the leveling

bolts as required to match the level of adjacent panels and accommodate camber.

The grout pad shall be placed after the panels have been fully adjusted for grade and camber. The exposed portion of the grout pad forms that are intended to be left in place permanently shall be tinted to match the color of the adjacent concrete surfaces and shall be secured with an accepted adhesive or other method as accepted by the Engineer.

Prior to placing the bridge deck steel reinforcing bars and concrete, the Contractor shall place a backer rod at the intersection between panels as shown in the Plans. All intersections between panels shall be sealed to prevent leakage during concrete placement. Prior to placing the bridge deck concrete, the surface of the panels shall be cleaned of all foreign materials and saturated with water for a minimum of 4 hours before fresh concrete is placed.

6-02.3(10).GR6

Bridge Decks and Bridge Approach Slabs

6-02.3(10)D.GR6

Concrete Placement, Finishing, and Texturing

6-02.3(10)D.INST1.GR6

Section 6-02.3(10)D is supplemented with the following:

6-02.3(10)D.OPT1.GB6

(August 4, 2008)

Repairing Slab Left Exposed After Removing Existing Curb or Sidewalk

The concrete exposed by the removal of the existing curb or sidewalk shall be removed to a depth of 1-inch below finished grade or to the top of the existing roadway deck steel reinforcing bars, whichever is less. The Contractor shall not remove concrete below the top of the existing steel reinforcing bars. The Contractor shall not damage the bond between the existing steel reinforcing bars and the concrete.

After roughening, cleaning and wetting the surface in accordance with Section 6-02.3(12), the Contractor shall place concrete over the surface to the finish grade of the adjacent concrete roadway deck using a modified Class 4000 concrete mix. The maximum aggregate size in the modified Class 4000 concrete mix shall be 3/8 inch. The finished portion of the deck shall have the same texture, slope and grade as that of the existing deck.

6-02.3(10)D.OPT2.GB6

(August 4, 2008

Repairing Slab Left Exposed After Removing Existing Curb and Railbase

After roughening and cleaning the concrete exposed by the removal of the existing curb and railbase, that portion of the exposed surface not covered by the new traffic barrier shall be coated with epoxy mortar and finished to have the same texture, slope and grade as that of the existing deck.

6-02.3(10)D.OPT3.GB6

(August 3, 2015)

Bridge Drain Risers

The Contractor shall submit a Type 2 Working Drawing consisting of the method of removing the bridge drain grate nipple extrusion, the method of grinding the existing curb as necessary for bridge drain riser installation, and the method of cleaning the existing drain casting surfaces in contact with the drain risers. The shop drawings and weld procedures for the drain riser assemblies shall be submitted in accordance with Sections 6-03.3(7) and 6-03.3(25).

The existing bridge drain grate bolt, debris from removing the nipple extrusion and cleaning the drain casting contact surfaces, and all debris in the bridge drain cavity, shall be disposed of in accordance with Section 2-02.3.

After cleaning the bridge drain casting contact surfaces, the Contractor shall install the spacer bars and riser bars of the bridge drain riser assembly as shown in the Plans.

All exposed surfaces of the spacer bars and riser bars following installation shall be painted with two coats of paint conforming to Section 9-08.1(2)F. Each coat shall have a minimum dry film thickness of two mils.

6-02.3(10)D.OPT3(A).GB6

(August 4, 2008)

A minimum of four slotted holes, each 2 inches long and 3/4 inches high, shall be provided on each bridge drain riser. The slotted holes shall be located at the bottom of the riser, two on the traffic side of the assembly and one each on the short ends of the assembly. Risers shall be installed to be flush with the proposed roadway profile and shall maintain uniform contact with the existing drain. This portion of work shall be completed prior to the installation of the membrane waterproofing.

The membrane waterproofing shall extend to the bottom of and all around the bridge drain riser, except that the Contractor shall ensure that the slotted holes of the bridge drain riser assembly remain open and unplugged by the membrane waterproofing. Water seeping under the overlay shall be allowed to drain through the slotted holes and into the bridge drains.

After all the items of work on this project have been completed, the Contractor shall clean and flush all the bridge drains.

6-02.3(10)D.OPT5.GB6

(August 3, 2015)

Plugging Existing Bridge Drain

The Contractor shall submit a Type 2 Working Drawing consisting of the method and materials used to plug the existing bridge drains specified in the Plans to be plugged. The submittal shall include the following:

1. Material used to plug the drain outlet, and method of securing the plug in position.

2. The type of concrete material used to fill the drain cavity.

3. The method used to remove the exposed drainpipe, if removal is specified in the Plans.

All cut, damaged, and exposed metal surfaces to remain, including the drain outlet plug if metal components are used, shall be painted with two coats of paint conforming to Section 9-08.1(2)F. Each coat shall have a minimum dry film thickness of two mils.

When the removal of exposed drainpipe is specified in the Plans, the Contractor shall remove the embedded anchors a minimum of one inch beneath the existing concrete surface. The void left by removal of the embedded anchors shall be filled with mortar conforming to Section 9-20.4(2). The mortar shall match the color of the existing concrete surface as near as practicable.

All materials removed from the bridge drains specified in the Plans to be plugged shall be disposed of as specified in Section 2-02.3.

6-02.3(10)D.OPT12.GB6

(April 6, 2015)

Core Drilled Bridge Deck Drain

The Contractor shall core drill drain holes through the bridge deck of the bridges and in the locations shown in the Plans. The Contractor shall grind the concrete bridge deck to provide a taper at the top of the cored hole if shown in the Plans. The Contractor shall contain, collect and dispose of the concrete cores and debris in accordance with Section 2-02.3.

The Contractor shall coat the surfaces of the cored holes with epoxy bonding agent, and shall set a bridge deck drain pipe sleeve in place as shown in the Plans. The Contractor shall ensure that the void between the cored hole surface and the outside of the pipe sleeve is completely filled with epoxy bonding agent. The Contractor shall take appropriate measures to prevent the epoxy bonding agent from escaping from the void and shall secure the pipe sleeve in position until the epoxy bonding agent is cured.

6-02.3(10)F.GR6

Bridge Approach Slab Orientation and Anchors

6-02.3(10)F.INST1.GR6

Section 6-02.3(10)F is supplemented with the following:

6-02.3(10)F.OPT2.GB6

(August 4, 2008)

The pavement end of the bridge approach slab shall be constructed parallel to the pavement seat.

6-02.3(10)F.OPT3.FB6

(August 4, 2008)

The pavement end of the bridge approach slab shall be constructed parallel to the pavement seat for bridge(s) No. *** $$1$$ ***. The pavement end of the bridge approach slab shall be constructed normal to the roadway center line for bridge(s) No. *** $$2$$ ***.

6-02.3(13).GR6

Expansion Joints

6-02.3(13).INST1.GR6

Section 6-02.3(13) is supplemented with the following:

6-02.3(13).OPT7.GB6

Expansion Joint Modification

6-02.3(13).OPT7(B).GB6

(April 6, 2015)

Expansion Joint Demolition Plan

The Contractor shall submit Type 2 Working Drawings showing the method of removing the specified portions of the existing bridge expansion joints. The Working Drawings shall show the sequence of demolition and removal, the type of equipment to be used in all demolition and removal operations, and details of the methods and equipment used for containment, collection, and disposal of all debris. The Working Drawings shall show all stages of demolition.

6-02.3(13).OPT7(C).GB6

(April 6, 2015)

Joint Preparation and Installation Procedure

The Contractor shall submit a Type 1 Working Drawing consisting of the sealant manufacturer's recommended joint preparation and installation procedure.

6-02.3(13).OPT7(D).FB6

(April 6, 2015)

Field Measuring Existing Bridge Expansion Joints

The Contractor shall field measure the following dimensions of the existing bridge expansion joints of Bridge No(s). *** $$1$$ ***:

1. Length along the roadway surface and the horizontal and vertical surfaces of the concrete curb.

2. Opening width at both curb lines and at the centerline of the roadway surface.

The Contractor shall submit a Type 1 Working Drawing consisting of the field measured dimensions.

6-02.3(13).OPT7(E).FB6

(April 6, 2015)

Removing Portions of Existing Bridge Expansion Joints

The Contractor shall remove all concrete, expansion joint materials, overlay, dirt and debris at the bridge expansion joints of Bridge No(s). *** $$1$$ *** within the blockout dimensions shown in the Plans.

Concrete removal shall conform to Section 2-02.3(2)A2 and the following restriction on power driven tools:

1. Jack hammers no heavier than the nominal 30 pound class.

2. Chipping hammers no heavier than the nominal 15 pound class.

No other power driven equipment shall be used to remove concrete in the vicinity of the bridge expansion joints. The power driven tools shall be operated at angles less than 45 degrees as measured from the surface of the deck to the tool.

The Contractor shall dispose of all materials removed from the bridge expansion joints in accordance with Section 2-02.3.

For polyester concrete headers, or elastomeric concrete headers, the Contractor shall clean and prepare all existing concrete surfaces bonding to the header in accordance with the ***Polyester Concrete*** or ***Elastomeric Concrete*** subsection, respectively, to Section 6-02.3 as supplemented in these Special Provisions. For concrete headers, the Contractor shall clean and prepare all existing concrete surfaces bonding to the header in accordance with Section 6-02.3(12)B.

6-02.3(13).OPT7(F).GB6

(April 6, 2015)

Drilling Holes and Setting Steel Reinforcing Bars

The Contractor shall drill holes for, and set, steel reinforcing bars into the existing concrete as shown in the Plans in accordance with Section 6-02.3(24)C as supplemented in these Special Provisions.

6-02.3(13).OPT7(G).GB6

(April 6, 2015)

Placing Polyester Concrete or Elastomeric Concrete Headers

The Contractor shall form the polyester concrete or the elastomeric concrete headers in accordance with either the ***Polyester Concrete*** or the ***Elastomeric Concrete*** subsection to Section 6-02.3 as supplemented in these Special Provisions. The Contractor shall remove all forms from the bridge expansion joints after casting and curing the polyester concrete or the elastomeric concrete headers.

6-02.3(13).OPT7(H).GB6

(September 8, 2020)

Placing Concrete Headers

The Contractor shall form, cast, and cure, the concrete headers in accordance with Section 6-02.3 and as shown in the Plans. Unless the Plans or Special Provisions specify a different strength, the concrete headers shall have attained a minimum compressive strength of 2,500 psi before the Contractor may allow traffic to pass across the expansion joint.

6-02.3(13).OPT7(I).GB6

(September 8, 2020)

Placing Expansion Joint Sealant

The Contractor shall have the services of a qualified sealant manufacturer's technical representative physically present at the job site to assist in assuring the proper installation of the rapid cure silicone sealant, provide technical assistance for the use of the joint sealant, train the Contractor's personnel

installing the joint sealant, and to observe and inspect the installation of at least the first complete joint.

The joint sealant shall not be placed against concrete until at least seven days after concrete placement. The joint sealant shall not be placed against polyester concrete or elastomeric concrete until a time period recommended by the sealant manufacturer.

The Contractor shall clean the bridge expansion joints of all forms, dirt, form oil, grease, and other deleterious material. The Contractor shall clean and prepare the entire joint surface receiving the joint sealant in accordance with the manufacturer's joint preparation procedure, and as recommended by the sealant manufacturer's technical representative, including two stage abrasive blasting surface preparation and compressed air cleaning. All steel surfaces to be in contact with the joint sealant shall be cleaned to an SSPC-SP10 condition. The joint receiving the sealant shall be sound, clean, dry, and frost free.

After the cleaned and prepared joint has received the Engineer's acceptance for joint dimensions, alignment, and preparation, the Contractor shall apply the primer, as recommended by the sealant manufacturer, to all surfaces to be in contact with the joint sealant. The primer shall dry and cure for the time period recommended by the sealant manufacturer for the surface type.

After the primer is cured, the Contractor shall place the backer rod, and place the rapid cure silicone sealant in accordance with the joint installation procedure.

If the joint width at the time of installation is less than 1-inch or greater than three inches, the Contractor shall not proceed with the expansion joint modification until the installation procedure is revised as recommended by the sealant manufacturer's technical representative.

After installing the rapid cure silicone sealant, the Contractor shall flood the joint area with water. If leakage is detected, the bridge expansion joint system shall be repaired by the Contractor, as recommended by the sealant manufacturer.

6-02.3(13).OPT7(J).GB6

(September 8, 2020)

Placing Expansion Joint Sealant

The Contractor shall have the services of a qualified sealant manufacturer's technical representative physically present at the job site to assist in assuring the proper installation of the rapid cure silicone sealant, provide technical assistance for the use of the joint sealant, train the Contractor's personnel installing the joint sealant, and to observe and inspect the installation of at least the first complete joint.

Prior to scarifying the concrete deck for the modified concrete overlay, the Contractor shall remove all expansion joint materials and debris from the existing expansion joints, and shall dispose of these materials and debris as specified in Section 2-02.3.

Prior to placing the modified concrete overlay, the Contractor shall install a temporary form as shown in the Plans to fill the expansion joint gap. The

temporary form shall preserve the expansion joint gap during the modified concrete overlay placement, and shall not damage the joint or the concrete overlay upon removal. The Contractor shall submit Type 2 Working Drawing consisting of the type of temporary form material, and the method of installation and removal.

The joint sealant shall not be placed against concrete (including concrete overlay except for polyester concrete overlay) until at least seven days after concrete placement.

After placing the modified concrete overlay and rounding the corner of the overlay at the joints with a 3/8 inch radius, the Contractor shall clean the bridge expansion joints of all temporary forms, dirt, form oil, grease, and other deleterious material. The Contractor shall clean and prepare the entire joint surface receiving the joint sealant in accordance with the manufacturer's joint preparation procedure, and as recommended by the sealant manufacturer's technical representative, including two stage abrasive blasting surface preparation and compressed air cleaning. All steel surfaces to be in contact with the joint sealant shall be cleaned to an SSPC-SP10 condition. The joint receiving the sealant shall be sound, clean, dry, and frost free.

After the cleaned and prepared joint has received the Engineer's acceptance for joint dimensions, alignment, and preparation, the Contractor shall apply the primer, as recommended by the sealant manufacturer, to all surfaces to be in contact with the joint sealant. The primer shall dry and cure for the time period recommended by the sealant manufacturer for the surface type.

After the primer is cured, the Contractor shall place the backer rod, and place the rapid cure silicone sealant in accordance with the joint installation procedure.

If the joint width at the time of installation is less than 1-inch or greater than three inches, the Contractor shall not proceed with the expansion joint modification until the installation procedure is revised as recommended by the sealant manufacturer's technical representative and as approved by the Engineer.

After installing the rapid cure silicone sealant, the Contractor shall flood the joint area with water. If leakage is detected, the bridge expansion joint system shall be repaired by the Contractor, as recommended by the sealant manufacturer.

6-02.3(13)C.GR6

Modular Expansion Joint System

6-02.3(13)C.INST1.GR6

Section 6-02.3(13)C is supplemented with the following:

6-02.3(13)C.OPT1.FB6

(September 8, 2020)

Acceptable Manufacturers

The following manufacturers are known to have prequalified modular expansion joint system details by successfully completing fatigue testing in accordance with Section 6-02.3(13)C:

1. The D.S. Brown Company
   P.O. Box 158
   300 E. Cherry Street
   North Baltimore, Ohio 45872-0158
   Tel. (419) 257-3561
   Fax (419) 257-2200
   www.dsbrown.com

2. Watson Bowman ACME Corporation
   95 Pineview Drive
   Amherst, New York 14228-2166
   Tel. (716) 691-7566
   Fax (716) 691-9239
   www.wbacorp.com

3. Mageba USA, LLC
   575 Lexington Ave FI-4
   New York, New York 10022-6146
   Tel. (212) 644-3335
   Fax (212) 644-3339
   www.magebausa.com

Design Axle Loads and Impact Factors

The vertical load range for fatigue design shall be a 32.0 kip tandem. This tandem shall be taken as two 16.0 kip axles spaced four feet apart. Only one of these tandem axles must be considered in the design, unless the joint opening exceeds four feet. The load range shall be increased by the dynamic load allowance (Impact Factor) of 75%. Load factors shall be applied in accordance with Table 3.4.1-1 of the AASHTO LRFD Bridge Design Specifications, current edition and latest interims.

The vertical load for strength design shall be a 50.0 kip tandem. This tandem shall be taken as two 25.0 kip axles spaced four feet apart. Only one of these tandem axles must be considered in the design, unless the joint opening exceeds four feet. This load shall be increased by the dynamic load allowance (Impact Factor) of 75%. Load factors shall be applied in accordance with Table 3.4.1-1 of the AASHTO LRFD Bridge Design Specifications, current edition and latest interims.

The horizontal load range for fatigue design shall be *** $$1$$ *** percent of the amplified vertical load range (LL+IM) specified above. For modular expansion joint systems installed on vertical grades in excess of five percent, the horizontal component of the amplified vertical load range (LL+IM) specified above shall be added to this horizontal load range.

The horizontal load for strength design shall be 20 percent of the amplified vertical load (LL+IM) specified above. For modular expansion joint systems installed on vertical grades in excess of five percent, the horizontal component of the amplified vertical load (LL+IM) specified above shall be added to this horizontal load.

Fatigue Testing Laboratory

The following facilities are known to be capable of performing the fatigue testing specified in Section 6-02.3(13)C:

1. Structural Engineering Testing Laboratory (SETL)
   University of Washington
   Seattle, WA
   SETL Director:
      Dr. Dawn Lehman: (206) 715-2108
   SETL Manager
      Vince Chaijaroen: (206) 543-7433

2. Bowen Laborabory
   Purdue University
   West Lafayette, IN
   Director of Bowen Laboratory:
      Dr. Amit Varma: (765) 496-3419

3. ATLSS Engineering Research Center
   Lehigh University
   Bethlehem, PA
   ATLSS Engineering Research Center Director:
      Dr. Richard Sause: (610) 758-3565
   ATLSS Engineering Research Center Administrative Director:
      Dr. Chad Kusco: (610) 758-5299

6-02.3(14).GR6

Finishing Concrete Surfaces

6-02.3(14)C.GR6

Pigmented Sealer for Concrete Surfaces

6-02.3(14)C.INST1.GR6

Section 6-02.3(14)C is supplemented with the following:

6-02.3(14)C.OPT1.GB6

(April 6, 2009)

The color of the pigmented sealer shall be Washington Gray.

6-02.3(14)C.OPT2.GB6

(April 6, 2009)

The color of the pigmented sealer shall be Mt. St. Helens Gray.

6-02.3(14)C.OPT3.GB6

(April 6, 2009)

The color of the pigmented sealer shall be Mt. Baker Gray.

6-02.3(14)C.OPT4.GB6

(April 6, 2009)

The color of the pigmented sealer shall be Cascade Green.

6-02.3(14)C.OPT5.FB6

(April 6, 2009)

The color for the following structure feature(s) shall match the specified color(s):

Structure and Feature	Pigmented Sealer Color
*** $$1$$ ***	*** $$2$$ ***

6-02.3(4)D.GR6

Temperature and Time For Placement

6-02.3(4)D.INST1.GR6

Section 6-02.3(4)D is revised to read:

6-02.3(4)D.OPT1.2026.GR6

(March 20, 2025)

The maximum allowed time to discharge for all concrete is the time from when the cement is added to the concrete mixture until it is discharged from the transit vehicle or placed in the forms at a precasting facility.

Concrete used in precast items, regardless of concrete class, shall remain between 50°F and 90°F and be discharged within 1.5 hours of mixing. All other concrete shall be placed within the following temperature limits and the specified discharge times.

Concrete Class	Concrete Temperature (Fahrenheit)	Maximum Discharge Time (Hours)
4000D	55° min. to 75°	1.75
	76° to 80° max.	1.5
All Other Classes of Structural Concrete and Self-Consolidating Concrete	55° min. to 75°	1.75
	76° to 90° max.	1.5
Commercial Concrete, Lean Concrete, and Class EA	55° min. to 90° max.	1.75

When conditions are such that the concrete may experience an accelerated initial set, the Engineer may require a shorter time to discharge. The time to discharge in the above table may be extended 15 minutes upon request from the Contractor and concurrence of the Engineer. Time extensions greater than 15 minutes require a Type 3 Working Drawing submittal. The submittal shall include:

1. An explanation of why an extended placement time is necessary for the Work.

2. The proposed concrete mix design, including the specified dosage of chemical admixtures for the anticipated range of concrete temperatures and details regarding when the admixtures are to be introduced into the mix. Type B (retarding) or Type D (water-reducing and retarding) chemical admixtures are required for structural or self-consolidating concrete.

3. Technical data sheets and supporting information from the admixture supplier indicating the appropriate chemical admixture dosage for the anticipated concrete temperatures, haul times, and working times.

4. The haul distance and estimated range of haul times.

5. The estimated number of drum rotations during haul. Rotations shall not exceed 400.

6. The proposed maximum time to discharge for the mix(es) not to exceed 3 hours.

6-02.3(17).GR6

Falsework and Formwork

6-02.3(17)C.GR6

Falsework and Formwork at Special Locations

6-02.3(17)C.INST1.GR6

Section 6-02.3(17)C is supplemented with the following:

6-02.3(17)C.OPT1.FB6

(October 3, 2022)

Falsework opening over railroad tracks shall be approved by the Railroad Company in accordance with Section 1-07.28 and the Special Provisions. The Contractor shall notify the Railroad Company at least *** $$1$$ *** working days prior to erecting falsework over a track, and shall include the dimensions of the opening and the duration of the restricted clearance in the submittal.

6-02.3(17)K.GR6

Concrete Forms on Steel Spans

6-02.3(17)K.INST1.GR6

The first paragraph of Section 6-02.3(17)K is revised to read as follows:

6-02.3(17)K.OPT1.GB6

(August 3, 2015)

Except as otherwise specified, concrete forms on all steel structures shall be removable and shall not remain in place. Where needed, the forms shall have openings for truss or girder members. Each opening shall be large enough to leave at least 1-1/2 inches between the concrete and steel on all sides of the steel member after the forms have been removed. Unit contract prices cover all costs related to these openings.

Permanent metal forms may be used to form that portion of the concrete slab inside the webs of the steel box girders, subject to the following requirements:

1. Metal forms shall be 18 gage minimum thickness, zinc coated, steel sheet conforming to ASTM A 653 Coating Designation G 210. All accessories shall conform to ASTM A 36 or Section 9-06.1 with a zinc coating of 2.0 ounces per square foot.

2. Forms shall be designed by the Contractor to support the plastic concrete, metal forms, steel reinforcing bars, and a construction live load of 60 pounds per square foot. Deflection of the metal form shall not exceed 1/360 of the span. Camber of the metal form shall not exceed the anticipated deflection. The working unit stress shall not exceed 0.725 of the specified yield strength of the metal form material.

3. The metal forms shall provide for the full depth of the deck slab above the uppermost portions of the form. Bottom transverse steel reinforcing bars of the deck slab shall be at least 1 inch clear of the metal forms at all points. Forms or supports shall not be welded to girder flanges.

4. The bridge deck concrete shall be placed continuously between the transverse construction joints shown in the Plans, except in an emergency when the Engineer authorizes an interruption in the concrete placement. In such an emergency, the Contractor shall construct a transverse joint at the bottom of a flute and shall field drill 1/4 inch weep holes through the metal form at 12 inch centers along the line of the joint.

5. All zinc coating on exposed metal form damaged or removed during construction shall be repaired with one coat of paint conforming to Section 9-08.1(2)B, two mils minimum dry film thickness.

6. Should the Engineer determine that inspection of the underside of the hardened slab is warranted, the Contractor shall remove at least one section of metal form in each span at no extra cost to the Contracting Agency. If excessive honeycomb or other defects are found, the Contractor shall, if required by the Engineer, remove additional form sections at no additional expense to the Contracting Agency, and shall revise concrete placing methods as required to produce sound concrete. All unacceptable concrete shall be removed or repaired.

7. Complete layout, details, and a description of materials, for the permanent metal forms shall be included in the Contractor's falsework and formwork submittal as specified in Section 6-02.3(16).

8. No adjustment will be made to the lump sum contract price for "Bridge Deck - ____" for additional quantities of materials required because of the use of the permanent forms.

6-02.3(24).GR6

Reinforcement

6-02.3(24)C.GR6

Placing and Fastening

6-02.3(24)C.INST1.GR6

Section 6-02.3(24)C is supplemented with the following:

6-02.3(24)C.OPT1.GB6

(September 8, 2020)

Drilling Holes for, and Setting, Steel Reinforcing Bar Dowels

Where called for in the Plans, holes shall be drilled into existing concrete to the size and dimension shown in the Plans. The Contractor may use any method for drilling the holes provided the method selected does not damage the concrete and the steel reinforcing bar that is to remain. Core drilling will be required when specifically noted in the Plans.

The Contractor shall exercise care in locating and drilling the holes to avoid damage to existing steel reinforcing bars and concrete. Location of the holes may be shifted slightly with the acceptance of the Engineer in order to avoid damaging the existing steel reinforcing bars. All damage caused by the Contractor's operations shall be repaired by the Contractor in accordance with Section 1-07.13.

Steel reinforcing bars shall be set into the holes noted in the Plans with epoxy resin. The holes shall be cleaned before placing the resin.

The Contractor shall demonstrate, to the satisfaction of the Engineer, that the method used for setting the steel reinforcing bars completely fills the void between the steel reinforcing bar and the concrete with epoxy resin. Dams shall be placed at the front of the holes to confine the epoxy and shall not be removed until the epoxy has cured in the hole.

6-02.3(25).GR6

Prestressed Concrete Girders

6-02.3(25)L.GR6

Handling and Storage

6-02.3(25)L2.GR6

Girder Lateral Stability and Stress Analysis

6-02.3(25)L2.INST1.GR6

The table in item number 4 of the first paragraph is revised to read:

6-02.3(25)L2.OPT1.2026.GR6

(January 6, 2025)

Condition	Stress	Location	Allowable Stress (ksi)
Temporary Stress at Transfer and Lifting from Casting Bed	Tensile	In areas without bonded reinforcement sufficient to resist the tensile force in the concrete	$0.0948\lambda\sqrt{f'_{ci}} \leq 0.2$

		In areas with bonded reinforcement sufficient to resist the tensile force in the concrete	$0.24\lambda\sqrt{f'_{ci}}$
	Compressive	All areas except at Section extremities when lateral bending is explicitly considered.	$0.65f'_{ci}$
		At section extremities (i.e., flange tips) during handling when lateral bending is explicitly considered	$0.70f'_{ci}$
Temporary Stress at Shipping and Erection	Tensile	In areas without bonded reinforcement sufficient to resist the tensile force in the concrete	$0.0948\lambda\sqrt{f'_c}(ksi)$
		In areas with bonded reinforcement sufficient to resist the tensile force in the concrete	$0.24\lambda\sqrt{f'_c}$
	Compressive	All areas except at section extremities when lateral bending is explicitly considered	$0.65f'_c$
		At section extremities (i.e., flange tips) during handling when lateral bending is explicitly considered	$0.70f'_c$
Final Stresses at Service Limit State	Tensile	All locations	0.0
	Compressive	All areas due to effective prestress and permanent loads	$0.45f'_c$
		All areas due to effective prestress, permanent loads and transient (live) loads	$0.60f'_c$

Final Stresses at Fatigue Limit State	Compressive	All areas due to the Fatigue I Load Combination plus one-half the sum of effective prestress and permanent loads in accordance with AASHTO LRFD Section 5.5.3.1	$0.40f_c'$

6-02.3(26).GR6

Cast-in-Place Prestressed Concrete

6-02.3(26).INST1.GR6

The third paragraph of Section 6-02.3(26) is revised to read as follows:

6-02.3(26).OPT1.GB6

(January 4, 2010)

Before tensioning, the Contractor shall remove all side forms from the girders. The Contractor shall not release the falsework supporting the superstructure, and shall not place construction loads and other live loads on the superstructure, until the job-cured 2-inch grout cubes, fabricated in accordance with WSDOT TM 813, reach a minimum compressive strength of 800 psi in accordance with WSDOT FOP for AASHTO T 106.

6-02.4.GR6

Measurement

6-02.4.INST1.GR6

Section 6-02.4 is supplemented with the following:

6-02.4.OPT1.FB6

(September 8, 2020)

*** $$1$$ *** contains the following approximate quantities of materials and work:

*** $$2$$ ***

The quantities are listed only for the convenience of the Contractor in determining the volume of work involved and are not guaranteed to be accurate. The prospective bidders shall verify these quantities before submitting a bid. No adjustments other than for accepted changes will be made in the lump sum Contract price for *** $$3$$ *** even though the actual quantities required may deviate from those listed.

6-02.4.OPT3.FB6

(September 8, 2020)

"Modular Expansion Joint System___" contains the following approximate quantities of materials and work:

*** $$1$$ ***

The quantities are listed only for the convenience of the Contractor in determining the volume of work involved and are not guaranteed to be accurate. The prospective bidders shall verify these quantities before submitting a bid. No adjustments other than for accepted changes will be made in the applicable modular expansion joint system lump sum Contract price for "Modular Expansion Joint System___" even though the actual quantities required may deviate from those listed.

6-02.4.OPT8.FB6

(September 8, 2020)

Expansion joint modification contains the following approximate quantities of materials and work:

*** $$1$$ ***

The quantities are listed only for the convenience of the Contractor in determining the volume of work involved and are not guaranteed to be accurate. The prospective bidders shall verify these quantities before submitting a bid. No adjustments other than for accepted changes will be made in the lump sum Contract price for "Expansion Joint Modification___" even though the actual quantities required may deviate from those listed.

6-02.4.OPT24.GB6

(August 6, 2012)

Epoxy crack sealing will be measured by the linear foot along the sealed crack at the concrete surface.

6-02.4.OPT26.GB6

(June 26, 2000)

Modify bridge drain will be measured per each for each bridge drain modified.

6-02.4.OPT27.GB6

(June 26, 2000)

Plugging existing bridge drain will be measured per each for each bridge drain plugged.

6-02.4.OPT32.GB6

(April 6, 2015)

Core drilled bridge deck drain will be measured per each for each bridge deck drain core drilled and completed with a PVC pipe sleeve.

6-02.4.OPT43.GB6

(April 6, 2015)

Longitudinal seismic restrainer will be measured per each.

6-02.4.OPT44.FB6

(September 8, 2020)

Seismic retrofit contains the following approximate quantities of materials and work:

*** $$1$$ ***

The quantities are listed only for the convenience of the Contractor in determining the volume of work involved and are not guaranteed to be accurate. The prospective bidders shall verify these quantities before submitting a bid. No adjustments other than for

accepted changes will be made in the lump sum Contract price for “Seismic Retrofit - _____” even though the actual quantities required may deviate from those listed.

6-02.4.OPT45.FB6

(September 8, 2020)

Column jacketing contains the following approximate quantities of materials and work:

*** $$1$$ ***

The quantities are listed only for the convenience of the Contractor in determining the volume of work involved and are not guaranteed to be accurate. The prospective bidders shall verify these quantities before submitting a bid. No adjustments other than for accepted hanges will be made in the lump sum Contract price for “Column Jacketing - _____” even though the actual quantities required may deviate from those listed.

6-02.5.GR6

Payment

6-02.5.INST3.GR6

The fifth and sixth bid items under Section 6-02.5 are supplemented with the following:

6-02.5.OPT20.GB6

(April 6, 2015)

The contract quantity specified for “Steel Reinf. Bar for Bridge” includes the quantity for the epoxy-coated steel reinforcing bars located in the substructure of the bridge(s) included in this project.

6-02.5.INST4.GR6

Section 6-02.5 is supplemented with the following:

6-02.5.OPT26.FB6

(August 2, 2010)

“Bridge Deck - _____”, lump sum.

The lump sum contract price for “Bridge Deck - _____” shall be full pay for constructing the reinforced concrete portions of the steel bridge superstructure, including *** $$1$$ ***.

6-02.5.OPT33.GB6

(April 6, 2015)

“Expansion Joint Modification ___”, lump sum.

6-02.5.OPT49.GB6

(August 1, 2011)

“Epoxy Crack Sealing”, per linear foot.

Payment for taking and submitting cores to the Engineer for testing, as specified by the Engineer, will be by force account in accordance with Section 1-09.6. For the purpose of providing a common Proposal for all Bidders, the Contracting Agency has entered an amount for the item “Force Account Epoxy Crack Sealing Cores” in the bid proposal to become a part of the total bid by the Contractor.

6-02.5.OPT51.GB6
(June 26, 2000)
"Modify Bridge Drain", per each.

6-02.5.OPT52.GB6
(June 26, 2000)
"Plugging Existing Bridge Drain", per each.

6-02.5.OPT53.FB6
(June 26, 2000)
All costs in connection with *** $$1$$ *** bridge drains as specified shall be included in the unit contract price per square yard for *** $$2$$ ***.

6-02.5.OPT58.GB6
(April 6, 2015)
"Core Drilled Bridge Deck Drain", per each.

6-02.5.OPT59.FB6
(April 6, 2015)
All costs in connection with constructing the core drilled bridge deck drains as specified shall be included in the ***$$1$$***.

6-02.5.OPT71.GB6
(April 6, 2015)
"Longitudinal Seismic Restrainer", per each.

6-02.5.OPT72.GB6
(April 6, 2015)
"Seismic Retrofit - _____", lump sum.

6-02.5.OPT73.GB6
(April 6, 2015)
"Column Jacketing - _____", lump sum.

6-02.5.OPT91.FB6
(June 26, 2000)
Bridge and Structures Minor Items
For the purpose of payment, such bridge and structures items as *** $$1$$ *** etc., for which there is no pay item included in the proposal, are considered as bridge and structures minor items. All costs in connection with furnishing and installing these bridge and structures minor items as shown and noted in the Plans and as outlined in these specifications and in the Standard Specifications shall be included in the *** $$2$$ ***

6-02.5.OPT92.FB6
(June 26, 2000)
Bridge Supported Utilities
All costs in connection with placing *** $$1$$ *** through the superstructure of *** $$2$$ *** as shown in the Plans, including all *** $$3$$ ***, shall be included in the *** $$4$$. ***

6-02.5.OPT93.GB6
(June 26, 2000)

No additional compensation will be made by reason of any delay or other expense to the Contractor caused by coordination with the utility company or by installing utility company furnished items. However, any unavoidable delays to the Contractor caused by coordination with the utility company or resulting from installing utility company furnished items will be adjusted in accordance with Section 1-08.8.

6-03.GR6
Steel Structures

6-03.3.GR6
Construction Requirements

6-03.3(7).GR6
Shop Plans

6-03.3(7)A.GR6
Erection Methods

6-03.3(7)A.INST1.GR6
The list in the second paragraph of Section 6-03.3(7)A is supplemented with the following:

6-03.3(7)A.OPT1.GB6
(April 6, 2015)

8. If the Contractor selects a girder launching method as the erection procedure, the Contractor shall submit plan details of the nose beam, roller assemblies, jacks, blocking, tow lines and control lines, and shall prepare an erection procedure that describes the method and equipment involved in the launching procedure, the elevation and alignment control and corrective measures enforced during the launching process, the methods of monitoring and adjusting the tow line and control line loads during the launching process, and the spare jacks, tow lines, control lines, and other critical field erection equipment provided to ensure a continuous and safe operations.

6-03.3(7)A.OPT2.GB6
(April 6, 2015)

8. The method and equipment used to drill holes, and ream existing rivet holes following rivet removal, through and in the existing gusset plates and steel members.

6-03.3(25).GR6
Welding and Repair Welding

6-03.3(25).INST1.GR6
Section 6-03.3(25) is supplemented with the following:

6-03.3(25).OPT2.GB6
(April 6, 2015)
Electroslag Welding - Narrow Gap (ESW-NG) Procedure
The ESW-NG procedure may be used for groove welds in bridge members and member components up to four inches thick subject to the following requirements:

Qualification Testing

Unless the Contractor submits previously performed qualification testing documents, the Contractor shall provide the opportunity for Contracting Agency representatives to witness all qualification testing.

HAZ Specimens, Type and Number of Tests for ESW-NG

For all compression members including ESW-NG of compression members, CVN testing of the HAZ is not required. However, for welds deposited by ESW-NG on tension and reversal members, additional CVN tests of the HAZ shall be performed to qualify the process. The CVN tests for the HAZ shall be the following:

1. Five specimens shall be removed from the quarter-thickness section of the HAZ on each side of the procedure qualification welded joint in accordance with the ESW-NG Tension Member CVN Test Plate Detail as shown in the Plans.

2. The weld fusion line shall be revealed by etching the transverse-to-weld section.

3. The notch location shall be in the base metal within 1/16 inch from the weld fusion line. If the weld curvature does not permit the entire notch to be placed within 1/16 inch from the fusion line, then one end of the notch shall be placed on the fusion line while the remaining portion of the notch extends away from the fusion line into the base metal.

If different grades of steel such as 36 and 50 or 50 and 50W are joined by ESW-NG, the procedure qualification tests shall be conducted on the same two grades of steel. If transition joints between thick and thin members are made, the WPS shall be conducted on the same joint preparation (having the same thicknesses and joint transition slope). The heat affected zone CVN toughness specimens shall be extracted from both sides of the transition joint.

Test Results Required for ESW-NG

HAZ

For CVN toughness determination in welds carrying applied tensile stress, five specimens taken at the quarter-thickness location on both sides of the ESW-NG weld shall be tested. The highest and lowest values shall be discarded. The test is successful if the following criteria are achieved for the three remaining tests:

1. The average CVN toughness shall be a minimum of 15 foot-pounds at 40F.

2. No more than one specimen shall have a CVN toughness less than 15 foot-pounds at 40F.

3. No specimen shall have a CVN toughness value below 10 foot-pounds at 40F.

6-03.3(27).GR6

High Strength Bolt Holes

6-03.3(27)B.GR6

Reamed and Drilled Holes

6-03.3(27)B.INST1.GR6

The second sentence of the first paragraph of Section 6-03.3(27)B is revised to read:

6-03.3(27)B.OPT1.FB6

(September 8, 2020)

Reamers and drills shall be directed mechanically, non hand-held, except as otherwise noted. The Contractor may ream and drill holes through *** $$1$$ *** of Bridge No(s) *** $$2$$ *** using hand-held reamers and drills, provided that the method and equipment used conforms to the erection plan as accepted by the Engineer in accordance with Section 6-03.3(7)A as supplemented in these Special Provisions. Unless otherwise shown in the Plans, all holes reamed and drilled for bolted connections with existing gusset plates and steel members shall be 1/16 inch larger than the bolt diameter specified in the Plans for the connection.

6-03.3(28).GR6

Shop Assembly

6-03.3(28)A.GR6

Method of Shop Assembly

6-03.3(28)A.INST1.GR6

Section 6-03.3(28)A is supplemented with the following:

6-03.3(28)A.OPT1.GB6

(August 5, 2013)

The girders shall also be shop assembled either completely or progressively in the transverse direction. The transverse shop assembly shall consist of a minimum of two adjacent girders, with pier diaphragms, intermediate diaphragms and cross bracing, and temporary bracing between girders at the end of the shop assembly (longitudinally). Staging of the transverse shop assembly shall proceed along with the longitudinal shop assembly. Each next stage of the transverse shop assembly shall be assembled to one of the previous transverse shop assemblies, repositioned if necessary, and pinned to ensure accurate alignment. Unless otherwise specified, the girders shall be blocked or supported in the no-load position.

After acceptance of the shop assembly by the Engineer, pier diaphragms, intermediate diaphragms and cross bracing utilized in the transverse shop assembly shall be removed from the girders and shipped to the bridge construction site each as individual units. Shop bolted connections in the diaphragms and cross bracing shall be completed and fully tightened to the minimum tension specified during the shop assembly. Fully tightened connections shall be inspected prior to shipping.

6-03.3(28)B.GR6

Check of Shop Assembly

6-03.3(28)B.INST1.GR6

Section 6-03.3(28)B is supplemented with the following:

6-03.3(28)B.OPT1.GB6

(August 3, 2015)

If an assembly or stage of assembly is not accepted by the Engineer, deficiencies shall be corrected and the assembly or stage of assembly shall be resubmitted to the Engineer for acceptance.

6-03.3(30).GR6

Painting

6-03.3(30).INST1.GR6

Section 6-03.3(30) is supplemented with the following:

6-03.3(30).OPT1.FB6

(August 3, 2009)

Paint for the new steel shall be applied in accordance with Section 6-07.3(9). The color of the top coat, when dry, shall match *** $$1$$ ***.

6-03.3(30).OPT6.FB6

(April 6, 2015)

The Contractor shall paint all galvanized structural steel components of the following specified items in accordance with Section 6-07.3(11):

*** $$1$$ ***

The color of the top coat, when dry, shall match *** $$2$$ ***.

6-03.3(38).GR6

Placing Superstructure

6-03.3(38).INST1.GR6

Section 6-03.3(38) is supplemented with the following:

6-03.3(38).OPT1.GB6

(August 3, 2015)

All concrete located below the permanent location of the steel girders shall be completely covered to protect the concrete from staining from rusty water.

The Contractor shall submit a Type 2 Working Drawing consisting of a concrete surface protection plan. The submittal shall include, but not be limited to, describing all material components of the surface protection system, including material specifications and thicknesses of all components, dimensions of all sub-units and details of how the sub-units are assembled to create the combined system, the method of installing the system, including all means of fastening the system to or holding the system against the concrete surfaces, the methods of maintaining the system in place during superstructure construction, and the methods of repairing damage to the system during superstructure construction.

Removal of the concrete surface protection system will be performed by Contracting Agency forces at a later date.

6-03.3(39).GR6

Swinging the Span

6-03.3(39).INST1.GR6

Section 6-03.3(39) is supplemented with the following:

6-03.3(39).OPT1.GB6

(June 26, 2000)

The Contractor shall measure and submit to the Engineer camber values at the points indicated in the Plans at each of the following times:

1. After the spans are swung.

2. After roadway slab placement.

6-03.4.GR6

Measurement

6-03.4.INST1.GR6

Section 6-03.4 is supplemented with the following:

6-03.4.OPT1.FB6

(August 6, 2007)

Structural low alloy steel contains the following approximate steel quantities:

Bridge	**Quantity**
*** $$1$$ ***	*** $$2$$ ***

6-03.5.GR6

Payment

6-03.5.INST1.GR6

The second bid item under Section 6-03.5 is supplemented with the following:

6-03.5.OPT1.GB6

(August 6, 2007)

All costs in connection with furnishing and installing steel girder pipe railing as shown in the Plans shall be included in the lump sum Contract price for “Structural Low Alloy Steel”.

6-03.5.INST2.GR6

Section 6-03.5 is supplemented with the following:

6-03.5.OPT7.FB6

(June 26, 2000)

All costs in connection with furnishing, installing, and maintaining the concrete surface protection system as specified shall be included in the *** $$1$$ ***.

6-04.GR6
Timber Structures

6-04.3.GR6
Construction Requirements

6-04.3(1).GR6
Storing and Handling Material

6-04.3(1).INST1.GR6
Section 6-04.3(1) is supplemented with the following:

6-04.3(1).OPT1.GB6
(March 6, 2000)
The Contractor shall provide and maintain a water pump or pumps, and associated equipment adequate for use in fire control, on the project at all times. This requirement does not relieve the Contractor of responsibility as specified in Section 1-07.14.

6-04.3(1).OPT2.GB6
(January 2, 2018)
After removing the existing timber deck and prior to installing the replacement timber deck, the Contractor shall clean the top contact surfaces of the supporting timber and steel stringers and floorbeams. After cleaning, the top contact surfaces shall be prepared as follows:

Steel Supporting Members
The top flanges of the steel stringers and floor beams shall be uniformly covered with a heavy coat of hot asphalt binder (Grade PG 58-22 or Grade PG 64-22 for Western Washington (west of the Cascade Mountain Crest), and Grade PG 64-28 for Eastern Washington (east of the Cascade Mountain Crest)) conforming to Section 9-02.1(4).

Timber Supporting Members
The Contractor shall furnish and install asphalt roofing felt over the top contact surface of all timber stringers, bridging, and blocking. The asphalt roofing felt shall be attached to the timber with 7/8 inch long galvanized roofing nails spaced at 2'-0" centers, unless otherwise shown in the Plans. The asphalt roofing felt shall weigh at least 65 pounds per one-hundred square feet and extend at least 2 inches on each side of the member being covered.

6-04.5.GR6
Payment

6-04.5.INST1.GR6
Section 6-04.5 is supplemented with the following:

6-04.5.OPT1.FB6
(March 6, 2000)
All costs in connection with providing and maintaining fire control equipment at the construction and material storage site as specified shall be included in the *** $$1$$ ***.

6-04.5.OPT2.FB6

(March 6, 2000)

All costs in connection with cleaning and preparing the top contact surfaces of the supporting timber and steel members as specified prior to redecking shall be included in the *** $$1$$ ***.

6-05.GR6

Piling

6-05.2.GR6

Materials

6-05.2.INST1.GR6

Section 6-05.2 is supplemented with the following:

6-05.2.OPT1.GB6

(April 6, 2015)

Micropiles

Materials for micropiles shall consist of the following:

Admixtures for grout shall conform to Section 9-23.6. Admixtures that control bleed, improve flowability, reduce water content, and retard set may be used in the grout, subject to the review and acceptance of the Engineer. Admixtures shall be compatible with the grout and mixed in accordance with the manufacturer's recommendations. Accelerators are not permitted. Admixtures containing chlorides are not permitted.

All cement shall be Portland cement conforming to Section 9-01.2(1).

Centralizers and spacers shall be fabricated from schedule 40 PVC pipe or tube, steel. Wood shall not be used. Centralizers and spacers shall be securely attached to the reinforcement; sized to position the reinforcement within 3/8 inch of plan location from center of micropile; sized to allow grout tremie pipe insertion to the bottom of the drillhole; and sized to allow grout.to freely flow up the drillhole and casing and between adjacent reinforcing bars.

Encapsulation (double corrosion protection) shall be shop fabricated using high-density, corrugated polyethylene tubing conforming to the requirements of AASHTO M 252 with a nominal wall thickness of 1/32 inch. The inside annulus between the reinforcing bars and the encapsulating tube shall be a minimum of 1/4 inch and be fully grouted with grout as defined below.

Epoxy coating shall conform to Section 9-07.3. Bearing plates and nuts encased in the micropile concrete footing need not be epoxy coated.

Fine aggregate for sand-cement grout shall be sand conforming to AASHTO M 45.

Grout shall be a neat cement or sand/cement mixture with a minimum seven day compressive strength of 4,000 psi in accordance with Section 9-20.3(4).

Steel pipe casing for micropiles shall have the diameter and at least the minimum wall thickness shown in the Working Drawings. Steel pipe casing shall conform to one of the following:

1. ASTM A 252, Grade 2 or 3. If the casing is to be welded, the carbon equivalency (CE) as defined in AWS D 1.1, Section Xl 5.1, shall not exceed 0.45, and the sulfur content shall not exceed 0.05 percent.

2. API 5L Grade X52 or better.

3. API 5CT Grade N80 or better.

4. Another equivalent steel pipe specification acceptable to the Engineer.

The manufacturer or fabricator of steel piling shall furnish a certificate of compliance in accordance with Section 1-06.3 stating that the piling being supplied conforms to these specifications. The certificate of compliance shall include test reports for tensile and chemical tests. Samples for testing shall be taken from the base metal, steel, coil or from the manufactured or fabricated piling. The certificate of compliance shall be in English units. As an alternative to steel pipe with mill certificate of compliance documentation, new structural grade or mill secondary steel pipe may be furnished for micropile casing without certified mill test reports under the following conditions:

1. The steel pipe shall meet or exceed the mechanical requirements of API 5L Grade X52 or better or API 5CT Grade N80 or better.

2. The CE shall not exceed 0.45 and the sulfur content shall not exceed 0.05 percent, if welding of the casing is required.

3. Two unique coupon tests with reports, conforming to ASTM A 370, including Annex A2, shall be provided for each truckload of pipe supplied.

4. The pipe shall be free of defects (dents, cracks, and tears).

The alternate testing for non-mill certified steel pipe is not permitted if domestic steel is required for the project.

Welded circumferential joints in pipe shall develop the strength of the pipe section. Threaded pipe joints shall develop at least the nominal resistance used in the design of the micropile.

Structural steel plates and shapes for micropile top attachments shall conform to either ASTM A 36 or ASTM A 572 Grade 50.

Reinforcing steel shall be deformed bars in accordance with Sections 9-07.4 or 9-07.11. When a bearing plate and nut are required to be threaded onto the top end of reinforcing bars for the micropile top to footing anchorage, the threading may be continuous spiral deformed ribbing provided by the bar deformations or may be cut into a reinforcing bar. If threads are cut into a reinforcing bar, the next larger bar number designation from that shown on the Plans shall be provided, at no additional cost to the Contracting Agency. Reinforcing bars for micropiles shall be epoxy coated in accordance with Section 6-02.3(24)H and 9-07.3.

Bar tendon couplers, if required, shall develop the ultimate tensile strength of the bars.

6-05.3.GR6

Construction Requirements

6-05.3.INST1.GR6

Section 6-05.3 is supplemented with the following:

6-05.3.OPT1.FB6

(October 3, 2022)

Micropiles

General Requirements

The Contractor is responsible for the design, installation and testing of micropiles and micropile top attachments for this project. The Contractor shall select the micropile type, size, micropile top attachment, installation means and methods, shall estimate the ground-to-grout bond value, and shall determine the required grout bond length and final micropile diameter. The Contractor shall design and install micropiles that will develop the load capacities specified in the Plans. The micropile load capacities shall be verified by verification and proof load testing, and shall meet the test acceptance criteria specified in this Special Provision.

Contractor's Experience Requirements and Submittal

The micropile Contractor shall be experienced in the construction and load testing of micropiles and have successfully constructed at least three projects in the last five years involving construction totaling at least 50 micropiles of equal or greater capacity than required for this project. The Contractor shall submit construction details, structural details and load test results for at least three previous successful micropile load tests from different projects of similar scope to this project.

The micropile Contractor shall design the micropile system. The micropile system shall be designed by a Professional Engineer, licensed under Title 18 RCW State of Washington, with experience in the design and construction of at least three successfully completed micropile projects over the past five years, with micropiles of equal or greater capacity than required in these plans and specifications. The on-site foremen and drill rig operators shall also have experience on at least three projects over the past five years installing micropiles of equal or greater capacity than required for this project.

The Contractor shall submit a Type 2 Working Drawing consisting of the completed project reference list, including a brief project description with the owner's name and current phone numbers. This Working Drawing submittal shall also include a personnel list for the micropile system designer, supervising Engineer, drill rig operators and on-site foremen to be assigned to the project. The personnel list shall contain a summary of each individual's experience and be complete enough for the Engineer to determine whether each individual satisfies the required qualifications.

Definitions

Alignment Load (AL): A minimum initial load (5 percent FDL) applied to micropile during testing to keep the testing equipment correctly positioned.

Factored Design Load (FDL): The factored design load expected to be applied to the micropile. The factored design load (FDL) is as specified in the bridge Plans.

Maximum Test Load: The maximum load to which the micropile is subjected during testing. The load shall be 1.5 *x* FDL for verification load tests and 1.0 *x* FDL for proof load tests.

Proof Load Test: Incremental loading of a production micropile, recording the total movement at each increment.

Verification Load Test: Non-production micropile load test performed to verify the design of the micropile system and the construction methods proposed, prior to installation of production micropiles.

Micropile Design Requirements

The micropiles shall be designed to meet the specified loading conditions, as shown in the Plans. The Contractor shall design the micropiles, and the micropile top to footing connections using the Load and Resistance Factor Design (LRFD) method.

Steel pipe used for micropile permanent casing shall incorporate an additional 1/16 inch thickness of sacrificial steel for corrosion protection. Where required as shown in the Plans, corrosion protection of the internal steel reinforcing bars, consisting of encapsulation (double corrosion protection), epoxy coating, or grout, shall be provided in accordance with Section 6-05.2 as supplemented in these Special Provisions. Where permanent casing is used for a portion of the micropile, encapsulation shall extend at least five feet into the casing.

Micropile Design Submittals

The Contractor shall submit Type 3E Working Drawings consisting of complete design calculations and working drawings with all details, dimensions, quantities, ground profiles, and cross-sections necessary to construct the micropile structure. The Contractor shall verify the limits of the micropile structure and ground survey data before preparing the detailed working drawings.

Design Calculations

Design calculations shall include the following items:

1. A written summary report which describes the overall micropile design and its compatibility with the anticipated subsurface conditions as described by the contract test hole boring logs, the Summary of Geotechnical Conditions provided in the Appendix to the Special Provisions, and the geotechnical report(s) prepared for this project.

2. Applicable code requirements and design references.

3. Micropile structure critical design cross-section(s) geometry including soil strata and piezometric levels and location, magnitude and direction of design applied loadings, including slope or external surcharge loads.

4. Design criteria including, soil shear strengths (friction angle and cohesion), unit weights, and ground-to-grout bond values and micropile drillhole diameter assumptions for each soil strata.

5. Load and resistance factors (for Load and Resistance Factor Design) used in the design of the ground-to-grout bond values, the ground-to-grout bond

length, surcharges, soil/rock and material unit weights, steel, grout, and concrete materials.

The bond zone for micropiles shall be below the following elevations:

*** $$1$$ ***

6. Design calculation sheets with the project number, micropile structure location, designation, date of preparation, initials of designer and checker, and page number at the top of each page. An index page shall be included with the design calculations.

7. Design notes including an explanation of any symbols and computer programs used in the design.

8. Other design calculations as required.

Working Drawings

The Contractor shall submit Type 3E Working Drawings.

The working drawings shall include all information required for the construction and quality control of the piling. Working drawings shall include the following items:

1. A plan view of the micropile structure identifying:

    a. A reference baseline and elevation datum.

    b. The offset from the construction centerline or baseline to the face of the micropile structure at all changes in horizontal alignment.

    c. Beginning and end of micropile structure stations.

    d. Right-of-way and permanent or temporary construction easement limits, location of all known active and abandoned existing utilities, adjacent structures or other potential interference. The centerline of any drainage structure or drainage pipe behind, passing through, or passing under the micropile structure.

    e. Subsurface exploration locations shown on a plan view of the proposed micropile structure alignment with appropriate reference base lines to fix the locations of the explorations relative to the micropile structure.

2. An elevation view of the micropile structure(s) identifying:

    a. Elevation view showing micropile locations and elevations; vertical and horizontal spacing; batter and alignment and the location of drainage elements (if applicable).

    b. Existing and finish grade profiles both behind and in front of the micropile structure.

3. Design parameters and applicable codes.

4. General notes for constructing the micropile structure including the overall construction sequence, micropile installation sequence, means and methods to prevent damage to existing adjacent piles and micropiles, installation tolerances, and other special construction requirements.

5. Start date and time schedule and micropile installation schedule providing the following:

    Micropile number
    Micropile Factored Design Load
    Type and size of reinforcing steel
    Type and size of steel casing
    Minimum total bond length
    Total micropile length
    Micropile top attachment

6. Micropile structure typical sections including micropile spacing and inclination; minimum drill hole diameter; pipe casing and reinforcing bar sizes and details; splice types and locations; centralizers and spacers; grout bond zone and casing plunge lengths and corrosion protection details; and connection details to the substructure footing, anchorage, plates, etc.

7. A typical detail of verification and production proof test micropiles defining the micropile length, minimum drill hole diameter, inclination, and load test bonded and unbonded test lengths.

8. Details, dimensions, and schedules for all micropiles, casing and reinforcing steel, including reinforcing bar bending details.

9. Details and dimensions for micropile structure appurtenances such as barriers, coping, drainage gutters, fences, etc. (if applicable).

10. Details for constructing micropile structures around drainage facilities (if applicable).

11. Details for terminating micropile structures and adjacent slope construction (if applicable).

When plan dimensions are changed due to field conditions or for other reasons, the Contractor shall submit revised Type 3E Working Drawings, including supporting design calculations. Within 30 days after completion of the work, the Contractor shall submit as-built drawings to the Engineer, conforming to the requirements specified for Type 3E Working Drawings in Section 1-05.3.

Construction Submittals

The Contractor shall submit Type 2E Working Drawings consisting of the following for the micropile system or systems to be constructed:

1. Discussion of how the Contractor's construction methods accommodate and are compatible with the anticipated subsurface conditions as described

in the contract test hole boring logs, the Summary of Geotechnical Conditions provided in the Appendix to the Special Provisions, and the geotechnical report(s) prepared for this project.

2. If welding of casing is proposed, the Contractor shall submit the proposed welding procedure in accordance with Section 6-03.3(25).

3. Manufacturer's information, model, size, and type of equipment to be used for installing micropiles, with appropriate manufacturer's literature for review. Include detailed description of the drilling equipment and methods proposed to be used to provide drillhole support and prevent detrimental ground movements.

4. Information on headroom and space requirements for installation equipment that verify the proposed equipment can perform at the site. Plan describing how surface water, drill flush, and excess waste grout will be controlled, contained, collected, and disposed of.

5. Certified mill test reports for the reinforcing steel and certified mill test reports or independent test reports for non-mill certified steel casing used in micropile installation. The ultimate strength, yield strength, elongation, and material properties composition shall be included.

6. Grouting Plan. The plan shall include complete descriptions, details, and supporting calculations for the following:

    a. Grout mix design and type of materials to be used in the grout including certified test data and trial batch reports.

    b. Grouting equipment, including capacity and relation to the grouting demand and working conditions as well as provisions for back-up equipment and spare parts.

    c. Types and sizes of grout hoses, connections, and grout delivery systems.

    d. Methods and equipment for placing, positioning, and supporting the steel pipe casing and reinforcing bars. Centralizers and spacers shall permit the free flow of grout without misalignment of the reinforcing bar(s) and permanent casing.

    e. Methods and equipment for accurately monitoring and recording the grout depth, grout volume and grout pressure as the grout is being placed. The Contractor shall estimate the grout take. There will be no extra payment for grout overruns.

    f. Procedures and schedules for grout batching, mixing, and pumping including provisions for handling drilling fluid and for post grouting.

    g. Grouting rate calculations, when requested by the Engineer. The calculations shall be based on the initial pump pressures or static

head on the grout and losses throughout the placing system, including anticipated head of drilling fluid to be displaced.

h. Contingency procedures for handling blockage of ducts or equipment breakdowns.

i. Estimated curing time for grout to achieve specified strength. During production, grout shall be tested in accordance with the **Grout Testing** subsection of this Special Provision.

j. Procedure and equipment for Contractor monitoring of grout quality.

7. Detailed plans for the proposed micropile load testing method. This shall include all drawings, details, and structural design calculations necessary to describe the proposed test method, reaction load system capacity and equipment setup, types and accuracy of apparatus to be used for applying and measuring the test loads and micropile top movements in accordance with the **Micropile Load Tests** subsection of this Special Provision.

8. Calibration reports and data for each test jack, pressure gauge and master pressure gauge and electronic load cell to be used. The calibration tests shall have been performed by an independent testing laboratory within 90 calendar days of the date submitted.

9. Discussion of the Contractor's contingency plan if a verification load test or a proof load test fails.

Pre-construction Meeting

A pre-construction meeting will be scheduled by the Engineer and held prior to the start of micropile construction. The prime Contractor, micropile specialty Contractor, and excavation Contractor shall attend the meeting. The pre-construction meeting will be conducted to clarify the construction requirements for the work, to coordinate the construction schedule and activities, and to identify contractual relationships and delineation of responsibilities amongst the prime Contractor and the various subcontractors - specifically those pertaining to excavation for micropile structures, anticipated subsurface conditions, micropile installation and testing, micropile structure survey control and site drainage control.

Site Drainage Control

The Contractor shall control and properly dispose of drill flush and construction related waste, including excess grout, in accordance with Section 1-07.5(3) as supplemented in these Special Provisions and all applicable local codes and regulations. The Contractor shall provide positive control and discharge of all surface water that will affect construction of the micropile installation. The Contractor shall maintain all pipes or conduits used to control surface water during construction. The Contractor shall repair damage caused by surface water in accordance with Section 1-07.13. Upon substantial completion of the work, the Contractor shall remove surface water control pipes or conduits from the site. Alternatively, with the concurrence of the Engineer, pipes or conduits that are left in place may be fully grouted and abandoned or left in a way that protects the structure and all adjacent facilities from migration of fines through the pipe or conduit and potential ground loss.

Excavation

The Contractor shall coordinate the work and the excavation so the micropile structures are safely constructed. The Contractor shall perform the micropile construction and related excavation in accordance with the Plans and approved submittals.

Micropile Allowable Construction Tolerances

The centerline of piling shall not be more than 3 inches from indicated plan location.

The pile-hole alignment of vertical micropiles shall be plumb within 2 percent of total-length plan alignment. The pile-hole alignment of micropiles inclined up to 1:6 shall be within 4-percent of plan alignment. The pile-hole alignment of micropiles inclined greater than 1:6 shall be within 7-percent of plan alignment.

The top elevation of micropile shall be ± 1 inch maximum from vertical elevation indicated.

The centerline of reinforcing steel shall not be more than 1/2 inch from indicated location.

Drilling

The drilling equipment and methods shall be suitable for drilling through the conditions to be encountered, without causing damage to any overlying or adjacent structures or services. The drill hole shall be open along its full length to at least the design minimum drill hole diameter prior to placing grout and reinforcement. Temporary casing or other approved method of micropile drill hole support will be required in caving or unstable ground to permit the micropile shaft to be formed to the minimum design drill hole diameter. The Contractor's proposed method(s) to provide drill hole support and to prevent ground movements shall have received the concurrence of the Engineer. Use of drilling fluid containing bentonite is not allowed.

Ground Heave or Subsidence

During construction, the Contractor shall observe the conditions in the vicinity of the micropile construction site on a daily basis for signs of ground heave or subsidence. The Contractor shall immediately notify the Engineer if signs of movements are observed. The Contractor shall immediately suspend or modify drilling or grouting operations if ground heave or subsidence is observed, if the micropile structure is adversely affected, or if adjacent structures are damaged from the drilling or grouting. If the Engineer determines that the movements require corrective action, the Contractor shall take corrective actions necessary to stop the movement or perform repairs.

When due to the Contractor's methods or operations or failure to follow the specified/approved construction sequence, the costs of providing corrective actions will be borne by the Contractor in accordance with Section 1-07.13.

Pipe Casing and Reinforcing Bars Placement and Splicing

Reinforcement may be placed either prior to grouting or placed into the grout-filled drill hole before temporary casing (if used) is withdrawn. Reinforcement surface shall be free of deleterious substances such as soil, mud, grease or oil. Micropile cages and reinforcement groups, if used, shall be sufficiently robust to withstand the installation and grouting process and the withdrawal of the drill casings without

damage or disturbance. Grout shall provide one inch minimum cover over bare or epoxy coated bars (1/4-inch on bar couplers) or 1/2 inch minimum cover over the encapsulation of encapsulated bars.

The Contractor shall check micropile top elevations and adjust all installed micropiles to the planned elevations.

Permanent casing, if specified, shall be installed to the minimum tip elevations shown in the Plans.

Centralizers and spacers shall be provided at 10 feet centers maximum spacing. The upper and lower most centralizer shall be located a maximum of 5 feet from the top and bottom of the micropile. The central reinforcement bars with centralizers shall be lowered into the stabilized drill hole and set. The reinforcing steel shall be inserted into the drill hole to the desired depth. Bars shall not be driven or forced into the hole. The Contractor shall re-drill and reinsert reinforcing steel when necessary to facilitate insertion.

Lengths of casing and reinforcing bars to be spliced shall be secured in proper alignment and in a manner to avoid eccentricity or angle between the axes of the two lengths to be spliced. Splices and threaded joints shall meet the requirements of Section 6-05.2 as supplemented in these Special Provisions. Threaded pipe casing joints shall be located at least two casing diameters (OD) from a splice in any reinforcing bar. When multiple bars are used, bar splices shall be staggered at least one foot.

Grouting

Micropiles shall be primary grouted the same day the load transfer bond length is drilled. The Contractor shall complete the load transfer bond length drilling and primary grouting of a micropile before beginning work on another micropile in the same footing or pile cap.

Prior to grouting, the drill hole shall be flushed with water and/or air to remove drill cuttings.

The grouting equipment shall be colloidal mixers only and shall produce a grout free of lumps and undispersed cement. Contractor shall have means and methods of measuring the grout quantity and pumping pressure during the grouting operations. The grout pump shall be equipped with a pressure gauge to monitor grout pressures. A second pressure gauge shall be placed at the point of injection into the micropile top. The pressure gauges shall be capable of measuring pressures of 150 psi or twice the actual grout pressures used, whichever is greater. The grout shall be kept in agitation prior to mixing. Grout shall be placed within one hour of mixing. The grouting equipment shall be sized to enable each micropile to be grouted in one continuous operation.

The grout shall be injected from the lowest point of the drill hole and injection shall continue until uncontaminated grout flows from the top of the micropile. The grout may be pumped through grout tubes, casing, hollow-stem augers, or drill rods. Temporary casing, if used, shall be extracted in stages ensuring that after each length of casing is removed the grout level is brought back up to the ground level before the next length is removed. Additional grout shall be placed by the use of a tremie pipe

at all times. The tremie pipe shall always extend below the level of the existing grout in the drill hole. The grout pressures and grout takes shall be controlled to prevent excessive heave or fracturing of rock or soil formations. Upon completion of grouting, the grout tube may remain in the hole, but must be filled with grout.

If the Contractor elects to use a postgrouting system, working drawings and details shall be submitted to the Engineer for review in accordance with the **Construction Submittals** subsection of this Special Provision.

Grout Testing

Grout within the micropile verification and proof test micropiles shall attain the minimum specified seven day design compressive strength prior to load testing. During placement of initial verification micropiles, proof test micropiles, and production micropiles, micropile grout will be sampled and tested by the Engineer for compressive strength in accordance with WSDOT Test Method 813 and AASHTO T 106 at a frequency of no less than one set of three 2 inch grout cubes from each grout plant each day of operation or per every 10 micropiles, whichever occurs more frequently. The compressive strength will be the average of the 3 cubes tested. The Contractor is responsible for sampling and testing additional grout cubes as necessary for early breaks prior to verification and proof testing.

If a compressive strength test fails, the Engineer may require the Contractor to proof test some or all of the production micropiles installed since the last grout batch that met the specified compressive strength.

Grout consistency, as measured by grout density, shall be tested by the Contractor just prior to the start of micropile grouting in accordance with API RP-13B-1 at a frequency of at least one test per micropile. For the grout to be approved for use, the specific gravity reported by the test shall be between 1.8 and 1.9. The Contractor's grout consistency test equipment shall be calibrated by an independent testing laboratory. The Contractor shall not use test equipment greater than 180-calendar days past the most recent calibration date, until such equipment is recalibrated by an independent testing laboratory.

Micropile Installation Records

The Contractor shall prepare and submit Type 1 Working Drawings consisting of full-length installation records for each micropile installed, including all grout volumes, pressures, and installation methods used. The records shall be submitted no later than the end of each work week and within 24 hours after all micropile installation is completed. The data shall be recorded in the micropile installation log. A separate log shall be provided for each micropile.

Micropile Load Tests

The Contractor shall perform verification and proof testing of micropiles at the locations specified in this Special Provision, the Plans or as otherwise specified by the Engineer. Tests shall be performed using a tension load test in accordance with ASTM D 3689 or a compression load test in accordance with ASTM D 1143, except as modified by this Special Provision.

Completed production micropiles may be used as part of the reaction frame for proof load testing. No reaction bearing elements of the load test frame for verification and proof load testing of micropiles shall bear on existing structure elements.

Verification Load Tests

The Contractor shall perform pre-production verification micropile testing to verify the design of the micropile system and the construction methods proposed prior to installing anyproduction micropiles. Sacrificial verification test micropiles shall be constructed in conformance with the Working Drawing submittal. Verification test micropiles shall be installed at the following locations:

*** $$2$$ ***

Verification load tests shall be performed to verify that the Contractor installed micropiles will meet the required compression and tension load capacities and load test acceptance criteria and to verify that the length of the micropile load transfer bond zone is adequate. The Contractor shall submit Type 2 Working Drawings consisting of the micropile verification load test results for the Engineer's acceptance prior to the installation of production micropiles.

The drilling-and-grouting method, casing length and outside diameter, reinforcing bar lengths, reinforcing bar size and strength, and depth of embedment for the verification test micropile(s) shall be identical to those specified for the production micropiles at the given locations. The verification test micropile structural steel sections shall be sized to safely resist the maximum test load.

The jack, bearing plates, and stressing anchorage shall be positioned at the beginning of the test such that unloading and repositioning during the test will not be required.

Testing Equipment and Data Recording

Testing equipment shall include dial gauges, dial gauge support, jack and pressure gauge, electronic load cell, and a reaction frame. The load cell is required only for the creep test portion of the verification test. The Contractor shall provide a description of test setup and jack, pressure gauge and load cell calibration curves in accordance with the **Working Drawings** subsection of this Special Provision. Additionally, the Contractor shall not use test jacks, pressure gauges and master pressure gauges, and electronic load cells greater than 90 calendar days past their most recent calibration date, until such items are recalibrated by an independent testing laboratory.

The Contractor shall design the testing reaction frame to be sufficiently rigid and of adequate dimensions such that excessive deformation of the testing equipment does not occur.

The Contractor shall apply and measure the test load with a hydraulic jack and pressure gauge. The pressure gauge shall be graduated in 75 psi increments or less. The jack and pressure gauge shall have a pressure range of no more than twice the anticipated maximum test pressure. Jack ram travel shall be sufficient to allow the test to be done without resetting the equipment. The Contractor shall monitor the creep test load hold during verification tests with both the pressure gauge and the electronic load cell. The Contractor shall use the load cell to accurately maintain a constant load hold during the creep test load hold increment of the verification test.

The Contractor shall measure the micropile top movement with a dial gauge capable of measuring to 1 mil (0.001 inch). The dial gauge shall have a travel sufficient to allow the test to be done without having to reset the gauge. The Contractor shall visually align the gauge to be parallel with the axis of the micropile and support the gauge independently from the jack, micropile or reaction frame. The Contractor shall use two dial gauges when the test setup requires reaction against the ground or single reaction micropiles on each side of the test micropile.

The required load test data shall be recorded by the Contractor.

Verification Test Loading Schedule

The Contractor shall test the verification micropiles to a maximum test load of 1.5 times the micropile Factored Design Load shown in the Plans. The verification micropile load tests shall be made by incrementally loading the micropile in accordance with the following cyclic load schedule:

AL = Alignment Load FDL = Factored Design Load

LOAD	HOLD TIME
AL	1 minute
0.075 FDL	4 minutes
0.150 FDL	4 minutes
0.225 FDL	4 minutes
0.300 FDL	4 minutes
0.375 FDL	4 minutes
AL	1 minute
0.150 FDL	1 minute
0.300 FDL	1 minute
0.375 FDL	1 minute
0.450 FDL	4 minutes
0.525 FDL	4 minutes
0.600 FDL	4 minutes
0.675 FDL	4 minutes
0.750 FDL	4 minutes
AL	1 minute
0.300 FDL	1 minute
0.600 FDL	1 minute
0.675 FDL	1 minute
0.750 FDL	1 minute
0.825 FDL	4 minutes
0.900 FDL	4 minutes
1.00 FDL	60 minutes
	(Creep Test Load Hold)
AL	1 minute
0.300 FDL	1 minute
0.600 FDL	1 minute
0.900 FDL	1 minute
0.975 FDL	4 minutes
1.050 FDL	4 minutes
1.125 FDL	4 minutes
1.200 FDL	4 minutes
1.275 FDL	4 minutes

1.350 FDL	4 minutes
1.425 FDL	4 minutes
1.500 FDL	4 minutes
	(Maximum Test Load)
1.200 FDL	4 minutes
0.900 FDL	4 minutes
0.600 FDL	4 minutes
0.300 FDL	4 minutes
AL	15 minutes

After the hold time at each load, Micropile top movement shall be measured and recorded. The verification test micropile shall be monitored for creep at the 1.000 Factored Design Load (FDL). Micropile movement during the creep test shall be measured and recorded at 1, 2, 3, 4, 5, 6, 10, 20, 30, 50, and 60 minutes. The alignment load shall not exceed 5 percent of the FDL load. Dial gauges shall be reset to zero after the initial AL is applied.

The acceptance criteria for micropile verification load tests are:

1. The micropile shall sustain the first 1.000 FDL test load with no more than the following total vertical movement at the top of the micropile, relative to the position of the top of the micropile prior to testing.

*** $$3$$ ***

2. At the end of the 1.000 FDL creep test load increment, test micropiles shall have a creep rate not exceeding 0.040 inch/log cycle time (1 to 10 minutes) or 0.080 inch/log cycle time (6 to 60 minutes). The creep rate shall be linear or decreasing throughout the creep load hold period.

3. Failure does not occur at the maximum test load of 1.005 FDL. Failure is defined as a slope of the load versus deflection curve (at end of increment) exceeding 0.025 inches/kips or at which attempts to further increase the test load simply result in continued micropile movement.

The Engineer will provide the Contractor written acceptance or rejection of the verification load tests within five working days.

Verification Test Micropile Rejection

If a verification tested micropile fails to meet the acceptance criteria, the Contractor shall modify the design, the construction procedure, or both, and shall perform another verification test incorporating the revisions. These modifications may include modifying the installation methods, increasing the bond length, or changing the micropile type. Any modification that necessitates changes to the structure will require the Engineer's review and acceptance. Any modifications of design or construction procedures or cost of additional verification test micropiles and load testing shall be at no additional expense to the Contracting Agency. At the completion of verification testing, test micropiles shall be removed down to an elevation two feet below finished ground line, except as otherwise specified in the Plans or by the Engineer.

Proof Load Tests

The Contractor shall proof load test the specified number of production micropiles at locations specified by the Engineer. Additional proof tests will be required if modifications are made in the micropile installation methods subsequent to the first production micropile, or if any of the proof tests fail.

Proof Test Loading Schedule

Proof tests shall be conducted by incrementally loading the micropile in accordance with the following schedule:

AL = Alignment Load FDL = Factored Design Load

LOAD	HOLD TIME
AL	1 minute
0.10 FDL	4 minutes
0.20 FDL	4 minutes
0.30 FDL	4 minutes
0.40 FDL	4 minutes
0.50 FDL	4 minutes
0.60 FDL	4 minutes
0.70 FDL	4 minutes
0.80 FDL	4 minutes
0.90 FDL	4 minutes
1.00 FDL	10 or 60 minutes (Creep Test)
0.75 FDL	4 minutes
0.50 FDL	4 minutes
0.25 FDL	4 minutes
AL	4 minutes

Depending on performance, either a 10 minute or 60 minute creep test shall be performed at the maximum test load of 1.0067 FDL. Where the micropile top movement between 1 and 10 minutes exceeds 0.040 inch, the maximum test load shall be maintained an additional 50 minutes. Movements shall be recorded at 1, 2, 3, 5, 6, 10, 20, 30, 50 and 60 minutes. The alignment load shall not exceed 5 percent of FDL. Dial gauges shall be reset to zero after the initial AL is applied.

The acceptance criteria for micropile proof load tests are:

1. The micropile shall sustain the maximum test load of 1.00 FDL with no more than the following total vertical movement at the top of the micropile, relative to the position of the top of the micropile prior to testing.

*** $$4$$ ***

2. At the end of the 1.00 FDL creep test load increment, test micropiles shall have a creep rate not exceeding 0.040 inch/log cycle time (1 to 10 minutes) or 0.080 inch/log cycle time (6 to 60 minutes). The creep rate shall be linear or decreasing throughout the creep load hold period.

Proof Test Micropile Rejection

If a proof-tested micropile fails to meet the acceptance criteria, the Contractor shall proof test another micropile as selected by the Engineer. For failed micropiles the Contractor shall submit a Type 2 Working Drawing consisting of a repair procedure. For further construction of subsequent micropiles, the Contractor shall modify the design, the construction procedure, or both. These modifications may include installing replacement micropiles, incorporating failed micropiles at not more than 50 percent of the maximum load attained, post grouting, modifying installation methods, increasing the bond length, or changing the micropile type. Any modification that necessitates changes to the structure design will require the Engineer's review and acceptance.

6-05.3(5).GR6

Manufacture of Steel Piles

6-05.3(5).INST1.GR6

Section 6-05.3(5) is supplemented with the following:

6-05.3(5).OPT1.GB6

(September 8, 2020)

Furnishing St. Piling

Welding for steel pipe piling shall conform to AWS D1.1/D1.1M, latest edition, Structural Welding Code, and Section 6-03.3(25), except that all weld filler metal shall be low hydrogen material selected from Table 4.1 in AASHTO/AWS D1.5M/D1.5:2020 Bridge Welding Code.

Welding and joint geometry for the seam, whether it be longitudinal or helical, shall be qualified in accordance with Clause 4, Qualification, of the AWS D1.1/D1.1M, latest edition, Structural Welding Code. In addition, charpy V-notch (CVN) testing in accordance with Clause 4, Part D, of the AWS D1.1/D1.1M, latest edition, Structural Welding Code, shall be performed. CVN testing shall include five tests at 0°F. The acceptance threshold for the five samples shall meet an average value of 20-foot-pounds CVN for the set of test coupons and a minimum value of 15-foot-pounds CVN for any individual test coupon. The Contractor may submit documentation of prior qualification to the Engineer to satisfy this requirement.

Dimensional tolerances shall conform to the material specification that the steel pipe piling is manufactured under, and, at a minimum, the following requirements:

1. Out-of-roundness shall be within 1-percent of the nominal outside diameter.

2. Deviation from a straight line, parallel to the centerline of the pile, shall not exceed 0.001 times the length of the pile.

3. The maximum radial offset of the strip/plate edges shall be 1/8-inch. The offset shall be transitioned with a taper weld and the slope shall not be less than a 1 in 2.5 taper.

4. The bead height of weld reinforcement shall not exceed 3/16-inch.

5. Misalignment of weld beads for double-sided welded pipe shall not exceed 1/8-inch.

6. The wall thickness shall not be less than 95-percent or greater than 110-percent of the specified nominal thickness.

All seams and skelp splices shall be complete penetration welds. Skelp splices in spiral welded (helical seam) pipe shall not be located within 12 inches of a girth shop or field weld.

All skelp splices shall be 100 percent radiographically or ultrasonically inspected in accordance with either API 5L Annex E Section E.4 or E.5, or Table 6.2 and Clause 6 Part E, F or G in AWS D1.1/D1.1M, latest edition, Structural Welding Code. Additionally, 10-percent of the total length of seam welds for both longitudinal and helical welded pipe, and one pipe diameter length of seam centered on any skelp splice intersection, shall be randomly inspected as specified above. If repairs are required in more than 10-percent of the welds examined, additional inspection shall be performed. The additional inspection shall be made on both sides of the repair for a length equal to 10-percent of the length of the pipe outside circumference. If repairs are required in more than 10-percent of welds examined in the second sample, 100-percent of the entire seam on the pile shall be inspected.

All seams and splices shall be 100 percent visually inspected in accordance with the acceptance criteria for statically loaded non-tubular connections in Table 6.1 of the AWS D1.1/D1.1M, latest edition, Structural Welding Code. Repairs shall conform to Section 5.26 of the AWS D1.1/D1.1M, latest edition, Structural Welding Code, using approved repair and weld procedures.

Each length of steel pipe pile shall be marked with paint stencil, no closer than six inches to the end of the pipe, with the name of the manufacturer, material specification and grade of pipe, steel heat number, nominal pipe diameter, and wall thickness.

6-05.3(6).GR6

Splicing Steel Casings and Steel Piles

6-05.3(6).INST1.GR6

Section 6-05.3(6) is supplemented with the following:

6-05.3(6).OPT1.GB6

(September 8, 2020)

Furnishing St. Piling

Welding for steel pipe piling shall conform to AWS D1.1/D1.1M, latest edition, Structural Welding Code, and Section 6-03.3(25), except that all weld filler metal shall be low hydrogen material selected from Table 4.1 in AASHTO/AWS D1.5M/D1.5:2020 Bridge Welding Code.

Welding and joint geometry for splices shall be qualified in accordance with Clause 4, Qualification, of the AWS D1.1/D1.1M, latest edition, Structural Welding Code. In addition, charpy V-notch (CVN) testing in accordance with Clause 4, Part D, of the AWS D1.1/D1.1M, latest edition, Structural Welding Code, shall be performed. CVN testing shall include five tests at 0°F. The acceptance threshold for the five samples shall meet an average value of 20-foot-pounds CVN for the set of test coupons and a minimum value of 15-foot-pounds CVN for any individual test coupon. The

Contractor may submit documentation of prior qualification to the Engineer to satisfy this requirement.

Ends of steel pipe piling shall be prepared for splicing in accordance with AWS D1.1/D1.1M, latest edition, Structural Welding Code.

All splices shall be complete penetration groove welds using continuous backing rings of 1/4 inch minimum thickness. Tack welds shall be located in the root of the complete penetration groove weld.

Shop splices shall be 100 percent visually and ultrasonically inspected in accordance with the acceptance criteria for statically loaded non-tubular connections in Table 6.1 and the acceptance criteria in Table 6.2 in AWS D1.1/D1.1M, latest edition, Structural Welding Code. Repairs for shop and field splices shall conform to Section 5.26 of AWS D1.1/D1.1M, latest edition, Structural Welding Code, using approved repair and weld procedures.

Field splice welds and welders shall be further qualified, tested and inspected as follows:

1. Welder qualification shall be performed on sample full girth sections of steel pipe pile to be used, in the same position and using the same weld joint as for production pile splicing. At the Contractor's option, these tests may be performed on the test piles during test pile installation.

2. Weld qualification tests shall be conducted in the presence of the Contractor's CWI and a representative of the Contracting Agency.

3. Field welded test joints for welder qualification shall be inspected as specified above for shop splices.

4. Production pile field splices shall be inspected as specified above for shop splices, within the limits designated for UT inspection as shown in the Plans. All welds shall be 100 percent visually inspected. The Engineer and the Contractor's CWI reserve the right to request UT inspection of splices in any pile location.

Quality control for field welding shall be conducted by an AWS Certified Welding Inspector (CWI). The Contractor shall not begin pile splicing operations until receiving the CWI's approval of the joint fit-up. The CWI shall inspect 100 percent of all field welds in accordance with the criteria and requirements specified above. All field splices shall have received the CWI's approval prior to Engineer acceptance.

The CWI shall prepare a Type 1 Working Drawing documenting the results of the nondestructive quality control inspection of all field welds, and shall submit the report to the Engineer within five working days of the completion of the final pile splice in the project or as otherwise requested by the Engineer.

6-05.3(10).GR6

Test Piles

6-05.3(10).INST1.GR6

Section 6-05.3(10) is supplemented with the following:

6-05.3(10).OPT1.FB6

(March 6, 2000)

The Contractor shall furnish and drive *** $$1$$ *** test piles at the following locations or at locations designated by the Engineer:

*** $$2$$ ***

The *** $$3$$ *** test piles shall be driven in the location of permanent piles and the number of permanent *** $$4$$ *** piles required for this project has been reduced by the appropriate number.

6-05.3(11).GR6

Driving Piles

6-05.3(11)D.GR6

Achieving Minimum Tip Elevation and Bearing

6-05.3(11)D.INST1.GR6

Section 6-05.3(11)D is supplemented with the following:

6-05.3(11)D.OPT2.GB6

(August 3, 2015)

The areas where piles are to be driven are adjacent to highly developed areas. It is essential that vibration and noise resulting from pile driving be held to a minimum. Unless otherwise allowed by the Engineer, pile driving shall be done during regular daytime working hours. The Contractor shall select pile driving equipment which will minimize noise and vibration. When, in the opinion of the Engineer, noise or vibration are excessive, the Contractor will be required to use a hammer that does not exceed the minimum specifications by more than 10 percent for the type and capacity of piling being driven. If pre-boring, jetting, or other special methods are not specified elsewhere in the contract and are ordered by the Engineer to reduce noise or vibration, such change in method shall be considered a change, subject to the terms of Section 1-04.4.

6-05.3(11)D.OPT3.FB6

(August 3, 2015)

The *** $$1$$ *** piles *** $$2$$ *** shall be placed in prebored holes drilled to elevation ***$$3$$***.

The holes shall be of adequate diameter to isolate the pile from skin friction. The hole around the pile due to oversize boring shall be filled with dry sand or pea gravel after the pile is placed.

6-05.3(11)D.OPT4.FB6

(August 3, 2015)

The *** $$1$$ *** piles ***$$2$$*** shall be prebored to elevation *** $$3$$ ***.

The diameter of the preboring shall be adjusted to provide for full contact between the pile casing and the surrounding soil without shattering the soil

formation. It is estimated that the required diameter for preboring will be approximately 1 inch less than the pile diameter; however, the diameter shall be adjusted by the Contractor as specified by the Engineer to accomplish the results described above. Jetting will not be permitted. The Contractor shall follow preboring immediately with the placing of the pile casing to prevent sloughing into the excavated hole.

6-05.3(11)D.OPT9.FB6

(April 6, 2015)

The Contractor is advised that overdriving is anticipated for piles driven at the following location(s):

Location(s)	Approx. Magnitude of Overdriving Anticipated to Reach Minimum Tip Elev.
*** $$1$$ ***	*** $$2$$ ***

The Contractor shall size the hammer and pile to accommodate overdriving of this magnitude without premature refusal or pile damage.

6-05.4.GR6

Measurement

6-05.4.INST1.GR6

Section 6-05.4 is supplemented with the following:

6-05.4.OPT1.FB6

(March 6, 2000)

Measurement for preboring for *** $$1$$ *** pile will be per linear foot of hole drilled.

6-05.4.OPT6.GB6

(April 6, 2015)

Micropiles will be measured per each, for each micropile installed and accepted.

Micropile verification load testing will be measured per each for each successfully completed and accepted micropile verification load test.

Micropile proof load testing will be measured per each for each successfully completed and accepted micropile proof load test.

6-05.5.GR6

Payment

6-05.5.INST1.GR6

Section 6-05.5 is supplemented with the following:

6-05.5.OPT1.FB6

(March 6, 2000)

“Preboring For ***$$1$$*** Pile”, per linear foot.

The unit contract price per linear foot for “Preboring For ***$$2$$*** Pile” shall be full pay for performing the work as specified, including removal and disposal of excavated soils from preboring, and backfilling.

6-05.5.OPT6.GB6
(April 6, 2015)
“Micropile”, per each.
The unit contract price per each for "Micropile" shall be full pay for performing the Work as specified.

“Micropile Verification Load Testing”, per each.
“Micropile Proof Load Testing”, per each.
The unit contract price per each for “Micropile Verification Load Testing” and “Micropile Proof Load Testing” shall be full pay for performing the Work as specified.

6-06.GR6
Bridge Railings

6-06.2.GR6
Materials

6-06.2.INST1.GR6
Section 6-06.2 is supplemented with the following:

6-06.2.OPT1.GB6
(November 20, 2023)
Chain link fence fabric shall conform to the Section 9-16.1(1)B requirements for Type 1 fence.

Fittings, fabric bands, stretcher bars, tie wire, and other fence hardware, shall conform to Section 9-16.1.

Pipe for posts and longitudinal members shall conform to ASTM A 53, Grade B, Type E or S, galvanized, and shall be Schedule 40 unless otherwise shown in the Plans.

Steel bars, plates, and shapes shall conform to ASTM A36, and shall be galvanized in accordance with AASHTO M 111, except that structural shapes may conform to ASTM A992.

Bolts, nuts, and washers shall conform to Section 9-06.5(3) and shall be galvanized after fabrication in accordance with AASHTO M 232.

Resin bonded anchors shall conform to Section 6-02.3(18)A and Section 9-06.4.

6-06.2.OPT2.GB6
(March 6, 2000)
Epoxy resin shall conform to Section 9-26.1.

6-06.2.OPT7.GB6

(April 6, 2015)

Tamper Proof Nuts for steel Bridge Railing Type BP

Tamper proof nuts for steel Bridge Railing Type BP shall be one of the following products from one of the following manufacturers:

Vandlgard-Nut VCN151-6 (zinc)

Manufactured by
Simi Fastening Systems
4615 Industrial St. Bldg. No. 1-P
Simi Valley, CA 93063
(800) 959-8256
FAX (805) 581-9162
www.simifast.com

Local Supplier
Northwest Fasteners Inc.
15127 Washington Avenue SW
Lakewood, WA 98498
(253) 582-1671
FAX (253) 581-3131

Trigroove Nut ZTRN37C (Zamak 5 zinc alloy AC41A)
Breakaway Nut ZNB37C (Zamak 5 zinc alloy AC41A)

Manufactured by
Screw & Supply Inc.
1712 Church Street
Holbrook, NY 11741
(800) 223-1316
FAX (631) 567-3057
www.screwsupply.com

Local Supplier
Tacoma Screw Products Inc.
2001 Center Street
Tacoma, WA 98409
(800) 562-8192
FAX (253) 272-2719

Spanner Nut 1N.386 (zinc alloy)

Manufactured by
TamperProof Screw Company Inc.
30 Laurel Street
Hicksville, NY 11801
(516) 931-1616
FAX (516) 931-1654
www.tamperproof.com

Trident Tamper Resistant Nut 37CNTNZ (Zamak 5 zinc alloy AC41A)
Breakaway Nut 37CNBAWZ (Zamak 5 zinc alloy AC41A)
Breakaway Nut 37CNBAWS (stainless steel alloy 304)

Manufactured by
Tanner Bolt & Nut Company
4302 Glenwood Road
Brooklyn, NY 11210
(800) 456-2658
FAX (888) 434-3215
www.tannerbolt.com

6-06.2.OPT8.FB6

(November 20, 2023)

Bridge Railing Type Snow Fence and Bridge Railing Type Wire Fabric Fence

Wire fabric shall be 8 gage diameter, 2 inch square wire mesh conforming to ASTM F2453 Type 2 and galvanized after fabrication in accordance with AASHTO M 111.

HSS tubes shall conform to ASTM A500, Grade B.

Steel bars, plates, and shapes shall conform to either ASTM A36 or ASTM A992.

The railing assembly shall be galvanized after fabrication in accordance with AASHTO M 111.

Anchor rods shall be fully threaded, conforming to ASTM F593 Type 302. Washers shall conform to ASTM A193 Grade B7, galvanized in accordance with AASHTO M 232. Nuts shall be tamper proof, as one of the following products from one of the associated manufacturers:

Vandlgard-Nut VCN151-6 (zinc)

Manufactured by
Simi Fastening Systems
4615 Industrial St. Bldg. No. 1-P
Simi Valley, CA 93063
(800) 959-8256
FAX (805) 581-9162
www.simifast.com

Local Supplier
Northwest Fasteners Inc.
15127 Washington Avenue SW
Lakewood, WA 98498
(253) 582-1671
FAX (253) 581-3131

Trigroove Nut ZTRN37C (Zamak 5 zinc alloy AC41A)
Breakaway Nut ZNB37C (Zamak 5 zinc alloy AC41A)

Manufactured by
Screw & Supply Inc.
1712 Church Street
Holbrook, NY 11741
(800) 223-1316
FAX (631) 567-3057
www.screwsupply.com

Local Supplier
Tacoma Screw Products Inc.
2001 Center Street
Tacoma, WA 98409
(800) 562-8192
FAX (253) 272-2719

Spanner Nut 1N.386 (zinc alloy)

Manufactured by
TamperProof Screw Company Inc.
30 Laurel Street
Hicksville, NY 11801
(516) 931-1616
FAX (516) 931-1654
www.tamperproof.com

Trident Tamper Resistant Nut 37CNTNZ (Zamak 5 zinc alloy AC41A)
Breakaway Nut 37CNBAWZ (Zamak 5 zinc alloy AC41A)
Breakaway Nut 37CNBAWS (stainless steel alloy 304)

Manufactured by
Tanner Bolt & Nut Company
4302 Glenwood Road
Brooklyn, NY 11210
(800) 456-2658
FAX (888) 434-3215
www.tannerbolt.com

Resin bonded anchors shall conform to Section 6-02.3(18)A and Section 9-06.4.

The railing assembly shall be shop painted or powder coated after galvanizing in accordance with Section 6-07.3(11). The color of the finish coat, when dry, shall match the color *** $$1$$ ***.

6-06.3.GR6
Construction Requirements

6-06.3(2).GR6
Metal Railings

6-06.3(2).INST1.GR6
Section 6-06.3(2) is supplemented with the following:

6-06.3(2).OPT1.GB6
(November 20, 2023)
Bridge Railing Type Chain Link Fence
The Contractor shall install anchor bolts for each post anchorage as shown in the Plans. Alternatively, the Contractor may install resin bonded anchors at each post anchorage, in accordance with Section 6-02.3(18)A and Section 9-06.4.

Longitudinal members shall be connected to the steel posts as shown in the Plans.

The Contractor shall install the chain link fence fabric in accordance with Section 8-12.3(1)D, except as otherwise noted. The chain link fence fabric shall be fastened to the posts and longitudinal members at a maximum spacing of 14 inches.

6-06.3(2).OPT2.GB6
(March 6, 2000)
Bridge Railing Type Chain Link Fence
The post blockouts shall be formed with a steel sleeve of the diameter and thickness specified in the Plans. The steel sleeve shall be galvanized after fabrication in accordance with AASHTO M 111. The Contractor shall fill the bottom portion of the railing post with expanded polystyrene as shown in the Plans.

The Contractor shall install the steel posts in the post blockouts as shown in the Plans. The posts shall be installed vertically, set in position with epoxy resin, and braced to maintain the vertical position until the epoxy resin hardens.

Longitudinal members shall be connected to the steel posts as shown in the Plans.

The Contractor shall install the chain link fence fabric in accordance with Section 8-12.3(1)D, except as otherwise noted. The chain link fence fabric shall be fastened to the posts and longitudinal members at a maximum spacing of 14 inches.

6-06.3(2).OPT7.GB6
(November 20, 2023)
Bridge Railing Type Snow Fence and Bridge Railing Type Wire Fabric Fence
The railing shall be fabricated and installed in accordance with the shop drawings. The railing panels shall be installed parallel to the top of the associated concrete surface and the railing posts shall be installed perpendicular to the associated concrete surface.

The Contractor shall install anchor bolts for each post anchorage as shown in the Plans. Alternatively, the Contractor may install resin bonded anchors at each post anchorage, in accordance with Section 6-02.3(18)A and Section 9-06.4.

After completing erection, the Contractor shall repair all metal surfaces with damaged paint or powder coatings and exposed metal with a field repair coating in accordance with Section 6-07.3(9)I and Section 6-07.3(11)A (for paint) or Section 6-07.3(11)B (for powder coating). The color of the finish coat of the field repair coating, when dry, shall match the color specified in Section 6-06.2.

6-06.5.GR6

Payment

6-06.5.INST1.GR6

Section 6-06.5 is supplemented with the following:

6-06.5.OPT1.FB6

(March 6, 2000)

All costs in connection with constructing Bridge Railing Type *** $$1$$ *** shall be included in the *** $$2$$ ***.

6-07.GR6

Painting

6-07.1.GR6

Description

6-07.1.INST1.GR6

Section 6-07.1 is supplemented with the following:

6-07.1.OPT1.FB6

(August 3, 2009)

This work shall consist of cleaning and painting all exposed metal surfaces of Bridge No(s). *** $$1$$ ***, in accordance with Section 6-07.3(10), except as otherwise noted below.

Portions of the structure(s) excluded from this work include:

*** $$2$$ ***

6-07.1.OPT2.FB6

(August 3, 2009)

This work shall consist of cleaning and painting the exposed timber surfaces of Bridge No(s). *** $$1$$ ***, in accordance with Section 6-07.3(13) as supplemented in these Special Provisions and as specified below:

*** $$2$$ ***

6-07.3.GR6

Construction Requirements

6-07.3(10).GR6

Painting Existing Steel Structures

6-07.3(10).INST1.GR6

Section 6-07.3(10) is supplemented with the following:

6-07.3(10).OPT1.FB6

(August 3, 2009)

The Contractor *** $$1$$ *** paint the existing utility company conduits attached to the structure, such as sewer, water, gas and telephone. The Contractor shall protect the utilities from damage due to operations on the bridges.

6-07.3(10).OPT2.GB6

(August 3, 2009)

Light fixtures and lenses, including navigation, aircraft, flag pole luminaire, and luminaire light fixtures and lenses, shall not be painted and shall be kept clean from paint. The Contractor shall remove all paint from the light fixtures and lenses due to the painting operation.

6-07.3(10).OPT4.GB6

(August 3, 2015)

In the cleaning operation, particular attention shall be paid to cleaning the grid deck. Any means acceptable to the Engineer, in addition to flushing, as required to clean dirt, oil and grease from the grid surfaces in accordance with SSPC-SP 1 shall be used.

6-07.3(10)A.GR6

Containment

6-07.3(10)A.INST1.GR6

Section 6-07.3(10)A is supplemented with the following:

6-07.3(10)A.OPT1.GB6

(August 3, 2009)

The Contractor shall adequately protect all gears, machinery, mechanical equipment, electrical equipment, navigation and clearance light lenses, motors, sheaves and cables and all other equipment which might become damaged by and during the cleaning and painting operations. Should the Contractor's operation foul or otherwise contaminate the lubricated surfaces, the Contractor shall, if directed by the Engineer, clean and relubricate the surfaces at the Contractor's expense.

6-07.3(10)A.OPT2.FB6

(September 7, 2021)

The following bridge(s) have a wind speed/gust threshold:

Bridge	Wind Speed/Gust Threshold (miles per hour)
Bridge No(s). *** $$1$$ ***	*** $$2$$ ***

Each day, the Contractor shall review the five-day wind speed/gust forecast for each bridge site from the Western Region Headquarters of the National Weather

Service at www.wrh.noaa.gov. The Contractor shall lower or withdraw tarps, plastic exterior, and other containment components presenting an exposed face to the wind when either of the following apply:

1. When wind speeds or gusts exceeding the threshold are forecast by the National Weather Service.

2. When the structure site weather station records wind speeds or gusts exceeding the threshold.

The containment system may be restored after 2 hours without winds or gusts exceeding the threshold, and no forecast of such wind speeds or gusts to return within 24 hours.

Weather Station

Prior to installing any components of a containment system on a bridge with a specified wind speed/gust threshold, the Contractor shall install a wireless weather station on the bridge at a location acceptable to the Engineer. The Contractor shall provide one of the following wireless weather station systems, or an accepted equal:

1. Davis Instruments Vantage Pro2 model 06163.

2. Weather Hawk 916 Wireless Weather Station.

3. Columbia Weather Systems Capricom FLX.

The Contractor shall submit a Type 2 Working Drawing consisting of details of the selected wireless weather station system, including installation and operation details. The Contractor shall install wireless display console units for both the Contracting Agency's and the Contractor's use at locations acceptable to the Engineer. The Contractor shall protect the wireless weather station system from damage during all paint removal, surface cleaning, and paint application operations.

The Contractor shall maintain a log of daily weather data updated on a daily basis. The log shall be available to the Engineer for review at any time during the project. The weather data shall be tabulated in the form of a spreadsheet. At a minimum, the weather data shall indicate the high and low temperature, relative humidity, maximum wind speed and direction, wind gusts, and rainfall. If requested by the Engineer, the Contractor shall submit a Type 1 Working Drawing of weather data. Upon request, the Contractor shall provide wireless access to the weather station data.

At the end of the Contract, the wireless weather station and all associated system components shall be removed from the bridge and become the property of the Contractor.

6-07.3(10)D.GR6

Surface Preparation Prior to Overcoat Painting

6-07.3(10)D.INST1.GR6

Section 6-07.3(10)D is supplemented with the following:

6-07.3(10)D.OPT1.FB6

(April 6, 2015)

The following steel surfaces of Bridge No(s). *** $$1$$ *** shall receive surface preparation in accordance with SSPC SP1 followed by cleaning in accordance with this Section:

*** $$2$$ ***

6-07.3(10)E.GR6

Surface Preparation - Full Paint Removal

6-07.3(10)E.INST1.GR6

Section 6-07.3(10)E is supplemented with the following:

6-07.3(10)E.OPT1.FB6

(April 5, 2010)

The following steel surfaces of Bridge No(s). *** $$1$$ *** shall receive full paint removal surface preparation in accordance with this Section:

*** $$2$$ ***

6-07.3(10)I.GR6

Paint Color

6-07.3(10)I.INST1.GR6

Section 6-07.3(10)I is supplemented with the following:

6-07.3(10)I.OPT1.FB6

(August 3, 2009)

The color of the top coat, when dry, shall match *** $$1$$ ***.

6-07.3(10)N.GR6

Field Coating Application Methods

6-07.3(10)N.INST1.GR6

Section 6-07.3(10)N is supplemented with the following:

6-07.3(10)N.OPT1.GB6

(August 3, 2009)

Spray painting will be permitted for the application of paint to the surfaces of the steel grid roadway decking and steel grid catwalks, provided every precaution or means necessary to prevent any damage due to spraying operations or from wind borne paint is taken, provided further that if satisfactory results are not, in the opinion of the Engineer, obtained with the spraying application, the Contractor shall revert to the use of brushes. In the event spray painting is used on the steel grid roadway decking, the application shall be made only from the underside of the roadway, and then only at such times as traffic has been diverted to other lanes. A protective covering shall be placed immediately over

areas of the roadway decking being spray painted to prevent damage from wind borne paint.

6-07.3(11).GR6

Painting or Powder Coating of Galvanized Surfaces

6-07.3(11).INST1.GR6

Section 6-07.3(11) is supplemented with the following:

6-07.3(11).OPT1.FB6

(August 3, 2009)

The color of the finish coat, when dry, shall match *** $$1$$ ***

6-08.GR6

Bituminous Surfacing on Structure Decks

6-08.3.GR6

Construction Requirements

6-08.3.INST1.GR6

Section 6-08.3 is supplemented with the following:

6-08.3.OPT1.FB6

(October 29, 2020)

Surfacing Removal and Paving Equipment Load and Spacing Restrictions

The following bridge(s) is (are) subject to the requirements and restrictions of this Special Provision:

*** $$1$$ ***

The gross vehicle weight (GVW) of the surfacing removal and paving train vehicles (planers, scrapers, haul trucks, asphalt pavers, MTD/V, and rollers) allowed on the bridge shall not exceed the maximum GVW specified in the Plans and the spacing of the vehicles shall not be less than that specified in the Plans unless otherwise accepted as described in the **Submittal of Alternative Surfacing Removal and HMA Paving Trains** subsection of this Special Provision.

The Contractor shall submit a Type 2 Working Drawing consisting of the proposed methods and equipment to be used to remove surfacing and apply HMA overlay to the bridge deck. The Working Drawing shall include catalogue cuts, make, model, axle spacing, and gross weights of all surfacing removal equipment, pavers, rollers, and haul trucks used to conduct surfacing removal and paving operations on the bridge. The Working Drawing shall show the surfacing removal train units and paving train units and associated support equipment that is simultaneously on the bridge, in longitudinal section. The longitudinal section shall show the units in operational order. The details shall show or specify means of confirming in the field that the equipment units conform to and do not exceed the load limits specified in the Plans.

Submittal of Alternative Surfacing Removal and HMA Paving Trains

During the Bid period, prospective Bidders may submit a maximum of two surfacing removal and HMA paving trains for review and comment. The submittal shall consist of the maximum gross vehicle weights including loaded weights for removal equipment, haul

trucks, rollers, pavers, etc., the axle spacing of the equipment and the minimum spacing between adjacent pieces of equipment. Submittals must be received by the Contracting Agency's representative identified in the Notice to All Planholders by 5:00 PM one week prior to Bid opening. Electronic submittals will be accepted. All submittals received by the required date and time, both accepted and not accepted, will be posted on the Contract Ad & Award information page no later than the Friday prior to Bid opening.

6-08.3(2).GR6

Contractor Survey for Grade Controlled Structure Decks

6-08.3(2).INST1.GR6

Section 6-08.3(2) is supplemented with the following:

6-08.3(2).OPT1.FB6

(January 3, 2017)

The Contractor survey requirements specified in this Section and associated Sections 6-08.3(2)A, 6-08.3(2)B and 6-08.3(2)C do not apply to the following Grade Controlled Structures in this Contract:

*** $$1$$ ***

6-08.3(5).GR6

Full Depth Removal of Bituminous Pavement from Structure Decks

6-08.3(5).INST1.GR6

Section 6-08.3(5) is supplemented with the following:

6-08.3(5).OPT1.FB6

(January 2, 2018)

Rotary milling/planing equipment shall not be used to remove the existing surfacing from the bridge deck of the following bridge(s):

*** $$1$$ ***

6-08.3(5).OPT2.FB6

(January 2, 2018)

Rotary milling/planing equipment conforming to Section 6-08.3(5)B may be used to remove all but the bottom 0.10-foot layer of existing surfacing from the bridge deck of the following bridge(s):

*** $$1$$ ***

Rotary milling/planing equipment shall not be used to remove the bottom 0.10-foot layer of existing surfacing from the bridge deck of these bridges.

6-10.GR6

Concrete Barrier

6-10.3.GR6

Construction Requirements

6-10.3(5).GR6

Temporary Barrier

6-10.3(5).INST1.GR6

The first paragraph of Section 6-10.3(5) is revised to read:

6-10.3(5).OPT1.GR6

(February 3, 2020)

For temporary barrier, the Contractor shall use precast concrete barrier type F. Temporary concrete barrier type F shall comply with Standard Plan requirements and cross-sectional dimensions, except that: (1) it may be made in other lengths than those shown in the Standard Plan, and (2) it may have permanent lifting holes no larger than 4 inches in diameter or lifting loops.

6-10.5.GR6

Payment

6-10.5.INST1.GR6

Section 6-10.5 is supplemented with the following:

6-10.5.OPT1.GR6

(August 1, 2016)

The following paragraph is added immediately following the bid item, “Temporary Barrier”:

The unit contract price per linear foot for "Temporary Barrier" shall include all costs for furnishing, placing, maintaining, replacing, and cleaning barrier delineation.

6-10.5.OPT2.FB6

(March 6, 2000)

All costs in connection with constructing *** $$1$$ *** barrier shall be included in the *** $$2$$ ***.

6-12.GR6

Noise Barrier Walls

6-12.2.GR6

Materials

6-12.2.INST1.GR6

Section 6-12.2 is supplemented with the following:

6-12.2.OPT1.GB6

(September 8, 2020)

Precast Concrete Noise Barrier Walls

Grout for encapsulating dowel bars shall conform to Section 6-02.3(26)H.

Grout pads at the bases of precast concrete panels shall conform to Section 6-02.3(20).

Base plates and anchor bolt templates shall conform to ASTM A 36. Base plates shall be corrosion protected by one of the following methods:

1. One coat of paint conforming to Section 9-08.1(2)F.

2. Galvanized after fabrication in accordance with AASHTO M 111.

3. Galvanized after fabrication in accordance with ASTM B 695, Class 5, Type 1.

Anchor rods shall conform to ASTM F 1554 Grade 105. Nuts shall conform to ASTM A 563. Washers shall conform to ASTM F 436, except that plate washers conforming to ASTM A 36 may be used. Nuts and washers, and a minimum of 1'-0" of the exposed end of the anchor rod, shall be corrosion protected by one of the following methods:

1. One coat of paint conforming to Section 9-08.1(2)F.

2. Galvanized after fabrication in accordance with ASTM F2329.

3. Galvanized after fabrication in accordance with ASTM B 695, Class 5, Type 1.

The cone head end, 1'-0" minimum, of Rod A and steel reinforcing Bar B, as identified in the Standard Plans, shall be painted with one coat paint conforming to Section 9-08.1(2)F.

The sealant system for the vertical joint between precast concrete panels shall consist of a polyurethane sealant conforming to Section 9-04.2(3) and a closed cell foam backer rod conforming to ASTM C 1330 Type C. The polyurethane sealant shall be tested for compatibility with the closed cell foam backer road in accordance with Section 9-04.2(3).

6-12.2.OPT2.FB6

(September 8, 2020)

Masonry Noise Barrier Walls

Concrete masonry units (CMU's) shall conform to ASTM C 90, Grade N, Type 1. Concrete masonry units shall have a density between 100 and 115 pounds per cubic foot. Shrinkage shall not exceed 0.065 percent.

CMU's will be accepted based on a Manufacturer's Certificate of Compliance. The Manufacturer's Certificate of Compliance shall include test results, conducted within the previous twelve months, as required to document compliance with the material requirements specified in these Special Provisions.

The concrete masonry unit faces shall be nominal 8 by 16 inches with thicknesses as specified in the Plans. Concrete masonry unit surface texture and color shall be as follows:

*** $$1$$ ***

Special shapes shall be provided to complete the work as specified in the Plans.

The Contractor shall submit Type 2 Working Drawings consisting of four samples of each type of concrete masonry unit block specified for use on the project.

Grout for concrete masonry units shall conform to ASTM C 476 for fine grout.

Mortar for concrete masonry units shall conform to ASTM C 270, Type S. The color shall be natural gray. The Contractor shall mix the mortar in a mechanical mixer of one sack

minimum capacity for a minimum of three minutes after all materials have been added before using the mortar.

Masonry sealer shall be a silane based water repellent selected from one of the following, or an accepted equal:

1. Baracade Silane 40, manufactured by Euclid.
2. MasterProtect H 200, manufactured by Master Builder Solutions.
3. Florok Enviro-Shield 40, manufactured by Chargar.

The Contractor shall submit Type 1 Working Drawings consisting of the manufacturer's recommended masonry sealer application procedure.

The parge coating applied to the top of the masonry wall shall be a waterproof cement-base coating selected from one of the following, or an accepted equal:

1. Conproseal, manufactured by Chargar.
2. MasterSeal 581, manufactured by Master Builder Solutions.
3. Tamoseal, manufactured by Euclid.

The sealant system for the vertical expansion joints shall consist of a polyurethane sealant conforming to Section 9-04.2(3) and a closed cell foam backer rod conforming to Section 9-04.2(3)A.

6-12.3.GR6

Construction Requirements

6-12.3(1).GR6

Submittals

6-12.3(1).INST1.GR6

Section 6-12.3(1) is supplemented with the following:

6-12.3(1).OPT1.GB6

(August 3, 2015)

The Contractor shall submit a field survey of the existing groundline along each noise barrier wall alignment. The Contractor shall obtain field topographical information for the existing ground within ten feet of the noise barrier wall alignment, except as further limited by the Contracting Agency Right of Way and construction easements for this project. The Contractor shall ensure a vertical survey accuracy of 0.1 foot. The Contractor shall establish horizontal survey control at ten foot intervals, or at six inches differential vertical elevation from the adjacent point on the alignment, whichever is less.

The Contractor shall submit Type 2 Working Drawings consisting of the field survey, including all field notes. If the Engineer confirms that the groundline condition along the noise barrier wall alignment at the time of construction requires revisions to the noise barrier wall details shown in the Plans, the Engineer will provide revised noise barrier wall Plan details to the Contractor within 14 calendar days.

The Contractor shall complete the field survey as a first item of noise barrier wall work.

6-12.3(6).GR6

Precast Concrete Panel Fabrication and Erection

6-12.3(6).INST1.GR6

Section 6-12.3(6) is supplemented with the following:

6-12.3(6).OPT1.FB6

(April 5, 2004)

The Contractor shall form a *** $$1$$ *** finish, as specified in the Plans and Section 6-02.3(14) as supplemented in these Special Provisions, on the surface of the precast concrete panel facing the traffic side.

The Contractor shall form a *** $$1$$ *** finish, as specified in the Plans and Section 6-02.3(14) as supplemented in these Special Provisions, on the surface of the precast concrete panel facing the residential area, except as otherwise noted. The surfaces of the pilaster shall receive either a Class 2 surface finish in accordance with Section 6-02.3(14)B, if pigmented sealer is being applied, or a Class 1 surface finish in accordance with Section 6-02.3(14)A, if pigmented sealer is not being applied.

6-12.3(7).GR6

Masonry Wall Construction

6-12.3(7).INST1.GR6

Section 6-12.3(7) is supplemented with the following:

6-12.3(7).OPT1.GB6

(August 3, 2015)

Masonry Wall

The Contractor shall construct the masonry wall in accordance with the standards of masonry installation specified in Chapter 21 of the International Building Code.

All masonry wall construction workers shall be thoroughly trained and experienced in the necessary crafts, shall be completely familiar with the specified requirements and methods needed for proper completion of the work, and shall be supervised at the construction site at all times by the supervising journey-level masons.

Sample Masonry Wall Panel

The Contractor shall demonstrate Work quality and methods by constructing a 48-inch by 48-inch sample panel of each type of masonry wall and submitting them as Type 2 Working Drawings. The sample panel shall be constructed by the supervising journeyman mason specified by the Contractor. The sample panel shall show the general construction and appearance of the installed concrete masonry units. The Contractor shall construct the sample panel on a transportable platform and shall relocate the sample panel as specified by the Engineer as construction progresses.

If any of the supervising journeyman masons are replaced during the project, each replacement supervising journeyman mason shall construct another sample panel as a requirement for being accepted by the Engineer for the supervising position.

The Contractor shall construct all masonry walls in accordance with the quality of the sample panel. All masonry wall construction not consistent with the quality of the accepted sample panel shall be reconstructed by the Contractor at no additional cost to the Contracting Agency.

The Contractor shall maintain the sample panel at the project site until all the noise barrier walls are accepted by the Engineer, at which time all sample panels shall become the property of the Contractor and shall be disposed of in accordance with Section 2-02.3.

General Requirements

All masonry materials stored on the project site shall be stored off the ground and protected from weather. Concrete masonry units that are chipped, cracked, or spalled on the faces or edges shall not be used.

The Contractor shall lay up all walls in running bond, unless otherwise shown in the Plans, and all walls shall be plumb, level, and true to the lines and dimensions as shown in the Plans. All head and bed joints shall be solidly filled with mortar for a distance in from the face of the wall or unit not less than the thickness of the longitudinal face shells.

Mortar

Mortar joints shall be of uniform thickness, ½ inch maximum. The Contractor shall not change coursing or bonding after beginning work on a wall. The Contractor shall tool all joints flush with adjacent surfaces to a dense brushed finish. The split face side of wall shall have a concave smooth joint. The scored split faces shall have a rake joint to match the depth of the scores.

Temperature

When air temperatures fall below 40F, grout mixing water and aggregate shall be heated to produce a grout temperature between 40F and 120F. While grouting the concrete masonry units, and for at least 24 hours after grouting the units, the Contractor shall maintain the temperature of the concrete masonry units above freezing. When atmospheric temperatures fall below 20F, the Contractor shall erect enclosures around the concrete masonry units being grouted and shall maintain the enclosures for at least 24 hours after grouting the units.

The Contractor shall not perform masonry wall work when the air temperature is below 40F on a falling thermometer, or when it is likely that the temperature will fall below 40F before the mortar has set, except when appropriate provisions have been made to heat and enclose the concrete masonry units and the work area. The Contractor may begin masonry wall work at 34F on a rising thermometer.

Grouting Cells

Cells with steel reinforcing bars shall be grouted solid and compacted. Vertical cells with steel reinforcing bars shall be aligned and filled to provide a continuous unobstructed opening of the dimensions indicated, but in no case less than two inches by three inches. The Contractor shall provide cleanout openings at the bottom of all cells to be filled at each stage of grout placement where the height of grout placement is greater than four feet. The Contractor shall remove all overhanging mortar and other obstructions and debris from the insides of the cells being grouted.

The Contractor shall seal all cleanouts, after the Engineer has inspected and accepted the cells. The Contractor shall place grout in lifts of eight feet or less.

Top Course

The Contractor shall cover the tops of all exposed walls not being worked on with a waterproof membrane, secured in place. All unfinished work shall be stepped back for joining to new work. Toothing shall not be performed.

The top course shall be a solid grouted bond beam unit. The Contractor shall apply a parge coat to the top of the wall.

Cleaning Exposed Surfaces

The Contractor shall clean all exposed masonry at the end of each day's work. After final pointing, the Contractor shall remove all mortar spots and droppings. The Contractor shall cut out all defective joints and repoint the joints solidly with mortar. The Contractor shall protect all work from damage, stain, and discoloring.

The Contractor shall perform additional final cleaning prior to applying the pigmented sealer. The Contractor shall remove all large particles of mortar before wetting the wall. The Contractor shall saturate the concrete masonry units with clean water and shall flush all loose mortar and dirt from the wall surface. The Contractor shall scrub the wall surface with a stiff brush and a masonry cleaning solution, in accordance with the cleaning solution manufacturer's instructions. The Contractor shall thoroughly wash the wall surface of all cleaning solution, dirt, and mortar crumbs with clean pressurized water. The Contractor shall not use acid cleaning solutions to clean the wall surface. The Contractor shall protect all wall surfaces adjacent to the sections of wall being cleaned.

Masonry Sealer

All exposed masonry surfaces shall receive two coats of masonry sealer, applied to either one foot minimum below finish ground line or to the base of the bottom row of masonry blocks, whichever is higher, from one of the masonry sealer products specified in Section 6-12.2 as supplemented in these Special Provisions. The masonry sealer shall be applied in accordance with the manufacturer's recommendations.

6-12.5.GR6

Payment

6-12.5.INST1.GR6

Section 6-12.5 is supplemented with the following:

6-12.5.OPT1.GB6

(April 5, 2004)

All costs in connection with performing the field survey of the existing groundline of the noise barrier wall alignment, and submitting the field survey to the Engineer, shall be included in the lump sum contract price for "Structure Surveying".

6-13.GR6

Structural Earth Walls

6-13.2.GR6

Materials

6-13.2.INST1.GR6

Section 6-13.2 is supplemented with the following:

6-13.2.OPT1.GB6

(February 6, 2023)

Welded Wire Faced Structural Earth Wall Materials

Welded Wire Mats and Backing Mats

Welded wire fabric for welded wire mats, welded wire form facing units, and backing mats shall conform to AASHTO M 336, and shall be fabricated from plain wire fabric conforming to AASHTO M 336 Grade 65.

The minimum clear opening dimension of the backing mat, or the combination of welded wire form facing unit with geosynthetic wall facing wrap, shall not exceed the minimum particle size of the wall facing backfill as specified below.

Welded wire fabric for welded wire mats, welded wire form facing units, and backing mats shall be galvanized after fabrication in accordance with either ASTM A641 (two ounces minimum per square foot) or AASHTO M 111. All damage to the galvanizing shall be repaired with one coat of paint conforming to Section 9-08.1(2)B.

Backfill for Welded Wire Faced Structural Earth Wall

The coarse, granular material used for the wall facing backfill placed immediately behind the wall face, as shown in the Plans, shall conform to the following gradation requirements:

1. The minimum particle size shall be no less than the width of the minimum opening dimension in the backing mat or the geosynthetic wall facing wrap.

2. The maximum particle size shall be no greater than six inches for welded wire reinforced walls, and no greater than four inches for geosynthetic reinforced walls.

Proprietary Materials

Hilfiker Welded Wire Retaining Wall (WWW) System

Welded wire fabric wire size for backing mats shall be W2.1 minimum for wall face backing layers of 1’-6” maximum thickness, and shall be W2.5 minimum for wall face backing layers between 1’-6” and 2’-0”.

Construction geotextile for wall facing shall conform to the requirements in Section 9-33.1 for Construction Geotextile for Underground Drainage, Moderate Survivability, Class A.

Tensar Wire Form Retaining Wall System

Wire support struts shall conform to AASHTO M 336, and shall be galvanized after fabrication in accordance with either ASTM A641 (two ounces minimum per square foot) or AASHTO M 111. All damage to the galvanizing shall be repaired with one coat of paint conforming to Section 9-08.1(2)B.

Geosynthetic connection rods shall be manufactured from high-density polyethylene with either fiberglass inclusions or oriented polypropylene, as recommended by Tensar Earth Technologies, Inc.

Geosynthetic separating the wall facing backfill from the welded wire faced structural earth wall backfill shall conform to the requirements in Section 9-33.1 for Construction Geotextile for Underground Drainage, Moderate Survivability, Class A.

Tensar Geogrid Materials

Geogrid reinforcement and geosynthetic wall facing wrap shall conform to Section 9-33.1, and shall be a product listed in Appendix D of the current WSDOT Qualified Products List (QPL). The values of T_{al} and T_{ult} as listed in the QPL for the products used shall meet or exceed the values required for the wall manufacturer's reinforcement design as specified in the structural earth wall design calculation and working drawing submittal.

The minimum ultimate tensile strength of the geogrid shall be a minimum average roll value (the average test results for any sampled roll in a lot shall meet or exceed the values shown in Appendix D of the current WSDOT QPL). The strength shall be determined in accordance with ASTM D6637 for multi-rib specimens.

For geogrid reinforcement and geosynthetic wall facing wrap, the ultraviolet (UV) radiation stability, in accordance with ASTM D4355, shall be a minimum of 70 percent strength retained after 500 hours in the weatherometer.

The longitudinal (i.e., in the direction of loading) and transverse (i.e., parallel to the wall or slope face) ribs that make up the geogrid shall be perpendicular to one another.

The Engineer will take random samples of the geogrid materials at the job site. Approval of the geogrid materials will be based on testing of samples from each lot. A "lot" shall be defined as all geogrid rolls sent to the project site produced by the same manufacturer during a continuous period of production at the same manufacturing plant having the same product name. The Contracting Agency will require 14 calendar days maximum for testing the samples after their arrival at the WSDOT Materials Laboratory in Tumwater, WA.

The geogrid samples will be tested for conformance to the specified material properties. If the test results indicate that the geogrid lot does not meet the specified properties, the roll or rolls which were samples will be rejected. Two additional rolls for each roll tested which failed from the lot previously tested will then be selected at random by the Engineer for sampling and retesting. If the retesting shows that any of the additional rolls tested do not meet the specified properties, the entire lot will be rejected. If the test results from all the rolls retested meet the specified properties, the entire lot minus the roll(s) which failed will be accepted.

All geogrid materials which have defects, deterioration, or damage, as determined by the Engineer, will be rejected. All rejected geogrid materials shall be replaced at no expense to the Contracting Agency.

Except as otherwise noted, geogrid identification, storage and handling shall conform to the requirements specified in Section 2-12.2. The geogrid materials shall not be exposed to temperatures less than -20°F and greater than 122°F.

6-13.2.OPT2.GB6

(February 6, 2023)

Precast Concrete Panel Faced Structural Earth Wall Materials

General Materials

Concrete Leveling Pad

Leveling pad concrete shall be commercial concrete in accordance with Section 6-02.3(2)B.

Proprietary Materials

ARES Modular Panel Wall System

Tensar Geogrid Materials

Geogrid reinforcement shall conform to Section 9-33.1 and shall be a product listed in Appendix D of the current WSDOT Qualified Products List (QPL). The values of T_{al} and T_{ult} as listed in the QPL for the products used shall meet or exceed the values required for the wall manufacturer's reinforcement design as specified in the structural earth wall design calculation and working drawing submittal.

The minimum ultimate tensile strength of the geogrid shall be a minimum average roll value (the average test results for any sampled roll in a lot shall meet or exceed the values shown in Appendix D of the current WSDOT QPL). The strength shall be determined in accordance with ASTM D6637 for multi-rib specimens.

The ultraviolet (UV) radiation stability, in accordance with ASTM D4355, shall be a minimum of 70 percent strength retained after 500 hours in the weatherometer.

The longitudinal (i.e., in the direction of loading) and transverse (i.e., parallel to the wall or slope face) ribs that make up the geogrid shall be perpendicular to one another. The maximum deviation of the cross-rib from being perpendicular to the longitudinal rib (skew) shall be no more than 1 inch in 5 feet of geogrid width. The maximum deviation of the cross-rib at any point from a line perpendicular to the longitudinal ribs located at the cross-rib (bow) shall be 0.5 inches.

The Engineer will take random samples of the geogrid materials at the job site. Approval of the geogrid materials will be based on testing of samples from each lot. A "lot" shall be defined as all geogrid rolls sent to the project site produced by the same manufacturer during a continuous period of production at the same manufacturing plant having the same product name. The Contracting Agency will require 14 calendar days maximum for testing

the samples after their arrival at the WSDOT Materials Laboratory in Tumwater, WA.

The geogrid samples will be tested for conformance to the specified material properties. If the test results indicate that the geogrid lot does not meet the specified properties, the roll or rolls which were samples will be rejected. Two additional rolls for each roll tested which failed from the lot previously tested will then be selected at random by the Engineer for sampling and retesting. If the retesting shows that any of the additional rolls tested do not meet the specified properties, the entire lot will be rejected. If the test results from all the rolls retested meet the specified properties, the entire lot minus the roll(s) which failed will be accepted.

All geogrid materials which have defects, deterioration, or damage, as determined by the Engineer, will be rejected. All rejected geogrid materials shall be replaced at no expense to the Contracting Agency.

Except as otherwise noted, geogrid identification, storage and handling shall conform to the requirements specified in Section 2-12.2. The geogrid materials shall not be exposed to temperatures less than –20F and greater than 122F.

Rubber bearing pads shall be a type and grade as recommended by Tensar Earth Technologies, Inc.

Geosynthetic joint cover for all horizontal and vertical joints shall be a non-woven geosynthetic as recommended by Tensar Earth Technologies, Inc. Adhesive used to attach the geosynthetic to the rear of the precast concrete facing panel shall be as recommended by Tensar Earth Technologies, Inc.

Reinforced Earth Wall

Reinforcing strips shall be shop fabricated from hot rolled steel conforming to ASTM A572 Grade 65 or approved equal and shall be galvanized after fabrication in accordance with AASHTO M 111. Damage to the galvanizing shall be repaired with one coat of paint conforming to Section 9-08.1(2)B.

Bolts and nuts shall conform to Section 9-06.5(3) and shall be galvanized in accordance with ASTM F2329.

Rubber bearing pads shall be a type and grade as recommended by the Reinforced Earth Company.

Vertical joint filler between panels, when specified in the structural earth wall working drawings, shall be two-inch square, flexible open cell polyether foam strips, Grade UU-34, as recommended by the Reinforced Earth Company.

Filter fabric joint cover for all horizontal and vertical joints, when specified in the structural earth wall working drawings, shall be a pervious woven polypropylene filter fabric as recommended by the Reinforced Earth Company. Adhesive used to attach the fabric material to the rear of the precast concrete facing panel shall be as recommended by the Reinforced Earth Company.

MSE Plus Wall

Pins connecting the soil reinforcing mesh to the precast concrete panels shall conform to AASHTO M 336, plain wire, and shall be galvanized after fabrication in accordance with AASHTO M 111. Damage to the galvanizing shall be repaired with one coat of paint conforming to Section 9-08.1(2)B.

Bearing pads shall be serrated high-density polyethylene (HDPE) copolymer pads as recommended by SSL, LLC.

Filter fabric joint cover for all horizontal and vertical joints shall be non-woven geosynthetic conforming to AASHTO M 288. Adhesive used to bond the geosynthetic to the rear of the precast concrete facing panel shall be as recommended by SSL, LLC.

6-13.2.OPT2(A).GB6

(August 3, 2015)

Lock + Load Retaining Wall System

Stainless steel wire and wire rods shall conform to ASTM A 580.

Stainless steel bars, plates and shapes shall conform to ASTM A 276 Type 304.

The maximum particle size of the backfill material within 1'-6" of the back face of the precast concrete facing panel shall not exceed 3/4 inches.

6-13.2.OPT3.GB6

(January 2, 2018)

Concrete Block Faced Structural Earth Wall Materials

General Materials

Concrete Block

Acceptability of the blocks will be determined based on the following:

1. Visual inspection.
2. Compressive strength tests, conforming to Section 6-13.3(4).
3. Water absorption tests, conforming to Section 6-13.3(4).
4. Manufacturer's Certificate of Compliance in accordance with Section 1-06.3.
5. Freeze-thaw tests conducted on the lot of blocks produced for use in this project, as specified in Section 6-13.3(4).
6. Copies of results from tests conducted on the lot of blocks produced for this project by the concrete block fabricator in accordance with the quality control program required by the structural earth wall manufacturer.

The blocks shall be considered acceptable regardless of curing age when compressive test results indicate that the compressive strength conforms to the

28-day requirements, and when all other acceptability requirements specified above are met.

Testing and inspection of dry cast concrete blocks shall conform to ASTM C 140, and shall include block fabrication plant approval by WSDOT prior to the start of block production for this project.

Mortar

Mortar shall conform to ASTM C 270, Type S, with an integral water repellent admixture as accepted by the Engineer. The amount of admixture shall be as recommended by the admixture manufacturer. To ensure uniform color, texture, and quality, all mortar mix components shall be obtained from one manufacturer for each component, and from one source and producer for each aggregate.

Geosynthetic Soil Reinforcement

Geogrid reinforcement shall conform to Section 9-33.1, and shall be a product listed in Appendix D of the current WSDOT Qualified Products List (QPL). The values of T_{al} and T_{ult} as listed in the QPL for the products used shall meet or exceed the values required for the wall manufacturer's reinforcement design as specified in the structural earth wall design calculation and working drawing submittal.

The minimum ultimate tensile strength of the geogrid shall be a minimum average roll value (the average test results for any sampled roll in a lot shall meet or exceed the values shown in Appendix D of the current WSDOT QPL). The strength shall be determined in accordance with ASTM D 6637, for multi-rib specimens.

The ultraviolet (UV) radiation stability, in accordance with ASTM D 4355, shall be a minimum of 70 percent strength retained after 500 hours in the weatherometer.

The longitudinal (i.e., in the direction of loading) and transverse (i.e., parallel to the wall or slope face) ribs that make up the geogrid shall be perpendicular to one another. The maximum deviation of the cross-rib from being perpendicular to the longitudinal rib (skew) shall be no more than 1 inch in 5 feet of geogrid width. The maximum deviation of the cross-rib at any point from a line perpendicular to the longitudinal ribs located at the cross-rib (bow) shall be 0.5 inches.

The gap between the connector and the bearing surface of the connector tab cross-rib shall not exceed 0.5 inches. A maximum of 10 percent of connector tabs may have a gap between 0.3 inches and 0.5 inches. Gaps in the remaining connector tabs shall not exceed 0.3 inches.

The Engineer will take random samples of the geogrid materials at the job site. Acceptance of the geogrid materials will be based on testing of samples from each lot. A "lot" shall be defined as all geogrid rolls sent to the project site produced by the same manufacturer during a continuous period of production at the same manufacturing plant having the same product name. The Contracting Agency will require 14 calendar days maximum for testing the samples after their arrival at the WSDOT Materials Laboratory in Tumwater, WA.

The geogrid samples will be tested for conformance to the specified material properties. If the test results indicate that the geogrid lot does not meet the specified properties, the roll or rolls which were sampled will be rejected. Two additional rolls for each roll tested which failed from the lot previously tested will then be selected at random by the Engineer for sampling and retesting. If the retesting shows that any of the additional rolls tested do not meet the specified properties, the entire lot will be rejected. If the test results from all the rolls retested meet the specified properties, the entire lot minus the roll(s) which failed will be accepted.

All geogrid materials which have defects, deterioration, or damage, as determined by the Engineer, will be rejected. All rejected geogrid materials shall be replaced at no expense to the Contracting Agency.

Except as otherwise noted, geogrid identification, storage and handling shall conform to the requirements specified in Section 2-12.2. The geogrid materials shall not be exposed to temperatures less than –20F and greater than 122F.

Drainage Geosynthetic Fabric

Drainage geosynthetic fabric shall be a non-woven geosynthetic conforming to the requirements in Section 9-33.1, for Construction Geotextile for Underground Drainage, Moderate Survivability, Class B.

Proprietary Materials

Allan Block Wall

Wall backfill material placed in the open cells of the precast concrete blocks and placed in the one to three foot zone immediately behind the precast concrete blocks shall be crushed granular material conforming to Section 9-03.9(3).

GEOWALL Structural Earth Retaining Wall System

Connection pins shall be fiberglass conforming to the requirements of Basalite Concrete Products, LLC.

KeyGrid Wall

KeyStone connection pins shall be fiberglass conforming to the requirements of Keystone Retaining Wall Systems, Inc.

Landmark Retaining Wall

Lock bars shall be made of a rigid polyvinyl chloride polymer conforming to the following requirements:

Property	Value	Specification
Specific Gravity	1.4 minimum	ASTM D 792
Tensile Strength at yield	2,700 psi minimum	ASTM D 638

Lock bars shall remain sealed in their shipping containers until placement into the wall. Lock bars exposed to direct sunlight for a period exceeding two months shall not be used for construction of the wall.

Mesa Wall

Block connectors for block courses with geogrid reinforcement shall be glass fiber reinforced high-density polypropylene conforming to the following minimum material specifications:

Property	Specification	Value
Polypropylene	ASTM D 4101	
	Group 1 Class 1 Grade 2	73 ± 2 percent
Fiberglass Content	ASTM D 2584	25 ± 3 percent
Carbon Black	ASTM D 4218	2 percent minimum
Specific Gravity	ASTM D 792	1.08 ± 0.04
Tensile Strength	ASTM D 638	
at yield		8,700 ± 1,450 psi
Melt Flow Rate	ASTM D 1238	0.37 ± 0.16 ounces/10 min.

Block connectors for block courses without geogrid reinforcement shall be glass fiber reinforced high-density polyethylene (HDPE) conforming to the following minimum material specifications:

Property	Specification	Value
HDPE	ASTM D 1248	
	Type III Class A Grade 5	68 ± 3 percent
Fiberglass Content	ASTM D 2584	30 ± 3 percent
Carbon Black	ASTM D 4218	2 percent minimum
Specific Gravity	ASTM D 792	1.16 ± 0.06
Tensile Strength	ASTM D 638	
at yield		8,700 ± 725 psi
Melt Flow Rate	ASTM D 1238	0.11 ± 0.07 ounces/10 min.

6-13.3.GR6

Construction Requirements

6-13.3.INST1.GR6

Section 6-13.3 is supplemented with the following:

6-13.3.OPT1.GB6

(April 4, 2011)

Welded Wire Faced Structural Earth Wall

Welded wire faced structural earth walls shall be constructed of only one of the following wall systems.

The Contractor shall make arrangements to purchase the welded wire mats, welded wire form facing units, geogrid reinforcement, backing mats, facing elements, fasteners, geosynthetic connection rods, construction geotextile for wall facing, and all necessary incidentals from the source identified for each wall system:

Hilfiker Welded Wire Retaining Wall (WWW) System

Hilfiker is a registered trademark of Hilfiker Retaining Walls.

Hilfiker Retaining Walls
1902 Hilfiker Lane
Eureka, CA 95503-5711

(707) 443-5093
FAX (707) 443-2891
www.hilfiker.com

Tensar Wire Form Retaining Wall System
Tensar is a registered trademark of Tensar Corporation

Tensar Corporation
2500 Northwinds Parkway Suite 500
Atlanta, GA 30009
(770) 344-2090
FAX (678) 281-8546
www.tensarcorp.com

6-13.3.OPT2.GB6

(January 10, 2022)

Precast Concrete Panel Faced Structural Earth Wall

Precast concrete panel faced structural earth walls shall be constructed of only one of the following wall systems. The Contractor shall make arrangements to purchase the precast concrete panels, soil reinforcement, attachment devices, joint filler, and all necessary incidentals from the source identified with each wall system:

ARES Modular Panel Wall System
ARES Modular Panel Wall System is a registered trademark of Tensar Corporation

Tensar Corporation
2500 Northwinds Parkway Suite 500
Atlanta, GA 30009
(770) 344-2090
FAX (678) 281-8546
www.tensarcorp.com

MSE Plus Wall
MSE Plus Wall is a registered trademark of SSL, LLC

SSL, LLC
4740 Scotts Valley Drive Suite E
Scotts Valley, CA 95066
(831) 430-9300
FAX (831) 430-9340
www.mseplus.com

Reinforced Earth Wall
Reinforced Earth is a registered trademark of the Reinforced Earth Company.

The Reinforced Earth Company
9025 East Kenyon Ave. Suite 200
Denver, CO 80237
(303) 790-1481
FAX (303) 790-1461
www.reinforcedearth.com

6-13.3.OPT2(A).GB6

(August 3, 2015)

Lock + Load Retaining Wall System

Lock + Load is a registered trademark of Lock + Load Retaining Walls, Ltd.

Lock + Load Retaining Walls, Ltd.
1681 Chestnut Street Suite 400
Vancouver, BC V6J 4M6 Canada
(604) 732-9990
FAX: (604) 676-2705
www.lock-load.com

6-13.3.OPT3.GB6

(January 2, 2018)

Concrete Block Faced Structural Earth Wall

Concrete block faced structural earth walls shall be constructed of only one of the following wall systems. The Contractor shall make arrangements to purchase the concrete blocks, soil reinforcement, attachment devices, joint filler, and all necessary incidentals from the source identified with each wall system:

Allan Block Wall

Allan Block Wall is a registered trademark of the Allan Block Corporation

Allan Block Corporation
7424 W 78th Street
Bloomington, MN 55439
(800) 899-5309
FAX (952) 835-0013
www.allanblock.com

GEOWALL Structural Earth Retaining Wall System

GEOWALL is a registered trademark of Basalite Concrete Products, LLC

Basalite Concrete Products LLC
3299 International Place
Du Pont, WA 98327-7707
(800) 964-9424
FAX: (253) 964-5005
www.basalite.com

Redi-Rock Positive Connection System

Redi-Rock Positive Connection System is a registered trademark of Redi-Rock International, LLC

Redi-Rock International, LLC
05481 US 31 South
Charlevoix, MI 49720
(866) 222-8400
FAX (231) 237-9521
www.redi-rock.com

Mesa Wall

Mesa Wall is a registered trademark of Tensar Corporation

Tensar Corporation
2500 Northwinds Parkway Suite 500
Atlanta, GA 30009
(770) 334-2090
FAX (678) 281-8546
www.tensarcorp.com

Landmark Retaining Wall System

Landmark Retaining Wall System is a registered trademark of Anchor Wall Systems, Inc.

Anchor Wall Systems, Inc.
5959 Baker Road, Suite 390
Minnetonka, MN 55345-5996
(877) 295-5415
FAX (952) 979-8454
www.anchorwall.com

KeyGrid Wall

KeyGrid is a registered trademark of Keystone Retaining Wall Systems, Inc.

Keystone Retaining Wall Systems, Inc.
4444 West 78th Street
Minneapolis, MN 55435
(800) 747-8971
FAX (952) 897-3858
www.keystonewalls.com

6-13.3(2).GR6

Submittals

6-13.3(2).INST1.GR6

Section 6-13.3(2) is supplemented with the following:

6-13.3(2).OPT1.FB6

(January 3, 2011)

The following geotechnical design parameters shall be used for the design of the structural earth wall(s):

Wall Name or No.: *** $$1$$ ***

Soil Properties	Wall Backfill	Retained Soil	Foundation Soil
Unit Weight (pcf)	***$$2$$***	***$$3$$***	***$$4$$***
Friction Angle (deg)	***$$5$$***	***$$6$$***	***$$7$$***
Cohesion (psf)	***$$8$$***	***$$9$$***	***$$10$$***

For the Service Limit State, the wall shall be designed to accommodate a differential settlement of *** $$11$$ *** per 100 feet of wall length.

For the Extreme Event I Limit State, the wall shall be designed for a horizontal seismic acceleration coefficient k_h of *** $$12$$ *** g and a vertical seismic acceleration coefficient k_v of *** $$13$$ *** g.

6-13.3(4).GR6

Precast Concrete Facing Panel and Concrete Block Fabrication

6-13.3(4).INST1.GR6

Section 6-13.3(4) is supplemented with the following:

6-13.3(4).OPT1.GB6

(April 3, 2017)

Specific Fabrication Requirements for Precast Concrete Panel Faced Structural Earth Walls

ARES Modular Panel Wall System

The concrete mix for precast concrete facing panels shall be a Contractor mix design in accordance with Section 6-02.3(2)A, producing a minimum compressive strength at 28 days of 4,500 psi. The Contractor mix design for precast concrete facing panels shall not include Type III cement unless otherwise allowed by the Engineer.

6-13.3(4).OPT1(A).GB6

(August 3, 2015)

Lock + Load Retaining Wall System

Concrete for precast concrete panels and counterfort members shall conform to ASTM C 1116 Type III, with cement and aggregate gradation as recommended by Lock + Load Retaining Walls, Ltd, slump and air content as specified in this Section, and a minimum compressive strength at 28 days of 5,500 psi. The fiber reinforcement shall be mixed in the concrete at a minimum reinforcement ratio of 3.0 pounds per cubic yard and as specified by Lock + Load Retaining Walls, Ltd.

Full size precast concrete facing panels for Lock + Load retaining walls shall be 2’-8" wide and 1’-4” tall.

Precast concrete counterfort members shall be fabricated, handled, stored, and shipped in accordance with the requirements specified in this Section for precast concrete facing panels.

6-13.3(5).GR6

Precast Concrete Facing Panel and Concrete Block Erection

6-13.3(5).INST1.GR6

Section 6-13.3(5) is supplemented with the following:

6-13.3(5).OPT2.GB6

(April 2, 2012)

Specific Erection Requirements for Precast Concrete Block Faced Structural Earth Walls

Landmark Retaining Wall

When placing each course of concrete blocks, the Contractor shall pull the blocks towards the front face of the wall until the male key of the bottom face of the upper block contacts and fits into the female key of the top face of the supporting block below.

A maximum gap of 1/8-inch is allowed between adjacent concrete blocks, except for the base course set of concrete blocks placed on the leveling pad. A maximum gap of 1-inch is allowed between adjacent base course concrete blocks, provided geosynthetic reinforcement for drains is in place over the gap at the back face of the concrete blocks.

Lock bars shall be installed in the female key of the top face of all concrete block courses receiving geogrid reinforcement. Gaps between adjacent lock bars in the key shall not exceed 3-inches. The lock bar shall be installed flat side up, with the angled side to the back of the concrete block, as shown in the shop drawings.

Geogrid reinforcement shall be placed and connected to concrete block courses specified to receive soil reinforcement. The leading edge of the geogrid reinforcement shall be maintained within 1-inch of the front face of the supporting concrete blocks below. Geogrid panels shall be abutted for 100 percent backfill coverage with less than a 4-inch gap between adjacent panels.

Backfill shall be placed and compacted level with the top of each course of concrete blocks, and geogrid reinforcement placed and connected to concrete block courses specified to receive soil reinforcement, before the Contractor may continue placing the next course of concrete blocks.

Mesa Wall

For all concrete block courses receiving geogrid reinforcement, the fingers of the block connectors shall engage the geogrid reinforcement apertures, both in the connector slot in the block, and across the block core. For all concrete block courses with intermittent geogrid coverage, a #3 steel reinforcing bar shall be placed, butt end to butt end, in the top block groove, with the butt ends being placed at a center of a concrete block.

6-13.3(7).GR6

Backfill

6-13.3(7).INST1.GR6

Section 6-13.3(7) is supplemented with the following:

6-13.3(7).OPT1.GB6

(August 3, 2015)

Specific Backfill Requirements for Precast Concrete Panel Faced Structural Earth Walls

Lock + Load Retaining Wall System

The Contractor shall begin placement and compaction of backfill above the tail of the counterfort member first, then towards the back face of the precast concrete facing panel, followed by placement and compaction of the remainder of the backfill layer. The zone for compaction by plate compactor equipment only, with no soil density testing requirement, shall be within 1'-4" of the back face of the precast concrete facing panel.

6-14.GR6

Geosynthetic Retaining Walls

6-14.2.GR6

Materials

6-14.2(9-33.2(2)).GR6

Geosynthetic Properties For Retaining Walls and Reinforced Slopes

Section 9-33.2(2) is supplemented with the following:

6-14.2(9-33.2(2)).OPT1.FB6

(August 7, 2006)

Geosynthetic Properties For Temporary Geosynthetic Retaining Walls

Wide strip geosynthetic strengths provided in Table 10 are minimum average roll values. The average test results for any sampled roll in a lot shall meet or exceed the values shown in the table. These wide strip strength requirements apply only in the geosynthetic direction perpendicular to the wall face. The test procedures specified in the table are in conformance with the most recently approved ASTM geosynthetic test procedures, except for geosynthetic sampling and specimen conditioning, which are in accordance with WSDOT Test Methods 914 and 915, respectively.

Table 10: Wide strip tensile strength required for the geosynthetic reinforcement used in geosynthetic retaining walls.

Wall Location	Vertical Spacing of Reinforcement Layers	Reinforcement Layer Distance from Top of Wall	Minimum Tensile Strength Based on ASTM D4595 for Geotextiles and ASTM D6637 for Geogrids
$$1$$	***$$2$$***	***$$3$$***	***$$4$$***

6-15.GR6

Soil Nail Walls

6-15.2.GR6

Materials

6-15.2.INST1.GR6
Section 6-15.2 is supplemented with the following:

6-15.2.OPT1.GB6

(August 3, 2015)

Permanent Soil Nail Materials and Components

A soil nail system is a structural system used to transfer tensile loads to soil. A soil nail system may also be specified in the Plans as a nail. A soil nail system includes all steel reinforcing bars, anchorage devices, grout, coatings, sheathings and couplers if used.

The Contractor shall either select a soil nail system from the Qualified Products List, or submit a Type 2 Working Drawing consisting of the following information:

1. Catalogue cuts or Manufacturer's Certificates of Compliance for centralizers and grout admixtures.

2. Manufacturer's Certificate of Compliance for bearing plates, nuts, steel reinforcing bars, tendon encapsulation tubing, and welded shear studs. The Manufacturer's Certificate of Compliance for the nuts shall confirm compliance with the specified strength requirements.

If the Contractor selects a permanent soil nail system from the Qualified Products List (QPL), the Contractor shall submit a Type 1 Working Drawing consisting of a certificate from the permanent soil nail system fabricator/supplier confirming that the material specifications of the permanent soil nail system components as furnished conform to those specified in the QPL.

Component Material Specifications

Bearing plates shall conform to ASTM A 36, ASTM A 529, ASTM A 536, ASTM A 572, ASTM A 588, or AASHTO M 270.

Centralizers shall be fabricated from plastic, steel, or material which is nondetrimental to the prestressing steel. Wood shall not be used.

Grout shall be a neat cement grout or a sand-cement grout conforming to Section 9-20.3(4). The compressive strength for the grout shall be as required by the soil nail manufacturer. Grout components shall be as follows:

Admixtures shall conform to the requirements of Section 9-23.6. Expansive admixtures and accelerators will not be permitted. Admixtures shall be mixed in accordance with the manufacturer's recommendations.

Aggregates shall conform to the requirements of Section 9-03.

Cement shall conform to the requirements of Section 9-01, and shall not contain lumps or other indications of hydration.

Nuts shall conform to either ASTM A 563, Grade B, Hexagonal, ASTM A 536 Grade 100-70-03, ASTM A 29 Grades 12L14, 1215, or C1045, AASHTO M 169 Grades 1117 or 12L14, ASTM A 513 Type 5 Grade 1026, ASTM A 521 Class CF, ASTM A 897 Grade 125/80/10M, or ASTM A 519 Grade 1026, and shall be capable of developing 100 percent of the GUTS of the soil nail. The nuts shall be fitted, where necessary,

with a special wedge washer or spherical seat such that the nut bears uniformly on the bearing plate.

Washers shall conform to either ASTM F 436, ASTM A 536 Grade 80-55-06 or ASTM A 47 Grade 32510.

Soil nails shall be deformed steel reinforcing bars conforming to AASHTO M 31, Grade 60 minimum, and Section 9-07.2. All soil nails, except those specified in the Plans to be encapsulated, shall be epoxy-coated in accordance with Sections 6-02.3(24)H and 9-07.3. The soil nails shall be of the type and size specified in the Plans. The soil nails shall not be spliced. The soil nails shall be threaded at the bearing plate end a minimum of six inches. The threading shall be continuous spiral deformed ribbing. Alternatively, threads may be cut into the soil nail if the bar size is increased to the next larger size from the size specified in the Plans at no additional cost to the Contracting Agency.

Tendon encapsulation, when specified in the Plans to provide additional corrosion protection, shall be fabricated from one of the following:

1. High density corrugated polyethylene (PE) tubing conforming to the requirements of ASTM D 3350 Class PE335520C or Class PE335400C, ASTM D 1248, and AASHTO M 252 and having a nominal wall thickness of 40 mils.

2. Corrugated, polyvinyl chloride (PVC) tubing conforming to ASTM D 1784, Class 13464-B, and having a nominal wall thickness of 40 mils.

The soil nails shall be centralized within the sheathing with a minimum 0.2 inch grout cover over the soil nail inside the sheath. The encapsulation shall be constructed at the factory under controlled conditions. Field construction of the encapsulation will not be permitted.

Welded shear studs shall conform to Section 9-06.15, and shall be welded in accordance with Section 6-03.3(25).

6-15.3.GR6

Construction Requirements

6-15.3(8).GR6

Soil Nail Testing And Acceptance

6-15.3(8)A.GR6

Verification Testing

6-15.3(8)A.INST1.GR6

Section 6-15.3(8)A is supplemented with the following:

6-15.3(8)A.OPT1.FB6

(April 5, 2004)

Soil nail verification tests shall be conducted as follows:

Verification	Soil Nail	Number of Successful

Test Limits	Row	Verification Tests Required
$$1$$	***$$2$$***	***$$3$$***

6-17.GR6
Permanent Ground Anchors

6-17.1.GR6
Description

6-17.1.INST1.GR6
Section 6-17.1 is supplemented with the following:

6-17.1.OPT1.GB6
(January 7, 2013)
This work also consists of furnishing, field locating, installing, stressing and testing rock bolts and rock dowels.

6-17.2.GR6
Materials

6-17.2.INST1.GR6
Section 6-17.2 is supplemented with the following:

6-17.2.OPT1.GB6
(November 2, 2022)
Permanent Ground Anchor Materials and Components
A permanent ground anchor system is a structural system used to transfer tensile loads to soil or rock. A permanent ground anchor system may also be specified in the Plans as an anchor, a ground anchor, or a tieback. A permanent ground anchor system includes all prestressing steel, anchorage devices, grout, coatings, sheathings and couplers if used.

The Contractor shall either select a permanent ground anchor system from the Qualified Products List or submit a Type 2 Working Drawing consisting of the following information:

1. Catalogue cuts or Manufacturer's Certificates of Compliance for anchorage covers, bond breaker, centralizers, corrosion inhibiting grease, end caps, grout admixtures, and strand tendon spacers.

2. Manufacturer's Certificates of Compliance for anchor heads, anchor head wedges, bar tendon nuts, bar tendon couplers, tendon encapsulation tubing, trumpet assemblies, and bar tendons or strand tendons. The Manufacturer's Certificates of Compliance for the anchorhead wedges (grippers), and bar tendon nuts and couplers, shall confirm compliance with the specified strength requirements.

If the Contractor selects a permanent ground anchor system from the Qualified Products List (QPL), the Contractor shall submit a Type 1 Working Drawing consisting of a certificate from the permanent ground anchor system fabricator/supplier confirming that the material specifications of the permanent ground anchor system components as furnished conform to those specified in the QPL.

Component Material Specifications

Anchorage covers shall have a minimum thickness of 0.20 inches and shall conform to either ASTM A 53 for pipe, or ASTM A 500 for tubing, or ASTM A 36, ASTM A 529, ASTM A 572, ASTM A 588, or AASHTO M 270 for fabricated steel.

Anchorheads shall conform to either ASTM A 36, AASHTO M 169 Grades 1040 or 1045, ASTM A 521 Grade 1045, ASTM A 576 Grade 1045, or ASTM A 536 Grade 80-55-06.

Bearing plates shall conform to either ASTM A 36, ASTM A 572, ASTM A 588, AASHTO M 270, ASTM A 529, or ASTM A 536.

Anchorhead wedges (grippers) shall conform to AASHTO M 169 Grade 12L14, case hardened 0.012 to 0.015 inches deep to Rockwell C 59 to 65.

Bar tendon nuts shall conform to either ASTM A 29 Grade C1045, ASTM A 521 Class CF, AASHTO M 169 Grades 1117 or 1144, or ASTM A 536 Grade 100-70-03, and shall be capable of developing 100 percent of the GUTS of the bar tendon.

Bondbreaker shall conform to the requirements of Section 4.7 of the Post-Tensioning Institute “Recommendations for Prestressed Rock and Soil Anchors”, and shall be fabricated from a smooth plastic tube or pipe having the following properties:

1. Resistant to chemical attack from aggressive environments, grout or grease;
2. Resistant to aging by ultra-violet light;
3. Fabricated from material nondetrimental to the tendon;
4. Capable of withstanding abrasion, impact, and bending during handling and installation;
5. Enable the tendon to elongate during testing and stressing; and
6. Allow the tendon to remain unbonded after lock-off.

Centralizers shall be fabricated from plastic, steel, or material which is nondetrimental to the prestressing steel. Wood shall not be used.

Corrosion inhibiting grease shall conform to the requirements of Section 3.2.5 of the Post-Tensioning Institute, "Specification For Unbonded Single Strand Tendons".

Couplers for bar tendons, if required, shall be furnished by the manufacturer of the bar tendons and shall be AASHTO M 169 Grades 1045, 1117 or 1144, ASTM A 519 Grade 1026, or equivalent steel developing 100 percent of the GUTS of the bar tendon without evidence of any failure. Couplers shall not be placed in the bond zone. Couplers for strand tendons will not be allowed.

End caps shall conform to ASTM D 3350 Class PE324420C, Class PE334410C, or Class PE335400C, ASTM D 1248, and AASHTO M 252, ASTM D 1784 Class 1346B, ASTM A 653, or ASTM A 36.

Grout shall be a neat cement grout or a sand-cement grout conforming to Section 9-20.3(4). The compressive strength for the grout shall be as required by the tieback manufacturer. Grout components shall be as follows:

Admixtures shall conform to the requirements of Section 9-23.6. Expansive admixtures shall only be added to the grout used for filling sealed encapsulations, trumpets and anchorage covers. Accelerators will not be permitted. Admixtures shall be compatible with prestressing steels and mixed in accordance with the manufacturer's recommendations.

Aggregates shall conform to the requirements of Section 9-03.

Cement shall conform to the requirements of Section 9-01, and shall not contain lumps or other indications of hydration.

Prestressing steel shall consist of either bar tendons with an ultimate tensile strength of 150 ksi conforming to AASHTO M 275 Type II, or strand tendons with an ultimate tensile strength of 270 ksi conforming to AASHTO M 203. The Contractor shall submit Type 1 Working Drawings consisting of certified mill test results and typical stress-strain curves along with samples from each heat, properly marked, for the prestressing steel. The typical stress-strain curve shall be obtained by conventional industry standard practices. The guaranteed ultimate strength, yield strength, elongation, and composition shall be specified.

Strand tendon spacers shall be fabricated from plastic, steel, or material which is nondetrimental to the prestressing steel. Wood shall not be used.

Tendon encapsulation, when specified in the Plans to provide additional corrosion protection, shall be fabricated from one of the following:

1. High density corrugated polyethylene (PE) tubing conforming to the requirements of ASTM D 3350 Class PE334410C, Class PE335520C or Class PE335400C, ASTM D 1248, and AASHTO M 252 and having a nominal wall thickness of 40 mils or greater.

2. Corrugated, polyvinyl chloride (PVC) tubing conforming to ASTM D 1784, Class 13464-B, and having a nominal wall thickness of 40 mils or greater.

Trumpet providing the transition from the bearing plate to the unbonded length corrosion protection shall be fabricated from a steel pipe or tube conforming to the requirements of ASTM A 53 for pipe or ASTM A 500 for tubing. The trumpet shall have a minimum wall thickness of 0.20 inches, and shall be seal welded to the bearing plate. The seal weld shall be visually inspected only, in accordance with Section 6-03.3(25)A.

6-17.2.OPT2.GB6

(September 8, 2020)

Rock Bolt and Rock Dowel Materials

Rock bolts shall be continuously threaded steel reinforcement bars conforming to either; AASHTO M 31 Grade 60 or 75 deformed bar, ASTM 615 Grade 60 or 75 deformed bar, ASTM A 706 Grade 60 or 80 deformed bar, ASTM A 722 Grade 150 Type II, or AASHTO M 275 Grade 150 Type II and shall be capable of being post-tensioned to the design loads, performance test loads, and proof loads specified. The bending requirements of AASHTO M 31, ASTM 615, and ASTM 706 shall be waived.

Rock dowels shall be continuously threaded steel reinforcement bars conforming to either; AASHTO M 31 Grade 60 or 75 deformed bar, ASTM A 615 Grade 60 or 75 deformed bar, or ASTM A 706 Grade 60 or 80 deformed bar with a minimum size of a No. 7 bar for Type 1 rock dowels, and a minimum size of a No.11 bar for Type 2 rock dowels. The bending requirements of AASHTO M 31, ASTM 615, and ASTM 706 shall be waived.

Anchor bar steel for rock bolts and dowels shall be provided with epoxy coating in accordance with either AASHTO M 284, ASTM A 775, or ASTM A 934. The patching material, compatible with coating material and inert in grout selected for use, shall be supplied with each shipment.

Bearing plated shall be galvanized in accordance with either AASHTO M 111, AASHTO M 232, ASTM A 123, or ASTM A 153, and shall conform to ASTM A 36 Grade 36 or ASTM A 572 Grade 50. Bearing plate size will be reviewed and approved by the Engineer in accordance with Section 6.10 of Post Tensioning Institute “Recommendations for Prestressed Rock and Soil Anchors”. Bearing plate thickness shall be not less than ¾ inch and its dimensions not less than 2 inches greater than the drill hole diameter.

Nuts and couplers shall be galvanized in accordance with either AASHTO M 232 or ASTM A 153 and exceed 100 percent of the MUTS (Minimum Ultimate Tensile Strength) of the bar. For Grades 60, 75, and 80 bar the nuts and coupler shall conform to either AASHTO M 169 or ASTM A 108. For Grade 150 bar the nuts shall conform to either ASTM A 29 or ASTM A 536, couplers shall conform to ASTM A 29.

Washers shall be galvanized in accordance with AASHTO M 232 or ASTM A 153 and conform to ASTM F 436. Spherical and beveled washers shall be galvanized in accordance with AASHTO M 232 or ASTM A 153 and conform to ASTM A 536 or ASTM A 47.

Centralizers shall be fabricated from plastic or material which is non-detrimental to the pre-stressing steel. Wood shall not be used.

Grout shall conform to Section 9-20.3(2).

Sleeved bondbreakers for rock bolts shall be fabricated from plastic tube or pipe having the following properties:

1. Resistant to chemical attack from aggressive environment, grout or corrosion inhibiting compound.

2. Resistant to aging by ultra-violet light.

3. Non-detrimental to bolt. Resistant to damage caused by abrasion, impact, crushing and bending during handling and installation.

4. Enable the bolt to elongate during testing.

5. Resistant to distortion caused by heat generated by the curing of the grout.

The wall thickness of sleeved bondbreaker shall meet the following:

Type	Nominal	Minimum

HDPE/PP	0.060 in. (1.5 mm)	0.050 in. (1.25 mm)
PVC	0.040 in. (1.0 mm)	0.035 in. (0.9 mm)

Corrosion inhibiting compounds shall be provided by the manufacturer or shall be either a grease, wax, or gel and conforms to the following:

Properties	Test Method	Criteria		
		Grease	Wax[1]	Gel[1]
Dropping Point, °F min.	ASTM D 566	300°	N/A	N/A
Melting Point, °F min.	ASTM D 127(2)	N/A	145°	500°
Oil Separation @160°F, max.	FTMS 791B Method 321.2	0.5	N/A (product is liquid)	0.5
Water, % max.	ASTM D 95	0.1	0.4	0.4
Flash Point °F, min.	ASTM D 92	300°	300°	
Accelerated Corrosion Test: Salt Fog @ 100°F @ 5 mils, hrs. min.	ASTM B 117	1000	1000	1000
Water Soluble Ions, ppm max.				
a. Chloride	ASTM D 512	10	10	10
b. Sulfides	APHA 4500S^2-E	10	10	10
c. Nitrates	ASTM D 3867	10	10	10
Soak Test: Salt Fog 50/50 Immersion, hrs.	ASTM B 117 Modified	720+	720+	720+
Sheathing Compatibility @150°F				
a. Hardness % max change	ASTM D 4289	15% change	15% change	15% change
b. Volume % max change	ASTM D 4289	10% change	10% change	10% change
c. Tensile Strength % max change	ASTM D 638	30% change	30% change	30% change
Note 1: A combination of wax and gel is possible when approved by the Engineer. Note 2: ASTM D 566 may be used when the wax product consistency warrant it.				

Anchorage covers for rock bolts shall be galvanized in accordance with either AASHTO M 111 or ASTM F 2329 as applicable, and have a minimum thickness of 0.20 inches; and shall conform to either ASTM A 53 for pipe, or ASTM A 500 for tubing, or ASTM A 36, ASTM A 529, ASTM A 572, ASTM A 588, or AASHTO M 270 for fabricated steel.

6-17.3.GR6

Construction Requirements

6-17.3.INST1.GR6

Section 6-17.3 is supplemented with the following:

6-17.3.OPT1.GB6

(September 8, 2020)

Rock Bolt and Rock Dowel Construction Requirements

Rock Bolt and Rock Dowel Installation Experience Requirements

The Contractor's foreman supervising the rock bolt and rock dowel work shall have installed a minimum of 3,000 linear feet of post-tensioned rock bolts or rock dowels on a minimum of five projects within the past five years.

The Contractor's rock bolt and rock dowel drill operators shall have installed a minimum of 1,000 linear feet of post-tensioned rock bolts or rock dowels on a minimum of three projects within the past five years.

The Contractor shall submit a Type 2 Working Drawing consisting of a list documenting the rock bolt and rock dowel work experience of the foreman and drill operators working on the project. This list shall include a brief description of each project and a reference shall be included for each project listed. As a minimum, the reference shall include an individual's name and current phone number.

Rock Bolt and Rock Dowel Submittals

The Contractor shall submit Type 2 Working Drawings consisting of a rock bolt and rock dowel plan. The rock bolt and rock dowel plan shall include the following:

1. The proposed construction sequence and schedule.
2. The proposed drilling method and equipment.
3. The proposed drill hole diameter.
4. The minimum bond zone length for the rock bolts.
5. The proposed anchor steel bars, couplers, nut, bearing plate, flat washer, and beveled washer specifications, including manufacturer's data sheets and mill certificates. Manufacturer's verification for the bearing plate thickness for the specified rock bolt and rock dowel capacities.
6. The proposed grout mix design, including manufacturer's certificate of compliance and the procedures for placing the grout. For rock bolts, if two-stage grouting is used, the means for determining the level of the primary grout for the bond zone. If single-stage grouting is used, the fabrication details for the bondbreaker in the free-stressing length, including corrosion inhibiting compounds.
7. The proposed corrosion protection for the rock bolt and rock dowel systems.
8. The proposed stressing procedures and stressing equipment.
9. The proposed construction method for upwardly inclined anchors.
10. The proposed equipment for measuring and recording the volume of grout injected for production rock bolts and rock dowels.

11. The calibration data for each load cell, test jack, pressure gauge and master pressure gauge to be used in the proof testing, in accordance with the calibration requirements specified in Section 6-17.3(3).

Rock Bolt and Rock Dowel Preconstruction Conference

A rock bolt and rock dowel preconstruction conference may be held at the discretion of the Engineer in accordance with Section 6-17.3(4).

Rock Bolt and Rock Dowel Storage and Handling

Rock bolt and rock dowel storage and handling shall conform to the Section 6-17.3(6) requirements for permanent ground anchor tendons.

Field handling procedures for epoxy-coated rock bolts and rock dowels shall conform to Sections 6-02.3(24)H, including providing padding between contact points during storage and lifting, and covering epoxy-coated rock bolts and rock dowels to minimize ultraviolet exposure.

Rock Bolt and Rock Dowel Grout

Grout shall meet the requirements of Section 9-20.3(2).

The use of epoxy or polyester resin as bonding agents will not be allowed.

Rock Bolt and Rock Dowel Installation

General Requirements

The Contractor shall install rock bolts and rock dowels at the location and orientation in accordance with the rock bolt and rock dowel plan accepted by the Engineer. For rock bolts, the Engineer will designate the required free-stressing length. For rock dowels, the Engineer will designate the minimum length.

The rock bolts and rock dowels shall be installed within five degrees of the orientation angle specified by the Engineer. Unless otherwise specified by the Engineer, the angle of installation shall be perpendicular to the rock face and inclined slightly downward at the rock bolt and rock dowel location.

In all cases, at least three-quarters of the bearing plate shall be in contact with the rock face. The orientation of the bearing plate against the rock surface should be within twenty degrees of normal to the bar. Beveled washers shall be used to accommodate all non-perpendicular installations, but should not exceed twenty degrees. If the axis of the anchor is not within five degrees of perpendicular to the rock surface, or within the angle provided by the beveled washer up to a maximum of twenty degrees, or if the rock beneath the bearing plate is not sound or is highly irregular as determined by the Engineer, a bearing pad accepted by the Engineer shall be constructed so that the bar is not bent when the nut is torqued during lock-off of the anchor. The Engineer may also require the use of over-sized bearing plates, when the rock surface is weak or highly weathered.

The use of hand drills for advancing the hole will not be allowed without the written permission of the Engineer and demonstrated effectiveness by the Contractor. The drill hole shall be sized to provide a minimum of 1/2 inches of grout cover around the rock bolt or rock dowel. The Contractor shall flush the drill hole of all drill cuttings and debris prior to installing the rock bolt or rock

dowel. Holes determined by the Engineer to be unacceptable for rock bolt and rock dowel installation shall be re-drilled by the Contractor at no additional expense to the Contracting Agency.

Rock bolts and rock dowels shall not be precut at the factory to lengths shown in the Plans, but rather shall be delivered to the job site in bulk lengths and field cut to the appropriate lengths. Each rock bolt and rock dowel shall be fitted with a bearing plate, nut, and washers. Prior to placing rock bolts and rock dowels in the drilled holes, all mill scale, flaking rust and grease shall be removed from the rock bolt and rock dowel.

Centralizers shall be placed along the rock bolt or rock dowel at ten foot centers prior to grouting, with a minimum of one centralizer per rock bolt or rock dowel. The lowermost centralizer shall be located within 12 inches of the end of the rock bolt or rock dowel. Centralizers shall be of sufficient strength to support the weight of the anchor bar in the drilled hole and provide a minimum of 0.5 inches of grout cover.

The grout equipment shall produce a grout free of lumps and undispersed cement. The pump shall be equipped with a pressure gauge near the discharge end to monitor grout pressures. The grouting equipment shall be sized to enable the grout to be pumped in one continuous operation. The grout shall be injected from the lowest point of the drill hole. Sufficient grout shall be placed in the drill hole to ensure full encapsulation of the rock bolt or rock dowel. The volume of grout injected, and the corresponding grout injection pressure, for each production rock bolt and rock dowel shall be measured using the methods and equipment specified in the rock bolt and rock dowel plan.

The entire length of the rock bolt and rock dowel shall be corrosion-protected with grout. Bare steel from field cutting of the anchor bar and any damaged galvanizing on the bearing plates, nuts and washers shall be painted in accordance with Section 6-07.3(10)P with one coat of galvanizing repair paint conforming to Section 9-08.1(2)B.

Specific Rock Dowel Requirements

The Contractor shall install Type 1 rock dowels to achieve the design load specified in the Plans; if the design load is not specified in the Plans a 25 kip design load should be used. When the grout has reached final set, the Contractor shall install the bearing plate, washers and nut. The nut shall be torqued to a nominal 100 foot-pounds to ensure proper seating against the rock face. The end of the completed rock dowel shall be trimmed to within six inches of the rock face.

Specific Rock Bolt Requirements

The Contractor shall select the type of rock bolt and construction method to be used. The Contractor shall embed and install rock bolts to achieve the design load specified in the Plans. The rock bolt shall be sized so that the design load does not exceed 60 percent of the minimum ultimate tensile strength (MUTS) of the rock bolt. In addition, the rock bolt shall be sized so that the maximum test load does not exceed 80 percent of the MUTS for Grade 150 bar or 90 percent of the minimum yield strength for Grade 75 bar. The end of the completed rock

bolt shall be trimmed to within six inches of the rock face, and fitted with a galvanized steel anchorage cover filled with a corrosion-inhibiting compound.

6-17.3(8).GR6

Testing And Stressing

6-17.3(8).INST1.GR6

Section 6-17.3(8) is supplemented with the following:

6-17.3(8).OPT1.GB6

(January 7, 2013)

Rock Dowel Proof Testing

At the discretion of the Engineer, up to five percent, but not less than three installed production rock dowels as selected by the Engineer shall be proof tested. The Contractor shall conduct the proof test, and the Engineer will interpret the results.

The rock dowel shall be tensioned to 25 kips for Type 1 rock dowels, with a calibrated hollow-ram hydraulic jack using a bar extension and coupler attached to the rock dowel. The test load specified for the particular type of rock dowel shall be held for ten minutes. If no loss of load occurs over the ten minute hold period, the rock dowel is acceptable.

The Engineer may require additional proof testing above the specified five percent maximum if rock dowels fail the proof testing. All failed rock dowels shall be replaced with an additional rock dowel installed in a separate hole at no additional expense to the Contracting Agency.

Upon acceptance by the Engineer, the Contractor shall permanently stamp or etch the bearing plate of or otherwise label each rock dowel with a unique number assigned by the Engineer, the installation date and the total anchor length.

Rock Bolt Testing

The Contractor shall conduct rock bolt testing in accordance with the requirements specified in this Section for permanent ground anchors, including testing equipment, and test load monitoring, recording and documentation.

Rock Bolt Performance Testing

At the Engineer's discretion, the Contractor shall conduct up to three performance tests to demonstrate the effectiveness of the construction method for each rock bolt design, and when a significant change is proposed in the construction method.

Rock bolts shall be tensioned to 120 percent of the design load of the rock bolt for a holding time period of not more than 60 minutes. The Contractor shall monitor the test load and shall document the results in accordance with the requirements specified in this Section.

The Engineer will analyze the rock bolt performance test results and determine whether the rock bolt is acceptable. A rock bolt is acceptable if both the following conditions are satisfied:

1. The total elastic movement obtained at the maximum test load exceeds 80 percent of the theoretical elastic elongation of the stressing length.

2. The rock bolt carries the maximum test load with a creep rate that does not exceed 0.04 inches between one and ten minutes, or 0.08 inches per log cycle of time between the six and 60 minute readings.

If the Contractor fails to successfully achieve these testing criteria, the Engineer may require additional rock bolt performance tests to be completed at no additional expense to the Contracting Agency.

Production rock bolting shall not begin until the Contractor has completed performance testing of the design rock bolts and the test results have been accepted by the Engineer.

Rock Bolt Proof Testing

Each production rock bolt shall be proof tested. Proof testing shall consist of tensioning the rock bolt to 120 percent of the design load and holding that load for ten minutes. If no loss of load occurs in this time period, the rock bolt is accepted. If a rock bolt fails this proof test, the rock bolt shall be replaced with an additional rock bolt installed in a separate hole.

After tensioning and achieving a successful rock bolt proof test, the load shall be locked off at 100 percent of the design load and the remaining portion of the rock bolt grouted, if appropriate. The end of the completed rock bolt shall be trimmed to within six inches of the rock face.

Upon acceptance by the Engineer, the Contractor shall permanently stamp or etch the bearing plate of or otherwise label each rock bolt with a unique number assigned by the Engineer, the installation date, the stressing load, and the total anchor length.

6-17.3(8)A.GR6

Verification Testing

6-17.3(8)A.INST1.GR6

Section 6-17.3(8)A is supplemented with the following:

6-17.3(8)A.OPT1.GB6

(August 3, 2015)

Verification tests shall be performed to verify the design of the anchor system. These ground anchor test results shall verify the Contractor's design and be accepted by the Engineer prior to ordering anchor material for the tieback retaining walls. The tests shall be performed on sacrificial test anchors. A minimum of two successful verification tests shall be conducted. The locations shall be close to the anchor location of the production anchors. The test locations shall be selected by the Contractor and accepted by the Engineer, except where specific permanent ground anchor rows between specific station limits are shown in the Plans.

Verification test anchors shall be constructed using the same procedures and anchor geometry (drill hole diameter, bond length, unbonded length) as the production anchors.

The anchor tested shall be loaded to 150 percent of the factored design load (FDL). The prestressing tendon shall be proportioned such that the maximum stress does not exceed 80 percent of the ultimate strength of the steel. The jack shall be positioned at the beginning of the test such that unloading and repositioning of the jack during the test will not be required.

The verification tests shall be made by incrementally loading the anchors in accordance with the following schedule.

AL - Anchor Alignment Load
FDL - Factored Design Load

Load	Hold Time
AL	1 Min.
0.25FDL	10 Min.
0.50FDL	10 Min.
0.75FDL	10 Min.
1.00FDL	10 Min.
1.15FDL	60 Min.
1.25FDL	10 Min.
1.50FDL	10 Min.
AL	1 Min.

The test load shall be applied in increments of 25 percent of the factored design load. Each load increment shall be held for at least 10 minutes. Measurement of anchor movement shall be obtained at each load increment. The load-hold period shall start as soon as the test load is applied and the anchor movement, with respect to a fixed reference, shall be measured and recorded at 1 minute, 2, 3, 4, 5, 6, 10, 20, 30, 40, 50, and 60 minutes.

The verification test will be considered successful if the anchor meets the criteria for a performance tested ground anchor in Section 6-17.3(9), and in addition, a pull-out failure does not occur at the 1.50FDL maximum load.

The Engineer will give the Contractor a written order concerning ground anchor construction within seven working days after completion of the verification tests. This written order will either confirm the bond lengths as shown in the Contractor's plans for ground anchors or reject the anchors based upon the result of the verification tests.

6-17.3(8)B.GR6

Performance Testing

6-17.3(8)B.INST1.GR6

The performance test schedule following the second paragraph of Section 6-17.3(8)B is revised to read:

6-17.3(8)B.OPT1.GB6

(January 3, 2011)

Performance Test Schedule

Load
AL
0.25FDL
AL
0.25FDL
0.50FDL
AL
0.25FDL
0.50FDL
0.75FDL
AL
0.25FDL
0.50FDL
0.75FDL
1.00FDL
AL
0.25FDL
0.50FDL
0.75FDL
1.00FDL
1.15FDL
AL
Jack to lock-off load

Where: AL - is the alignment load
FDL - is the factored design load.

6-17.3(8)C.GR6

Proof Testing

6-17.3(8)C.INST1.GR6

The proof test schedule following the first paragraph of Section 6-17.3(8)C is revised to read:

6-17.3(8)C.OPT1.GB6

(January 3, 2011)

Proof Test Schedule

Load
AL
0.25FDL
0.50FDL
0.75FDL
1.00FDL
1.15FDL
Jack to lock-off load

Where: AL - is the alignment load
FDL - is the factored design load

6-17.4.GR6
Measurement

6-17.4.INST1.GR6
Section 6-17.4 is supplemented with the following:

6-17.4.OPT1.GB6
(January 4, 2010)
Rock bolts will be measured by the linear foot of rock bolt (unbonded plus bonded length) installed, successfully proof tested, and accepted.

Rock dowels will be measured by the linear foot of rock dowel installed and accepted.

6-17.5.GR6
Payment

6-17.5.INST1.GR6
Section 6-17.5 is supplemented with the following:

6-17.5.OPT1.GB6
(January 4, 2010)
"Rock Bolt", per linear foot.
The unit contract price per linear foot for "Rock Bolt" shall be full pay for performing the work as specified, including all performance and proof testing, and all grout injection up to 200 percent of that calculated at each production rock bolt location.

"Rock Dowel Type _", per linear foot.
The unit contract price per linear foot for "Rock Dowel Type _" shall be full pay for performing the work as specified, including all proof testing, and all grout injection up to 200 percent of that calculated at each production rock dowel location.

"Force Account Rock Bolt & Rock Dowel Grout Exceedance", force account.
Payment for "Force Account Rock Bolt & Rock Dowel Grout Exceedance", for all grout injection over 200 percent of that calculated at each production rock bolt and rock dowel location, will be by force account as provided in Section 1-09.6. Wasted grout will not be measured for payment.

For the purposes of providing a common proposal for all bidders, the Contracting Agency has entered an amount for the item "Force Account Rock Bolt & Rock Dowel Grout Exceedance" in the bid proposal to become a part of the total bid by the Contractor.

6-18.GR6
Shotcrete Facing

6-18.2.GR6
Materials

6-18.2.INST1.GR6
Section 6-18.2 is supplemented with the following:

6-18.2.OPT2.GB6

(August 3, 2015)

Coloration for Shotcrete Facing Finishing Alternative C

If shotcrete facing finishing Alternative C is specified, the Contractor shall provide shotcrete coloration for finishing the sculptured shotcrete to match the color of the natural surroundings. Acceptance of the final appearance of the coloration will be based on the pre-production test panel. Acceptance of the long-term properties of the coloration material will be based on a manufacturer's certification, submitted as a Type 1 Working Drawing which verifies the following to be true about the product:

1. Resistance to alkalis in accordance with ASTM D 543.

2. Demonstrates no change in coloration after 1,000 hours of testing in accordance with ASTM D 822.

3. Does not oxidize when tested in accordance with ASTM D 822.

4. Demonstrates resistance to gasoline and mineral spirits when tested in accordance with ASTM D 543.

Additionally, the certification shall provide the product name, proposed mix design and application method, and evidence of at least one project where the product, using the proposed mix and application method, was applied and which has provided at least five years or more of acceptable durability and color permanency.

6-18.2.OPT3.GB6

(August 3, 2015)

Fiber Reinforcement for Shotcrete Facing

Fiber reinforcement for shotcrete facing shall be either steel fibers or macro synthetic fibers.

Steel fibers shall be cold drawn, deformed steel Type 1 or Type 4 fibers conforming to ASTM A 820 with a minimum tensile strength of 120 ksi. Steel fibers shall have a length between 1.0 and 1.50 inches and shall have a length to diameter ratio of less than 80. The steel fibers used shall be manufactured specifically for shotcrete applications.

Macro synthetic fibers shall be deformed polyolefin Type 3 fibers conforming to ASTM C 1116. Macro synthetic fibers shall have a length between 1.0 and 2.0 inches and shall be between 0.02 and 0.04 inches in diameter. The macro synthetic fibers used shall be manufactured specifically for shotcrete applications.

Fiber reinforcement will be accepted based on the Manufacturer's Certificate of Compliance.

6-19.GR6

Shafts

6-19.2.GR6

Materials

6-19.2(9-36.2(2)).GR6

Shaft Slurry

Synthetic Slurry

Section 9-36.2(2) is supplemented with the following:

6-19.2(9-36.2(2)).OPT1.GB6

(January 2, 2012)

Salt water shall not be used with synthetic slurry for shafts. Fresh water only shall be used.

6-19.2(9-36.4).GR6

Access Tubes and Caps

The first paragraph of Section 9-36.4 is revised to read:

6-19.2(9-36.4).OPT1.GR6

(October 3, 2022)

Access tubes for CSL or TIP testing shall be steel pipe of 0.145 inches minimum wall thickness and at least 1½ inch inside diameter, or shall be Sonitec V2 CSL Tubes manufactured in America by Dextra. Dextra CSL tubes shall use Dextra caps and connectors.

6-19.3.GR6

Construction Requirements

6-19.3(3).GR6

Shaft Excavation

6-19.3(3).INST1.GR6

Section 6-19.3(3) is supplemented with the following:

6-19.3(3).OPT1.GB6

(January 2, 2012)

Variations in the bearing layer elevation from that shown in the Plans are anticipated. The Contractor shall have equipment on-site capable of excavating an additional 20 percent of depth below that shown in the Plans.

6-19.3(3)B.GR6

Temporary and Permanent Shaft Casing

6-19.3(3)B.INST1.GR6

Section 6-19.3(3)B is supplemented with the following:

6-19.3(3)B.OPT2.GB6

(January 2, 2012)

Shaft casing shall be equipped with cutting teeth or a cutting shoe, and installed by either rotating or oscillating the casting. Installing the casing by vibratory means will not be allowed.

6-19.3(3)B4.GR6

Temporary Telescoping Shaft Casing

6-19.3(3)B4.INST1.GR6

The second paragraph of Section 6-19.3(3)B4 is revised to read as follows:

6-19.3(3)B4.OPT1.GB6

(January 2, 2012)

Temporary telescoping casing will not be allowed for bridge end pier shafts.

6-19.3(3)I.GR6

Required Use of Slurry in Shaft Excavation

6-19.3(3)I.INST1.GR6

Section 6-19.3(3)I is supplemented with the following:

6-19.3(3)I.OPT1.GB6

(August 3, 2015)

If the Contractor is utilizing casing that is adequately sealed into competent soils such that the water cannot enter the excavation, the Contractor may, with the Engineer's permission, continue excavation in wet soils without slurry provided the water level within the casing does not rise or exhibit flow.

6-19.3(4).GR6

Slurry Installation Requirements

6-19.3(4)A.GR6

Slurry Technical Assistance

6-19.3(4)A.INST1.GR6

Section 6-19.3(4)A is supplemented with the following:

6-19.3(4)A.OPT1.FB6

(January 2, 2012)

The slurry manufacturer's representative shall be present during construction and completion of the first shaft excavated at the following specific shaft sites:

*** $$1$$ ***

6-19.3(5).GR6

Assembly and Placement of Reinforcing Steel

6-19.3(5).INST1.GR6

Section 6-19.3(5) is supplemented with the following:

6-19.3(5).OPT1.GB6

(August 1, 2016)

For those shafts with a specified minimum penetration into the bearing layer and no specified tip elevation, the Contractor shall furnish each shaft steel reinforcing bar cage, including access tubes for non-destructive QA testing in accordance with Section 6-19.3(6), 20 percent longer than specified in the Plans. The Contractor shall add the increased length to the bottom of the cage. The Contractor shall trim the

shaft steel reinforcing bar cage to the proper length prior to placing it into the excavation. If trimming the cage is required and access tubes are attached to the cage, the Contractor shall either shift the access tubes up the cage, or cut the access tubes provided that the cut tube ends are adapted to receive the watertight cap as specified.

6-19.3(6).GR6

Contractor Furnished Accessories for Nondestructive QA Testing

6-19.3(6)E.GR6

Thermal Wire and Thermal Access Points (TAPs)

6-19.3(6)E.INST1.GR6

Section 6-19.3(6)E is supplemented with the following:

6-19.3(6)E.OPT1.GB6

(January 2, 2018)

The thermal wire and associated couplers shall be obtained from the following source:

Pile Dynamics, Inc.
30724 Aurora Road
Cleveland, OH 44139
(216) 831-6131
FAX: (216) 831-0916
www.pile.com

6-19.3(7).GR6

Placing Concrete

6-19.3(7)D.GR6

Requirements for Placing Concrete Underwater

6-19.3(7)D.INST1.GR6

Section 6-19.3(7)D is supplemented with the following:

6-19.3(7)D.OPT1.GB6

(January 2, 2012)

The Contractor may use a tremie instead of a concrete pump, subject to the following conditions:

1. The tremie shall have a hopper at the top that empties into a watertight tube at least eight inches in diameter.

2. The discharge end of the tube on the tremie shall include a device to seal out water while the tube is first filled with concrete.

6-19.4.GR6

Measurement

6-19.4.INST2.GR6

Section 6-19.4 is supplemented with the following:

6-19.4.OPT3.GB6
(January 2, 2012)
Fresh water for shaft slurry will be measured in accordance with Section 2-07.4.

6-19.5.GR6
Payment

6-19.5.INST1.GR6
Section 6-19.5 is supplemented with the following:

6-19.5.OPT2.GB6
(January 2, 2012)
"Fresh Water for Shaft Slurry", per M gal.

6-20.GR6
Buried Structures

6-20.1.GR6
Description

6-20.1(1).GR6
Definitions

6-20.1(1).INST1.GR6
The list of types of buried structures in Section 6-20.1(1) is supplemented with the following:

6-20.1(1).OPT1.GB6
(March 20, 2025)
Composite Arch System (CAS): A buried Structure consisting of a two-component Superstructure placed on reinforced concrete foundations. The Superstructure consists of fiber-reinforced polymer (FRP) composite hollow tube external reinforcement/stay-in-place forms filled with expansive self-consolidating concrete (ESCC), supporting custom pultruded corrugated FRP deck panels retaining the structural backfill.

The Superstructure of the CAS shall be as designed and supplied by:

AIT Composites - Maine
33 Steamboat Ave.
Winterport, ME 04496
1-888-491-1516
https://www.aitcomposites.com/

Fabrication shall be by the supplier or a licensed designee as designated by a Type 1 Working Drawing.

6-20.2.GR6
Materials

6-20.2.INST1.GR6
Section 6-20.2 is supplemented with the following:

6-20.2.OPT1.GB6

(January 10, 2022)

Composite Arch System

FRP Composite Hollow Tubes

Glass fibers shall be type E-glass manufactured in accordance with ASTM D578 Section 4.2.2 and tested in accordance with ASTM D2343.

Carbon fibers shall be standard modulus fibers. Tensile strength, tensile modulus, and strain of the fibers shall be documented in accordance with the manufacturer's test specifications.

Resin shall be epoxy vinyl ester resin with viscosity suitable for infusion. Clear casting tensile strength and tensile modulus shall be tested in accordance with ASTM D638. Clear casting flexural strength and modulus shall be tested in accordance with ASTM D790. Heat distortion temperature shall be documented in accordance with ASTM D648.

FRP components will be accepted based on a Manufacturer's Certificate of Compliance. The certificate shall include test results for physical, material, and durability properties specified in Section 3 of the *AASHTO LRFD Guide Specification for Design of Concrete Filled FRP Tubes for Flexural and Axial Members*.

FRP Deck Panels and Associated Fasteners and Adhesive Sealant

The resin shall be premium grade, chemically resistant, UV stabilized polyurethane of the type specified in the fabrication shop drawings.

The glass reinforcement shall be E-Glass that is straight and continuous, with fibers oriented in three directions (0, 45, 90-degrees with respect to the length of the panel). The glass content shall be a minimum of 70-percent by weight.

The FRP deck panels shall have a class B flame spread rating of 75 or less when tested in accordance with ASTM E84, with the thickness, width, and corrugation height specified in the fabrication shop drawings.

The fasteners attaching the FRP deck panels to the FRP composite hollow tubes shall be drill point type AISI 410 stainless steel screws as specified in the fabrication shop drawings.

The adhesive sealing the longitudinal joint of the FRP deck panels shall be a two-part urethane sealant as specified in the fabrication shop drawings.

Expansive Self Consolidating Concrete (ESCC)

Total Cementitious Materials (CM) shall include cement, fly ash, and an expansive cement component specified by the composite arch bridge system supplier.

Cement shall be Type I/II or Type IL portland cement conforming to AASHTO M 85.

An expansive cement product conforming to ASTM C845 Type K shall be added at the rate as specified in Item 8 of the mix design parameters specified below.

Class F fly ash conforming to Section 9-23.9 or ground granulated blast furnace slag conforming to Section 9-23.10 may be added at the allowable rates specified in Item 9 of the mix design parameters specified below.

ESCC Mix Design

The ESCC mix shall be designed in accordance with Section 6-02.3(2)A2 and the following requirements:

1. Minimum 28-day compressive strength = 6000 psi.

2. Maximum size of coarse aggregate = 3/8-inch.

3. Fine aggregate proportions shall be 50 ± 5-percent of the total aggregate by volume, to be determined by trial batching as required to attain specified strength, Visual Stability Index (VSI) and flow characteristics.

4. Type F high range water reducer conforming to Section 9-23.6(7) is required and shall be used at the concrete supplier's recommended dosage.

5. Viscosity modifying admixture conforming to Section 9-23.6(9) may be added at the concrete supplier's recommended dosage to improve mix stability.

6. Hydration stabilizer (retarder) is required to ensure sufficient water and time to begin ettringite formation of the Type K expansive cement.

7. Minimum Cementitious Material (CM) = 850 LB./C.Y.

8. The mix shall contain Type K expansive cement at a rate of 15-percent by weight of total cementitious material. This quantity may be revised by a CTS Component materials technician that has reviewed mix design and has provided a recommended Type K proportion for a specific mix supplier.

9. The mix may include Section 9-23.9 Class F fly ash at a rate less than 25-percent by weight of cementitious material, or Section 9-23.10 Grade 100 or Grade 120 ground granulated blast furnace slag at a rate less than 50-percent, by weight of cementitious material.

10. The water/cementitious material ratio (W/CM) shall be between 0.40 and 0.45.

11. Air content shall be 0-percent to 5.0-percent.

ESCC shall meet the following requirements in accordance with ASTM C1611 or AASHTO T 347 and AASHTO T 351 for slump flow and visual stability index:

1. Slump flow shall be between 24 and 30-inches

2. Visual stability index shall be between 0 and 1.0.

Additional concrete mix design requirements of the supplier shall be shown in the FRP tube fabrication shop drawings.

Trial batches shall be performed prior to use to verify compressive strength, slump flow, and visual stability index. Test results shall be submitted as a Type 1 Working Drawing. The trial batch requirement may be waived at the discretion of the Engineer if the concrete supplier is experienced in producing ESCC.

Each batch of ESCC delivered to the jobsite shall be tested for slump flow and visual stability index. If the ESCC fails to meet the requirements re-dosing with additives is permitted. The Engineer may reject ESCC that does not meet specified requirements.

6-20.3.GR6

Construction Requirements

6-20.3.INST1.GR6

Section 6-20.3 is supplemented with the following:

6-20.3.OPT1.GB6

(January 10, 2022)

Composite Arch System

Design

The CAS design, Superstructure and foundation, shall conform to Section 6-20.3(1), and the following:

The CAS shall be designed in accordance with the AASHTO LRFD Bridge Design Specifications, the AASHTO LRFD Guide Specifications for Design of Concrete-Filled FRP Tubes for Flexural and Axial Members, the ASCE Pre-Standard for LRFD of Pultruded FRP Structures, and other applicable specifications.

The CAS shall be designed by the supplier on a project-specific basis by a licensed professional engineer, with design and load rating calculations and fabrication shop drawing Working Drawings provided to the Contractor.

Submittals

Submittals for CAS Superstructure and foundation shall conform to Section 6-20.3(2).

Foundation

The CAS foundation shall be constructed in accordance with Sections 6-20.3(5) and 6-20.3(6).

Fabrication

The CAS structural components shall be fabricated, either by the supplier or an independent fabricator licensed by the supplier, in accordance with Section 6-20.3(7) and the following:

Fabrication Quality Control/Quality Assurance

FRP composite hollow tubes shall be fabricated in accordance with the supplier's QC/QA plan and standard operating procedures. The portions of the QC/QA plan and procedures which do not contain trade secret material will be submitted to the Contracting Agency for review upon Engineer's request prior to beginning fabrication.

The FRP laminate comprising the tube shell shall be tested for tensile strength. Test result documentation of the mechanical properties and the required design values shall be submitted as a Type 1 Working Drawing.

A minimum of five test specimens shall be obtained from each FRP composite hollow tube. A minimum of two specimens per tube shall be tested. If the mean of the two tests from any one tube fails to meet or exceed the required design value, then at least three more specimens from the corresponding tube shall be tested. If the mean of the three additional specimens does not meet or exceed the design value, the tube will be rejected and replaced. All test results shall be submitted as a Type 1 Working Drawing prior to placing and assembling the tubes.

FRP Composite Hollow Tube Fabrication

The FRP composite hollow tubes may be fabricated as specified below using a closed mold vacuum assisted resin transfer method (VARTM) of composite manufacturing:

Reinforcement Storage and Preparation

Fabrics shall be stored in a clean, dry environment in the original packaging. They shall be protected from water, dirt, grease, grinding dust, and other foreign matter. The fabrics shall be cut on a clean cutting surface, free of any deleterious material that may adhere to the fabrics prior to layup. Longitudinal fabric shall not be spliced. Hoop reinforcement may be spliced.

Chemicals

Vinyl ester resins and other chemicals necessary for catalyzing the infusion matrix shall be stored in accordance with the manufacturer's recommendations.

Vacuum Assisted Resin Transfer

Prior to vacuum infusion of the vinyl ester matrix, the fabricator shall thoroughly seal the tooling and demonstrate that the sealed tooling can obtain a minimum workable vacuum pressure and a drop test. Chemical additives and catalysts to be combined with the vinyl ester resin shall be measured by weight, or the corresponding volume, based on the batch weight of the vinyl ester resin. The fabricator shall maintain documentation of the promotion rates and the actual amount of catalyst used for each infusion.

The infusion tank shall be charged with a sufficient amount of resin at all times to prevent air bubbles from entering the infusion ports in the tooling. Once resin is introduced into the tooling, the infusion process shall continue uninterrupted until it has been demonstrated that all evacuation ports have

a surplus of resin flowing past the finished surface of the tooling and that no less than the predicted volume of resin has been introduced into the tool.

Post Processing

Once the laminate has been allowed to harden, the FRP composite hollow tubes shall be removed from the form with care so as not to induce stresses into the curing laminate. The laminate shall reach a minimum Barcol hardness value of 35 prior to removing the tubes from the form.

Tolerances

The finished FRP composite hollow tubes shall conform to the dimensions set forth in the accepted Type 2 Working Drawing fabrication shop drawings of Section 6-20.3(2). The diameter shall not vary in any one section by more than one-percent of the dimension given in the fabrication shop drawings. The tubes shall be checked for shape variations. No tube may vary from the shape specified in the fabrication shop drawings, expect for diameter, by more than 2-inches or one-percent of the dimension, whichever is smaller.

Composite Arch System Placement and Assembly

The CAS structural components shall be erected in accordance with Section 6-20.3(8) and the following:

Assignment of Responsibility

The supplier shall furnish the Contractor the FRP composite hollow tubes, FRP deck panels, stainless steel fasteners, and the structural adhesive at the project site on the date requested by the Contractor.

The Contractor is responsible for the complete installation of the FRP composite hollow tubes including but not limited to unloading and storing the tubes at the project site, erecting and setting the tubes into the reinforced concrete foundation, filling the tubes with ESCC, inspecting the filled tubes for voids, and filling such voids if any are found.

After receiving the accepted fabrication shop drawings, the Contractor shall notify the fabricator to fabricate and deliver the FRP composite hollow tubes, FRP deck panels, stainless steel fasteners, and the structural adhesive to the project site.

Handling and Storage at the Project Site

Care shall be taken when handling the FRP composite hollow tubes such that no damage is caused to the unfilled tubes. When moved or placed by hand, tubes shall be stabilized to prevent tipping over. When moved by hoist, straps shall provide at least 2 inches of padded contact area.

The Contractor is responsible for receiving, unloading, and storing the FRP deck panels. All FRP deck panels shall be handled with care and protected from cuts, scratches, and abrasions. FRP deck panels shall be stored on blocking off the ground and kept clean and dry. Damaged panels shall be replaced at no additional expense to the Contracting Agency.

FRP Tube and FRP Panel Placement and Assembly

The Contractor is advised that the FRP composite hollow tubes have some flexibility prior to filling with ESCC, and tubes out of tolerance without any outside loading may be brought into tolerance with a small force applied at each end. All tubes shall be clearly marked by the fabricator in accordance with the designation in the fabrication shop drawings.

The FRP composite hollow tubes shall be erected in a vertical position and FRP deck panels installed prior to filling the tubes with ESCC. The maximum allowable variation of installed tubes shall be ± 1/2-inch in-plane and out-of-plane. The FRP deck panels shall be installed over the tubes after the tubes are erected and aligned. The tubes shall be set into the reinforced concrete foundation as shown in the Plans. Care shall be taken when placing the foundation and vibrating around the base of the tubes as to not damage or displace the tubes.

FRP deck panels shall be installed as shown in the Plans using fasteners provided. The first row of FRP deck panels shall be installed on each side prior to casting the foundation stem wall. The remaining FRP deck panels shall be installed after the foundation stem wall has been cast and prior to filling the FRP composite hollow tubes with ESCC.

Adhesive provided shall be used in accordance with the manufacturer's recommendations to seal the longitudinal joint between the panels. FRP deck panels shall be installed starting at the bottom at both ends of the FRP composite hollow tubes and proceeding to the apex. The Contractor shall assure that the starter panels are placed as shown in the Plans to a level line. A closure plate is provided at the apex to be field-trimmed to fit and attached after the tubes are filled with ESCC.

Once the foundation has achieved 2000 psi minimum concrete compressive strength, the erected FRP composite hollow tubes shall be filled with ESCC.

Placing ESCC Tube Fill

ESCC will be accepted as a self-consolidating concrete in accordance with Section 6-02.3(5).

ESCC shall be placed in accordance with Section 6-02.3(6) and the following:

All FRP composite hollow tubes shall be filled with ESCC under the observation of the Engineer. The tubes shall be filled in one continuous operation. Vibration may be necessary for shallow rise tubes and such use of vibration will be determined by the Engineer. The tubes shall be filled through the fill holes that are field drilled by the Contractor to the size and locations shown in the fabrication shop drawings.

ESCC placement shall be accomplished using a method capable of directing the ESCC into the 3-inch fill hole and regulating placement speed to prevent voids. Acceptable methods include the use of a boom type pump truck, a trailer pump, or a standard concrete bucket. The Contractor shall have an alternative method available in the event of an equipment malfunction.

All FRP composite hollow tubes shall undergo auditory tap testing after ESCC placement to ensure complete filling of tubes. In the event that voids are discovered, they shall be injected with grout conforming to Section 9-20.3(2) for large voids or epoxy bonding agent conforming to Section 9-26.1 for small voids. The maximum permitted hole size for grout injection is 3/4-inch. The supplier shall be provided 72-hour minimum notice and offered the opportunity to be present for the filling of the tubes and tap testing.

Backfilling the Assembled Composite Arch System

The CAS shall be backfilled in accordance with Section 6-20.3(9) and the following:

ESCC fill in the FRP composite hollow tubes shall reach a minimum compressive strength of 3000 psi prior to any backfilling or compaction activities on the Structure other than headwall connection work.

Select gravel backfill shall extend to the lines and grades shown in the Plans and shall be placed in accordance with Section 2-09.3(1)E and as follows:

Backfill shall be placed in maximum 6-inch lifts with each layer compacted to 95-percent of the maximum density determined by the Compaction Control Test in accordance with Section 2-03.3(14)D. Compaction within 4-feet of the Structure shall be accomplished with hand compactors only. Vibratory rollers may be used outside of this zone and above the Structure provided there is at least 24-inches of compacted cover above the Structure.

All backfill shall be carefully placed to avoid damage to the Structure.

Lightweight equipment of an operating weight less than 12-tons may be operated over the Structure provided there is at least 12-inches of cover. Construction equipment of an operating weight 12-tons or greater may be used after 24-inches of compacted backfill has been placed over the Structure. In no case may the loading exceed the AASHTO design loading HL-93 without the Engineer's written permission.

Backfill shall be placed in lifts such that at no time will the elevation difference exceed 24-inches between opposite sides of the Structure.

6-20.5.GR6

Payment

6-20.5.INST1.GR6

Section 6-20.5 is supplemented with the following:

6-20.5.OPT1.GB6

(January 10, 2022)

Payment for the Composite Arch System will be made with the lump sum item, "Contractor Designed Buried Structure No. ____" shall be full payment for the Work as specified.

6-SA1.FR6

6-23 POLYESTER CONCRETE OVERLAY
(September 3, 2024)

6-23.1 Description

This Work consists of installing polyester concrete bridge deck overlays, preparing the surface of the concrete bridge deck, removing and replacing unsound concrete (deck repair), surveying, and other Work.

6-23.1(1) Definitions

Existing Bridge Deck Surface - The surface of the existing concrete bridge deck. It follows wheel ruts and other anomalies.

Polyester Concrete Overlay System - All component materials used to complete the system, including the polyester concrete (which is composed of polyester concrete binder and aggregate), primer, initiators, promoters, catalysts, accelerators, inhibitors, sand for abrasive finish, and crack sealing resin. All component materials of the polyester concrete system shall be provided through a single System Provider.

System Provider – The single corporate entity that provides the Polyester Concrete Overlay System that will be installed on this Contract. There shall be only one System Provider.

System Provider Technical Representative - A duly authorized agent of the System Provider, who has the requisite skills and experience.

6-23.1(2) Qualifications

The following shall have the minimum experience as described.

6-23.1(2)A System Provider

The proposed System Provider shall have had direct control and responsibility for the proposed polyester concrete overlay system for the qualifying projects for the overlay system. Qualifying Projects - The Polyester Concrete Overlay System shall have been successfully placed on three overlay projects of similar size and scope to the proposed installation within the past ten years. Previously installed overlay must be in service for a minimum of two years showing no signs of installation deficiency, major distress, excessive wear, non-reflective in-service cracks, insufficient skid resistance, or delamination.

6-23.1(2)B System Provider Technical Representative

The System Provider Technical Representative shall have a minimum of two years of experience with the exact polyester concrete overlay system to be used on this Contract and be completely competent in all aspects of the Work. The Technical Representative shall have experience on a minimum of three successful projects of similar size and scope to the proposed installation. Thin polymer (broadcast) overlay experience will not be accepted.

6-23.1(2)C Polyester Concrete Placement Contractor and Workers

The Contractor that performs the work of placing the polyester concrete system shall have experience on three projects within the past two years placing polyester concrete overlays using equipment as specified herein. Thin polymer (broadcast) overlay experience will not be accepted.

The following employees shall also meet these qualifications:

1. One on-site supervisor.

2. One volumetric mixer operator.

3. One finishing machine operator.

6-23.2 Materials

Materials shall meet the requirements of the following sections:

Polyester Concrete Binder	6-23
Primer	6-23
Aggregate for Polyester Concrete	6-23
Sand for Abrasive Finish	6-23
Crack Sealing Materials	6-23
Portland Cement	9-01.2(1)
Blended Hydraulic Cement	9-01.2(1)B
Fine Aggregate	9-03.1
Coarse Aggregate	9-03.1
Admixtures	9-23.6
Water for Concrete	9-25.1

6-23.2(1) Polyester Concrete System

All components of the polyester concrete system shall be provided by the System Provider.

1. Manufacturer's Certificates of Compliance - The Contractor shall submit a separate Manufacturer's Certificate of Compliance meeting the requirements of Section 1-06.3 for each of the following components of the polyester concrete system: primer, polyester concrete binder, polyester concrete aggregates, polyester concrete, and sand for abrasive finish. Each Manufacturer's Certificate of Compliance shall identify the applicable lot(s) by lot number.

2. Certified Test Results - Each Manufacturer's Certificate of Compliance shall be accompanied by certified test reports from independent labs for all the properties described in Sections 6-23.2(1)A, B, C, D, and E of this Special Provision, which are associated with each component. Each certified test report shall identify the lot(s) represented by the test report by lot number.

3. Sampling - The Contracting Agency reserves the right to obtain and test samples of components of the polyester concrete overlay system. This includes requiring submittal of samples prior to the first installation or on-site sampling during construction.

6-23.2(1)A Primer

Primer for the substrate concrete surface shall be a wax-free low odor, high molecular weight methacrylate primer, and consist of a resin, initiator, and promoter. The primer shall conform to the following requirements:

Resin

Property	Requirement	Test Method
Viscosity	25 cps maximum (Brookfield RVT with UL adapter, 50 RPM at 77°F)	ASTM D2196
Volatile Content	30% maximum	ASTM D2369
Specific Gravity	0.90 minimum at 77°F	ASTM D1475
Vapor Pressure	1.0 mm Hg, maximum at 77°F	ASTM D 323

Resin with Initiator		
Property	**Requirement**	**Test Method**
Flash Point	180°F minimum	ASTM D 3278
Initiator for the methacrylate resin shall consist of a metal drier and peroxide. If supplied separately from the resin, the metal drier shall not be mixed with the peroxide directly; a VIOLENT EXOTHERMIC REACTION will occur.		

6-23.2(1)B Polyester Concrete Binder

Polyester concrete binder shall have the following properties:

1. Be an unsaturated isophthalic polyester-styrene co-polymer.

2. The binder content shall be 12% +/-1% of the weight of the dry aggregate.

3. Be used with a promoter that is compatible with suitable methyl ethyl ketone peroxide and cumene hydroperoxide initiators.

4. Meet the requirements of the following tables.

Resin		
Requirement	**Test Method**	**Requirement**
Viscosity	75 – 200 cps (RVT No.1 Spindle, 20 RPM at 77°F)	ASTM D2196
Specific Gravity	1.05 to 1.10 at 77°F	ASTM D1475

Resin with Initiator		
Property	**Property**	**Property**
Contain gamma-methacryloxypropyltrimethoxysilane, an organosilane ester silane coupler	>1%	Nuclear Magnetic Resonance
Elongation	35 percent, minimum Type I specimen, thickness 0.25 ± 0.03" at Rate = 0.45 inch/minute.	ASTM D638
	Sample Conditioning: 18/25/50+5/70	ASTM D618
Tensile Strength	2,500 psi, minimum Type I specimen, thickness 0.25 ± 0.03" at Rate = 0.45 inch/minute.	ASTM D638

	2,500 psi, minimum Type I specimen, thickness 0.25 ± 0.03" at Rate = 0.45 inch/minute.	ASTM D618

6-23.2(1)C Polyester Concrete Aggregates

The polyester concrete aggregate (coarse and fine) shall be thoroughly washed and kiln dried.

Polyester concrete aggregates shall be manufactured from sand and gravel in accordance with the provisions of Section 3-01. Fine aggregate shall consist of natural sand only. Reclaimed concrete aggregate shall not be used.

Polyester concrete aggregate shall have the following properties:

Polyester Concrete Aggregate Gradation	
Sieve Size	**Percent Passing**
½"	100
⅜"	98 minimum
#4	62-85
#8	45-67
#16	29-50
#30	16-36
#50	5-20
#100	0-7
#200	0-3

Properties of Polyester Concrete Aggregate		
Property	**Test Method**	**Requirement**
Los Angeles Wear	AASHTO T96	35% max at 500 rev
Degradation Factor	WSDOT T113	30 minimum
Clay lumps and Friable Particles	AASHTO M6	3.0% by weight
Coal and lignite	AASHTO M6	0.25% by weight
Particles of specific gravity less than 2.0	AASHTO M6	1.0% by weight
Crushed particles	AASHTO T335	<45% Crushed Particles, retained on the No. 8 Sieve
Weighted-average aggregate absorption	AASHTO T84 and T85	<1%
Mohs Hardness	Mohs Hardness Test	≥7 (≥6.5 if system has demonstrated more than 10 years of success on large scale installations)
Aggregate shall comply with the following properties at the time of mixing the polyester concrete: The polyester concrete aggregate shall have a weighted-average moisture content when tested under AASHTO Test Method T255 of not more than one half of the weighted-average aggregate absorption.		

6-23.2(1)D Polyester Concrete

The properties of the polyester concrete, when the polyester resin and polyester concrete aggregates are combined in the proportions of the approved mix design, shall be as follows:

Property	Test Method	Requirement
Portland Cement Concrete Saturated Surface Dry Bond Strength	California Test 551	500 psi minimum at 24 hrs. and 70°± 1° F (without primer, at 12% resin content by weight of the dry aggregate, on Saturated Surface Dry Specimen)
PCC Saturated Surface-Dry Bond Strength (Adhesive)	California Test 551	700 psi, minimum at 24 hours and 70° ± 1°F (at 12% resin content by weight of the dry aggregate), HMWM primed surface
Abrasion Resistance	California Test 550	<2g weight loss (at 12% resin content by weight of the dry aggregate)
Modulus of Elasticity	ASTM C 469	1,000,000 psi to 2,000,000psi (at 12% resin content by weight of the dry aggregate)
Portland Cement Concrete Dry Surface Bond Strength (Adhesive) – Primer installation window verification	California Test 551	700 psi, minimum at 24 hours and 70° ± 1°F (at 12% resin content by weight of the dry aggregate), HMWM primed surface. Polyester concrete placed against primed surface two hours after Primer application.

6-23.2(1)E Sand for Abrasive Finish

Sand for abrasive finish shall have the following properties:

1. Be commercial-quality blast sand.

2. Have a minimum of 85 percent passing the No. 8 sieve and a maximum of 10 percent passing the No. 20 sieve when tested under AASHTO Test Method T27.

3. Be kiln dried and protected from moisture until time of placement. At the time of application on the polyester concrete, the moisture content of the sand for abrasive finish shall not exceed 0.5 percent.

6-23.2(1)F Shipping, Storing and Handling Polyester Concrete Materials

All components shall be shipped in strong, substantial containers bearing the manufacturers label specifying batch/lot number, brand name, and quantity. If bulk resin is to be used, the contractor shall notify the Engineer in writing 10 days prior to

the delivery of the bulk resin to the job site. Bulk resin is any resin that is stored in containers in excess of 250 gallons.

All materials shall be delivered in their original containers bearing the manufacturer's label, specifying date of manufacturing, batch number, trade name brand, quantity, and mixing ratio. Each shipment of polyester concrete binder and primer shall be accompanied by a Safety Data Sheet (SDS). Bulk resin containers shall be identified by one of the following methods:

1. A label on each container as specified above, or

2. A marking on each container that uniquely identifies the container, accompanied by documentation that unequivocally identifies the Manufacturer's Certificate of Compliance that is associated with the material in that container.

The material shall be stored to prevent damage by the elements and to ensure the preservation of their quality and fitness for the Work. The storage space shall be kept clean and dry and shall contain a high-low thermometer. The temperatures of the storage space shall not fall below nor rise above that recommended by the manufacturer. Every precaution shall be taken to avoid contact with flame.

Stored materials shall be inspected prior to their use and shall meet the requirements of these Special Provisions at the time of use.

Material which is rejected because of failure to meet the required tests or that has been damaged shall be immediately replaced at no additional expense to the Contracting Agency.

Sufficient material to perform the entire polyester concrete overlay application shall be in storage at the site prior to field preparations, so that there shall be no delay in procuring the materials for each day's application.

Prior to Work, a copy of the Contractor's safety plan addressing worker protective clothing, protective breathing devices, measures to address inadvertent contact with chemicals and other appropriate safety measures shall be submitted to the Engineer in accordance with Section 1-07.1(2).

6-23.2(2) Concrete Class M

Concrete Class M shall be proportioned in accordance with the following mix design:

Portland Cement Type 1 or Type 2, or	
Blended Hydraulic Cement Type IL(X)	705 pounds
Fine Aggregate	1,280 pounds
Coarse Aggregate	1,650 pounds
Water/Cement Ratio	0.37 maximum
Air (± 1½ percent)	6 percent
Slump (± 1 inch)	5 inches

Fine aggregate shall be Class 1. Coarse aggregate shall be AASHTO grading No. 7 or No. 8.

The use of a water-reducing admixture conforming to AASHTO M 194 Type A will be required to produce Concrete Class M with the desired slump. Air entraining admixtures shall conform to AASHTO M 154. The use of accelerating admixtures or other types of admixtures is not allowed.

Concrete Class M shall be mixed in batch-plants and transported in ready-mix trucks conforming to Section 6-02.3(4)A.

The maximum allowable and actual water/cementitious ratios shall be calculated using all the available mix water, including water added at the plant, water added in transit and at the job site, water in all admixtures, and the free water in the aggregates but not the water absorbed by the aggregates. The following are considered cementitious materials: Portland Cement and blended hydraulic cement.

6-23.2(3) Crack Sealing Materials

6-23.2(3)A Crack Sealing Resin

Resin for sealing cracks in the polyester concrete overlay shall meet the requirements for polyester concrete binder.

6-23.2(3)B Crack Sealing Sand

Sand for topping the crack sealing resin shall meet the requirements for sand for abrasive finish.

6-23.3 Construction Requirements

6-23.3(1) Sequence of Operations

The sequence of the Work shall be as follows. This sequence is in addition to other sequence and timing requirements in this Special Provision:

1. Shotblasting existing Bridge Deck Surface
2. Surveying of Existing Bridge Deck Surface
3. Perform Type 1 and Type 2 Deck Repair
4. Sandblast, and clean the finished surface
5. Place and cure the primer, polyester concrete overlay, and sand for abrasive finish
6. Check for bond and repair as required
7. Crack Sealing
8. Grind for smoothness
9. Texturing Polyester Concrete

6-23.3(1)A Traffic Restrictions on Sequence of Operations

Traffic shall not be allowed on shotblasted bridge deck surfaces until step 9 of Section 6-23.3(1) of this Special Provision is completed.

6-23.3(2) Equipment

In addition to meeting the equipment requirements herein, equipment shall meet, and be operated in accordance with, the System Provider Technical Representative's recommendations.

6-23.3(2)A Shot Blaster

The shotblaster shall be a self-contained mobile unit using steel shot to texture the sound concrete to produce a concrete surface profile of CSP-6 or greater in accordance with International Concrete Repair institute (ICRI) 310.2R. The machine shall blast a minimum width of 2 feet per pass. The shotblasting machine shall shotblast, vacuum and store all material removed from the blasted concrete surface in a self-contained unit.

The shotblaster vacuum shall allow the shotblaster to be operated in air pollution sensitive areas and shall be equipped to not contaminate the deck during final preparation for concrete placement.

6-23.3(2)B Power Driven Hand Tools

Power driven hand tools are limited to the following:

1. Jack hammers no heavier than the nominal 30-pound class.

2. Chipping hammers no heavier than the nominal 15-pound class.

3. Other mechanical means acceptable to the Engineer.

Power driven hand tools shall not be operated at angles greater than 45 degrees as measured from the surface of the deck to the tool.

6-23.3(2)C Air Compressor

Air compressors shall be equipped with oil traps to eliminate oil from being blown onto the bridge deck.

6-23.3(2)D Vacuum Machine

Vacuum machines, separate from and in addition to the vacuum built in to the shot-blaster, shall be capable of collecting all remaining dust, concrete chips, and other debris encountered while vacuuming. The machines shall be equipped with collection systems that allow the machines to be operated in air pollution sensitive areas and shall be equipped to not contaminate the deck during final preparation for concrete placement.

6-23.3(2)E Polyester Concrete Mixers

A continuous automated mixer shall be used for all polyester concrete overlay applications. The continuous mixer must be capable of mixing the polyester binder resin components with dry aggregate, maintain proper ratios, and achieve set and cure times within the specified limits.

The Contractor shall submit current certification documents showing that mixing equipment has been calibrated (California Test 109 or similar accepted) with the exact polyester concrete overlay system to be installed. If required by the Engineer, the Contractor shall demonstrate that the proposed volumetric mixing equipment is accurately calibrated through on-site verification. The actual weights of the polyester

concrete materials discharged from the volumetric mixer truck shall be accurately represented by the printout ticket measurement produced by the on-board computer tracking system. To demonstrate this the Contractor shall dispense individual aggregate and resin batches and weigh with certified scales. The Engineer will compare certified scale weights to print out ticket measurements. Results of each comparison will be considered within calibration tolerance when ticket measurements and certified scale weights are within 2% of each other. Mixing equipment calibration verification should be considered successfully completed after three consecutive successful results, witnessed by a representative of the Contracting Agency.

The Contractor shall submit a documented history of the use of the placement equipment to successfully install Polyester Polymer Concrete overlays on bridge projects for review and approval by the Engineer. Acceptable experience shall be from installations matching the scope of the proposed project, including thickness and grade establishment requirements.

The continuous mixer shall:

1. Employ an auger screw/chute device capable of sufficiently mixing catalyzed resin with dry aggregate.

2. Employ a plural component pumping system capable of handling polyester binder resin and additives while maintaining proper ratios to achieve set/cure times within the specified limits, evenly across the placement. Resin and all field additives, including catalyst and accelerator, shall flow through a static mix tube for sufficient duration to completely mix the liquid system prior to combination with aggregates.

3. Be equipped with an automatic metering device that measures and records aggregate and resin volumes. Record volumes at least every five minutes, including time and date. Submit recorded volumes at the end of the work shift.

4. Have a visible readout gage that displays running totals of aggregate and resin being recorded.

5. Produce a satisfactory mix consistently during the entire placement, and maintain appropriate resin content, catalyst, and accelerator levels to produce desired outcome.

6. Discharge mixed material directly into the finishing machine.

A portable mechanical mixer of appropriate size for proposed batches, as recommended by the System Provider Technical Representative and approved by the Engineer, may be used for patching applications and for smaller area overlay applications if recommended by the System Provider Technical Representative and approved by the Engineer.

6-23.3(2)F Polyester Concrete Paving Machine

Except under the conditions described in Section 6-23.3(2)F1 of this Special Provision, the polyester concrete overlay shall be placed with a self-propelled slip-

form paving machine that places, consolidates, and finishes the polyester concrete overlay in one continuous operation. It shall be modified or specifically built to effectively place the polyester concrete overlay in a manner that meets Contract requirements. In addition, the paving machine shall:

1. Employ a vibrating pan to consolidate and finish the polyester concrete. Paver primary finishing pan size shall measure not less than 2 feet in the dimension parallel to the direction of paver travel. Secondary profile finishing attachments, bolt on sections, and trailing pan extensions shall not be included in this measurement.

2. Shall have the necessary adjustments to produce the required cross section, line, and grade, including the ability to recreate transverse grade breaks within 6 inches left or right of existing transverse grade breaks.

3. Be fitted with hydraulically controlled grade automation devices on both sides of the machine to establish the finished profile and cross-slope. These devices shall either (1) average 15 feet in front and behind the center of automation sensors, or (2) the sensor shall be constructed to work with string-line control. It is acceptable to match grade when placing lanes adjacent to polyester concrete overlay placed on this Contract. String line grade establishment may be required to establish proposed grades if required by plan note or elsewhere in the Contract, in which case grade averaging beams will not be acceptable.

4. Have sufficient engine power and weight to provide adequate vibration of the finishing pan while maintaining consistent forward placement speed.

5. Be capable of both forward and reverse motion under its own power.

6. Demonstrate successful performance with the trial overlay.

Wheel or rubber tire mounted paving machines will not be allowed.

6-23.3(2)F1 Vibratory Screed and Small Surfaces

Roller type screeds will not be accepted.

A vibratory screed riding on preset forms or rails set at a maximum width of 12 feet may be used on structures that have live load paving train restrictions.

Shoulder pours of 6 feet wide or less may be placed without the use of a paving machine.

Finishing of patch areas shall be completed using hand concrete finishing tools. Patches shall be placed flush with the top of the existing deck surface.

6-23.3(2)G Smoothness Grinding Equipment

Equipment for grinding polyester concrete overlay that does not meet the surface smoothness requirements shall use diamond embedded saw blades gang mounted on a self-propelled machine that is specifically designed to smooth and texture concrete pavement or polyester concrete overlays. The equipment shall not damage the underlying surface, cause fracture, or spalling of any joints. The final surface

texture shall be uniform in appearance with longitudinal corduroy type texture. The grooves shall be between 3/32 and 5/32 inches wide, and no deeper than 1/16 inch. The land area between the grooves shall be between 1/16 and 1/8 inches wide.

6-23.3(2)H Texturing Equipment

Equipment for texturing the polyester concrete overlay shall use diamond tipped saw blades mounted on a power driven, self-propelled machine that is designed to texture concrete surfaces. The grooving equipment shall provide grooves that are 1/8" ± 1/64" wide, 3/16" ± 1/16" deep, and spaced at 3/4" ± 1/8".

In locations where saw cutting cannot be done the Contractor is allowed to use the spring tining method for texturing. The spring tining shall provide the same groove, spacing and depth of the saw cut texture.

The Contractor shall demonstrate that the method and equipment for texturing the bridge deck will not chip, spall or otherwise damage the overlay.

6-23.3(3) Submittals

The Contractor shall submit the following Working Drawings in accordance with Section 1-05.3:

1. A Type 2 Working Drawing of the shot-blasting equipment with associated background information and catalog cuts.

2. A Type 2 Working Drawing of the Debris Containment and Disposal Plan. This plan shall describe the methods and materials used to contain, collect, and dispose of all concrete debris generated by all operations, including but not limited to shotblasting, Type 1 Deck Repair, Type 2 Deck Repair, sandblasting, and cleaning. The Working Drawing shall also address provisions for protecting adjacent traffic from flying debris.

3. A Type 2 Working Drawing of the polyester concrete mix design meeting the requirements of Section 6-23.2(1) of this Special Provision. The mix design shall include a recommended initiator percentage for the expected application temperature.

4. A Type 1 Working Drawing of the mix design for concrete Class M. This submittal shall be on WSDOT Form 350-040 and shall provide a unique identification for each mix design. A unique identification for the mix design is composed of the combination of the Mix Design Number and the Concrete Plant Number.

5. A Type 2 Working Drawing of samples, as specified below, shall be submitted to the Engineer at least 15 working days prior to placing the polyester overlay:

    a. One gallon minimum of the polyester concrete binder.

    b. One pint minimum of the primer.

    c. 100 pounds minimum of polyester concrete aggregate.

6. A Type 2 Working Drawing of the paving equipment specifications and details of how the paver will maintain the required longitudinal and transverse grades.

7. A Type 1 Working Drawing of the survey data collected as required in Section 6-23.3(6) of this Special Provision.

8. A Type 1 Working Drawing of the measurements documenting the deck patching areas as required by Section 6-23.3(7)B of this Special Provision.

9. A one-pint sample of each batch of promoted/initiated primer shall be retained and submitted to the Engineer at the time of primer application to verify proper catalyzation.

10. A Type 1 Working Drawing of the readings of the rebound hammer used shall be correlated to the compressive strength of the polyester concrete product in accordance with Section 5.4 of ASTM C805 and the Contractor.

11. A Type 2 Working Drawing of the qualifications of on-site supervisors, volumetric mixer operators, and finishing machine operators, in accordance with Section 6-23.1(2)C of this Special Provision.

12. A Type 2 Working Drawing of the method and materials used to contain primer and polyester concrete within the deck area specified to receive the overlay.

13. A Type 2 Working Drawing of the Contractor's Safety plan addressing worker protective clothing, protective breathing devices, measures to address inadvertent contact with chemicals and other appropriate safety measures.

14. A Type 2 Working Drawing of the equipment to be used for texturing.

15. A Type 2 Working Drawing of the Certified test results as required in Section 6-23.2(1) of this Special Provision.

16. A Type 1 Working Drawing of the Documentation of the System Provider Technical Representative's experience, demonstrating compliance with the experience requirements, including the following:

    a. Years of Experience with the proposed Polyester Concrete Overlay System

    b. Project location

    c. Project construction date

    d. Overlay quantities

    e. Reference name and contact information for owner representative

17. A Type 2 Working Drawing of the Documentation of the Polyester Concrete Overlay System and System Provider experience, demonstrating compliance with experience requirements. Submit written installation instructions, safety data sheets, and independent test results for approval. Projects of similar scope shall be evaluated considering placement temperature, traffic return, allowable cure time, placement thickness, average daily traffic, surface texture, environmental conditions, and any other factors unique to the application. System failure examples obtained

from other Public Agencies may be considered for evaluation and rejection whether submitted by the Contractor or obtained otherwise. Submit documentation and references of the polyester concrete overlay system experience including the following:

a. Project location

b. Contracting Agency

c. Project construction date

d. Overlay quantities and component details

e. Reference name and contact information for owner representative

18. A Type 2 Working Drawing of the Documentation of the experience of the Polyester Concrete Placement Contractor and Workers that will place the polyester concrete overlay system. The documentation of Contractor and employee qualifications shall include the following:

a. Project location

b. Contracting Agency

c. Project construction date

d. Overlay volume and area quantities

e. Reference name and contact information for owner representative

19. A Type 2 Working Drawing of the certification and test reports of the polyester concrete mixer and documented history of the use of the placement equipment to successfully install Polyester Polymer Concrete overlays.

20. A Type 2 Working Drawing of the Overlay Placement Plan. The Contractor shall submit an Overlay Placement Plan that includes the following:

a. Schedule of overlay work and testing for each bridge

b. Staging plan describing overlay placement sequence including:

i. Construction joint locations

ii. Sequence of placement

iii. Paving widths

iv. Anticipated paving lengths

v. Paving directions

vi. Joint locations

vii. Location of proposed trial overlay(s)

c. Description of equipment used for:

i. Surface preparation including grinding and shot blasting

ii. Applying primer

iii. Measuring, mixing, placing, and finishing the polyester concrete overlay

iv. Applying sand for abrasive finish

d. Method of protecting and finishing inlets and bridge drains

e. Method for isolating expansion joints

f. Method for ensuring shotblasting achieves a concrete surface profile of ICRI 310.2R CSP-6 or greater

g. Method for measuring and maintaining overlay thickness and profile

h. Cure time for polyester concrete

i, Storage and handling of primer and polyester concrete components

j. Procedure for disposal of excess primer, polyester concrete, and containers

k. Procedure for cleanup of mixing and placement equipment

6-23.3(4) Operations on the Bridge Deck

The following apply to all Contractor operations on the bridge deck, including but not limited to cleaning concrete surfaces, Type 1 and Type 2 Deck Repair, sandblasting, shot-blasting, placing, consolidating, finishing, curing, sawing, and crack sealing the overlay.

1. The Contractor shall not use water on the bridge deck nor allow water from their operations to come into contact with the concrete bridge deck at any time, except for the following:

   a. Placing and curing Class M concrete. Using water for this application shall be carefully controlled to prevent the water from coming into contact with the bridge deck outside of the patch.

2. The Contractor shall protect adjacent traffic from flying debris in accordance with its Debris Containment and Disposal Plan submitted in accordance with Section 6-23.3(3) of this Special Provision.

3. The Contractor shall collect, contain, and dispose of all concrete debris in accordance with its Debris Containment and Disposal Plan submitted in accordance with Section 6-23.3(3) of this Special Provision.

4. Rainwater and stormwater runoff that comes in contact with the bridge deck shall be considered process wastewater and shall be managed in accordance with Section 8-01.

6-23.3(5) Initial Surface Preparation

Initial surface preparation is for the purpose of exposing the concrete substrate for chain dragging and deck repair.

6-23.3(5)A Prerequisites to Initial Surface Preparation

Initial surface preparation shall not begin until the Contractor has completed all the following:

1. Demonstrated that all Work, for a given bridge, needed to complete items 1, 2, 3, 4, 5, 6, 7, 8, and 9 of Section 6-23.3(1) of this Special Provision can and will be completed in one and only one construction season.

2. Submitted all submittals required in Section 6-23.3(3) of this Special Provision and addressed all the Engineer's comments to the satisfaction of the Engineer.

6-23.3(5)B Shotblasting

For newly constructed bridge decks, the deck concrete shall cure a minimum of 28 days and attain design concrete compressive strength prior to shotblasting.

The areas to receive polyester concrete overlay shall be shotblasted, or sandblasted if the shotblast equipment cannot access areas to be prepared, to produce a concrete surface profile of CSP-6 or greater in accordance with International Concrete Repair Institute (ICRI) 310.2R. All weak or loose surface mortar shall be removed, aggregates within the concrete exposed, and open pores in the concrete exposed, as well as a visible change in the concrete color.

Dust and debris generated during shotblasting shall be picked up and stored in the vacuum unit built into the shotblaster and minimal dust shall be created during the blasting operation.

6-23.3(6) Surveying of Existing Bridge Deck

After shotblasting the concrete surface as specified in these Provisions, the Contractor shall complete a survey of the Existing Bridge Deck Surface(s) specified to receive Polyester concrete overlay for use in establishing the existing cross section and profile grade elevations.

The Engineer will provide the Contractor with primary survey control information consisting of descriptions of two primary control points used for the horizontal and vertical control. Primary control points will be described by reference to the bridge or project-specific stationing and elevation datum. The Engineer will also provide horizontal coordinates for the beginning and ending points and for each Point of Intersection (PI) on each centerline alignment included in the project. The Contractor shall provide the Engineer 21 calendar days' notice in advance of scheduled concrete surface shotblasting work to allow the Engineer time to provide the primary survey control information.

The Contractor shall verify the primary survey control information furnished by the Engineer and shall expand the survey control information to include secondary horizontal

and vertical control points as needed for the project. The Contractor's survey records shall include descriptions of all survey control points, including coordinates and elevations of all secondary control points.

The Contractor shall maintain detailed survey records, including a description of the work performed on each shift, the methods utilized to conduct the survey, and the control points used. The record shall be of sufficient detail to allow the survey to be reproduced. A Type 1 Working Drawing of each day's survey record shall be provided to the Engineer within 3 working days after the end of the shift. The Contractor shall compile the survey information in an electronic file format acceptable to the Engineer (file formats submitted shall be compatible with InRoads and MicroStation).

Survey information collected shall include station, offset, and elevation for each lane line and curb line. Survey information shall be collected at even 20-foot station intervals and at the centerline of each bridge expansion joint. The Contractor shall ensure a surveying accuracy to within ± 0.01 feet for vertical control and ± 0.2 feet for horizontal control. The survey shall extend 100 feet beyond the bridge back of pavement seat.

Except for the primary survey control information and final grade profile and cross-sectionfurnished by the Engineer, the Contractor shall be responsible for all calculations, surveying, and measuring required for setting, maintaining, and resetting equipment and materials necessary for the construction of the overlay to the final grade profile and cross-section. The Engineer may post-check the Contractor's surveying, but these post-checks shall not relieve the Contractor of responsibility for internal survey quality control.

The Engineer will establish the final grade profile and cross-section based on the Contractor's survey and will provide the final grade profile and cross-section to the Contractor within five working days after receiving the Contractor's survey information.

The Contractor shall not begin shotblasting concrete surface work as specified in these Provisions until receiving the final grade profile from the Engineer.

6-23.3(7) Deck Repair

Deck repair Work shall not commence until shotblasting operations are complete.

6-23.3(7)A Classification

Deck repair will be classified as Type 1 Deck Repair or Type 2 Deck Repair. The determination of whether an area will be classified as Type 1 or Type 2 will be made after completion of deck repair excavation, repair of steel reinforcing bars, and removal of concrete debris.

6-23.3(7)B Chain Drag

After the entire lane or strip to be overlaid has been shotblasted and cleaned as required in Section 6-23.3(5) of this Special Provision, the entire surface shall be inspected by the Contractor, in the presence of the Engineer, in accordance with ASTM D4580, Method B. Based on that inspection, the Contractor shall mark those areas, meeting any of the following criteria, for removal:

1. Unsound concrete in accordance with ASTM D4580, Method B.

2. Lack of bond between existing concrete and reinforcing steel.

3. All existing nonconcrete patches.

After all deck repair excavation is complete, the Contractor shall measure and submit to the Engineer as a Type 1 Working Drawing the location and size of each area identified above by station, offset, length, width, average depth, and deck repair type, using the form provided by the Engineer.

6-23.3(7)C Deck Repair Excavation

The areas marked for removal in Section 6-23.3(7)B of this Special Provision shall be excavated with equipment as described in Section 6-23.3(2)B of this Special Provision. Excavation shall be to the depth necessary to remove all loose and unsound material, without damaging reinforcing steel or sound concrete.

Care shall be taken in removing the deteriorated material to not damage the existing sound concrete or steel reinforcing bars that are to remain in place. All removal shall be accomplished by making vertical edges at the boundaries of the repair area. In no case shall the depth of a sawn vertical cut exceed ¾ inch or to the top of the top steel reinforcing bars, whichever is less.

Bridge deck areas outside the repair area damaged by the Contractor's operations shall be repaired by the Contractor at no additional expense to the Contracting Agency, and to the satisfaction of the Engineer.

6-23.3(7)D Repair of Steel Reinforcing Bars

Where existing steel reinforcing bars inside deck repair areas show natural deterioration greater than 20-percent section loss, the Contractor shall furnish and place steel reinforcing bars alongside the deteriorated bars in accordance with the details shown in the Standard Plans. Payment for such extra Work will be by force account as provided in Section 1-09.6.

All reinforcing steel damaged due to the Contractor's operations shall be repaired by the Contractor. Damage to rebar shall be understood to include damage to epoxy coating.

The repair shall be as follows or as directed by the Engineer:

1. Damage to epoxy coating, when present on existing steel reinforcing bars, shall be repaired in accordance with Section 6-02.3(24)H.

2. Damage to bars resulting in a section loss of 20 percent or more of the bar area shall be repaired by chipping out the adjacent concrete and splicing a new bar of the same size. Concrete shall be removed to provide a ¾-inch minimum clearance around the bars. The splice bars shall extend a minimum of 40 bar diameters beyond each end of the damage.

3. All bars partially or completely removed from the deck shall have the damaged portions removed and spliced with new bars as outlined in item 2 above.

For bridge decks not constructed under the same Contract as the polyester concrete overlay, responsibility for costs to repair damage shall be allocated as follows:

1. Repairing damage that occurs during shotblasting to coatings on existing reinforcing steel shall be paid for in accordance with Section 1-09.6.

2. Repairing damage to existing reinforcing steel that is caused by the Contractor's negligence shall be at no additional expense to the Contracting Agency.

6-23.3(7)E Type 1 Deck Repair

An area will be classified as a Type 1 Deck Repair when the completed concrete excavation either (a) exposes no more than one-half the periphery of a bottom bar of the top layer of steel reinforcement, or (b) the length of an exposed bar does not exceed 12-continuous inches along the length of the bar.

The scope of Work for Type 1 Deck Repair includes:

1. Excavating and disposing of the unsound concrete and unsound nonconcrete patches within the repair area.

2. Repair of steel reinforcing bars damaged by the Contractor.

3. Sandblast the surface and exposed rebar.

4. Providing a CSP-6 surface roughness on existing nonconcrete patches that are sound.

6-23.3(7)F Type 2 Deck Repair

An area will be classified as a Type 2 Deck Repair when the completed concrete excavation either exposes more than one-half the periphery of a bottom bar of the top layer of steel reinforcement or the length of an exposed bar exceeds 12-continuous inches along the length of the bar.

The scope of Work for Type 2 Deck Repair includes:

1. Excavating and disposing of the unsound concrete and unsound nonconcrete patches within the repair area, below the shotblasted depth.

2. Repairing steel reinforcing bars damaged by the Contractor.

3. Sandblasting the area and exposed rebar prior to placing deck patching concrete.

4. Saturating and removing freestanding water.

5. All work related to patching and curing the excavated area with Class M concrete in accordance with Section 6-23.2(2) of this Special Provision.

6-23.3(7)G Filling and Curing Deck Repair Areas

Type 1 Deck Repairs shall be filled with polyester concrete as part of placing the polyester concrete overlay. Payment for filling Type 1 deck repairs with Polyester Concrete shall be incidental to bid item "Polyester Concrete Overlay".

Type 2 Deck Repairs shall be patched with concrete class M. The top of these patches shall be finished with a wood float, flush with the top of the shotblasted surface. All Type 2 deck repair patching shall be performed well enough in advance of the polyester concrete overlay to allow all patches to cure as required below.

Before placing Class M concrete in the Type 2 deck repairs, the Contractor shall clean the surfaces to which the concrete will be applied (including rebar) by sandblasting and blowing clean with oil-free air. The Contractor shall make sure the existing concrete is well saturated at the time of placing concrete in the Type 2 deck repairs but shall remove all freestanding water prior to placing the concrete. The Contractor shall place concrete class M in the Type 2 deck repair areas while the existing concrete is wet. It shall be consolidated in accordance with Section 6-02.3(8). Concrete Class M shall be wet-cured a minimum of 42 hours, as follows:

1. The concrete shall be immediately covered with a single layer of clean, new or used, wet burlap. The burlap shall have a maximum width of 6 feet. The Engineer will determine the suitability of the burlap for reuse, based on the cleanliness and absorption ability of the burlap. Care shall be exercised to ensure that the burlap is well drained and laid flat with no wrinkles on the deck surface. Adjacent strips of burlap shall have a minimum overlap of 6 inches.

2. Once in place the burlap shall be lightly fog sprayed with water. A separate layer of white, reflective type polyethylene sheeting shall immediately be placed over the wet burlap.

3. As an alternative to the application of burlap and fog spraying described above, the Contractor may propose a curing system using proprietary curing blankets specifically manufactured for bridge deck curing. The Contractor shall submit a Type 2 Working Drawing consisting of details of the proprietary curing blanket system, including product literature and details of how the system is to be installed and maintained.

4. The burlap shall be kept wet continuously and the wet curing regimen as described shall remain in place for a minimum of 42-hours.

During the curing period of concrete placed in Type 2 deck repairs, all vehicular and foot traffic shall be prohibited in the repair area.

6-23.3(7)H Filling Existing Bridge Deck Wheel Ruts

Existing Bridge Deck Ruts shall be filled with polyester concrete as part of placing the polyester concrete overlay.

6-23.3(8) Polyester Concrete Trial Overlay

Prior to constructing the overlay, the Contractor shall place one or more trial overlays of primer and polyester concrete using the equipment, materials, and procedures proposed for production, as approved by the Engineer in accordance with Section 6-23.3(3). The Contractor shall notify the Engineer of the time and location of the trial overlay at least seven calendar days prior to the scheduled trial overlay.

The trial overlay shall be placed on a previously cast and cured concrete pad at a location selected by the Contractor. The plan area of the concrete pad shall be 12 feet minimum in width and 15 feet minimum in length.

The Contractor shall shotblast, clean the concrete pad surface, mix, place, finish, and cure the polyester concrete overlay. The Contractor need not perform further deck preparation, or place sand for abrasive finish provided that all other conditions of Sections 6-23.3(9), (10), and (12) of this Special Provision are satisfied.

The Contractor shall arrange for soundness testing and three pull-off tests as described in Section 6-23.3(13) to be performed by an independent testing laboratory. The independent testing laboratory shall record the pull-off test results and the amount of (if any) failure into the base concrete and shall provide written documentation of the test results to the Engineer and Contractor.

The Contractor shall not begin placing polyester concrete overlay at the bridge site(s) receiving the polyester concrete overlay until receiving the Engineer's approval of the completed trial overlay.

After receiving the Engineer's approval of the completed trial overlay, the concrete pad and trial overlay shall become the Contractor's property and shall be removed and disposed of in accordance with Section 2-02.3.

If significant successful experience is demonstrated by both the installer, System Provider, and System Provider Technical Representative together, the first shift of polyester concrete overlay installation may be considered as the Trial Application if approved by the Engineer. Rejection of all or part of the trial in this case will be required to be removed and disposed of at no additional cost to the Contracting Agency. If no further overlay is allowed due to full rejection after multiple trials, the site will be restored to initial in-service condition at no additional cost to the Contracting Agency.

The number of trial applications required shall be as many as necessary for the Contractor to demonstrate the ability to construct an acceptable trial overlay section and competency to perform the work. However, the installer, proposed equipment/techniques, or material may be rejected if not shown to be acceptable after two trials.

6-23.3(9) Polyester Concrete Overlay

6-23.3(9)A Pre-Overlay Conference

Five to ten working days prior to polyester concrete overlay placement, a pre-overlay conference shall be held to discuss final deck preparation, equipment, temperature and weather requirements, aggregate and deck dryness requirements, construction procedures, sequencing, and personnel. Inspection procedures shall also be reviewed to ensure coordination. Attendees shall include representatives from all parties involved in the work including inspectors, installer, and System Provider Technical Representative. If necessary, teleconferencing of attendees may be approved by the Engineer.

If the project includes more than one bridge deck, an additional conference shall be held just before placing the polyester concrete overlay for each subsequent bridge deck.

6-23.3(9)B Restrictions on Other Work

To ensure the best possible bond and integrity of the polyester concrete overlay, the Contractor shall ensure that dust, debris, moisture, or any other deleterious materials do not enter a work area from the start of final surface preparation in that work area until completion of curing time for the polyester concrete overlay in that work area. This work area during this timeframe shall be referred to as the protected work area. In addition to other measures, the Contractor shall comply with the following:

1. Perform no work within 100 feet of the protected work area which generates dust or debris (including hand tool chipping, shotblasting, sandblasting, vacuuming, and cleaning).

2. Dust or debris generating work may be allowed beyond this 100 feet boundary provided dust and debris will not drift onto the limits of the protected work area.

If the shotblasting impedes or interferes in any way with the final cleaning or overlay placement within the protected area as determined by the Engineer, the shotblasting Work shall be terminated immediately and the equipment shall be moved away from the protected area to eliminate the conflict.

Traffic other than required construction equipment will not be permitted within the protected work area unless allowed by the Engineer. To prevent contamination, all equipment allowed within the protected work area shall be equipped with drip guards.

6-23.3(9)C Final Surface Preparation

Following the completion of all Type 1 and Type 2 Deck Repairs (including placement and curing of patches in Type 2 Deck Repair areas), the entire lane or strip being overlaid shall undergo final cleaning. Final cleaning shall be accomplished in one shift and consists of the following, in the sequence shown:

1. Remove grease, slurry, oils, paint, dirt, striping, cure compound, rust, membrane, milling slurry, weak surface mortar or any other contaminants that could interfere with the proper adhesion of the overlay system. These materials shall be removed by abrasive blasting.

2. All steel surfaces that will be in contact with the overlay shall be cleaned in accordance with SSPC-SP No. 10, Near-White Blast Cleaning, except that wet blasting methods shall not be allowed.

3. Remove loose or trapped particles using magnets and vacuuming. Vacuum shall be capable of collecting all remaining dust, concrete chips, and other debris to the extent necessary to ensure the oil-free compressed air in the next step complies with environmental requirements.

4. Oil-free compressed air shall be used as the final step to remove all remaining dust and debris.

5. Cleaned surfaces shall not be exposed to Contractor or public vehicular traffic. If the deck becomes contaminated before placing the overlay, the Contractor shall shotblast or sandblast the contaminated areas to the satisfaction of the Engineer at no additional cost to the Contracting Agency.

6. The Contractor shall provide suitable coverings (e.g. heavy duty drop cloths) as needed to protect all exposed areas not to receive primer and overlay, such as curbs, sidewalks, parapets, etc. All damage or defacement resulting from this application shall be cleaned and/or repaired to the Engineer's satisfaction at no additional cost.

6-23.3(9)D Overlay Finishing Equipment Setup

Construction joints between passes shall be within 1 foot of the stripe lines or centered within a lane.

When grade will be established for a paving machine from a paving wire, or when a vibrating screed is allowed, grade pins and screed rails shall be placed outside the area to be overlaid. Hold-down devices shot into the concrete are not permitted. Hold-down devices of other types leaving holes in the exposed area will be allowed provided the holes are subsequently filled with polyester concrete. Hold-down devices shall not penetrate the existing deck by more than ¾ inch.

6-23.3(9)E Quality Assurance for Polyester Concrete Overlay

All acceptance testing shall be performed by an independent testing laboratory provided by the Contractor, in the presence of the Engineer's representative. The Engineer reserves the right to self-perform any acceptance tests it deems in its best interests. The Contractor's independent testing laboratory shall perform the following tests:

1. Moisture content of polyester concrete aggregate and sand for abrasive finish.

2. Temperature of deck surface and aggregates before mixing.

3. ASTM C805 Rebound Hammer (Schmidt hammer).

4. Smoothness quality testing.

5. Sounding using ASTM D4580, Method B.

6. Direct Tension Bond Testing, ASTM C1583.

The Contractor shall arrange to have the System Provider Technical Representative furnish technical service relating to application of material and health and safety training for personnel who are to handle the polyester concrete and the primer, at the following times:

1. At the pre-paving conference.

2. During the trial overlay.

3. During paving machine setup.

4. During a minimum of the first two days of paving.

6-23.3(9)F Moisture and Temperature Requirements

It is critically important for the long-term performance of the polyester concrete system that the concrete substrate and all other surfaces (primer and polyester overlay) be (1) at the proper temperature and (2) moisture-free. Unless otherwise noted below, the time period for these requirements begins with the start of applying primer and ends two hours after placing the polyester overlay and sand for abrasive finish. Therefore, the following requirements for temperature and moisture shall be strictly enforced. Failure to follow these requirements may result in removal and replacement of the polyester concrete system at no additional expense to the Contracting Agency.

1. During the 24-hour period immediately preceding start of primer placement, the area of bridge deck to receive primer shall not be exposed to moisture or water in any form. Additionally, during this 24-hour period, the concrete substrate shall be exposed to the atmosphere to freely allow moisture to evaporate. Covering the concrete substrate during this period with material that will hinder evaporation in any way, such as visqueen, shall not be allowed.

2. Primer application shall not begin if rain is forecast any time between start of primer application and 2 hours after the planned completion of polyester concrete and sand for abrasive surface.

3. Primer application shall not begin until after morning dew has evaporated.

4. Before starting primer, the concrete substrate surface must be free of any surface darkening that would indicate locations of previously standing water. The entire concrete substrate surface must appear to be uniformly light in color and show no further lightening when drying methods such as blowing compressed air are applied. Cracks in the concrete substrate must also be dry.

5. The concrete surface temperature shall be between 40°F (and rising) and 100°F. Night work may be required when temperatures cannot be met during the day.

6-23.3(9)G Primer Application

The primer placement shall start not more than 24 hours after the start of sandblasting operations in Final Surface Preparation.

In the interim between completion of final surface preparation described in Section 6-23.3(9)C of this Special Provision and applying the primer, any contaminants that have accumulated which could interfere with the proper adhesion of the overlay system shall be removed to the satisfaction of the Engineer. Immediately prior to applying the primer, the surface receiving the primer shall be blown off with oil free and moisture free compressed air to remove accumulated dust and any other loose material.

After the exposed surfaces have been prepared and are dry, primer shall be applied in accordance with the System Provider Technical Representative's recommendations. Primer shall be placed within 5 minutes of mixing at approximately 90 sf/gal or the rate that provides substrate saturation acceptable to the Engineer.

Primer shall be applied by flooding and uniformly spread to completely cover surfaces to receive overlay. Care shall be taken to avoid heavy application that results in excess puddling. Excess material shall be removed or distributed to meet the required saturation without excessive puddling. Primer shall be reapplied to any areas that appear dry 15 minutes after primer placement, prior to overlay placement.

The prepared concrete surface shall receive one coat of promoted/initiated primer. The promoted/initiated primer shall be worked into the concrete in a manner to effect complete coverage of the area. A one-pint sample of each batch of promoted/initiated primer shall be retained and submitted to the Engineer at the time of primer application to verify proper catalyzation.

Under no circumstances shall resin be allowed to run into drains and expansion joints, or otherwise escape the Contractor's collection and containment system.

If the primed surface becomes contaminated, the contaminated area shall be cleaned by abrasive blasting and reprimed at no additional expense to the Contracting Agency. The primer shall cure for a minimum of 30 minutes before placing the polyester concrete overlay.

6-23.3(9)H Mixing Polyester Concrete

Polyester concrete shall be mixed in volumetric mixers conforming to Section 6-23.3(2)E of this Special Provision and in accordance with the mix design accepted by the Engineer.

At the time of mixing, the polyester concrete aggregate shall:

1. Have a temperature between 45°F and 100°F.

2. Have a weighted-average moisture content, when tested under AASHTO Test Method T255, of not more than one half of the weighted-average aggregate absorption.

The amount of peroxide initiator used shall result in a polyester concrete set time between 30- and 120-minutes during placement as determined by California Test 551, Part 2, "Method of Test For Determination of Set Time of Concrete Overlay and Patching Materials", by Gilmore Needles. Accelerators or inhibitors may be required as recommended by the polyester concrete binder supplier.

The polyester concrete binder shall be initiated and thoroughly blended just prior to mixing the polyester concrete aggregate and binder. The polyester concrete shall be thoroughly mixed prior to placing.

6-23.3(9)I Placing Polyester Concrete

The polyester concrete overlay shall be placed, consolidated, and finished to the profile grade and cross-section provided by the Engineer using a paving machine meeting the requirements of Section 6-23.3(2)F of this Special Provision. The Contractor shall perform a dry run with the paving machine before placing Polyester Concrete. Based on the dry run, adjustments to the final grade may be allowed provided minimum thickness requirements are met.

The minimum thickness of polyester concrete overlay system shall be ¾ inches, measured from the top of the Polyester Overlay to the highest point of the shotblasted concrete surface as shown in the Plans.

Placement of the polyester concrete shall not proceed until the Engineer verifies that the primer was properly promoted and initiated, as evidenced by the primer batch sample.

During overlay application, the Contractor shall provide suitable coverings (e.g., heavy duty drop cloths) as needed to protect all exposed areas not to receive overlay, such as curbs, sidewalks, parapets, etc. All damage or defacement resulting from this application shall be cleaned and/or repaired to the Engineer's satisfaction at no additional cost.

The polyester concrete shall be placed on the primer after 15 minutes and within 2 hours after the primer has been applied. The polyester concrete shall be placed prior to gelling or 15 minutes following addition of initiator, whichever occurs first.

Polyester concrete shall have an initial set time of at least 20 minutes and at most 90 minutes following resin catalyzation. The initial set time can be determined in the field when the in-place polyester concrete cannot be deformed by pressing with a finger, indicating that the resin binder is no longer in a liquid state. If the initial set is not within 90 minutes of catalyzation, the material shall be removed and replaced at no additional cost to the Contracting Agency.

If, for any reason, polyester concrete is not placed over the primer within the two-hour time limit, the Contractor shall apply a fresh coat of primer. Prior to applying the polyester concrete overlay, the surface shall be re-cleaned in accordance with Section 6-23.3(9)G of this Special Provision.

Expansion joints shall be protected from all polyester concrete overlay operations to the satisfaction the Engineer. Saw cutting at bridge expansion joints shall not be allowed. The surface temperature of the area receiving the polyester concrete shall be the same as specified for the primer.

6-23.3(10) Finishing Polyester Concrete

The finished surface of the polyester concrete overlay shall conform to the straight-edge requirements of Section 6-23.3(15) of this Special Provision and the following:

1. The polyester concrete shall be struck off, finished, and consolidated in accordance with the profile grade and cross-section provided by the Engineer with adjustments allowed in Section 6-23.3(9)I of this Special Provision.

2. Binder content shall be as specified in Section 6-23.2(1)B of this Special Provision and yield a polyester concrete consistency that requires surface applied consolidation and finishing to consolidate the polyester concrete and yield a slight sheen of bleed binder on top surface yet does not yield excess bleed binder.

3. Although the paver should yield a finished surface, additional finishing may be necessary. Hand finishing of seam area between passes shall produce a consistent surface across the junction of the placements. Polyester concrete

shall be finished as necessary through traditional concrete finishing methods, producing a smooth surface, with slight resin sheen indicating complete consolidation of aggregates. Polyester concrete patches shall be finished by traditional concrete hand finishing methods.

6-23.3(11) Sand for Abrasive Finish

The polyester concrete overlay shall receive an abrasive finish using sand as specified. The abrasive finish shall be applied immediately after overlay strike-off and before gelling occurs. Where spring tining is allowed, the tining shall be performed after sufficient sand broadcast.

At the time of application on the polyester concrete, the moisture content of the sand for abrasive finish shall not exceed 0.5 percent.

At least 2.2 lbs. per square yard shall be applied evenly to refusal by hand broadcasting onto the glossy surface immediately after sufficient finishing and before resin gelling occurs. To ensure adequate pavement friction, the completed polyester concrete overlay surface (including the sand for abrasive finish) shall be free of any smooth or "glassy" areas such as those resulting from insufficient quantities of surface aggregate. Any such surface defects shall be repaired by the Contractor in the manner recommended by the System Provider Technical Representative and approved by the Engineer at no additional cost to the Contracting Agency.

6-23.3(12) Curing Polyester Concrete

The polyester concrete overlay shall be cured in accordance with the manufacturer’s recommendations. Protect the overlay from moisture, traffic, and equipment for at least 2 hours after final finishing. The Engineer may extend protection time if sufficient strength or adhesion is not achieved. The in-place material must achieve test reading from a calibrated Schmidt Hammer of at least 3,000 psi within four hours after final finishing, and before traffic or equipment is allowed on the overlay. Proper cure rate necessary to achieve sufficient initial and final strength depends on proper initiator/accelerator levels to account for field conditions such as ambient and substrate temperatures.

The Contractor shall measure the compressive strength of the cured polyester concrete overlay with a rebound hammer in accordance with ASTM C805. The readings of the rebound hammer used shall be correlated to the compressive strength of the polyester concrete product in accordance with ASTM C805 Section 5.4 and the Contractor shall submit a Type 1 Working Drawing of this correlation.

Traffic and equipment shall not be permitted on the polyester concrete overlay for at least four hours and until the polyester overlay has reached a minimum compressive strength of 3,000 psi based on the rebound hammer readings and the correlation chart for the rebound hammer used.

Areas in the polyester concrete that do not totally cure, or that fail to attain the minimum compressive strength specified above, shall have the deficiencies addressed in accordance with Section 1-05.7.

The Contractor shall prevent any cleaning chemicals from reaching the polyester mix during the overlay applications.

6-23.3(13) Checking Polyester Concrete for Bond

6-23.3(13)A Sounding

After the requirements for curing have been met, the entire overlay surface shall be inspected by the Contractor's independent testing entity, in the presence of the Engineer, in accordance with ASTM D4580, Method B. Any areas of delamination shall be removed and replaced at no additional expense to the Contracting Agency. Extensive unbonded areas may be grounds for rejection of the entire installation if ordered by the Engineer.

6-23.3(13)B Direct Tension Bond Testing

Vertical axis adhesion tests shall be performed not more than 24 hours after the placement of the Polyester concrete overlay by an independent testing company, arranged by the Contractor, in accordance with ASTM C1583, cost to be included in polyester concrete Overlay Placement item. At a minimum, two adhesion tests, at randomly selected locations, shall be performed on the first bridge and Trial Overlay. For bridges with deck areas greater than 25,000 square feet, or multiple bridge projects, additional tests shall be performed at a frequency of one test per 25,000 square feet of additional deck area, if required by the Engineer. If substrate and surface preparation remain consistent and sufficient, a single test set may be sufficient and subsequent tests may be waived if allowed by the Engineer. Additional testing may be required as directed by the Engineer if any element of the substrate, surface prep, polyester concrete overlay system, or placement changes after initial testing.

Test cores shall be drilled a minimum of 0.25" but no greater than 0.50" below the substrate to overlay bond line.

The minimum bond strength of the polyester concrete overlay system on normal weight concrete shall be 250 psi. An acceptable test will demonstrate that the overlay bond strength is sufficient by producing a concrete subsurface failure area greater than 50% of the test surface area ("type a" per test method). Failure at the epoxy/overlay interface ("type d" per test method) is also acceptable provided the failure occurs at not less than 250 psi. The Contractor shall repair all bond test locations with polyester concrete overlay in accordance with this Special Provision.

6-23.3(14) Crack Sealing Polyester Concrete

If cracks appear in the overlay after a significant cure period, they shall be filled with properly catalyzed and mixed HMWM primer material. Care shall be taken to fill the cracks only, and ensure minimal primer is left on the finished surface of the overlay.

If cracking is extensive, yet no other defects exist, the area shall be shot blast cleaned and flood coated with properly catalyzed and mixed crack sealer followed by broadcasting sand meeting the requirements for sand for abrasive finish.

6-23.3(15) Surface Smoothness

After crack sealing is complete, the Contractor shall test the entire deck/slab for flatness (allowing for crown, camber, and vertical curvature). The testing shall be done with a 10-foot straightedge held on the surface. The straightedge shall be advanced in successive positions parallel to the centerline, moving not more than one half the length of the straightedge each time it advances. This procedure shall be repeated with the straightedge held perpendicular to the centerline. An acceptable surface shall be both (1)

free from deviations of more than ⅛-inch under the 10-foot straightedge, and (2) free from cyclical/repetitive vertical deviations greater than 1/16".

If smoothness testing identifies areas that deviate from the smoothness requirements, the Contractor shall grind these down with a diamond grinder meeting the requirements of Section 6-23.3(2)G of this Special Provision. Prior to diamond grinding, areas showing low spots of more than ¼ inch in 10 feet shall be marked and prepared with shot blasting or sandblasting, primed, and filled with either catalyzed resin and broadcast sand or mixed polyester concrete slurry material if ordered by the Engineer. The use of resin or mixed slurry material shall be as recommended by the System Provider Technical Representative and approved by the Engineer. Grinding removal of the fill area boundary may be required if directed by the Engineer. Retesting and refinishing shall continue until a surface conforming to the requirements specified above is produced. The grinding depth of high areas after initial finishing shall not exceed ¼ inch.

6-23.3(16) Texturing Polyester Concrete

After the Contractor has completed all work required to meet the requirements for surface smoothness, the polyester concrete overlay surface shall receive a longitudinally sawn texture using equipment as described in Section 6-23.3(2)H of this Special Provision. The Contractor shall texture the bridge deck surface to within 3-inches minimum and 12-inches maximum of the edge of concrete at expansion joints, within 1-foot minimum and 2-feet maximum of the curb line, and within 3-inches minimum and 9-inches maximum of the perimeter of bridge drain assemblies.

The Contractor shall contain and collect all concrete dust and debris generated by the bridge deck texturing process and shall dispose of the collected concrete dust and debris in accordance with its Debris Containment and Disposal Plan.

After texturing polyester concrete surface, the Engineer shall test the surface texture of polyester concrete for uniformity and it shall have a skid number (SN) of not less than 35 as determined by ASTM E 274.

6-23.3(17) Replacement of Defective Overlay

A defective overlay, or portion thereof, as evidenced by insufficient strength, lack of sound bond to substrate, or failing overlay adhesion test results shall be removed and replaced at the Contractor's expense. The Contractor shall submit a written corrective action plan to the Engineer, which shall include the methods and procedures that will be used. The Contractor shall not commence corrective work until the methods and procedures have been approved in writing by the Engineer. The Engineer's approval shall not relieve the Contractor of the responsibility of producing work in conformity with the Contract.

6-23.3(18) Opening to Traffic

Prior to opening the overlay area to vehicular traffic, the finished overlay shall be power swept to remove excess loose aggregate and loose sand for abrasive finish. The Contractor shall demonstrate to the satisfaction of the Engineer that the power broom equipment will not damage the finished overlay. Damage to the finished overlay caused by the power broom shall be repaired at no additional expense to the Contracting Agency.

6-23.4 Measurement

Shotblasting concrete surface will be measured by the square yard of surface shotblasted.

Type 1 Deck Repair and Type 2 Deck Repair will be measured by the square foot of surface area of deck concrete removed in accordance with Section 6-23.3(7) of this Special Provision. Determination of whether a deck repair is Type 1 or Type 2 shall be in accordance with Section 6-23.3(7) of this Special Provision.

Polyester concrete overlay will be measured by the square yard of overlay surface actually placed.

6-23.5 Payment

Payment will be made for each of the following Bid Items that are included in the Bid Proposal:

"Surveying for Polyester Concrete Overlay", lump sum.
The lump sum contract price for "Surveying for Polyester Concrete Overlay" shall be full pay to perform the Work as specified, including establishing secondary survey control points, performing survey quality control, and recording, compiling, and submitting the survey records to the Engineer, and all other surveying required to complete the polyester concrete overlay.

"Type 1 Deck Repair", per square foot.
The unit contract price per square foot for Type 1 Deck Repair shall be full pay for performing the Work as specified, including excavating and disposing concrete and nonconcrete materials, and repair of concrete or rebar damaged by the Contractor's operations.

"Type 2 Deck Repair", per square foot.
The unit contract price per square foot for Type 2 Deck Repair shall be full pay for performing the Work as specified, including: excavating and disposing concrete; sandblasting; placing, consolidating, finishing, and curing concrete patches in Type 2 deck repairs; repair of concrete or rebar damaged by the Contractor's operations.

"Polyester Concrete Trial Overlay", lump sum.
The lump sum contract price for "Polyester Concrete Trial Overlay" shall be full pay for performing the Work as specified, including establishing a location for the trial overlay, construction, removal, and disposal of the concrete pad and trial overlay.

"Polyester Concrete Overlay", per square yard.
The unit contract price per square yard for "Polyester Concrete Overlay" shall be full pay for performing the Work as specified, including dry run, initial surface preparation, final surface preparation, placing primer, placing, finishing, and curing the overlay, placing sand for abrasive finish, sounding, direct tension bond testing, meeting surface smoothness requirements, texturing, crack sealing, and replacement of defective overlay. Polyester concrete overlay placed in excess of the thickness specified in the Plans due to surface irregularities in the bridge deck such as rutting or excess concrete surface shotblasting shall be considered incidental to the unit Contract price per square yard for "Polyester Concrete Overlay".

Payment for the following shall be considered incidental to and included in the unit contract items included in the Contract:

1. All Work and related costs for implementing the debris containment and disposal plan.

2. All Work and related costs for protecting adjacent traffic from flying debris.

3. All Work and related costs for managing and disposing of process wastewater.

4. Submittals.

DIVISION7.GR7

Division 7
Drainage Structures, Storm Sewers, Sanitary Sewers, Water Mains, and Conduits

7-01.GR7

Drains

7-01.SA1.GR7

(October 3, 2022)

MEDIA FILTER DRAINS

Description

This Work shall consist of constructing media filter drains as detailed in the Plans.

Materials

Materials shall meet the requirements of the following sections:

Aggregate for Bituminous Surface Treatment	9-03.4
Crushed Surfacing Base Course	9-03.9(3)
Gravel Backfill for Drains	9-03.12(4)
Underdrain Pipe	9-05.2
Seed	9-14.3
Fertilizer	9-14.4
Mulch and Amendments	9-14.5
Agricultural Grade Dolomite Lime	9-14.5(5)
Agricultural Grade Gypsum	9-14.5(6)
Compost	9-14.5(8)
Horticultural Grade Perlite	9-14.5(9)
Compost Socks	9-14.6(6)
Geotextile for Underground Drainage (Moderate Survivability, Drainage Class C, non-woven)	9-33

Media Filter Drain Mix

Media filter drain mix shall be mixed in the following proportions: 3 cubic yards of aggregate, 1 cubic yard of horticultural grade perlite, 40 pounds of agricultural grade dolomite lime, and 12 pounds of agricultural grade gypsum. The perlite, dolomite lime, and gypsum shall not contain toxic material. Media filter drain mix shall be premixed prior to placement. The soil amendments and aggregate shall meet the following requirements prior to mixing.

Aggregate for Media Filter Drain Mix

Aggregate for media filter drain mix shall meet the requirements of Section 9-03.4(2), ⅜-inch to No.4., with the exception of:

- The use of recycled material is not permitted.

- The fracture requirement shall be at least two fractured faces and will apply to material retained on the No. 4 sieve in accordance with FOP for AASHTO T 335.

Acceptance of the aggregate shall be in accordance with Section 3-04.5, Table 2 for "Other" materials based on one sample every 1000 tons. Testing of aggregate shall occur prior to mixing with the soil amendments. Horticultural grade perlite, agricultural grade dolomite lime and gypsum will be accepted by catalog cut or bag label.

Construction Requirements

General Requirements

The Contractor shall construct the media filter drain in accordance with the details in the Plans. Media filter drain type work elements are shown in Table 1.

Media Filter Drain Table 1

Elements of Media Filter Drain Construction	Media Filter Drain Type						
	1	2	3	4	5	6	7
Media Filter Drain Mix	X	X	X	X	X	X	X
Scarification	X	X	X	X	X	X	X
Underdrain Pipe	X	X		X		X	
Gravel Backfill for Drains	X	X		X		X	
Geotextile for Underground Drainage	X	X		X		X	
Excavation	X	X	X	X	X	X	X
CSBC			X		X		X
Compost Blanket	X	X	X	X	X	X	X
Compost Sock						X	X
Flow Spreader				X	X	X	X
Gravel Backfill for Pipe Zone Bedding				X	X		
Non-Vegetation Zone	X	X	X	X	X		

The Contractor shall sequence construction of the media filter drain to ensure different sections of the media filter drain are not contaminated or displaced by other materials during installation. Once constructed, the Contractor will not be allowed to drive equipment over areas of the media filter drain.

Before excavating media filter drains, the Contractor shall clear and grub the area in accordance with Section 2-01.

Preparation

Prior to placement of the compost blanket, the Contractor shall scarify the area for the grass strip to a depth of 2 to 3 inches as shown in the Plans. The application and scarifying methods shall be approved by the Engineer. The Contractor shall notify the Engineer a minimum of five working days prior to the start of compost work.

Excavation

Media filter drain excavation shall conform to Section 2-09.3(4).

Installation

Medium compost shall be uniformly and evenly placed as shown in the Plans.

Underdrain shall be constructed in accordance with Section 7-01.3.

Compost blanket shall be constructed in accordance with Section 8-01.3(4).

Compost sock shall be constructed in accordance with Section 8-01.3(12).

The media filter drain area shall be seeded in accordance with 8-02.3(9) after the compost blanket has been installed.

After excavation, the non-vegetation zone shall backfill as detailed in the plans. The use of recycled material is not permitted.

Measurement

Media filter drain will be measured per square yard along the ground surface of the completed installation.

Payment

"Media Filter Drain Type ____", per square yard.

The unit Contract price per square yard for "Media Filter Drain Type ____" shall be full pay to furnish all labor, equipment, and materials to complete the Work as specified.

Clearing and grubbing shall be paid for in accordance with Section 2-01.5.

Seeding, Fertilizing, and Mulching will be paid for in accordance with Section 8-02.5.

7-09.GR7

Water Mains

7-09.2.GR7

Materials

7-09.2(9-30.3).GR7

Valves

7-09.2(9-30.3(4)).GR7

Valve Boxes

Section 9-30.3(4) is revised to read

7-09.2(9-30.3(4)).OPT1.2026.GR7

(January 6, 2025)

Valve boxes shall be installed on all buried valves. The box shall be of cast iron, two-piece slip type standard design with a base corresponding to the size of the valve. The cast iron box and cover shall not be coated. The cover shall have the word "WATER" cast in it.

7-09.3.GR7

Construction Requirements

7-09.3(18).GR7

Coupled Pipe 4 – inches in Diameter and Larger

7-09.3(18).INST1.GR7

Section 7-09.3(18) is revised to read:

7-09.3(18).OPT1.2026.GR7

(January 6, 2025)

Joints for steel pipe shall be bell and spigot or welded as specified in the Special Provisions.

Component parts of couplings, rings, and bells shall receive a protective coating in the same manner as specified for the steel pipe. Bolts and nuts, exposed edges, and flanges shall, after installation, be covered with a protective coating conforming to AWWA C222, or AWWA C210, or AWWA C229 with the exception that coatings containing coal tar shall not be used.

Steel pipe 4 inches and larger for aboveground service shall be coupled with flanges, compression type or grooved type couplings.

Pipe for outdoor service above ground shall be covered with a protective coating conforming to AWWA C218 with the exception that coatings containing coal tar shall not be used.

DIVISION8.GR8

Division 8
Miscellaneous Construction

8-01.GR8

Erosion Control and Water Pollution Control

8-01.2.GR8

Materials

8-01.2(9-14.5).GR8

Mulch and Amendments

8-01.2(9-14.5(2)).GR8

Hydraulically Applied Erosion Control Products (HECPs)

8-01.2(9-14.5(2)A).GR8

Long-Term Mulch

Table 2 of Section 9-14.5(2)A is revised to read:

8-01.2(9-14.5(2)A).OPT1.2026.GR8

(November 4, 2024)

Table 2 Long-Term Mulch Test Requirements

The Contractor shall supply independent test results from the National Transportation Product Evaluation Program (NTPEP) on 5-year intervals generated on or after November 1, 2015, showing that the product meets the Cover-Factor (C Factor) in accordance with ASTM D6459. ASTM D8297 may be used as an alternative test method.

Properties	Test Method	Requirements
Performance in Protecting Slopes from Rainfall-Induced Erosion	ASTM D6459 or ASTM D8297. Test in one soil type. Soil tested shall be sandy loam as defined by the NRCS Soil Texture Triangle.	C Factor = 0.01 maximum using Revised Universal Soil Loss Equation (RUSLE) (or C_{event} = 0.01 maximum if using ASTM D8297)
The Contractor shall submit test results from an independent, accredited laboratory, on 5-year intervals generated on or after July 15, 2017, showing that the product meets the following requirements.		
Properties	**Test Method**	**Requirements**
Water Holding Capacity	ASTM D7367	800 percent minimum
Organic Matter Content	AASHTO T 267	90 percent minimum
Seed Germination Enhancement	ASTM D7322	Long Term 420 percent minimum

8-01.3.GR8

Construction Requirements

8-01.3(1).GR8

General

8-01.3(1).INST1.GR8

The tenth paragraph of Section 8-01.3(1) is revised to read:

8-01.3(1).OPT1.GR8

(January 25, 2010)

Erodible Soil Eastern Washington

Erodible soil not being worked whether at final grade or not, shall be covered within the following time period using an approved soil cover practice:

July 1 through September 30	30 days
October 1 through June 30	15 days

8-01.3(1).INST2.GR8

Section 8-01.3(1) is supplemented with the following:

8-01.3(1).OPT8.FR8

(April 1, 2002)

Side Slope Treatment

Slopes shall be compacted within *** $$1$$ *** days of exposure of a new section of cut and construction of a new portion of an embankment.

8-01.3(1)B.GR8

Erosion and Sediment Control (ESC) Lead

8-01.3(1)B.INST1.GR8

Item number 3 and 4 in the second paragraph of Section 8-01.3(1)B are revised to read:

8-01.3(1)B.OPT1.GR8

(October 3, 2022)

3. Submit to the Engineer no later than the end of the next working day following the inspection a TESC Inspection Report that includes:

   a. When, where, and how BMPs were installed, maintained, modified, and removed.

   b. Observations of BMP effectiveness and proper placement.

   c. Recommendations for improving future BMP performance with upgraded or replacement BMPs when inspections reveal TESC BMP deficiencies.

   d. Identify for each discharge point location whether there is compliance with state water quality standards in WAC 173-201A for turbidity and pH.

8-01.3(1)C.GR8

Water Management

8-01.3(1)C4.GR8

Management of Off-Site Water

8-01.3(1)C4.INST1.GR8

Section 8-01.3(1)C4 is supplemented with the following:

8-01.3(1)C4.OPT1.FR8

(August 6, 2012)

Off-site Stormwater

Stormwater is known to enter the project site at the following locations:

*** $$1$$ ***

8-01.3(2).GR8

Temporary Seeding and Mulching

8-01.3(2)B.GR8

Temporary Seeding

8-01.3(2)B.INST1.GR8

Section 8-01.3(2)B is supplemented with the following:

8-01.3(2)B.OPT1.FR8

(August 4, 2014)

Seed of the following mix, rate, and analysis shall be applied at the rates shown below on all areas requiring ***$$1$$*** seeding within the project:

Seed by Common Name and (Botanical name)	Pounds Pure Live Seed (PLS) Per Acre
*** $$2$$	$$

$$	$$
$$	$$
Total	$$ ***

The seed shall be certified in accordance with WAC 16-302 and meet the following requirements:

Prohibited Weed	0% max.
Noxious Weed	0% max.
Other Weed	0.20% max.
Other Crop	0.40% max.

8-01.3(2)B.OPT2.FR8

(August 4, 2014)

Seed of the following mix, rate, and analysis shall be applied at the rates shown below on all areas requiring ***$$1$$*** seeding within the project:

Seed by Common Name, (Botanical Name), and "Source Identification"	Pounds Pure Live Seed (PLS) Per Acre
*** $$2$$	$$
$$	$$
$$	$$
Total	$$ ***

Source Identified seed shall be generation four or less. Non-Source Identified seed shall meet or exceed Washington State Department of Agriculture Certified Seed Standards and be from within the appropriate genetic zones of the *** $$3$$ *** Ecoregion(s) as defined by the US Environmental Protection Agency (EPA).

The seed certification class shall be Certified (blue tag) in accordance with WAC 16-302 and meet the following requirements:

Prohibited Weed	0% max.
Noxious Weed	0% max.
Other Weed	0.20% max.
Other Crop	0.40% max.

The Contractor shall document all Source Identified seed by providing the Association of Official Seed Certifying Agents (AOSCA) yellow seed label for each species in the mix. Site Identification Logs can be supplied for collections where the AOSCA yellow label is not available.

8-01.3(2)B.OPT3.GR8

(September 3, 2019)

Grass seed shall be a commercially prepared mix, made up of low growing species which will grow without irrigation at the project location, and approved by the Engineer. The application rate shall be two pounds per 1000 square feet. Fertilizer shall be a commercially prepared mix of 10-20-20 and shall be applied at the rate of 10 pounds per 1000 square feet.

8-01.3(2)B.OPT4.FR8

(January 3, 2006)

Sufficient quantities of fertilizer shall be applied to supply the following amounts of nutrients:

Total Nitrogen as N - *** $$1$$ *** pounds per acre.

Available Phosphoric Acid as P_2O_5 - *** $$2$$ *** pounds per acre.

Soluble Potash as K_2O - *** $$3$$ *** pounds per acre.

*** $$4$$ *** pounds of nitrogen applied per acre shall be derived from isobutylidene diurea (IBDU), cyclo-di-urea (CDU), or a time release, polyurethane coated source with a minimum release time of 6 months. The remainder may be derived from any source.

The fertilizer formulation and application rate shall be approved by the Engineer before use.

8-01.3(2)B.OPT8.FR8

(August 4, 2014)

Seed of the following mix, rate, and analysis shall be applied at the rates shown below on all areas requiring *** $$1$$ *** seeding within the project:

Seed by Common Name, (Botanical Name), and "Source Identification"	Pure Live Seed Pounds (PLS) Per Acre
*** $$2$$	$$
$$	$$
$$	$$
Total	$$ ***

Seed shall meet or exceed Washington State Department of Agriculture Certified Seed Standards and be from within the *** $$3$$ *** Ecoregion(s) as defined by the US Environmental Protection Agency (EPA).

The seed certification class shall be Certified (blue tag) in accordance with WAC 16-302 and meet the following requirements:

Prohibited Weed	0% max.

Noxious Weed	0% max.
Other Weed	0.20% max.
Other Crop	0.40% max.

8-01.3(2)D.GR8

Temporary Mulching

8-01.3(2)D.INST1.GR8

Section 8-01.3(2)D is supplemented with the following:

8-01.3(2)D.OPT1.FR8

(January 5, 2015)

*** $$1$$ *** shall be applied at a rate of *** $$2$$ *** pounds per acre with no more than *** $$3$$ *** pounds per acre applied in a single lift.

8-02.GR8

Roadside Restoration

8-02.1.GR8

Description

8-02.1.INST1.GR8

Section 8-02.1 is supplemented with the following:

8-02.1.OPT1.GR8

(August 4, 2014)

This work shall consist of removing and disposing of buried previously fabricated debris that may be encountered during soil amendment incorporation or excavation for irrigation systems.

8-02.1.OPT2.GR8

(April 1, 2019)

This Work consists of supplying and applying a Biotic Soil Amendment (BSA) in accordance with these Specifications and as shown in the Plans or as designated by the Engineer.

8-02.2.GR8

Materials

8-02.2.INST1.GR8

Section 8-02.2 is supplemented with the following:

8-02.2.OPT1.GR8

(January 3, 2011)

Conservation Grade Plant Material

Conservation grade plant material is defined as healthy plants that do not meet aesthetic standards as defined in ASNS. The plants have healthy, well-developed roots and in all other ways meet standards for healthy and vigorous growth. However, these plants may have multiple leaders, damaged or missing leaders, Y crotches, bent branches, or other unusual shapes or forms. These plants may be used where shown in the plans.

8-02.2.OPT2.GR8

(April 1, 2019)

Biotic Soil Amendments (BSAs), also known as biotic soil media and hydraulic growth medium, shall be soil amendments engineered to improve the development of deficient soils and to facilitate sustainable vegetation. BSAs shall consist of a blend of organic material, nutrient sources, soil building and biostimulant components. BSAs shall increase the water and nutrient holding capacity of the soil and promote the growth of beneficial microorganisms. BSAs shall provide for enhanced seed germination and vegetative establishment.

Biotic Soil Amendment shall be certified to be free of weed seeds and pathogens, free of plastic, composed of non-toxic materials, and be a pre-mixed formulation unaltered by synthetic materials.

The biotic soil amendment shall have a minimum of 90% organic matter (organic growth medium) and contain other materials designed to improve seed germination, vegetation establishment and overall soil health. In addition to organic growth medium BSA shall include mycorrhizal fungi and a minimum of three of the following ingredients:

- Biochar
- Humus/Humic Acid
- Porous Ceramics or Water-holding Organic Polymers
- Seaweed Extract
- Beneficial Bacteria
- Micronutrients

The Contractor shall provide test results dated within 3 years prior to the date of application from an independent, accredited laboratory that has been recognized by an accrediting organization to test and evaluate products to product safety standards. The independent, accredited lab shall be free from commercial, financial, and other pressures that may influence the results of the testing and evaluation process. Test results shall show that the product meets the following table requirements:

Table 1: Biotic Soil Amendment Requirements

BSA Properties	Test Methods	Requirements
Physical		
Organic Matter	ASTM D586	90% minimum
pH	ASTM D1293	5.0 - 8.5
C:N Ratio	ASTM E1508	10:1 minimum 50:1 maximum
Water-Holding Capacity[1]	ASTM D7367	400% minimum
Moisture Content	ASTM 2974	10% minimum, 50% maximum
Environmental		
Acute Toxicity	EPA Method 2021.0	Non-toxic
EPA Metal Limits	SW846-6020 04.06	Pass
Performance		
Growth Enhancement	ASTM D7322	500% minimum

[1]Water holding capacity of the pre-packaged material without the addition of ancillary amendments.

Submittal Requirements

At the time of delivery, the Contractor shall submit the specific biotic soil amendment packing list to the Engineer for acceptance. The packing list shall include complete identification including, but not limited to, the following information:

- Manufacturer name and location,
- Manufacturer telephone number and fax number,
- Manufacturer's e-mail address and web address, and
- BSA name.
- Certification that the specific BSA meets the physical, environmental and performance criteria of this specification and test results.

Acceptance

Acceptance of the materials shall be based on:

1. Certificate of Compliance demonstrating adherence to the Specifications,
2. Visual inspection ensuring the material is free of plastic.

8-02.2(9-14).GR8

Erosion Control and Roadside Planting

8-02.2(9-14).INST1.GR8

Section 9-14 is supplemented with the following:

8-02.2(9-14).OPT1.FR8

(January 3, 2011)

Weed Barrier Mats

Weed Barrier Mats shall be 3 feet square. They shall be made of UV stabilized geotextile colored with carbon black and shall provide a minimum of 3 years of weed control. Weed Barrier Mats shall be 2.5 mils thick with a minimum of 400 micropores per square inch. Staples shall be a minimum of 11 gauge wire and be *** $$1$$ *** inches in length.

Acceptance will be based on a catalog cut.

8-02.2(9-14.2).GR8

Topsoil

8-02.2(9-14.2(1)).GR8

Topsoil Type A

Section 9-14.2(1) is supplemented with the following:

8-02.2(9-14.2(1)).OPT1.FR8

(February 25, 2021)

Topsoil Type A shall meet the following requirements:

1. Cation exchange capacity (CEC) of Topsoil Type A shall be a minimum of 5 milliequivalents CEC/100 g dry soil (U.S. EPA Method 9081).

2. Organic content greater than 8-percent but less than 15-percent as measured on a dry weight basis using AASHTO T 267 Determination of Organic Content in Soils by Loss on Ignition.

Topsoil Type A shall be 60-percent to 70-percent *** $$1$$ *** Loam and 40-percent to 30-percent *** $$2$$ *** Compost by volume. *** $$3$$ *** Loam shall be as defined by the US Department of Agriculture Soil Classification System.

The Contractor shall submit a Particle Size Analysis as a Type 1 Working Drawing from an independent accredited soils testing laboratory indicating the Material source and compliance with all Topsoil Type A specifications. The laboratory analysis shall be with a sample size of no less than 2 pounds.

The *** $$4$$ *** Compost shall conform to the requirements of Section 9-14.5(8).

8-02.2(9-14.5).GR8

Mulch and Amendments

8-02.2(9-14.5(8)).GR8

Compost

Section 9-14.5(8) is supplemented with the following:

8-02.2(9-14.5(8)).OPT2.GR8

(September 3, 2019)

The compost product may contain biosolids as a feedstock. Biosolids compost production and quality shall comply with WAC 173-308.

The Compost Submittal Requirements shall include a copy of the Coverage Under the General Permit for Biosolids Management issued to the manufacturer by the Department of Ecology in accordance with WAC 173-308 (Biosolids Management).

8-02.3.INST1.GR8

Section 8-02.3 is supplemented with the following:

8-02.3.OPT1.GR8

(April 1, 2019)

Storage and Handling

Biotic soil amendments in accordance with the above requirements shall be furnished by the manufacturer in pre-packaged, standard unopened containers with weight, name of plant nutrients and manufacturer's guaranteed statement of analysis clearly marked in accordance with State and Federal laws. Field mixing of BSA components will not be permitted. Containers shall be kept safe in storage protected from weather, excessive temperatures, and construction operations. Products shall be handled in compliance with any instructions or recommendations stated by the manufacturer. Any spills shall be promptly cleaned.

Installation of Biotic Soil Amendment

The Contractor shall comply with the equipment manufacturer's installation instructions and recommendations. Biotic soil amendment shall be hydraulically applied at the rate of

4000 pounds per acre with no more than 2500 pounds applied in any single lift. Lifts shall be applied from opposing directions to soil surface for uniform coverage. If recommended by the BSA manufacturer, seed, tackifier and/or fertilizer shall be added to the slurry as recommended by manufacturer or BSA shall be applied within 48 hours of the seeding operation. A continuous and uniform cover shall be provided to the depth specified by the manufacturer. Thin areas or areas of bare soil will not be allowed, and supplemental biotic soil amendment applied by the Contractor shall be at no additional cost to the Contracting Agency.

8-02.3(4).GR8

Topsoil

8-02.3(4)A.GR8

Topsoil Type A

8-02.3(4)A.INST1.GR8

Section 8-02.3(4)A is supplemented with the following:

8-02.3(4)A.OPT1.FR8

(August 3, 2015)

Topsoil Type A shall be placed to a non-compacted depth of *** $$1$$ *** inches. The topsoil shall be thoroughly blended prior to placement.

The Contractor shall submit a Type 1 Working Drawing consisting of independent test results from an accredited laboratory demonstrating the Topsoil Type A meets the requirements of Section 9-14.1(1). The Type 1 Working Drawing shall also include the Request for Approval of Material in accordance with Section 1-06.1(2).

8-02.3(5).GR8

Roadside Seeding, Lawn and Planting Area Preparation

8-02.3(5).INST1.GR8

Section 8-02.3(5) is supplemented with the following:

8-02.3(5).OPT1.FR8

(August 5, 2013)

After the initial planting area weed control, soil placement, grading, and the installation of irrigation lines are completed, and prior to planting, all designated planting areas shall be covered with compost.

Prior to placement of compost, the application methods shall be approved by the Engineer.

Compost shall not be placed when a condition exists, such as frozen or water saturated soil that may be detrimental to successful application or soil structure.

The Contractor shall notify the Engineer a minimum of five working days prior to the start of compost work.

Compost shall be uniformly and evenly placed in all designated areas at a depth of *** $$1$$ *** inches.

8-02.3(5).OPT2.FR8

(August 5, 2013)

After the initial planting area weed control, soil placement, and grading are completed, and prior to the installation of irrigation lines and planting, all designated planting areas shall be covered with compost.

Prior to placement and incorporation of compost, the application and incorporation methods shall be approved by the Engineer.

Compost shall not be placed when a condition exists, such as frozen soil or water saturated soil that may be detrimental to successful application, incorporation, or soil structure.

The Contractor shall notify the Engineer a minimum of five working days prior to the start of compost work.

Compost shall be uniformly and evenly placed in all designated areas at a depth of *** $$1$$ *** inches.

After placement of the compost, the Contractor shall incorporate the layer uniformly into the existing soil to a depth of *** $$2$$ *** inches.

8-02.3(5).OPT3.FR8

(August 5, 2013)

After initial area weed control, grading, and soil placement are completed, all soil shall be covered with compost.

Prior to the placement and incorporation of compost, the application and incorporation methods shall be approved by the Engineer.

Compost shall not be placed when a condition exists, such as frozen or water saturated soil that may be detrimental to successful application, incorporation, or soil structure.

The Contractor shall notify the Engineer a minimum of five working days prior to the start of compost work.

Compost shall be uniformly and evenly placed in all designated areas at a depth of *** $$1$$ *** inches.

After placement of the compost, the Contractor shall incorporate the layer uniformly into the existing soil to a depth of *** $$2$$ *** inches.

8-02.3(5).OPT4.GR8

(August 4, 2014)

Removal of Buried Previously Fabricated Debris

The Contractor shall remove buried previously fabricated debris as directed by the Engineer to a maximum depth of two feet. The excavated debris shall be removed from the project site to a disposal facility approved by the Engineer.

8-02.3(6).GR8

Mulch and Amendments

8-02.3(6)B.GR8

Fertilizers

8-02.3(6)B.INST1.GR8

Section 8-02.3(6)B is supplemented with the following:

8-02.3(6)B.OPT1.FR8

(September 3, 2019)

Sufficient quantities of fertilizer shall be applied to supply the following amounts of nutrients:

Total Nitrogen as N - *** $$1$$ *** pounds per acre.

Available Phosphoric Acid as P_2O_5 - *** $$2$$ *** pounds per acre.

Soluble Potash as K_2O - *** $$3$$ *** pounds per acre.

*** $$4$$ *** pounds of nitrogen applied per acre shall be derived from isobutylidene diurea (IBDU), cyclo-di-urea (CDU), or a time release, polyurethane coated source with a minimum release time of 6 months. The remainder may be derived from any source.

The fertilizer formulation and application rate shall be approved by the Engineer before use.

8-02.3(6)B.OPT2.FR8

(September 3, 2019)

First Application of Fertilizer

Sufficient quantities of fertilizer shall be applied to supply the following amounts of nutrients:

Total Nitrogen as N - *** $$1$$ *** pounds per acre.

Available Phosphoric Acid as P_2O_5 - *** $$2$$ *** pounds per acre.

Soluble Potash as K_2O - *** $$3$$ *** pounds per acre.

The fertilizer formulation and application rate shall be approved by the Engineer before use.

Second Application of Fertilizer

A second application of fertilizer shall be applied during the period of March 1 to April 15 or November 15 to December 15. In no instance shall the second application of fertilizer occur less than 90 days after the first fertilizer application.

Sufficient quantities of fertilizer shall be applied to supply the following amounts of nutrients:

Total Nitrogen as N - *** $$4$$ *** pounds per acre.

Available Phosphoric Acid as P_2O_5 - *** $$5$$ *** pounds per acre.

Soluble Potash as K_20 - *** $$6$$ *** pounds per acre.

*** $$7$$ *** pounds of nitrogen applied per acre shall be derived from isobutylidene diurea (IBDU), cyclo-di-urea (CDU), or a time release, polyurethane coated source with a minimum release time of 6 months. The remainder may be derived from any source.

The fertilizer formulation and application rate shall be approved by the Engineer before use.

8-02.3(6)B.OPT3.GR8

(September 3, 2019)

Fertilizer shall be a commercially prepared mix of 10-20-20 and shall be applied at the rate of 10 pounds per 1000 square feet.

8-02.3(6)B.OPT4.FR8

(September 3, 2019)

Sufficient quantities of fertilizer shall be applied to supply the following amounts of nutrients:

Total Nitrogen as N – *** $$1$$ *** pounds per acre.

Sulfur – *** $$2 $$ ***pounds per acre.

*** $$3$$ *** pounds of nitrogen applied per acre shall be derived from isobutylidene diurea (IBDU), cyclo-di-urea (CDU), or a time release, polyurethane coated source with a minimum release time of 6 months. The remainder may be derived from any source.

The fertilizer formulation and application rate shall be approved by the Engineer before use.

8-02.3(8).GR8

Planting

8-02.3(8).INST1.GR8

Section 8-02.3(8) is supplemented with the following:

8-02.3(8).OPT1.FR8

(February 25, 2013)

When work requiring disturbance within planting area(s) *** $$1$$ *** is complete, the Contractor shall perform planting work within the next available planting window.

8-02.3(9).GR8

Seeding, Fertilizing, and Mulching

8-02.3(9)B.GR8

Seeding and Fertilizing

8-02.3(9)B.INST1.GR8

Section 8-02.3(9)B is supplemented with the following:

8-02.3(9)B.OPT1.FR8

(September 3, 2019)

Seed of the following mix, rate, and analysis shall be applied at the rates shown below on all areas requiring ***$$1$$*** seeding within the project:

Seed by Common Name, (Botanical Name), and "Source Identification"	Pounds Pure Live Seed (PLS) Per Acre
*** $$2$$	$$
$$	$$
$$	$$
Total	$$ ***

Source Identified seed shall be generation four or less. Non-Source Identified seed shall meet or exceed Washington State Department of Agriculture Certified Seed Standards and be from within the appropriate genetic zones of the *** $$3$$ *** Ecoregion(s) as defined by the US Environmental Protection Agency (EPA).

The seed certification class shall be Certified (blue tag) in accordance with WAC 16-302 and meet the following requirements:

Prohibited Weed	0% max.
Noxious Weed	0% max.
Other Weed	0.20% max.
Other Crop	0.40% max.

The Contractor shall document all Source Identified seed by providing the Association of Official Seed Certifying Agents (AOSCA) yellow seed label for each species in the mix. Site Identification Logs can be supplied for collections where the AOSCA yellow label is not available.

8-02.3(9)B.OPT2.GR8

(September 3, 2019)

Grass seed shall be a commercially prepared mix, made up of low growing species which will grow without irrigation at the project location, and accepted by the Engineer. The application rate shall be two pounds per 1000 square feet.

8-02.3(9)B.OPT3.FR8

(September 3, 2019)

Seed of the following mix, rate, and analysis shall be applied at the rates shown below on all areas requiring *** $$1$$ *** seeding within the project:

Seed by Common Name, (Botanical Name), and "Source Identification"	Pure Live Seed Pounds (PLS) Per Acre
*** $$2$$	$$
$$	$$
$$	$$
Total	$$ ***

Seed shall meet or exceed Washington State Department of Agriculture Certified Seed Standards and be from within the *** $$3$$ *** Ecoregion(s) as defined by the US Environmental Protection Agency (EPA).

The seed certification class shall be Certified (blue tag) in accordance with WAC 16-302 and meet the following requirements:

Prohibited Weed	0% max.
Noxious Weed	0% max.
Other Weed	0.20% max.
Other Crop	0.40% max.

8-02.3(11).GR8

Mulch

8-02.3(11).INST1.GR8

Section 8-02.3(11) is supplemented with the following:

8-02.3(11).OPT1.FR8

(April 2, 2012)

Bark mulch or wood chip mulch shall be placed to a uniform non-compacted depth of *** $$1$$ *** over all planting areas.

Bark or wood chip mulch shall not be placed in areas of standing or flowing water.

8-02.3(11)A.GR8

Mulch for Seeding Areas

8-02.3(11)A.INST1.GR8

Section 8-02.3(11)A is supplemented with the following:

8-02.3(11)A.OPT1.FR8

(September 3, 2019)

*** $$1$$ *** shall be applied at a rate of *** $$2$$ *** pounds per acre with no more than *** $$3$$ *** pounds per acre applied in a single lift.

8-02.4.GR8

Measurement

8-02.4.INST1.GR8
Section 8-02.4 is supplemented with the following:

8-02.4.OPT2.GR8
(April 1, 2019)
Biotic Soil Amendment will be measured by the acre along the grade and slope of the area covered immediately after application.

8-02.5.GR8
Payment

8-02.5.INST1.GR8
Section 8-02.5 is supplemented with the following:

8-02.5.OPT2.GR8
(September 7, 2021)
"Removal of Buried Previously Fabricated Debris" will be paid for by force account as specified in Section 1-09.6. The payment for removal of buried man-made debris shall be full compensation for all costs for the specified Work to include removing, loading, hauling, and all associated disposal costs.

For the purpose of providing a common proposal for all bidders, the Contracting Agency has entered an amount in the proposal to become a part of the Contractor's total Bid.

8-02.5.OPT4.FR8
(April 1, 2019)
"Biotic Soil Amendment", per acre.

The unit Contract price per acre for "Biotic Soil Amendment" shall be full pay to perform the Work as specified. When seed is mixed into, and applied with the biotic soil amendment, payment for seed will be made under the Bid item *** $$1$$ ***.

8-03.GR8
Irrigation Systems

8-03.3.GR8
Construction Requirements

8-03.3(6).GR8
Excavation

8-03.3(6)A.GR8
Trenches

8-03.3(6)A2.GR8
Within Critical Root Zone

8-03.3(6)A2.INST1.GR8
Section 8-03.3(6)A2 is supplemented with the following:

8-03.3(6)A2.OPT1.FR8
(October 3, 2022)

Mechanical trenching within the Critical Root Zone of existing trees is allowed at the following locations:

*** $$1$$ ***

The Contractor shall exercise care when excavating pipe trenches near existing trees to minimize damage to tree roots.

Utilize International Society of Arboriculture (ISA) Best Practices for all trenching activities to minimize soil compaction and damage to root systems. All shattered root ends shall be clean-cut using appropriate sharp pruning tools. Where roots are 1½ inches or greater in diameter are encountered, the trench shall be hand excavated and tunneled under the roots. Exposed roots 1½ or greater in diameter shall be wrapped with heavy, moist material, such as burlap or canvas, for protection and to prevent excessive drying. The wrapping material must be kept moist until the trench is backfilled. All wrapping material and fastenings used to cover the roots shall be removed before backfilling.

8-10.GR8

Guide Posts

8-10.1.GR8

Description

8-10.1.INST1.GR8

Section 8-10.1 is supplemented with the following:

8-10.1.OPT1.GR8

(November 20, 2023)

This Work shall consist of furnishing and installing linear delineation panels in accordance with these Specifications, at the locations indicated in the Plans or where designated by the Engineer.

8-10.2.GR8

Materials

8-10.2.INST1.GR8

Section 8-10.2 is supplemented with the following:

8-10.2.OPT1.GR8

(November 20, 2023)

Linear delineation panels shall consist of one of the following products:

1. 3M Linear Delineation System – Series 340 – 6” high for barrier.

2. 3M Linear Delineation System – Series 340, 1-1/2” high for guardrail.

3. Luciol Systems Bidirectional Linear Delineation M.S. for barrier or guardrail.

Only one system shall be selected and installed for the project.

Adhesives and mechanical fasteners for linear delineation shall meet the requirements of the manufacturer.

Reflective sheeting shall be in accordance with Section 9-28.12.

8-10.3.GR8

Construction Requirements

8-10.3.INST1.GR8

Section 8-10.3 is supplemented with the following:

8-10.3.OPT1.GR8

(November 20, 2023)

General

Installation of linear delineation panels shall follow manufacturer recommendations but shall not be installed on top of concrete barriers or guardrail.

Spacing of linear delineation panels shall be as specified in the plans. Delineator color shall be white on the right of traffic and yellow on the left of traffic.

Attachment methods for linear delineation panels shall not rely solely on adhesives and shall utilize the manufacturer recommended method for mechanical fasteners.

Concrete Barrier

Linear delineation panels shall be installed 6” from the top of concrete barrier unless otherwise shown on the Plans.

Guardrail

Linear delineation panels installed on beam guardrail shall be installed in the rail trough. For installation on thrie beam guardrail the top trough shall be used.

Linear delineation panels shall be installed at least 1 inch away from the outer edge of post rail attachment slots of beam guardrail. Linear delineation panels shall not be installed in, over, or through the rail slots located where the rail is attached to the guardrail posts and blocks.

8-10.4.GR8

Measurement

8-10.4.INST1.GR8

Section 8-10.4 is supplemented with the following:

8-10.4.OPT1.GR8

(November 20, 2023)

Linear delineation panels will be measured by each panel furnished and installed.

8-10.5.GR8

Payment

8-10.5.INST1.GR8

Section 8-10.5 is supplemented with the following:

8-10.5.OPT1.GR8

(November 20, 2023)

"Linear Delineation Panel for Concrete Barrier", per each.

“Linear Delineation Panel for Guardrail”, per each.

8-11.GR8

Guardrail

8-11.1.GR8

Description

8-11.1.INST1.GR8

Section 8-11.1 is supplemented with the following:

8-11.1.OPT1.GR8

(February 3, 2020)

High-Tension Cable Barrier System (4 Cable)

This work consists of supplying and constructing high-tension cable barrier systems (cable, posts, compensating devices, fittings, and hardware), terminals, and transitions in conformity with the lines and grades as staked.

8-11.1.OPT2.GR8

(April 1, 2019)

This Work shall consist of applying an aesthetic treatment, either a powder coating or reactive coloring agent, to galvanized beam guardrail, galvanized guardrail posts, terminal ends and associated hardware that provides a “non-reflective” and “earth” tone colored finish (dark brown) that visually blends with the natural environment.

8-11.1.OPT3.GR8

(November 4, 2024)

Short Radius Guardrail System (SRGS)

This work consists of supplying and constructing the Short Radius Guardrail System (SRGS) in accordance with the Plans, Specifications, and Standard Plans in conformity with the lines and grades as staked.

8-11.1.OPT4.GR8

(March 20, 2025)

Removing High-Tension Cable Barrier

This work consists of removing all or part of existing cable barrier systems (cable, posts, sockets, compensating devices, fittings, and hardware), terminals, and transitions to the limits shown in the Plans.

8-11.1.OPT5.GR8

(March 20, 2025)

Restoring High-Tension Cable Barrier

This Work consists of restoring temporarily decommissioned cable barrier systems (cable, posts, sockets, compensating devices, fittings, and hardware), terminals, and transitions to a fully operational condition.

8-11.2.GR8

Materials

8-11.2.INST1.GR8

Section 8-11.2 is supplemented with the following:

8-11.2.OPT1.FR8

(March 20, 2025)

The new terminal(s) and any associated components necessary for restoring a temporarily decommissioned cable barrier system shall be:

*** $$1$$ ***

8-11.2.OPT2.FR8

(November 20, 2023)

High-Tension Cable Barrier System (4 Cable)

The Contractor shall furnish a high-tension 4-cable barrier system, terminals, and transitions that meet the requirements of the current version of AASHTO Manual for Assessing Safety Hardware (MASH-16) Test Level 3 or 4. Cable barrier tension and breaking strength of all cable barrier fittings and hardware shall be as specified by the manufacturer.

The maximum allowable lateral deflection distance for the high-tension cable barrier system(s) on the project is:

*** $$1$$ *** feet

The Contractor shall submit a Type 2 Working Drawing consisting of fabrication drawings and installation procedures. The Working Drawings shall specify all components used in the entire barrier system, document the barrier system deflection distances, and specify the required post spacing necessary to meet the maximum allowable deflection distances.

The barrier system will be accepted based on a Manufacturer's Certificate of Compliance provided by the Contractor. The Manufacturer's Certificate of Compliance shall consist of a Contract specific letter from the manufacturer stating the system is MASH-16 Test Level 3 or 4 compliant, a copy of the original FHWA eligibility letter(s) for the barrier system, documentation from the manufacturer describing any and all modifications that have been made to the system since the letter(s) were issued, and a statement from the manufacturer certifying that those modifications do not affect the performance of the original system.

8-11.2.OPT4.GR8

(April 1, 2019)

Powder Coating

Powder coating materials for coating galvanized surfaces shall be in accordance with Section 9-08.2. The color shall match SAE AMS Standard 595, color number 30045.

Reactive Coloring Agent

The reactive coloring agent shall consist of a stable, "non-reflective" "earth" tone (dark brown) colored finish on the surface of the galvanized materials. The reactive coloring agent shall only utilize oxidizers, metals, metal salts, and/or other trace elements applied directly to the galvanized surfaces to obtain the desired color. The chemical components

of the reactive coloring agent shall have no adverse reactions or effects on soils, plants, or animals and shall not contain corrosive by-products once the product has been applied. Only nitrate fertilizer products are permitted to be present as soluble residues.

The reactive coloring agent shall be provided by either the following manufacturer or an accepted equal:

NATINA manufactured by Natina Products, LLC
1577 First Street
Coachella, CA 92236
Telephone: (877) 762-8462
www.natinaproducts.com

8-11.2(9-16.3).GR8

Beam Guardrail

8-11.2(9-16.3(1)).GR8

Rail Element

Section 9-16.3(1) is supplemented with the following:

8-11.2(9-16.3(1)).OPT1.GR8

(November 4, 2024)

SRGS Rail

All rail elements of the SRGS shall be formed from 10-gauge steel.

SRGS Guardrail Rail Cable

The top and bottom guardrail rail cables shall be AASHTO M 30 Type 1, 0.75-inch diameter, 3 by 7 steel wire rope with Class A galvanizing coating. The guardrail rail cables shall have a minimum breaking strength of 25,000 pounds in conformance with AASHTO M 30. Two certified copies of mill test reports of the guardrail rail cable used shall be furnished to the Engineer.

The rail cable end fittings shall be forged steel conforming to the requirements of AASHTO M 269. Cast steel components shall conform to the requirements of AASHTO M 103 (ASTM A 27) Class 1. The cable end fittings shall be hot-dip galvanized in accordance with AASHTO M 232.

Cable end fittings attached to the rail cables shall develop 100 percent of the specified 25,000 pounds breaking strength of the rail cables. One cable end fitting attached to 3 feet of cable shall be furnished to the Engineer for testing.

Short Anchor Bracket Assembly

The Short Anchor Bracket Assembly (anchor plate and end plate) shall be fabricated of steel conforming to the Specifications of ASTM A36. The Short Anchor Bracket Assembly shall be hot-dip galvanized in conformance with AASHTO M 111 (ASTM A 123).

8-11.2(9-16.3(2)).GR8

Posts and Blocks

8-11.2(9-16.3(2)).INST1.GR8

Section 9-16.3(2) is supplemented with the following:

8-11.2(9-16.3(2)).OPT1.GB8
(April 6, 2015)
Shear plates and backing plates shall conform to ASTM A 36, and shall be galvanized after fabrication in accordance with AASHTO M 111.

8-11.2(9-16.3(2)).OPT2.GB8
(April 6, 2015)
Grout for post bases shall conform to Section 9-20.3(2).

8-11.2(9-16.3(2)).OPT3.GB8
(April 6, 2015)
Steel angles connecting the timber blockout to the existing steel truss members shall conform to either ASTM A 36 or ASTM A 992, and shall be galvanized in accordance with AASHTO M 111.

8-11.2(9-16.3(2)).OPT4.GB8
(April 6, 2015)
HSS steel tubing shall conform to ASTM A 500 Grade B, and shall be galvanized after fabrication in accordance with AASHTO M 111.

Steel bars, plates, and shapes shall conform to ASTM A 36, and shall be galvanized after fabrication in accordance with AASHTO M 111, except that structural shapes may conform to ASTM A 992.

Galvanized sheet metal shall conform to ASTM A 653, Coating Designation G 235.

Paving bulkheads, timber blocking, and custom cut shims shall be Douglas Fir-Larch No. 2 or better, and shall be treated as specified in this Section.

Rubberized asphalt shall conform to ASTM D 6690 (Type 1 for bridge locations in Western Washington, and Type 2 for bridge locations in Eastern Washington).

8-11.2(9-16.3(4)).GB8
Hardware
Section 9-16.3(4) is supplemented with the following:

8-11.2(9-16.3(4)).OPT1.GB8
(November 20, 2023)
Resin bonded anchors shall conform to Section 6-02.3(18)A and Section 9-06.4.

8-11.2(9-16.3(4)).OPT2.GB8
(April 6, 2015)
Lag screws shall conform to Section 9-06.22.

8-11.2(9-16.3(4)).OPT3.GR8
(November 4, 2024)
SRGS Eyebolts
Carbon steel eyebolts shall be Type 1, forged steel, with ⅝ inch diameter by 8 inches long shank in conformance with ASTM A 489. The eyebolts shall be hot-dip galvanized in conformance with ASTM F 2329/2329M.

8-11.3.GR8

Construction Requirements

8-11.3.INST1.GR8

Section 8-11.3 is supplemented with the following:

8-11.3.OPT1.FR8

(October 3, 2022)

Installing Steel Posts on Existing Box Culverts

Field Measurements

The Contractor shall obtain field measurements both vertically and horizontally at each location steel posts are to be installed on the existing box culvert. The Contractor shall calculate the steel post lengths for fabrication using the field measurement information obtained.

Submittals

The Contractor shall remove surfacing materials from the top of the box culvert and shall determine the length of the posts. Prior to post and rail fabrication the Contractor shall submit Type 2 Working Drawings in accordance with Section 1-05.3. The Working Drawings shall include plan and elevation views of each post location on the culvert. The plan view drawing shall show the station and offset of each post on the culvert. The elevation view drawing shall show the top of culvert elevation at each post location, the top of surfacing elevation at each post location, the top of rail elevation, the top of post elevation, and the length of post at each post location.

Excavation

The Contractor shall excavate an area extensive enough to allow the top of the culvert to be cleaned of all dirt, oil, and debris, installation of the baseplate, backfilled, and properly compacted around the posts.

Post Installation

See the Contract plans for the method of steel post attachment to the box culvert (embedded or bolt through). Steel posts shall be installed in accordance with Standard Plan C-20.41 or Standard Plan C-20.43.

The Contractor shall exercise care in locating and drilling the holes to avoid damage to existing steel reinforcing bars and concrete. To avoid damaging the existing steel reinforcing bars, the location of the holes may be shifted slightly with the acceptance of the Engineer. All damage caused by the Contractor's operations shall be repaired by the Contractor in accordance with Section 1-07.13.

Backfilling

After the posts are installed on the box culverts, the excavated areas shall be backfilled and compacted in 6-inch maximum lifts. Compaction shall be accomplished with three passes with a mechanical tamper. When culvert posts are installed through HMA, repair the roadway with materials matching the existing surfacing depths. Use Commercial HMA in accordance with Section 5-04.

Additional Box Culvert Guardrail Steel Post Assemblies

For each culvert with embedded or bolt through guardrail steel posts, furnish and deliver one complete set of Box Culvert Guardrail Steel Post Assemblies. Box Culvert

Guardrail Steel Post Assemblies shall be delivered to the Contracting Agency locations as listed below:

Location (SR & MP)	Location/Contact Phone Number
*** $$1$$ ***	*** $$2$$ ***
*** $$3$$ ***	*** $$4$$ ***

A complete set of assemblies will include the following:

When using Embedded Anchor Box Culvert Guardrail Steel Posts (Standard Plan C-20.41):

1. Steel Post and Base Plate Assembly – One replacement post and base plate for each post installed on culvert

2. Embedded Anchor Bolt Assemblies including four threaded rods, bolts, and resin adhesive for each post installed on culvert

When using Bolt-Thru Anchor Box Culvert Guardrail Steel Posts (Standard Plan C-20.43):

1. Steel Post and Base Plate Assembly – One replacement post and base plate for each post installed on culvert

2. Bottom Plate – One plate for each post installed on culvert

3. Hex Head Bolts, Nuts, & Washers – 4 bolts, 4 nuts, and 8 washers for each post installed on culvert

Provide 48-hours' notice to both the Engineer and the contact(s) listed above prior to delivery. Damaged items will not be accepted and shall be replaced at no cost to the Contracting Agency.

8-11.3.OPT2.FR8

(November 4, 2024)

High-Tension Cable Barrier System (4 Cable)

A manufacturer's representative, or an installer who has been certified by the system's manufacturer within the last 5 years for the specific system(s) being installed, shall supervise the assembly and installation of the system at all times. The Contractor shall provide a copy of the installer's certification to the Engineer prior to installation.

Assemble and install the high-tension cable barrier system according to the manufacturer's recommendations. This shall include connecting cable barrier to guardrail, guardrail transitions, and/or guardrail terminals when identified in the Plans. Submit any Contractor proposed modification in barrier location, type, terminal or transition to the Engineer for approval a minimum of 10-days prior to any work in the affected section.

High-tension cable barrier line posts shall be one of the following types:

1. A socket type assembly with the line post being inserted into a sleeve encased in a cast-in-place or precast post foundation as specified by the manufacturer.

2. A socket type assembly with the line post being inserted into a direct driven socket assembly as specified by the manufacturer.

On every 6th line post, install yellow retro-reflective markers in accordance with the manufacturer's system and Section 9-28.12. The retro-reflective markers shall be applied to a clean and dry line post.

Unless otherwise stated in the Plans, all high-tension cable barrier terminal anchor posts shall be a socket type assembly with the cable barrier post being inserted into a sleeve encased in a cast-in-place or precast reinforced concrete post foundation and installed as specified by the manufacturer. Delineate the terminal anchor posts for approach traffic with yellow Type IV lateral clearance markers (object markers) in accordance with Section 9-28.12. The object markers shall be applied to a clean and dry terminal post.

Terminal Placement

Unless otherwise stated in the Plans, the foundations for the high-tension cable barrier terminals shall be cast in place or precast concrete and shall be installed in accordance with manufacturer's recommendations. If a precast concrete foundation is installed, the bottom of the unit shall have a full and even bearing on the surface under it. If there is a need for backfilling an excavation, use Controlled Density Fill (CDF) in accordance with Section 2-09.3(1) E.

Additional High-Tension Cable Barrier Components

Furnish and deliver one complete set of High-Tension Cable Barrier to each of the Contracting Agency sites listed below:

*** $$1$$ ***

Include the following components with each complete set:

One-hundred line posts and all associated hardware including but not limited to spacers, connectors, straps, caps and covers. If the system has a special post to accommodate turnbuckles, then 5 of the line posts shall be these special posts.

Twenty sockets except when concrete sockets are used.

One 50-foot long section of cable used for the contract.

Four cable splices and 4 turnbuckle assemblies (1-assembly consists of a left- and right-hand threaded end with a turnbuckle).

One tension measuring device as recommended by the manufacturer.

One anchor post designed for use with the foundations installed.

Ten line terminal posts and all associated hardware.

Provide 48-hour notice to both the Engineer and the maintenance contact listed above prior to delivery. Damaged items will not be accepted and shall be replaced at no cost to the Contracting Agency.

8-11.3.OPT3.FR8

(November 4, 2024)

Short Radius Guardrail System (SRGS)

The radius of the SRGS system(s) are:

*** $$1$$ ***

Install the SRGS as shown in the Plans.

Posts shall be installed in accordance with Section 8-11.3(1)A, except posts shall not be omitted within the limits of the SRGS.

The radius rails shall be shop bent in accordance with Section 9-16.3(1) and installed in accordance with Section 8-11.3(1).

8-11.3.OPT4.GR8

(April 1, 2019)

Aesthetic treatments to the galvanized W-beam guardrail, galvanized guardrail posts, galvanized guardrail terminals, and associated galvanized hardware shall be performed using either a powder coating or reactive coloring agent. The Contractor shall apply powder coating or reactive coloring agent to all galvanized steel rail, posts, other galvanized steel parts, and impact head components of the beam guardrail as specified in the Plans. Confirm that the manufacturer of proprietary guardrail terminals allows the use of powder coatings or reactive coloring agents prior to applying them.

Only the top 30 inches on any guardrail post length to be exposed above ground shall receive aesthetic treatment.

The color of the finish coat shall be a dark brown. The Contractor shall furnish a one-foot minimum length test section of galvanized W-beam guardrail treated with the proposed aesthetic treatment product to the Engineer for acceptance. The test section shall be prepared in accordance with the manufacturer's instructions.

The Engineer will provide acceptance in writing accepting the color of the test section prior to acceptance of any permanently incorporated material into the project.

Powder Coating

Powder coating of galvanized surfaces shall be in accordance with Section 6-07.3(11)B.

Reactive Coloring Agent

Application of the reactive coloring agent to galvanized surfaces shall be in accordance with the following:

The reactive coloring agent shall be applied using the same methods used for the accepted test section. The treated material shall develop full coloration within two weeks of application and achieve a color consistent with the color of the authorized test section.

The Contractor shall apply the reactive coloring agent prior to delivering the steel components to the project site. The reactive coloring agent manufacturer or the manufacturer's authorized application contractor shall apply the reactive coloring agent for both the test section and production applications. Application of the reactive coloring agent shall fully coat the galvanized steel in accordance with the manufacturer's written instructions and achieve the accepted surface color. Once the reactive coloring agent is applied, the Contractor shall protect the steel pieces from abrasion that would remove the brown color.

After the various guardrail components have been installed, the Contractor shall apply the reactive coloring agent to any steel products that did not receive adequate coloring, or where the color was removed during the shipment or the construction process. This remedial action shall coat the affected area. Any reactive coloring agent applied in the field shall be cured according to manufacturer's specifications, and shall be applied while protecting soil, plants, and surrounding natural surfaces.

8-11.3.OPT5.FR8

(October 3, 2022)

Installing Steel Posts on New Box Culverts

Post Installation

See the Contract plans or culvert Working Drawings for the method of steel post attachment to the box culvert (embedded or bolt through). Steel posts shall be installed in accordance with Standard Plan C-20.41 or Standard Plan C-20.43.

The Contractor shall exercise care in locating and drilling the holes to avoid damage to existing steel reinforcing bars and concrete. To avoid damaging the existing steel reinforcing bars, the location of the holes may be shifted slightly with the acceptance of the Engineer. All damage caused by the Contractor's operations shall be repaired by the Contractor in accordance with Section 1-07.13.

Additional Box Culvert Guardrail Steel Post Assemblies

For each culvert with embedded or bolt through guardrail steel posts, furnish and deliver one complete set of Box Culvert Guardrail Steel Post Assemblies. Box Culvert Guardrail Steel Post Assemblies shall be delivered to the Contracting Agency locations as listed below:

Box Culvert Designation & Location (SR & MP)	Contracting Agency Delivery Location/Contact Phone Number
*** $$1$$ ***	*** $$2$$ ***
*** $$3$$ ***	*** $$4$$ ***

A complete set of assemblies will include the following:

When using Embedded Anchor Box Culvert Guardrail Steel Posts (Standard Plan C-20.41):

1. Steel Post and Base Plate Assembly – One replacement post and base plate for each post installed on culvert

2. Embedded Anchor Bolt Assemblies including Four threaded rods, bolts, and resin adhesive for each post installed on culvert

When using Bolt-Thru Anchor Box Culvert Guardrail Steel Posts (Standard Plan C-20.43):

1. Steel Post and Base Plate Assembly – One replacement post and base plate for each post installed on culvert

2. Bottom Plate – One plate for each post installed on culvert

3. Hex Head Bolts, Nuts, & Washers – 4 bolts, 4 nuts, and 8 washers for each post installed on culvert

Provide 48-hours' notice to both the Engineer and the contact(s) listed above prior to delivery. Damaged items will not be accepted and shall be replaced at no cost to the Contracting Agency.

8-11.3.OPT6.GR8

(March 20, 2025)

Removing High-Tension Cable Barrier System

Existing cable barrier shall be removed to the limits shown in the Plans. If required, cable cutting shall be in accordance with manufacturer's recommendations. Existing buried sockets may remain if they are flush with the ground. All other components shall become property of the Contractor and shall be removed from the project. Voids resulting from removal of components in the ground and from leaving existing buried sockets in the ground shall be backfilled in layers no more than 6 inches thick and compacted to a density similar to that of the adjacent material.

When the removal of an entire existing high-tension cable barrier is associated with installation of a new high-tension cable barrier system, the existing high-tension cable barrier system shall remain in place and fully operational until the new replacement system is completely installed and fully operational, unless otherwise allowed by the Engineer. All requests to remove the existing high-tension cable barrier system from operation before the new high tension cable barrier system is installed and operational shall be submitted as an RFI in accordance with Section 1-05.1(2). The RFI shall include a schedule showing all high-tension cable barrier work activities including the order and durations of the work activities starting from when the existing high-tension cable barrier system is made nonoperational to the time when the new high-tension cable barrier system is installed and made fully operational. The Contractor shall structure and schedule their work activities to minimize the amount of time that there is no functioning cable barrier system in place.

When the temporary or permanent removal of a portion of an existing high-tension barrier system is required, the removal shall include installing a new terminal at the removal limit as shown in the Plans to restore the remaining portion of the system to a fully operational condition. The new terminal shall be connected to the remaining portion of the system and the system be made fully operational within the same work shift that the system was made inoperable. Reinstalling any existing cable barrier components from the existing cable barrier removal is not permitted. All work to install a new high-tension cable barrier terminal at the removal limits shall follow the construction requirements for ***High-Tension Cable Barrier (4 Cable)***, regardless of whether a 3- or 4-cable system terminal is being installed.

8-11.3.OPT7.GR8

(March 20, 2025)

Restoring High-Tension Cable Barrier

The contractor shall remove the temporary terminal(s) installed at the original removal limits of the existing high tension cable barrier system. The removed terminal(s) and associated components shall become property of the Contractor and shall be removed from the project. The Contractor shall install new high-tension cable barrier required to restore the existing system to its original state or to a new state as shown in the Plans. Reinstalling any existing cable barrier components from the removed terminal(s) is not permitted. All work to install new high-tension cable barrier in order to restore the existing cable barrier system to its original condition, or new condition, as shown in the Plans, shall follow the construction requirements for ***High-Tension Cable Barrier (4 Cable)***, regardless of whether a 3- or 4-cable system is being restored. The restored high-tension cable barrier shall be made fully operational within the same work shift that the temporary high-tension cable barrier system first becomes inoperable.

When splicing new cable to the existing cable, the Contractor shall form splices in accordance with the manufacturer's recommendations with a manufacturer approved cable splice system. The ultimate tensile strength of the splice shall meet or exceed that of unspliced cable for the existing cable barrier system.

A minimum of 10 days before field splicing of any cables, the Contractor shall provide the Engineer with a Type 1 Working Drawing detailing the following:

- Test report confirming that the Contractor's proposed field splicing method has been tested and meets the specified tensile strength criteria,
- Step-by-step instructions for field splicing showing details of the materials used and procedures that are consistent with the test report,
- A manufacturer's certification that the material is identical to that used in testing the splice design, and,
- A written statement from the Contractor that the splicing system and materials will be used according to the manufacturer's instructions and all requirements of this section.

The Engineer will visually inspect field splicing activities. Cable splices that are inconsistent with the procedures or materials outlined in the Type 1 Working Drawing provided by the Contractor shall be removed and replaced at the Contractor's expense.

8-11.3(1).GR8

Beam Guardrail

8-11.3(1).INST1.GR8

Section 8-11.3(1) is supplemented with the following:

8-11.3(1).OPT1.GR8

(April 5, 2010)

This project may contain a mixture of steel and wood posts. The bidder is advised that post selection will be as detailed in the plans and these specifications.

8-11.3(1)A.GR8

Erection of Posts

8-11.3(1)A.INST1.GR8

Section 8-11.3(1)A is supplemented with the following:

8-11.3(1)A.OPT1.GB8

(April 6, 2015)

Timber Blockouts for Beam Guardrail Type Thrie Beam

The Contractor shall cut and trim the timber blocks as necessary to conform to the shape of the existing concrete baluster rail, and to align the beam guardrail element, as shown in the Plans.

When the specified timber blockout spacing places a block at an existing concrete end post or intermediate post, the Contractor shall core drill holes into the existing concrete as shown in the Plans and as follows. The Contractor shall not shatter or damage the concrete adjacent to the holes. Location of blockout assemblies may be shifted slightly within the tolerance specified in the Plans in order to reduce the risk of damage to existing steel reinforcing bars. However, once a blockout assembly position is established, damage to existing steel reinforcing bars caused by subsequent core drilling operations at that assembly location is acceptable.

8-11.3(1)A.OPT2.GB8

(January 4, 2016)

Steel Posts for Beam Guardrail Type Thrie Beam

The Contractor shall field measure the dimension of the existing curb above the existing wearing surface at each curb line for each bridge receiving beam guardrail Type Thrie Beam. The field measured dimensions, and all adjustments to the field measurements required by planing and paving operations included in this project, shall be included in the steel post assembly shop drawings submitted in accordance with Section 8-11.3(1)G.

8-11.3(1)A.OPT3.GB8

(September 8, 2020)

Beam Guardrail Type WP Thrie Beam

The Contractor shall field measure the depth of the existing ballast and wearing course at both wheel guard lines, and shall include the dimensions at both wheel guard lines in the steel post mounting bracket shop drawings submitted in accordance with Section 8-11.3(1)G.

The Contractor shall remove the existing ballast and wearing course to the top of existing timber deck in the vicinity of the steel post anchorage locations, and shall dispose of the removed surfacing materials in accordance with Section 2-02.3.

As shown in the Plans, the Contractor shall place a timber block beneath the timber deck at each steel post anchorage location and against the existing exterior timber stringer.

The Contractor shall install the steel post anchorage assembly, including the deck plate, distribution plate, bearing plate, base plate, backing plate, and HSS

steel tube post, as shown in the Plans. Timber deck shims shall be cut and trimmed as necessary to align the top of the vertical webs of the steel post anchorage 1/2 inch below the top of the surrounding wearing course surfacing, in accordance with the existing timber deck transverse slope and existing ballast and wearing course depth specified in the shop drawings.

The Contractor may field drill holes through the steel components in accordance with Section 6-03.3(27) except as otherwise noted. The Contractor shall identify all holes to be field drilled in the steel fabrication shop drawings. The Contractor may field drill the holes using hand held drills provided that the Contractor submits the method and equipment used to the Engineer for approval, and that the Contractor receives the Engineer's acceptance of the submittal prior to beginning hand drilling. The Contractor shall repair all galvanized steel surfaces damaged by field drilling operations by painting the damaged areas with one coat of paint conforming to Section 9-08.1(2)B.

The Contractor shall replace all existing ballast and wearing course removed in the vicinity of the steel post anchorage locations to the top of the surrounding surfacing. The Contractor shall fill the void with an HMA surfacing material accepted by the Engineer.

8-11.3(1)B.GR8

Erection of Rail

8-11.3(1)B.INST1.GR8

Section 8-11.3(1)B is supplemented with the following:

8-11.3(1)B.OPT6.GB8

(April 6, 2015)

Field Measuring to Existing Type 3 Anchors

The Contractor shall field measure the dimension from the centerline of the existing Type 3 anchors specified for reuse to the end of the existing concrete curb and railbase or concrete baluster railing end blocks of the adjacent bridge. The Contractor shall submit these dimensions to the Engineer along with a Type 2 Working Drawing showing the arrangement of the thrie beam guardrail elements and approach guardrail elements relative to the existing Type 3 anchors and concrete curb and railbase or concrete baluster railing end blocks for each bridge as applicable.

8-11.3(1)B.OPT7.GB8

(April 6, 2015)

Attaching Beam Guardrail Type Thrie Beam to Timber Blockouts

The Contractor shall fasten the thrie beam element to the timber blockout assemblies such that the steel shear plates fit snug against the surface forming the opening through the concrete baluster rail.

The Contractor may field drill the holes through the thrie beam elements in accordance with Section 6-03.3(27), except as otherwise noted. The Contractor may field drill the holes using hand held drills.

The Contractor shall repair all galvanized steel surfaces damaged by field drilling operations by painting the damaged areas with one coat of paint conforming to Section 9-08.1(2)B.

8-11.3(1)B.OPT8.GB8

(September 13, 2021)

Thrie Beam Expansion Joint Element

Where beam guardrail Type Thrie Beam crosses bridge interior expansion joints, the Contractor shall place a thrie beam expansion section element conforming to Standard Plan C-25.22 or C-25.26.

8-11.3(1)B.OPT9.GB8

(April 6, 2015)

Beam Guardrail Type WP Thrie Beam

The Contractor may field drill the holes through the thrie beam elements in accordance with Section 6-03.3(27), except as otherwise noted. The Contractor may field drill the holes using hand held drills.

The Contractor shall repair all galvanized steel surfaces damaged by field drilling operations by painting the damaged areas with one coat of paint conforming to Section 9-08.1(2)B.

After completing the beam guardrail retrofit and replacing the surfacing at the steel post anchorage locations on the bridge up to the level of the surrounding surfacing, the Contractor shall install the sheet metal water barrier, when the water barrier is shown in the Plans. A bonding layer of rubberized asphalt shall be applied to the surfacing contact area immediately prior to installing the water barrier assembly. The direction of overlap of adjacent water barrier segments shall be as directed by the Engineer.

8-11.3(1)D.GR8

Removing Guardrail and Guardrail Anchor

8-11.3(1)D.INST1.GR8

Section 8-11.3(1)D is supplemented with the following:

8-11.3(1)D.OPT1.GB8

(September 8, 2020)

Beam Guardrail Type WP Thrie Beam

The Contractor shall remove the existing bridge guardrail posts and railing, the existing timber wheel guards, all associated fasteners, and the existing ballast and wearing course in the vicinity of the steel post anchorage assemblies of the bridges being retrofitted with beam guardrail Type WP Thrie Beam as shown in the Plans

The items specified above shall be removed as follows:

1. The Contractor shall remove the existing timber wheel guards before beginning the beam guardrail retrofit work.

2. The Contractor shall not remove any section of the existing bridge railing system on the bridge until completing the beam guardrail

retrofit within that section of the bridge, except as otherwise specified. The Contractor may remove portions of the existing bridge railing system on the bridge which conflict with the anchorages, posts, and rail elements of the retrofit, provided:

a. The Contractor installs as much of the beam guardrail retrofit as possible in the section that does not conflict with the existing bridge railing system elements.

b. After removing the conflicting element of the existing bridge railing system, the Contractor shall immediately complete the beam guardrail retrofit in the section.

c. The Contractor receives the Engineer's acceptance for removing the conflicting element of the existing bridge railing system before proceeding.

8-11.3(1)H.GR8

Guardrail Construction Exposed to Traffic

8-11.3(1)H.INST1.GR8

Section 8-11.3(1)H is supplemented with the following:

8-11.3(1)H.OPT1.GB8

(April 6, 2015)

Beam Guardrail Type WP Thrie Beam

Whenever the Contractor is not actively working on the beam guardrail retrofit, the Contractor shall ensure that all guardrail ends are securely fastened to the rail posts and existing bridge railing system, including temporary terminal end sections as required. The Contractor shall conduct retrofit operations such that no gaps occur between the existing bridge railing system and the beam guardrail retrofit at any time.

The Contractor shall submit Type 2 Working Drawings detailing the temporary connections between the existing guardrail system and the thrie beam guardrail system, and the temporary terminal end sections.

8-11.4.GR8

Measurement

8-11.4.INST1.GR8

Section 8-11.4 is supplemented with the following:

8-11.4.OPT1.GR8

(October 3, 2022)

Box culvert guardrail steel posts type 31 will be measured per each, for each post installed.

8-11.4.OPT2.GR8

(February 3, 2020)

Measurement of high-tension cable barrier (4 Cable) will be by the linear foot along the line of the completed barrier from end to end including transition sections, terminals, cable

barrier to guardrail terminals, foundations, sockets, concrete, compensating devices, tensioning device, slip base post, sleeves, caps, and all hardware.

8-11.4.OPT3.GR8

(November 4, 2024)

Measurement of the Short Radius Guardrail System (SRGS) will be by the linear foot measured along the line of completed guardrail system.

8-11.4.OPT4.GR8

(April 2, 2018)

Measurement of Aesthetic Treatment for beam guardrail will be by the linear foot measured along the line of the completed guardrail, including expansion sections and the end section for F connections.

Measurement for Aesthetic Treatment for beam guardrail transition section will be per each for the type of transition section installed.

Measurement for Aesthetic Treatment for beam guardrail anchor type specified will be per each for the completed anchor, including the attachment of the anchor to the guardrail.

Measurement of Aesthetic Treatment beam guardrail ____ terminal will be per each for the completed terminal.

Measurement of Aesthetic Treatment beam guardrail Type 31 buried terminal Type 2 will be per linear foot for the completed terminal.

8-11.4.OPT5.GR8

(March 20, 2025)

Removing high-tension cable barrier system will be measured by the linear foot measured along the line of removed barrier including transition and terminal sections.

8-11.4.OPT6.GR8

(March 20, 2025)

Restoring high-tension cable barrier will be measured by the linear foot measured along the line of barrier need to return the system to its original fully operational state, or new state, as shown in the Plans.

8-11.5.GR8

Payment

8-11.5.INST2.GR8

Section 8-11.5 is supplemented with the following:

8-11.5.OPT1.GR8

(April 2, 2018)

“Aes. Tr. Beam Guardrail Type ___”, per linear foot

“Aes Tr. Beam Guardrail Type 1- ____ Ft. Long Post”, per linear foot.

“Aes Tr. Beam Guardrail Type 31- ____ Ft. Long Post”, per linear foot.

The unit Contract price per linear foot for “Aes. Tr. Beam Guardrail Type____”, “Aes Tr. Beam Guardrail Type 1- ____ Ft. Long Post”, and “Aes Tr. Beam Guardrail Type 31- ____ Ft. Long Post”, shall be full payment for all costs to perform the Work as specified.

“Aes. Tr. Beam Guardrail Transition Section Type ____”, per each
The unit Contract price per each for “Aes. Tr. Beam Guardrail Transition Section Type ____” shall be full payment for all costs to perform the Work as described in Section 8-11.3.

“Aes. Tr. Beam Guardrail Anchor Type ____”, per each.

“Aes. Tr. Beam Guardrail ____ Terminal”, per each.

The unit Contract price per each for “Aes. Tr. Beam Guardrail Anchor Type ____” and “Aes. Tr. Beam Guardrail ___ Terminal” shall be full payment for all costs to perform the Work as specified.

“Aes. Tr. Beam Guardrail Type 31 Buried Term. Type 2”, per linear foot.

The unit Contract price per linear foot for “Aes. Tr. Beam Guardrail Type 31 Buried Term. Type 2” shall be full payment for all costs to perform the Work as specified.

8-11.5.OPT2.GR8
(November 4, 2024)
“Short Radius Guardrail System (SRGS)”, per linear foot.

The unit contract price per linear foot for “Short Radius Guardrail System (SRGS)” shall be full payment to obtain and provide materials and to perform the work as specified. Payment for the work includes connection of the top and bottom guardrail rail cables to the Type 25 Transition, or Type 31 Guardrail.

8-11.5.OPT3.GR8
(March 20, 2025)
“Removing High Tension Cable Barrier System”, per linear foot.
The unit contract price per linear foot for “Removing High Tension Cable Barrier System” shall be full payment to complete the work as specified for either a 3 Cable or 4 Cable system. When a portion of a cable barrier system is removed and the remaining portion is required to be made fully operational, all costs for furnishing and installing terminal(s), and any associated components required to return the remaining portion of the system to a fully operational condition shall be incidental to this Bid item.

8-11.5.OPT4.GR8
(March 20, 2025)
“Restoring High Tension Cable Barrier System, per linear foot.
The unit contract price per linear foot for “Restoring High Tension Cable Barrier System” shall be full payment to complete the work as specified for either a 3 Cable or 4 Cable system. Removal and disposal of temporary terminals and associated components shall be incidental to this Bid item.

8-11.5.OPT6.GR8
(October 3, 2022)
“Box Culvert Guardrail Steel Post Type 31”, per each.

The unit contract price per each for “Box Culvert Guardrail Steel Post Type 31” shall be full pay for completing the installation of the posts, including obtaining field measurements, excavation, furnishing, placing and compacting the backfill material, and when required, repairing surfacing materials. Beam guardrail will be paid for in accordance with Section 8-11.5.

“Additional Box Culvert Guardrail Steel Post Assemblies”, lump sum.

The lump sum contract price for “Additional Box Culvert Guardrail Steel Post Assemblies” shall be full pay to complete the work as specified.

8-11.5.OPT7.GR8

(February 3, 2020)

“High-Tension Cable Barrier System (4 Cable)”, per linear foot.

“Additional High-Tension Cable Barrier Components”, lump sum.

The unit contract price per linear foot for “High-Tension Cable Barrier (4 Cable)” shall be full pay to complete the work as specified.

8-11.5.OPT8.GR8

(February 3, 2020)

The lump sum contract price for “Additional High-Tension Cable Barrier Components” shall be full pay to complete the work as specified for a 4 Cable system.

8-12.GR8

Chain Link Fence and Wire Fence

8-12.2.GR8

Materials

8-12.2.INST1.GR8

Section 8-12.2 is supplemented with the following:

8-12.2.OPT1.FR8

(September 8, 2020)

Coated Chain Link Fence

Chain link fence fabric shall be hot-dip galvanized with a minimum of 0.8 ounce per square foot of surface area.

Fencing materials shall be coated with an ultraviolet-insensitive plastic or other inert material at least 2 mils in thickness. Any pretreatment or coating shall be applied in accordance with the manufacturer's written instructions. The Contractor shall provide the Engineer with the manufacturer's written specifications detailing the product and method of fabrication. The color shall match SAE AMS Standard 595 color number *** $$1$$ ***.

Samples of the coated fencing materials shall have received the Engineer’s acceptance prior to installation on the project.

The Contractor shall supply the Engineer with 10 aerosol spray cans containing a minimum of 14 ounces each of paint of the color specified above. The touch-up paint shall be compatible with the coating system used.

8-12.5.GR8

Payment

8-12.5.INST1.GR8

Section 8-12.5 is supplemented with the following:

8-12.5.OPT1.GR8

(April 1, 2002)

"Coated Chain Link Fence Type ___", per linear foot.

Payment for clearing of fence line for "Coated Chain Link Fence Type ___" shall be in accordance with Section 2-01.5.

"Coated End, Gate, Corner, Pull Post for Chain Link Fence", per each.

"Double 14 Ft. Coated Chain Link Gate", per each.

"Double 20 Ft. Coated Chain Link Gate", per each.

"Single 6 Ft. Coated Chain Link Gate", per each.

8-13.GR8

Monument Cases

8-13.1.GR8

Description

8-13.1.INST1.GR8

Section 8-13.1 is deleted and replaced by the following:

8-13.1.OPT1.GR8

(March 13, 1995)

This work shall consist of furnishing and placing monument cases, covers, and pipes in accordance with the Standard Plans and these Specifications, in conformity with the lines and locations shown in the Plans or as staked by the Engineer.

8-13.2.GR8

Materials

8-13.2.INST1.GR8

Section 8-13.2 is supplemented with the following:

8-13.2.OPT1.GR8

(March 13, 1995)

The pipe shall be Schedule 40 galvanized pipe.

8-13.3.GR8

Construction Requirements

8-13.3(1).GR8

Monument Case and Cover

8-13.3(1).INST1.GR8

The last paragraph of Section 8-13.3(1) is revised to read:

8-13.3(1).OPT1.GR8

(March 13, 1995)

The Engineer will be responsible for placing the concrete core and tack or wire inside the pipe.

8-13.3(2).GR8

Adjust Monument Case and Cover

8-13.3(2)B.GR8

Reinstalling Monument Case and Cover

8-13.3(2)B.INST1.GR8

The first sentence of Section 8-13.3(2)B is revised to read:

8-13.3(2)B.OPT1.GR8

(October 3, 2022)

The adjusted or reinstalled monument case and cover shall be reset to ¼-inch below the finished pavement as indicated in the plans and in accordance with the following additional requirements:

8-13.4.GR8

Measurement

8-13.4.INST1.GR8

Section 8-13.4 is deleted and replaced by the following:

8-13.4.OPT1.GR8

(March 13, 1995)

Measurement of monument case, cover, and pipe will be by the unit for each monument case, cover, and pipe furnished and set.

8-13.5.GR8

Payment

8-13.5.INST1.GR8

Section 8-13.5 is supplemented with the following:

8-13.5.OPT1.GR8

(April 28, 1997)

"Monument Case, Cover, and Pipe", per each.

8-14.GR8

Cement Concrete Sidewalks

8-14.2.GR8

Materials

8-14.2(9-19.1).GR8

Surface Applied Detectable Warning Surface

8-14.2(9-19.1(1)).GR8

General Requirements

The first paragraph of Section 9-19.1(1) is revised to read:

8-14.2(9-19.1(1)).OPT1.FR8

(October 3, 2022)

The color of detectable warning surfaces shall be *** $$1$$ ***.

Units shall provide the required contrast (light-on-dark or dark-on-light) with the adjacent curb ramp or other applicable walkway.

8-14.2(9-19.2).GR8

Cast-in-Place Detectable Warning Surface

8-14.2(9-19.2(1)).GR8

General Requirements

The first paragraph of Section 9-19.2(1) is revised to read:

8-14.2(9-19.2(1)).OPT1.FR8

(October 3, 2022)

The color of detectable warning surfaces shall be *** $$1$$ ***.

Units shall provide the required contrast (light-on-dark or dark-on-light) with the adjacent curb ramp or other applicable walkway.

8-14.3.GR8

Construction Requirements

8-14.3.INST1.GR8

Section 8-14.3 is supplemented with the following:

8-14.3.OPT1.GR8

(October 3, 2022)

The Contractor shall request a pre-construction meeting with the Engineer to be held two to five working days before any work can start on cement concrete sidewalks, curb ramps or other pedestrian access routes to discuss construction requirements. Those attending shall include:

1. The Contractor and subcontractor in charge of constructing forms, and placing, and finishing the cement concrete.

2. Engineer (or representative) and Project Inspectors for the cement concrete sidewalk, curb ramp or pedestrian access route Work.

Items to be discussed in this meeting shall include, at a minimum, the following:

1. Slopes shown on the Plans.

2. Inspection

3. Traffic control

4. Pedestrian control, access routes and delineation

5. Accommodating utilities

6. Form work

7. Installation of detectable warning surfaces

8. Contractor ADA survey and ADA Feature as-built requirements

9. Cold Weather Protection

8-14.3.OPT2.GR8

(January 7, 2019)

Timing Restrictions

Curb ramps shall be constructed on one leg of the intersection at a time. The curb ramps shall be completed and open to traffic within five calendar days before construction can begin on another leg of the intersection unless otherwise allowed by the Engineer.

Unless otherwise allowed by the Engineer, the five calendar day time restriction begins when an existing curb ramp for the quadrant or traffic island/median is closed to pedestrian use and ends when the quadrant or traffic island/median is fully functional and open for pedestrian access.

8-14.3.OPT3.GR8

(January 7, 2019)

Layout and Conformance to Grades

Using the information provided in the Contract documents, the Contractor shall lay out, grade, and form each new curb ramp, sidewalk, and curb and gutter.

8-15.GR8

Riprap

8-15.4.GR8

Measurement

8-15.4.INST1.GR8

Section 8-15.4 is supplemented with the following:

8-15.4.OPT3.GR8

(March 13, 1995)

Special excavation will be measured by the cubic yard. Quantities will be computed to the neat lines from the top of the seals to the existing stream bed or ground line for the area outside the limits of structure excavation.

8-15.4.OPT5.GR8

(February 5, 2001)

The last paragraph of Section 8-15.4 is deleted.

8-15.5.GR8

Payment

8-15.5.INST1.GR8
The first sentence of the second paragraph of Section 8-15.5 is revised to read:

8-15.5.OPT1.GR8
(March 13, 1995)
The unit contract price per ton or cubic yard for the class or kind of riprap specified shall be full pay for furnishing all labor, tools, equipment, and materials required to construct the riprap, including excavation.

8-15.5.INST2.GR8
Section 8-15.5 is supplemented with the following:

8-15.5.OPT8.GR8
(September 30, 1996)
"Special Excavation", per cubic yard.

8-16.GR8
Concrete Slope Protection

8-16.3.GR8
Construction Requirements

8-16.3(2).GR8
Placing Semi-Open Concrete Masonry Units

8-16.3(2).INST1.GR8
Section 8-16.3(2) is supplemented with the following:

8-16.3(2).OPT1.GR8
(December 19, 2005)
The Contractor shall round and treat the areas between the bridge end slopes and the edges of the shoulders to the satisfaction of the Engineer.

Upon completion of the installation of the units, the voids shall be filled full with top soil. All excess fill shall be removed and the exposed concrete surfaces swept clean. The slope protection shall be seeded to grass in accordance with Section 8-01.3(2)A.

8-16.5.GR8
Payment

8-16.5.INST1.GR8
Section 8-16.5 is supplemented with the following:

8-16.5.OPT1.GR8
(September 30, 1996)
"Semi-Open Conc. Masonry Slope Protection", per square yard.

8-20.GR8
Illumination, Traffic Signal Systems, Intelligent Transportation Systems, and Electrical

8-20.2.GR8

Materials

8-20.2.INST1.GR8

Section 8-20.2 is supplemented with the following:

8-20.2.OPT1.GB8

(April 6, 2015)

Traffic Signal Standard Foundation Shaft Casing

All permanent casing shall be a smooth wall non corrugated structure of steel base metal. All permanent casing shall be of ample strength to resist damage and deformation from transportation and handling, installation stresses, and all pressures and forces acting on the casing. The casing shall be clean prior to placement in the excavation. The permanent casing may be telescoped, but the outside diameter of the casing shall not be less than the specified diameter of the shaft.

8-20.2(9-29.2).GR8

Junction Boxes, Cable Vaults, and Pull Boxes

Section 9-29.2 is supplemented with the following:

8-20.2(9-29.2).OPT1.GR8

(September 3, 2019)

Slip-Resistant Surfacing for Junction Boxes, Cable Vaults, and Pull Boxes

Where slip-resistant junction boxes, cable vaults, or pull boxes are required, each box or vault shall have slip-resistant surfacing material applied to the steel lid and frame of the box or vault. Where the exposed portion of the frame is ½ inch wide or less, slip-resistant surfacing material may be omitted from that portion of the frame.

Slip-resistant surfacing material shall be identified with a permanent marking on the underside of each box or vault lid where it is applied. The permanent marking shall be formed with a mild steel weld bead, with a line thickness of at least 1/8 inch. The marking shall include a two character identification code for the type of material used and the year of manufacture or application. The following materials are approved for application as slip-resistant material, and shall use the associated identification codes:

1. Harsco Industrial IKG, Mebac #1 - Steel: **M1**
2. W. S. Molnar Co., SlipNOT Grade 3 – Coarse: **S3**
3. Thermion, SafTrax TH604 Grade #1 – Coarse: **T1**

8-20.2(9-29.6).GR8

Light And Signal Standards

Section 9-29.6 is supplemented with the following:

8-20.2(9-29.6).OPT1.GR8

(January 6, 2025)

Light Standards with Type 1 Luminaire Arms

Lighting standards shall be fabricated in conformance with the methods and materials specified on the pre-approved Plans listed below, provided the following requirements have been satisfied:

(a) Light source to pole base distance (H1) shall be as noted in the Plans. Verification of H1 distances by the Engineer, prior to fabrication, is not required. Fabrication tolerance shall be ± 6 inches.

(b) All other requirements of the Special Provisions have been satisfied.

Fabricator	Pre-Approved Drawing No.	Rev.	Mounting Height(s) (feet)
Valmont Ind., Inc.	DB01164, Sheets 1-5 of 5	B	30, 35, 40, and 50
Ameron Pole Products Division	WA15LT3721, Sheets 1 and 2 of 2	A	20, 25, 30, 35, 40, 45, and 50
Millerbernd Manufacturing Co.	74515-WA-LP1-BB, Sheets 1 and 2 of 2	H	30, 35, 40, and 50
Millerbernd Manufacturing Co.	74515-WA-LP1-ELBOW, Sheets 1-3 of 3	J	30, 35, 40, and 50
Millerbernd Manufacturing Co.	74515-WA-LP1-SB, Sheets 1-3 of 3	H	30, 35, 40, and 50

8-20.2(9-29.6).OPT2.GR8

(January 6, 2025)

Light Standards with Type 1 Luminaire Arms

Lighting standards shall be fabricated in conformance with the methods and materials specified on the pre-approved plans listed below, provided the following requirements have been satisfied:

(a) Mounting heights shall be as specified in the Plans.

(b) Light source to pole base distances (H1) shall be determined or verified by the Engineer prior to fabrication. Fabrication tolerance shall be ±6 inches.

(c) All other requirements of the Special Provisions have been satisfied.

Fabricator	Pre-Approved Drawing No.	Rev.	Mounting Height(s) (feet)
Valmont Ind., Inc.	DB01164, Sheets 1-5 of 5	B	30, 35, 40, and 50
Ameron Pole Products Division	WA15LT3721, Sheets 1 and 2 of 2	A	20, 25, 30, 35, 40, 45, and 50
Millerbernd Manufacturing Co.	74515-WA-LP1-BB, Sheets 1 and 2 of 2	H	30, 35, 40, and 50

Millerbernd Manufacturing Co.	74515-WA-LP1-ELBOW, Sheets 1-3 of 3	J	30, 35, 40, and 50
Millerbernd Manufacturing Co.	74515-WA-LP1-SB, Sheets 1-3 of 3	H	30, 35, 40, and 50

8-20.2(9-29.6).OPT5.GR8

(January 6, 2025)

Traffic Signal Standards

Traffic signal standards shall be furnished and installed in accordance with the methods and materials noted in the applicable Standard Plans, pre-approved plans, or special design plans.

All welds shall comply with the latest AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. Welding inspection shall comply with Section 6-03.3(25)A Welding Inspection.

Hardened washers shall be used with all signal arm connecting bolts instead of lockwashers. All signal arm ASTM F 3125 Grade A325 connecting bolts tightening shall comply with Section 6-03.3(33).

Traffic signal standard types, applicable characteristics, and foundation types are as follows:

Type PPB

Pedestrian push button posts and their foundations shall conform to Standard Plan J-20.15.

Type PS, Type I, Type RM, and Type FB

Type PS pedestrian signal standards, Type I vehicle signal standards, Type RM ramp meter signal standards, and Type FB flashing beacon standards shall conform to Standard Plan J-20.16, J-21.15, J-21.16, and J-22.15 respectively, or to one of the following pre-approved plans:

Fabricator	Pre-Approved Drawing No.
Valmont Ind., Inc.	DB01165 Rev. B (4 sheets)
Ameron Pole Products Division	WA15TR10-1 Rev. C (1 sheet) and WA15TR10-2 Rev. C (1 sheet)
Millerbernd Manufacturing, Co.	74514-WA-PED-FB Rev. J (2 sheets)
Millerbernd Manufacturing Co.	74514-WA-PED-SB Rev. K (2 sheets)

Foundations shall be as noted in Standard Plan J-21.10.

Type II

Type II signal standards are single mast arm signal standards with no luminaire arm or extension. Type II standards shall conform to one of the following pre-approved plans. Maximum arm length (in feet) and wind load (XYZ value, in cubic feet) is noted for each manufacturer.

Fabricator	Pre-Approved Drawing No.	Max. Arm Length (ft)	Max. Wind Load (XYZ) (ft^3)
Valmont Ind., Inc.	DB01162 Rev. B (5 sheets)	65	3206
Ameron Pole Products Division	WA15TR3724-1 Rev. C (sheet 1 of 2), and WA15TR3724-2 Rev. D (sheet 2 of 2)	65	2935
Millerbernd Manufacturing, Co.	74516-WA-TS-II Rev. L (4 sheets)	65	3697

Foundations shall be as noted in the Plans and Standard Plan J-26.10. Type II signal standards with two mast arms installed 90 degrees apart may use these pre-approved drawings. Standards with two arms at any other angle are Type SD and require special design.

Type III

Type III signal standards are single mast arm signal standards with one Type 1 (radial davit type) luminaire arm. The luminaire arm has a maximum length of 16 feet and a mounting height of 30, 35, 40, or 50 feet, as noted in the Plans. Type III standards shall conform to one of the following pre-approved plans. Maximum arm length (in feet) and wind load (XYZ value, in cubic feet) is noted for each manufacturer. Wind load limit includes a luminaire arm up to 16 feet in length.

Fabricator	Pre-Approved Drawing No.	Max. Arm Length (ft)	Max. Wind Load (XYZ) (ft^3)
Valmont Ind., Inc.	DB00162 Rev. B (5 sheets), with Type “J” luminaire arm	65	3259
Ameron Pole Products Division	WA15TR3724-1 Rev. C (sheet 1 of 2), and WA15TR3724-2 Rev. D (sheet 2 of 2), with Series “J” luminaire arm	65	2988
Millerbernd Manufacturing, Co.	74516-WA-TS-III-J Rev. L (5 sheets)	65	3750

Foundations shall be as noted in the Plans and Standard Plan J-26.10. Type III signal standards with two mast arms installed 90 degrees apart may use these pre-approved drawings. Standards with two arms at any other angle are Type SD and require special design.

Type IV

Type IV strain pole standards shall be consistent with the Plans and Standard Plan J-27.15 or one of the following pre-approved plans:

Fabricator	Pre-Approved Drawing No.
Valmont Ind., Inc.	DB01167 Rev. B (2 sheets)
Ameron Pole Products Division	WA15TR15 Rev. A (2 sheets)
Millerbernd Manufacturing, Co.	74554-WA-SP-IV Rev. H (2 sheets)

Foundations shall be as noted in the Plans and Standard Plan J-27.10.

Type V

Type V strain poles are combination strain pole and light standards, with Type 1 (radial davit type) luminaire arms. Luminaire rams may be up to 16 feet in length, and a mounting height of 40 or 50 feet, as noted in the Plans. Type V strain poles shall be consistent with the Plans and Standard Plan J-27.15 or one of the following pre-approved plans:

Fabricator	Pre-Approved Drawing No.
Valmont Ind., Inc.	DB01167 Rev. B (2 sheets),
Ameron Pole Products Division	WA15TR15 Rev. A (2 sheets)
Millerbernd Manufacturing, Co.	74554-WA-SP-V Rev. J (3 sheets)

Foundations shall be as noted in the Plans and Standard Plan J-27.10.

Type CCTV

Type CCTV camera pole standards shall conform to Standard Plan J-29.15 or to one of the following pre-approved plans:

Fabricator	Pre-Approved Drawing No.
Valmont Ind., Inc.	DB01166 Rev. C (4 sheets)
Ameron Pole Products Division	WA15CCTV01 Rev. B (2 sheets)

Millerbernd Manufacturing, Co.	74577-WA-LC1 Rev. H (2 sheets)
Millerbernd Manufacturing, Co.	74577-WA-LC2 Rev. H (2 sheets)
Millerbernd Manufacturing, Co.	74577-WA-LC3 Rev. H (3 sheets)

Foundations shall be as noted in the Plans and Standard Plan J-29.10.

Type SD

Type SD signal standards are outside the basic requirements of any pre-defined signal standard and require special design. All special design shall be based on the latest AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and pre-approved plans and as follows:

1. A 115 mph wind loading shall be used.

2. The Mean Recurrence Interval shall be 1700 years.

3. Fatigue category shall be III.

Complete calculations for structural design, including anchor bolt details, shall be prepared by a Professional Engineer, licensed under Title 18 RCW, State of Washington, in the branch of Civil or Structural Engineering or by an individual holding valid registration in another state as a civil or structural Engineer.

All shop drawings and the cover page of all calculation submittals shall carry the Professional Engineer's original signature, date of signature, original seal, registration number, and date of expiration. The cover page shall include the contract number, contract title, and sequential index to calculation page numbers. Two copies of the associated design calculations shall be submitted for approval along with shop drawings.

Details for handholes and luminaire arm connections are available from the Bridges and Structures Office.

Foundations for Type SD standards shall be as noted in the Plans.

8-20.2(9-29.6(5)).GR8

Foundation Hardware

Section 9-29.6(5) is supplemented with the following:

8-20.2(9-29.6(5)).OPT1.GR8

(January 13, 2021)

Anchor bolt assemblies for light standards installed on top of barrier (median barrier mount) shall consist of the following:

- (4) 1-inch diameter threaded rods (bolts), minimum 36 inches in length

- (24) heavy hex nuts, six per anchor rod
- (24) flat washers, six per anchor rod
- Two anchor plates

Each anchor plate shall be constructed from 1/2" ASTM A36 plate and hot-dip galvanized in accordance with AASHTO M111. Each anchor plate shall be ring shaped, with an outside diameter of 16 inches and an inside diameter of 12 inches. Each anchor plate shall have four 1 1/8” diameter holes on a 13.89” bolt circle, with the holes positioned to match the anchor rod layout shown in the Standard Plans.

Anchor rods shall extend a minimum of five inches and a maximum of six inches above the top of the traffic barrier. The lower anchor plate shall be embedded 29 inches below the top of the traffic barrier. Each anchor plate shall be clamped with a heavy hex nut and washer above and below the anchor plate. The lower heavy hex nut for the pole base plate shall be no more than one inch from the top of the traffic barrier.

8-20.2(9-29.13).GR8

Control Cabinet Assemblies

Section 9-29.13 is supplemented with the following:

8-20.2(9-29.13).OPT1.GR8

(January 2, 2018)

Uninterruptible Power Supply (UPS)

Each UPS System shall provide battery backup power to the cabinet to which it is connected in the event of loss or failure of normal utility power. Each UPS system shall be constructed for full on line configuration (line interactive type), providing automatic voltage regulation and power conditioning when operating on normal utility power. The transfer between utility power and battery power shall not interfere with the normal operation of the connected downstream cabinet.

Each UPS System shall be capable of supplying a minimum 1000W load at 120 VAC for a minimum number of hours depending on the number of batteries specified:

- Four batteries: Minimum 4 hours run time.

- Eight batteries: Minimum 8 hours run time.

Each UPS System shall be composed of the following equipment:

UPS Cabinet Construction

Each UPS Cabinet shall be constructed as follows. The equipment shall be installed within the cabinet as shown in the Plans.

1. The cabinet shall be designated Type 331, consisting of Housing 1B and Mounting Cage 1 as described in the CalTrans TEES. The housing shall use 0.125 inch minimum thickness 5052 H32 ASTM B209 alloy aluminum, with bare mill finish. The exterior shall not be anodized or painted.

2. Each cabinet door shall be provided with:

a. A three point latch system. Locks shall be spring loaded construction locks capable of accepting a Best 6 pin core. A 6 pin construction core of the type (blue, green, or red) specified in the contract shall be installed in each core lock. One core removal key and two standard keys shall be included with each cabinet and delivered to the Engineer.

b. A one piece, closed cell, neoprene gasket.

c. A two position doorstop assembly. The doorstops shall hold the door open at both 90 degrees and 180 +/- 10 degrees.

3. Cabinet lighting shall be provided by two LED light strips. Each LED light strip shall be approximately 12 inches long, have a minimum output of 320 lumens, and have a color temperature of 4000K (cool white) plus or minus 400K. Lighting shall not interfere with the proper operation of any other ceiling or shelf mounted equipment. All lighting fixtures shall energize whenever any door is opened. Each door switch shall be labeled “Light”. Both light strips shall be ceiling mounted - rack mounted lights are not allowed. One light strip shall be installed over the front face of the rack and the second shall be installed over the rear face of the rack. Each light strip shall be oriented parallel to the door face, and placed such that the associated face of the rack and the rack mounted equipment is illuminated.

4. Cabinet ventilation shall be as described in the TEES for a Type 332L cabinet. The door vent filter shall be a 12 inch by 16 inch by 1 inch thick (nominal) disposable paper filter.

5. A UPS Service Panel, installed on the left side of the cabinet as viewed from the front. This service panel shall include the following, positioned as shown in the Plans:

a. Two three-position terminal blocks. Each terminal block shall be labeled “Power IN” or “Power OUT” as appropriate.

b. Two 120V 1P-15A circuit breakers, one each for the cabinet lighting and the cabinet ventilation (fan and thermostat).

c. A Tesco TES-10B (or equivalent) Surge Suppressor.

d. A HESCORLS LF60X (or equivalent) Line Filter.

e. A neutral (AC-) bus bar, with minimum 10 connections.

f. A ground bus bar, with minimum 10 connections.

6. Three battery shelves, each 0.5U (Rack Unit) in height. Each shelf shall be vented and capable of supporting three AlphaCell 240XTV batteries without visibly flexing. Each shelf shall span the full width and depth of the rack, and be secured to all of the rack verticals.

7. One drawer shelf, 1U in height.

8. A Generator Transfer Switch (GTS) and enclosure, meeting the requirements of Section 9-29.13(8). The GTS shall be installed in place of the Police Panel Switch enclosure as shown on a Type 332L cabinet. The lock shall have an aluminum rain shield cover riveted to the cabinet housing.

UPS System Components

The following UPS System Equipment shall be provided and installed within the cabinet as shown in the Plans. All equipment shall be from Alpha Technologies unless otherwise noted.

1. One UPS Controller, model FXM 2000 w/SNMP module operating at 120 VAC, Part Number (P/N) 017-232-31. The UPS Controller shall include the 19" EIA rack mount kit, P/N 740-697-21, and support shelf, P/N 3610030085.

2. One Universal Automatic Transfer Switch (UATS) Accessory Shelf Assembly (P/N 020-168-25), consisting of a Surge Arrestor Assembly (P/N 740-755-21), UATS (P/N 020-165-21), and 120V Single Duplex Plate (P/N 740-748-23).

3. Four or eight AlphaCell 240XTV Batteries, as required by the Contract. Where four batteries are required, they shall be installed with two each on the middle and lower battery shelves. Where eight batteries are required, the upper and middle battery shelves shall hold three batteries each, with the remaining two installed on the lower battery shelf. Batteries shall be labeled with their string ID and number in the string. The first four batteries shall be labeled A1 through A4, and the second four batteries (when required) shall be labeled B1 through B4.

4. Remote Battery Monitoring System Plus. Use P/N 03760260-002 for cabinets requiring four batteries. Use P/N 03760260-003 for cabinets requiring eight batteries.

5. 48V Battery Cable Kit, 10ft in length with 1/4-20 termination(s), P/N 740-628-27. Where eight batteries are required, a second battery cable kit and a Y-Connector (P/N 870-601-21) shall also be included.

6. Battery Heater Mats, one per shelf with batteries installed, sized for the number of batteries present on that shelf. Each mat shall run on 120VAC and be plugged into the duplex receptacle on the Accessory Shelf Assembly.

Three sets of cabinet drawings and maintenance and operations manuals shall be provided. Two sets shall be hard copies in paper format and placed in the cabinet drawer shelf. The third shall be electronic in PDF format and provided on a portable USB flash drive (stick) and placed in the cabinet drawer shelf.

Contact information for Alpha Technologies:

Alpha Technologies, Inc.
3767 Alpha Way
Bellingham, WA 98226
Phone: (360) 647-2360
E-mail: alpha@alpha.com
Website: www.alpha.ca

8-20.2(9-29.13(10)).GR8

NEMA and Type 2070 Controllers and Cabinets

8-20.2(9-29.13(10)D).GR8

Cabinets for Type 2070 Controllers

8-20.2(9-29.13(10)D).INST2.GR8

Item 1 of Section 9-29.13(10)D is supplemented with the following:

8-20.2(9-29.13(10)D).OPT2.GR8

(February 6, 2023)

Removable Door Handles

Cabinet doors shall be provided with a $\frac{5}{8}$-inch hex key socket in place of a handle. The hex socket and locking cam shall rotate on a 0.5-inch minimum diameter shaft. No portion of the socket assembly shall extend beyond the face of the door, such that the socket cannot be rotated by locking pliers or a similar gripping device. No door handles or hex keys shall be provided.

8-20.2(9-29.13(11)).GR8

Traffic Data Accumulator and Ramp Meters

Section 9-29.13(11) is supplemented with the following:

8-20.2(9-29.13(11)).OPT1.GR8

(November 20, 2023)

Advanced Transportation Controller

All new Traffic Data Accumulator (Data Station) and Ramp Meter cabinets shall be provided with a Type ATC 2070 Controller as shown in the Plans. Each controller shall comply with Advanced Transportation Controller (ATC) Standard Version 06 (ATC 5201 v06.25), and shall support both C12S serial bus operation and C1S (104 pin) parallel bus operation. Each controller shall be supplied with the following options and equipment:

1. Board Support Package, in electronic format (see ATC 5201, Paragraph 3.3.1)
2. 2070-1C Engine Board (CPU Module)
3. 2070-2E Field I/O Module
4. 2070-3B or 2070-3D Front Panel
5. 2070-4A Power Supply Module

A spare blank cover (4X wide), designed to cover the slot for the 270-2E module when it is removed, shall also be provided.

ATC Controllers are required to be preapproved by WSDOT to ensure compatibility with WSDOT ITS operating software. The following controllers have been verified compatible with WSDOT ITS operating software and are preapproved:

1. Model: **Intelight 2070-LDX**

   Manufacturer:
   Q-Free America
   5962 La Place Ct SE, Ste. 150
   Carlsbad, CA 92008
   (833) MAXHELP (833-629-4357)
   info@intelight-its.com
   www.intelight-its.com

2. Model: **McCain ATC 2070LX**

   Manufacturer:
   McCain, Inc.
   2365 Oak Ridge Way
   Vista, CA 92801
   (888) 262-2246
   info@mccain-inc.com
   www.mccain-inc.com

3. Model: **Yunex 2070LX ATC**

   Manufacturer:
   Yunex, LLC
   (formerly Siemens Mobility, Inc.)
   9225 Bee Caves Road
   Building B, Suite 101
   Austin, TX 78733
   (512) 837-8300
   mobility.siemens.com/us/en.html

4. Model: **Safetran ATC 2070LX**

   Manufacturer:
   Econolite
   1250 N Tustin Ave
   Anaheim, CA 92807
   (714) 630-3700
   www.econolite.com

8-20.2(9-29.13(11)).OPT2.GR8

(February 6, 2023)

Removable Door Handles

Cabinet doors shall be provided with a ⅝-inch hex key socket in place of a handle. The hex socket and locking cam shall rotate on a 0.5-inch minimum diameter shaft. No portion of the socket assembly shall extend beyond the face

of the door, such that the socket cannot be rotated by locking pliers or a similar gripping device. No door handles or hex keys shall be provided.

8-20.2(9-29.13(12)).GR8

Type 331L ITS Cabinet

8-20.2(9-29.13(12)).INST2.GR8

Item 3 of Section 9-29.13(12) is supplemented with the following:

8-20.2(9-29.13(12)).OPT2.GR8

(February 6, 2023)
Removable Door Handles

Cabinet doors shall be provided with a ⅝-inch hex key socket in place of a handle. The hex socket and locking cam shall rotate on a 0.5-inch minimum diameter shaft. No portion of the socket assembly shall extend beyond the face of the door, such that the socket cannot be rotated by locking pliers or a similar gripping device. No door handles or hex keys shall be provided.

8-20.2(9-29.19).GR8

Pedestrian Push Buttons

Section 9-29.19 is supplemented with the following:

8-20.2(9-29.19).OPT1.GR8

(November 4, 2024)
Approved APS Equipment

APS equipment shall be one of the following systems:

1. Model: **Campbell Guardian Independent 4-Wire APS**

   Components:
   APS Pushbutton Kit: KAC-32021-2BT
   Pedestrian Display Interface Unit: 501-0300 SPI

   Manufacturer:
   Campbell Company
   450 W McGregor Dr
   Boise, ID 83705
   (208) 345-7459
   www.pedsafety.com

2. Model: **Pelco IntelliCross Intelligent Pedestrian System**

   Components:
   APS Pushbutton: SE-2901-#-P30 9x15
   Pedestrian Display Interface Unit: SE-6190-PNC

   Manufacturer:
   Pelco Products, Inc.
   320 W 18th St
   Edmond, OK 73013
   (405) 340-3435
   intellicross@pelcoinc.com

www.pelcointellicross.com

3. Model: **Polara iNS iNavigator Push Button Station**

Components:
APS Pushbutton: iNS23TN1-G
Pedestrian Display Interface Unit: iPHCU3S
PC Interface Module: iN-DGL (one per intersection; place in cabinet drawer).

Manufacturer:
Polara Enterprises
1497 CR 2178
Greenville, TX 75402
(903) 366-0300
www.polara.com

Only one brand of equipment shall be used for the entire Contract.

8-20.2(9-29.24).GR8

Service Cabinets

Item 3 of Section 9-29.24 is supplemented with the following:

8-20.2(9-29.24).OPT1.GR8

(February 6, 2023)
Removable Door Handles

Service cabinet doors shall be provided with a ⅝-inch hex key socket in place of a handle for customer sections of the service cabinet. The hex socket and locking cam shall rotate on a ½-inch minimum diameter shaft. The socket assembly shall either be:

1. Flush with the face of the door, such that no portion of the socket assembly extends beyond the face of the door, and it cannot be rotated by locking pliers or a similar gripping device; or

2. Protected by a ring of 6061-T6 aluminum tubing. The tubing shall have a minimum wall thickness of 0.125 inches. The ring shall extend at least 0.15 inches beyond the end of the socket and shall provide no more than 0.07 inches of clearance from the socket such that the socket cannot be gripped by pliers or a similar gripping device. The ring shall be attached to the door using three ½-inch fillet welds, each ¾-inch long, evenly spaced around the outer circumference of the tube.

One hex key door handle shall be provided with each cabinet.

8-20.2(9-29.25).GR8

Amplifier, Transformer, and Terminal Cabinets

Item 3 of Section 9-29.25 is supplemented with the following:

8-20.2(9-29.25).OPT1.GR8

(February 6, 2023)

Removable Door Handles

Transformer cabinet doors shall be provided with a ⅝-inch hex key socket in place of a handle for customer sections of the service cabinet. The hex socket and locking cam shall rotate on a ½-inch minimum diameter shaft. The socket assembly shall either be:

1. Flush with the face of the door, such that no portion of the socket assembly extends beyond the face of the door, and it cannot be rotated by locking pliers or a similar gripping device; or

2. Protected by a ring of 6061-T6 aluminum tubing. The tubing shall have a minimum wall thickness of 0.125 inches. The ring shall extend at least 0.15 inches beyond the end of the socket and shall provide no more than 0.07 inches of clearance from the socket such that the socket cannot be gripped by pliers or a similar gripping device. The ring shall be attached to the door using three ½-inch fillet welds, each ¾-inch long, evenly spaced around the outer circumference of the tube.

One hex key door handle shall be provided with each cabinet.

8-20.2(1).GR8

Equipment List And Drawings

8-20.2(1).INST1.GR8

Section 8-20.2(1) is supplemented with the following:

8-20.2(1).OPT1.GR8

(March 13, 1995)

Pole base to light source distances (H1) for lighting standards with pre-approved plans shall be as noted in the Plans.

Pole base to light source distances (H1) for lighting standards without pre-approved plans will be furnished by the Engineer as part of the final approved shop drawings, prior to fabrication.

8-20.2(1).OPT2.GR8

(March 13, 1995)

Pole base to light source distances (H1) for lighting standards with pre-approved plans will be determined or verified by the Engineer at the request of the Contractor prior to fabrication.

Pole base to light source distances (H1) for lighting standards without pre-approved plans and for combination traffic signal and lighting standards will be furnished by the Engineer as part of the final approved shop drawings prior to fabrication.

8-20.2(1).OPT3.GR8

(March 13, 1995)

If traffic signal standards, strain pole standards, or combination traffic signal and lighting standards are required, final verified dimensions including pole base to signal mast arm connection point, pole base to light source distances (H1), mast arm length,

offset distances to mast arm mounted appurtenances, and orientations of pole mounted appurtenances will be furnished by the Engineer as part of the final approved shop drawings prior to fabrication.

8-20.3.GR8

Construction Requirements

8-20.3(4).GR8

Foundations

8-20.3(4).INST1.GR8

Section 8-20.3(4) is supplemented with the following:

8-20.3(4).OPT1.FB8

(August 7, 2017)

Shafts For Signal Standard Foundations

Shaft foundations for the traffic signal standards at the following location(s) shall be constructed in accordance with the following requirements:

*** $$1$$ ***

Shaft foundations for traffic signal standards shall be constructed in accordance with Section 6-19.3, except as follows:

Quality Assurance

The tolerance for placing the center at the top of shaft under Section 6-19.3(1)A is revised for traffic signal standard foundation shafts to be within 4-inches of the Plan location.

Non-destructive testing of shafts under Sections 6-19.3(1)B and 6-19.3(9) and associated Work under Section 6-19.3(6) does not apply.

Shaft Excavation

Permanent casing advanced during excavation operations is required full depth for all traffic signal standard shaft foundation locations specified at the beginning of this Special Provision. Excavation in advance of the casing tip shall not exceed three feet. In no case shall shaft excavation and casing placement extend below the bottom of shaft excavation as shown in the Plans.

When efforts to advance past the obstruction to the design shaft tip elevation result in the rate of advance of the shaft drilling equipment being significantly reduced relative to the rate of advance for the portion of the shaft excavation in the geological unit that contains the obstruction, then the Contractor shall remove, break-up, or push aside, the obstruction under the provisions of Section 8-20.5 as supplemented in these Special Provisions.

Placing Concrete

Traffic signal standard foundation shaft concrete shall be Class 4000P.

Casing Removal

Tops of permanent casing for the shafts shall be removed to at least 6-inches beneath the finish groundline, unless otherwise specified by the Engineer.

8-20.3(5).GR8

Conduit

8-20.3(5)E.GR8

Method of Conduit Installation

8-20.3(5)E.INST1.GR8

Section 8-20.3(5)E is supplemented with the following:

8-20.3(5)E.OPT1.GR8

(February 6, 2023)

CDF Encased ITS Conduit

Where two 4-inch conduits with factory installed innerducts are used for ITS fiber-optic cable installation and open trenching is allowed the conduits shall be installed by open trenching with CDF encasement. Conduit shall be installed where shown in the Plans and backfilled in accordance with the Standard Plans.

8-20.3(8).GR8

Wiring

8-20.3(8).INST1.GR8

Section 8-20.3(8) is supplemented with the following:

8-20.3(8).OPT1.GR8

(March 13, 1995)

Field Wiring Chart

501	AC+ Input	516-520 Railroad Pre-empt
502	AC- Input	5A1-5D5 Emergency Pre-empt
503-510	Control-Display	541-580 Coordination
511-515	Sign Lights	581-599 Spare

Movement Number	1	2	3	4	5	6	7	8	9
Vehicle Head									
Red	611	621	631	641	651	661	671	681	691
Yellow	612	622	632	642	652	662	672	682	692
Green	613	623	633	643	653	663	673	683	693
Spare	614	624	634	644	654	664	674	684	694
Spare	615	625	635	645	655	665	675	685	695
AC-	616	626	636	646	656	666	676	686	696
Red Auxiliary	617	627	637	647	657	667	677	687	697
Yellow Auxiliary	618	628	638	648	658	668	678	688	698
Green Auxiliary	619	629	639	649	659	669	679	689	699
Pedestrian Heads & Dets.									
Hand	711	721	731	741	751	761	771	781	791
Man	712	722	732	742	752	762	772	782	792
AC-	713	723	733	743	753	763	773	783	793
Detection	714	724	734	744	754	764	774	784	794
Common-Detection	715	725	735	745	755	765	775	785	795
Spare	716	726	736	746	756	766	776	786	796

Spare	717	727	737	747	757	767	777	787	797
Spare	718	728	738	748	758	768	778	788	798
Spare	719	729	739	749	759	769	779	789	799
Detection									
AC+	811	821	831	841	851	861	871	881	891
AC-	812	822	832	842	852	862	872	882	892
Common-Detection	813	823	833	843	853	863	873	883	893
Detection A	814	824	834	844	854	864	874	884	894
Detection B	815	825	835	845	855	865	875	885	895
Loop 1 Out	816	826	836	846	856	866	876	886	896
Loop 1 In	817	827	837	847	857	867	877	887	897
Loop 2 Out	818	828	838	848	858	868	878	888	898
Loop 2 In	819	829	839	849	859	869	879	889	899
Supplemental Detection									
Loop 3 Out	911	921	931	941	951	961	971	981	991
Loop 3 In	912	922	932	942	952	962	972	982	992
Loop 4 Out	913	923	933	943	953	963	973	983	993
Loop 4 In	914	924	934	944	954	964	974	984	994
Loop 5 Out	915	925	935	945	955	965	975	985	995
Loop 5 In	916	926	936	946	956	966	976	986	996
Loop 6 Out	917	927	937	947	957	967	977	987	997
Loop 6 In	918	928	938	948	958	968	978	988	998
Spare	919	929	939	949	959	969	979	989	999

8-20.3(14).GR8

Signal Systems

8-20.3(14)A.GR8

Signal Controllers

8-20.3(14)A.INST1.GR8

Section 8-20.3(14)A is supplemented with the following:

8-20.3(14)A.OPT1.GR8

(August 2, 2010)

Testing

All signal control equipment shall be tested at the Washington State Department of Transportation Materials Laboratory located in Tumwater, Washington, prior to final delivery. The tests shall check the operation of each individual component as well as the overall operation of the system.

The Contractor shall designate a qualified representative for these tests. Notification of this representative shall be submitted for approval, in writing, to the State Materials Laboratory, 14 calendar days prior to any equipment deliveries. The Engineer shall also receive a copy of this notification, which includes the representative's name, address, and telephone number. All communications and actions regarding testing of all equipment submitted to the State Materials Laboratory shall be made through this representative. These communications and actions shall include, but not be limited to, the following:

All notifications of failure or rejection, demonstration of the equipment, and the return of rejected equipment.

The State Materials Laboratory testing process will consist of the following four separate stages:

a. Delivery and Assembly
b. Demonstration and Documentation
c. Performance Test
d. Operational Test

Testing will follow in the correct order with no time gaps between stages unless mutually agreed upon by the Contractor and State Materials Laboratory.

Stage 1 Delivery Assembly

All components for the complete traffic control systems, including the necessary test equipment, shall be assembled and ready for demonstration within ten working days of delivery to the Materials Laboratory. The systems shall simulate the operations as installed in the field.

Equipment and prerequisites necessary to complete this stage shall include:

a. Detection Simulator:
   The detection simulator shall provide at least one detector per phase and variable traffic volumes. One simulator shall be required for every two controllers tested.

b. Communications Network:
   Locations, specified for coordinating communications equipment and cable, shall be completely wired to provide an operational communications system between all local and master controllers.

The Contractor shall provide labor, equipment, and materials necessary to assemble all control equipment complete and ready for demonstration. Materials and equipment used for this stage that are not required for field installation shall remain the property of the Contractor. Failure to complete this stage within ten working days will result in rejection of the entire system.

Stage 2 Demonstration and Documentation

This stage shall be completed within seven working days following the completion of Stage 1. Failure to do so shall result in rejection of the entire shipment.

All documentation shall be furnished with the control equipment prior to the start of testing. If corrections to any document are deemed necessary by the State, the Contractor shall submit this updated version prior to the final approval by the State Materials Laboratory. The documents to be supplied shall consist of or provide the following:

a. A Complete accounting of all the control and test equipment required.

b. A complete set of documents which shall include:

1. Serial numbers when applicable.

2. Written certification that equipment of the same make and model has been tested according to NEMA Environmental Standards and Test Procedures, and has met or exceeded these standards. The certificate shall include equipment model number and where, when, and by whom the tests were conducted. This certificate shall accompany each shipment of controllers.

3. Reproducible mylar wiring diagrams and two blue-tone prints for each controller and cabinet supplied. The sheet size shall be 24 inches by 36 inches.

4. Wiring diagrams for all auxiliary equipment furnished. One set per cabinet.

5. Complete operations and maintenance manuals including complete and correct software listing and flow charts. One set of operations and maintenance manuals per cabinet; at least four but no more than ten. Five sets of software listings and flow charts.

6. Complete operations and maintenance manuals for all auxiliary equipment. One set per cabinet.

c. A description of the functions and the capabilities of individual components and of the overall control system.

d. A presentation on how to operate the system.

e. A complete and thorough demonstration to show that all components of the control system are in good condition and operating properly, and proof that the controller and cabinet are functioning correctly.

f. Detailed instructions for installing and operating the controller(s), including explanations on the use of all features of the controller(s).

g. The operational and maintenance manuals for each traffic signal controller supplied including as a minimum, but not to be limited to the following:

1. Detailed instructions for maintaining all hardware components, controller, and auxiliary equipment.

2. A complete parts list detailing all manufacturer's identification codes.

3. Detailed wiring diagrams and schematics indicating voltage levels and pictorial description, part name, and location for all hardware components, controller, and auxiliary equipment.

The demonstration shall include the following:

a. Phasing per plans and all phase timing.

b. Detection including any special detector functions.

c. Conflict Monitor and Load Switches.

d. Special Coordination including communication equipment.

This demonstration shall be performed by the Contractor in the presence of State Materials personnel. The Contractor shall supply any item not accounted for within five working days of the accounting. Controllers and cabinets that remain incomplete five working days after notification shall be rejected and returned freight collect to the Contractor.

Stage 3 Unit Performance Test

A minimum of ten working days shall be allowed for one or two cabinet assemblies and five working days for each additional assembly.

The unit performance test will be conducted by State Personnel to determine if each and every controller cabinet assembly complies with NEMA Environmental Standards as stated in NEMA publication No. TS 1-1976, Part 2.

Any unit submitted, whose failure has been corrected, shall be retested from the beginning of this stage.

Stage 4 Operational Test

All control and auxiliary equipment shall operate without failure for a minimum of ten consecutive days. If an isolated controller is specified, it shall operate as an isolated controller. If a coordinated system is specified, it shall operate as a total coordinated system with the master and all local controllers operating in all coordinated modes.

If any failure occurs during this stage, all equipment for this stage shall be restarted following completion of repairs.

Equipment Failure Or Rejection

Equipment failures shall be defined as set forth in NEMA Publication No. TS 1-1976. Failure of load switches, detector amplifiers, and conflict monitors shall not result in rejection of the controller or cabinet. However, the Contractor shall stock, as replacements, approximately 30 percent more than the total for these three items. All excess material shall remain the property of the Contractor following completion of all tests.

If a failure occurs during Stages 3 or 4, repairs shall be made and completed within ten working days following notification of the malfunction. The Contractor shall have the option of making onsite repairs or repair them at a site selected by the Contractor. Failure to complete repairs within the allotted time shall result in rejection of the controller or cabinet assembly under test.

A total of two failures will be allowed from the start of Stage 3 to the end of Stage 4. If three failures occur during this time period, the equipment will be rejected. New equipment of different serial numbers submitted as replacement shall be received by the Materials Laboratory for testing under Stage 3 within ten working days following notification of rejection. Failure to meet this requirement within the allotted time will result in rejection of the entire system. Software errors will be considered as failures and, if not corrected within ten working days, the entire system will be subject to rejection. Following rejection of any equipment, the Contractor shall be responsible for all costs incurred. This shall include but not be limited to all shipping costs.

When the traffic control program is supplied by the State, the Contractor shall prove that any failures are, in fact, caused by that program and not the hardware.

All component or system failures, except load switches and detector amplifiers, shall be documented. This documentation shall be submitted prior to commencing the test or stage in which the failure was found and shall provide the following information:

a. A detailed description of the failure.
b. The steps undertaken to correct the failure.
c. A list of parts that were replaced, if any.

Upon completion of the tests, the equipment will be visually inspected. If material changes are observed which adversely affect the life of the equipment, the cause and conditions shall be noted. The Contractor will immediately be given notice to correct these conditions. If not repaired within ten working days of notification, the equipment will be subject to rejection. A final accounting shall be made of all equipment prior to approval.

All failed or rejected equipment shall be removed from the Materials Laboratory within three working days following notification; otherwise, the failed or rejected equipment will be returned, freight collect, to the Contractor.

Following final approval by the State Materials Laboratory, all equipment shall be removed from the State Materials Laboratory and delivered to sites as designated elsewhere in this contract.

Guarantees

Guarantees and warranties shall be in accordance with Section 1-05.10.

8-20.5.GR8

Payment

8-20.5.INST1.GR8

Section 8-20.5 is supplemented with the following:

8-20.5.OPT1.GB8

(April 6, 2015)

"Removing Traffic Signal Shaft Obstructions", estimated.

Payment for removing obstructions, as defined in Section 8-20.3(4) as supplemented in these Special Provisions, will be made for the changes in shaft construction methods necessary to remove the obstruction. The Contractor and the Engineer shall evaluate the effort made and reach agreement on the equipment and employees utilized, and the number of hours involved for each. Once these cost items and their duration have been agreed upon, the payment amount will be determined using the rate and markup methods specified in Section 1-09.6. For the purpose of providing a common proposal for all bidders, the Contracting Agency has entered an amount for the item "Removing Traffic Signal Shaft Obstructions" in the bid proposal to become a part of the total bid by the Contractor.

If the shaft construction equipment is idled as a result of the obstruction removal work and cannot be reasonably reassigned within the project, then standby payment for the idled equipment will be added to the payment calculations. If labor is idled as a result of the obstruction removal work and cannot be reasonably reassigned within the project, then all labor costs resulting from Contractor labor agreements and established Contractor policies will be added to the payment calculations.

The Contractor shall perform the amount of obstruction work estimated by the Contracting Agency within the original time of the contract. The Engineer will consider a time adjustment and additional compensation for costs related to the extended duration of the shaft construction operations, provided:

1. the dollar amount estimated by the Contracting Agency has been exceeded, and

2. the Contractor shows that the obstruction removal work represents a delay to the completion of the project based on the current progress schedule provided in accordance with Section 1-08.3.

8-21.GR8

Permanent Signing

8-21.2.GR8

Materials

8-21.2(9-06.16).GR8

Roadside Sign Structures

Section 9-06.16 is supplemented with the following:

8-21.2(9-06.16).OPT1.GR8

(January 3, 2011)

Perforated Steel Square Sign Post System

Where noted in the Plans, steel sign post systems shall be square, pre-punched galvanized steel tubing, that are NCHRP 350 Test Level 3 Certified and FHWA approved. The steel sign post system shall include all anchor sleeves, and other hardware required for a complete sign installation.

System Acceptance

Systems listed in the current QPL will be accepted per the QPL approval code. Systems not listed in the QPL will be accepted based on a Supplier's Certificate of Compliance. The Supplier's Certificate of Compliance will be a contract specific letter from the supplier stating the system is NCHRP 350 Test Level 3 compliant.

8-21.2(9-28.11).GR8

Hardware

Section 9-28.11 is supplemented with the following:

8-21.2(9-28.11).OPT1.GB8

(August 3, 2015)

Locknuts shown in the Plans specifying a locknut or locknut with nylon insert shall conform to one of the following:

1. ANCO Pin Locknut, with stainless steel locking pin, as manufactured by Lok-Mor, Inc.

2. Tri-lock Locknut, as manufactured by Lok-Mor, Inc.

3. Grade DH or 2H hex or heavy hex nuts conforming to one of the ASTM material specifications in the Locknut category of the Hardware table of this Section may be modified by installing a nylon insert washer. A minimum of 60-percent of the original number of threads shall meet the requirements of the applicable ASTM material specification after insertion of the nylon insert washer.

4. Hex or heavy hex nuts conforming to one of the ASTM material specifications in the Locknut category of the Hardware table of this Section may be modified by adding one of the following products to a minimum of one-half of the internal threads of the nut and the entire exterior top surface of the nut:

    a. Nylok Blue Torq-Patch Locknut.

    b. Nylok Precote 30.

    c. ND Patch 360 Ring Patch.

    The nuts with any of the three listed products are permitted for a single use only and shall have a maximum of two nut widths of thread extending beyond the nut after installation.

The alternatives to locknuts specified in Standard Plans G-90.20, G-90.30, and J-75.41 are deleted and replaced with the four options specified above.

8-21.2(9-28.14).GR8

Sign Support Structures

Section 9-28.14 is supplemented with the following:

8-21.2(9-28.14).OPT6.GR8

(September 8, 2020)

Manufacturers for Steel Roadside Sign Supports

The Standard Plans lists several steel sign support types. These supports are patented devices and many are sole-source. All of the sign support types listed below are acceptable when shown in the Plans.

Steel Sign Support Type	Manufacturer
Type TP-A & TP-B	Transpo Industries, Inc.
Type PL, PL-T & PL-U	Northwest Pipe Co.
Type AS	Transpo Industries, Inc.
Type AP	Transpo Industries, Inc.
Type ST 1, ST 2, ST 3, & ST 4	Ultimate Highway Solutions, Inc., Allied Tube & Conduit Corp. (Mechanical Division), Trinity Highway Products, LLC.
Type SB-1, SB-2, & SB-3	Ultimate Highway Solutions, Inc., Xcessories Squared Development and Manufacturing Incorporated, Trinity Highway Products, LLC.

8-21.3.GR8

Construction Requirements

8-21.3(9).GR8

Sign Structures

8-21.3(9)E.GR8

Bridge Mounted Sign Brackets

8-21.3(9)E.INST1.GR8

Section 8-21.3(9)E is supplemented with the following:

8-21.3(9)E.OPT1.FB8

(November 20, 2023)

Bridge Mounted Sign Bracket No(s). *** $$1$$ *** include the following quantities of structural carbon steel:

*** $$2$$ ***

For bridge mounted sign brackets mounted with resin bonded anchors, the Contractor shall install resin bonded anchors in accordance with Section 6-02.3(18)A and Section 9-06.4. For this type of mounting, Bridge Mounted Sign Bracket No(s). *** $$3$$ *** include the following quantities of drilled holes:

*** $$4$$ ***

8-21.4.GR8

Measurement

8-21.4.INST1.GR8

Section 8-21.4 is supplemented with the following:

8-21.4.OPT1.FB8

(September 8, 2020)

*** $$1$$ *** contain(s) the following approximate quantities of material and work:

*** $$2$$ ***

The quantities are listed only for the convenience of the Contractor in determining the volume of work involved and are not guaranteed to be accurate. The prospective bidders shall verify these quantities before submitting a bid. No adjustments other than for accepted changes will be made in the applicable sign structure lump sum Contract price even though the actual quantities required may deviate from those listed.

8-22.GR8

Pavement Marking

8-22.4.GR8

Measurement

8-22.4.INST1.GR8

The sixth paragraph of Section 8-22.4 is revised to read:

8-22.4.OPT1.2026.GR8

(November 4, 2024)

Wide Dotted Entry Line will be measured by the completed linear foot as “Painted 12-inch Wide Line” or “Plastic 12-inch Wide Line”. No deduction will be made for the unmarked area when the marking includes a broken or dotted line.

8-23.GR8

Temporary Pavement Markings

8-23.2.GR8

Materials

8-23.2(9-34).GR8

Pavement Marking Material

Section 9-34 is supplemented with the following:

8-23.2(9-34).OPT1.GR8

(October 3, 2022)

Temporary Adhesive Transverse Rumble Strips

Temporary Adhesive Transverse Rumble Strips shall consist of a self-adhesive orange rumble strips that is 4 inches wide and 0.250 inches thick.

Temporary Adhesive Transverse Rumble Strips shall be manufactured by Advanced Traffic Markings, Seton, Stop-Painting, or an approved equal.

8-23.3.GR8

Construction Requirements

8-23.3(4).GR8

Pavement Marking Application

8-23.3(4)A.GR8

Temporary Pavement Markings – Short Duration

8-23.3(4)A.INST1.GR8

Section 8-23.3(4)A is supplemented with the following:

8-23.3(4)A.OPT1.GR8

(October 3, 2022)

Temporary Adhesive Transverse Rumble Strips - A SOLID line used as an advance warning device. Each line shall be continuous and placed in the travel lane, perpendicular to the flow of traffic, as shown in the Plans. Each temporary transverse rumble strip shall be applied in accordance with the manufacturer's recommendation.

Temporary adhesive transverse rumble strips may be used on two-way, two-lane roadways in conditions requiring traffic to stop.

Do not place temporary adhesive transverse rumble strips on sharp horizontal or vertical curves, through pedestrian crossings or on bicycle routes. When placed on roadways used by bicyclists a minimum clear path of 4 feet shall be provided at each edge of the roadway or on each paved shoulder if feasible.

Temporary adhesive transverse rumble strips shall be repaired immediately when it no longer provides the intended use. Temporary adhesive transverse rumble strips will be removed when they are no longer required.

8-23.4.GR8

Measurement

8-23.4.INST1.GR8

Section 8-23.4 is supplemented with the following:

8-23.4.OPT1.GR8

(October 3, 2022)

Temporary Adhesive Transverse Rumble Strips will be measured by the linear foot of each installed line for the initial installation only. Repair, for any reason, of temporary transverse rumble strips will not be measured.

8-23.5.GR8

Payment

8-23.5.INST1.GR8

Section 8-23.5 is supplemented with the following:

8-23.5.OPT1.GR8

(October 3, 2022)

"Temporary Adhesive Transverse Rumble Strips", per linear foot.

The unit Contract price per linear foot for "Temporary Adhesive Transverse Rumble Strips" shall be full pay for all Work as specified.

8-24.GR8

Rock and Gravity Block Wall and Gabion Cribbing

8-24.2.GR8

Materials

8-24.2.INST1.GR8

Section 8-24.2 is supplemented with the following:

8-24.2.OPT1.GR8

(November 2, 2022)

Gravity Block Wall

Gravity block wall blocks shall be rectangular prisms with dimensions 2'-5 ½" by 2'-5 ½" by 4'-11", except for special blocks which shall be as dimensioned in the Plans. All dimensions shall be ± ½ ".

Except as otherwise specified, gravity block wall blocks will be accepted by the Engineer based on visual inspection only, with no minimum compressive strength and no air content requirements for the concrete used in the block.

Gravity block wall blocks for permanent walls of heights greater than six feet and less than 15 feet shall be cast with Class 3000 concrete, conforming to the air content requirements of Section 6-02.3(2)A. Commercial concrete shall not be used. Gravity block wall blocks for permanent walls of these heights will be accepted based on visual inspection, and conformance to Section 6-02.3(9) and the specified concrete strength and air content requirements.

8-24.3.GR8

Construction Requirements

8-24.3(2).GR8

Gravity Block Wall

8-24.3(2).INST1.GR8

Section 8-24.3(2) is supplemented with the following:

8-24.3(2).OPT1.GR8

(January 7, 2002)

Definitions

Temporary Gravity Block Wall: A gravity block wall that is constructed and removed under the same contract. Temporary gravity block walls shall not exceed ten feet in height, measured from the bottom of the bottom row of blocks to the top of the highest block.

Permanent Gravity Block Wall: A gravity block wall that remains in place after the conclusion of the contract under which the gravity block wall was constructed. Permanent gravity block walls shall not exceed 15 feet in height, measured from the bottom of the bottom row of blocks to the top of the highest block.

Submittals

The Contractor shall submit working drawings of the gravity block wall to the Engineer for approval in accordance with Section 6-01.9. The working drawings shall include, but not be limited to, the following:

1. Plan, elevation, and section views of the wall, showing the layout, batter, and orientation of the blocks.

2. Dimensions and details of the blocks, including details and locations of block erection lifting loops and inserts, and the features designed to interlock blocks together if the blocks have such features.

3. Method and equipment used to erect the blocks.

4. Erection sequence.

The Contractor shall not begin fabricating gravity block wall blocks until receiving the Engineer's approval of the working drawing submittal.

Gravity Block Wall Erection

After excavating for the wall base, the Contractor shall grade the excavation for a width equal to or exceeding the width of the bottom row of blocks. The base shall be graded to the base elevation shown in the Plans and working drawings as approved by the Engineer, and shall accommodate the batter of the bottom row of blocks.

The Contractor shall erect the gravity block wall and place the backfill in accordance with the erection sequence as approved by the Engineer. The top of the gravity block wall shall be within two inches of the line and grade shown in the Plans. The backfill shall be compacted in accordance with Section 2-03.3(14)C, Method C.

The Contractor shall repair all large blemishes, honeycombed areas, and chipped surfaces, (25 square inches and larger) on the exposed face of the erected wall using methods and materials as approved by the Engineer.

8-25.GR8

Glare Screen

8-25.1.GR8

Description

8-25.1.INST1.GR8

Section 8-25.1 is supplemented with the following:

8-25.1.OPT1.GR8

(April 1, 2002)

This work shall consist of furnishing and constructing permanent and temporary barrier glare screen on concrete barrier in accordance with the Plans, these Specifications, and as directed by the Engineer.

8-25.2.GR8

Materials

8-25.2.INST1.GR8

Section 8-25.2 is supplemented with the following:

8-25.2.OPT1.GR8

(April 1, 2002)

Barrier Glare Screen

Barrier glare screen shall consist of modular units with vertical blades mounted on a horizontal base rail. Base rails and blades shall be made of non-warping, non-metallic durable polymeric materials; shall be resistant to damage due to impacts, ultraviolet light, ozone, hydrocarbons, and other effects of atmosphere weathering; shall resist stiffening with age; and shall be designed for a minimum life equaling 60 months of outdoor service.

The color of blades shall be gray or green. Only one color shall be used throughout the project. The height of the blade shall be 24 inches. The blade width and spacing shall provide for a minimum 22 degree sight cutoff angle. The length of the unit shall be the same as the length of the concrete barrier that the unit is mounted on. The unit can be composed of smaller sub-units as long as the completed assembly is the same length as the concrete barrier. The unit shall not exceed 4.5 pounds per linear foot.

Brackets and mounting hardware may be metallic or non-metallic. Metallic brackets and anchor hardware shall be stainless steel or galvanized in accordance with ASTM A-153. Anchors shall be a stud mechanical system and shall include the necessary washers. The blade to rail base separation strength shall be a minimum of 1,500 pounds. Anchors shall have a minimum 3,000 pound pull-out and shear strength.

Barrier glare screen shall be selected from approved materials listed in the Qualified Products List.

Laboratory Tests

Three blades shall be cycled at 1000 hours in a weatherometer in accordance with ASTM G 53 (3 hr. 60C UV, 3 hr. 50C CON). The blades shall show no signs of delamination, distress, or discoloration. Physical properties of tensile strength and rigidity shall be maintained within 80 percent of the unconditioned values.

An impact test shall be performed on three partial sections of the modular unit consisting of the base rail and one blade. The temperature shall be 45°F. The modular unit shall be fastened in a similar fashion as to how the system would be used in the field. Each blade

shall receive three impacts with a horizontal steel bar traveling at 50 MPH impacting at mid-height on the blade. After impact, the screening unit (blades and base) shall be inspected for the following criteria:

1. Any cracking, splitting, or delamination, other than surface cracking evident on only one face of the blade, is considered a failure.

2. If the blade leans more than 10 degrees from the vertical it is considered a failure.

3. Any separation of the blade from the base is considered a failure.

4. Any separation of the base from the attachment is considered a failure.

If an individual blade or base fails any of the above criteria, the product is unacceptable.

Pre-approval

In order for a particular model of temporary barrier glare screen to become pre-approved, the following conditions must be met:

1. The manufacturer must submit a written request for pre-approval along with samples for each model to be tested to: Materials Engineer, Department of Transportation Material Laboratory, P.O. Box 47365, Olympia, WA 98504-7365. Samples shall be complete with blades, base rail, and mounting hardware and shall be accompanied by the manufacturer's written installation procedures.

2. The barrier screen will be field impact tested by the State Materials Laboratory to verify compliance with these specifications.

3. In lieu of State Materials Laboratory testing, the Lab will accept the results of pre-approved testing performed by the manufacturer or other agencies under the following conditions:

    a. The State Materials Laboratory is informed of the pre-approval testing sufficiently in advance in order to attend and observe. Attendance will be at the discretion of the Materials Laboratory.

    b. The results of the testing shall be reported in sufficient detail to enable the State Materials Laboratory to evaluate compliance with these specifications.

The Manufacturer must submit a certified test report, including test data developed by an approved testing laboratory, which demonstrates that the barrier screening complies with the requirements of the specifications. Certified test data supplied by the manufacturer shall be subject to verification by appropriate tests conducted by the State Materials Laboratory.

Frequency of field testing, evaluation, and pre-approval updating shall be at the sole discretion of the Materials Laboratory.

8-25.3.GR8

Construction Requirements

8-25.3.INST1.GR8

Section 8-25.3 is supplemented with the following:

8-25.3.OPT1.GR8

(April 1, 2002)

Barrier Glare Screen

The vertical blades shall be attached to the rail base in a positive mechanical manner to prevent unintentional blade rotation or dislocation. Barrier glare screen shall be attached to the top of the barrier using approved anchors and following the manufacturer's recommendations. Each modular unit of 10 feet or less shall be secured to the concrete barrier with anchors at a minimum of three points. Modular units greater than 10 feet in length shall be secured at a minimum of four points. Spanning the joint between concrete barrier sections will not be allowed.

When the temporary screening is no longer required, the Contractor shall remove the screening units. When noted in the contract that the screening will become the property of the Contracting Agency, the Contractor shall deliver and stockpile the screening units at the location noted in the contract.

8-25.4.GR8

Measurement

8-25.4.INST1.GR8

Section 8-25.4 is supplemented with the following:

8-25.4.OPT1.GR8

(April 1, 2002)

Barrier glare screen and temporary barrier glare screen will be measured by the linear foot along its completed line and slope.

8-25.5.GR8

Payment

8-25.5.INST1.GR8

Section 8-25.5 is supplemented with the following:

8-25.5.OPT1.GR8

(April 1, 2002)

“Barrier Glare Screen", per linear foot.

"Temporary Barrier Glare Screen", per linear foot.

8-29.GR8

Wire Mesh Slope Protection

8-29.1.GR8

Description

8-29.1.INST1.GR8

Section 8-29.1 is supplemented with the following:

8-29.1.OPT1.GR8
(April 5, 2010)
This work also consists of furnishing and installing cable net slope protection.

8-29.2.GR8
Materials

8-29.2.INST1.GR8
Section 8-29.2 is supplemented with the following:

8-29.2.OPT1.GR8
(January 2, 2018)
Cable Net Slope Protection Materials
Except where the Plans specify only one type of wire mesh backing material, wire mesh shall consist of either of the following:

1. 8x10 double-twisted, hexagonal wire mesh conforming to ASTM A 975

2. Chain link fabric conforming to Section 9-16.4(2) except that the chain link mesh grid shall be two-inch square.

Unless otherwise specified, wire mesh shall be PVC coated. The color of the PVC coating shall be SAE AMS Standard 595 color number 20045, unless otherwise specified in the Plans.

Wire rope for cable net panels specified in the Plans to be 5/16-inch nominal diameter shall be galvanized aircraft cable (GAC) construction, EIP steel, 7x7 or 7x19, having a nominal breaking strength of at least 9,200 pounds. 5/16-inch wire rope shall be fabricated and galvanized in accordance with Federal Specification RR-W-410E and ASTM A 1023.

Wire rope for cable anchors, and for other wire ropes specified in the Plans to be 3/4-inch nominal diameter or larger, shall be independent wire rope class (IWRC) construction, EIP steel, 6x19, and shall be galvanized in accordance with ASTM A 603 Class A.

Hardware shall conform to Section 9-16.4(4), with appropriate adjustments for the actual wire rope diameter used for the cable net slope protection. Jaw end swivels shall be galvanized after fabrication in accordance with Federal Specification RR-C-271D Type VII Class 3. Screw pin anchor shackles shall be galvanized after fabrication in accordance with Federal Specification RR-C-271D Type IVA Grade A Class 2.

Lacing wire for seaming the double-twisted wire mesh shall conform to Section 9-16.4(5).

Pressed ring fasteners for seaming the double-twisted wire mesh and fastening the mesh to the cable nets shall be made of high tensile steel.

Threaded bar ground anchors used for anchoring the top cable net support rope and steel post anchor assemblies to the ground surface as shown in the Plans shall be deformed continuously threaded steel reinforcement bars conforming to either Section 9-07.2 or Section 9-07.11 (Grade 60 or better). Threaded bar ground anchors shall be either epoxy-

coated in accordance with Sections 6-02.3(24)H and 9-07.3 or galvanized after fabrication in accordance with ASTM A 767 Class I.

Bearing plates shall conform to ASTM A 572 Grade 50 and shall be galvanized after fabrication in accordance with AASHTO M 111. Nuts shall conform to either ASTM A 563 Grade B, hexagonal, or Section 9-07.11. Washers shall conform to AASHTO M 293, except that plate washers shall conform to ASTM A 36. Nuts and washers shall be galvanized after fabrication in accordance with AASHTO M 111 for plate washers and AASHTO M 232 for all other hardware.

Steel posts shall conform to ASTM A 992 and shall be galvanized after fabrication in accordance with AASHTO M 111. Bars and plates welded to steel posts shall conform to ASTM A 572 Grade 50 and shall be galvanized after fabrication in accordance with AASHTO M 111.

Grout for soil anchors and ground anchors shall conform to Section 9-16.4(6).

Concrete for soil gravity anchors shall be either commercial concrete conforming to Section 6-02.3(2)B or Class 3000 conforming to Section 6-02.

Steel reinforcing bars for soil gravity anchors shall conform to Section 9-07.2 and shall be epoxy-coated in accordance with Sections 6-02.3(24)H and 9-07.3.

8-29.3.GR8

Construction Requirements

8-29.3.INST1.GR8

Section 8-29.3 is supplemented with the following:

8-29.3.OPT1.GR8

(January 3, 2011)

Cable Net Slope Protection Construction Requirements

Submittals

The Contractor shall submit a cable net slope protection plan to the Engineer for approval in accordance with Section 6-01.9. The cable net slope protection plan shall include the following:

1. Identification of the supplier of the cable nets. The cable net supplier shall either be listed in the WSDOT Qualified Products List (QPL) or the WSDOT New Products List, or if not listed in the WSDOT QPL or WSDOT New Products List, the submittal shall include written documentation demonstrating satisfactory performance of cable nets furnished by this supplier in projects completed for other agencies in similar site conditions.

2. An inclusive list with catalogue cuts for the appurtenances to be used for the anchors, support system, seaming panels, wire mesh fasteners, anchor bars, grout, wire rope, clips, thimbles, ferrules, steel rings and other fastening hardware.

3. Mill certificates for the wire rope.

4. A 3'-0" square physical sample of the PVC coated wire mesh in the specified color.

5. The Contractor's plan for installing anchors for the cable net slope protection, and the equipment and process to be used to confirm the capacity of the constructed anchors. The calibration data for the stressing devices used to proof test the anchors, as completed by an independent testing laboratory within 60 calendar days of the submittal date of the cable net slope protection plan to the Engineer, shall be included.

6. Working drawings for the temporary yoke or load frame to be used for anchor proof testing.

7. The Contractor's plan for assembling the cable nets and wire mesh, and erecting the assembled nets on the slope.

The Contractor shall not begin cable net slope protection operations until receiving the Engineer's approval of the cable net slope protection plan.

Cable Net Slope Protection Assembly

The cable net panels shall conform to the following criteria:

Panel Size:	approximately 12 feet by 25 feet
Grid Size:	no larger than 12 inches by 12 inches
Interior and Perimeter Rope:	no smaller than 5/16 inch diameter

Cable nets shall be fabricated with a perimeter rope. Interior wire rope junctions shall be bound with either double knots of 1/8 inch diameter corrosion resistant wire, or high-strength, corrosion resistant clips with slotted bottoms made from 0.08 inch thick plate. All perimeter-interior wire rope junctions shall be bound with corrosion resistant ferrules.

Clips and ferrules shall be pressed on and tie wires knotted so as not to slip when manually stretched or during the placement of the nets. Clips and ferrules shall be secured in the manner intended by the manufacturer while not damaging the wire ropes. Cable net assemblies showing signs of slight damage as determined by the Engineer will be subject to rejection.

Cable Net Slope Protection Installation

Cable net slope protection shall be installed in accordance with the details shown in the Plans.

Anchors and the top horizontal support rope shall be located a minimum of 15 feet beyond the slope crest, at locations receiving the Engineer's approval.

Anchors shall achieve the specified anchor capacity in vertical pullout. If double anchors are used, they shall be installed to ensure equal load distribution to both anchors, and each anchor shall achieve 60 percent of the specified anchor capacity in vertical pullout. For vertical pullout proof testing, an anchor is acceptable if it sustains the specified capacity for 10 minutes with no loss of load. Anchors that fail this criterion shall be replaced and retested at no additional expense to the Contracting Agency. For Type 1 cable net slope protection, up to 25 percent of the

support rope anchors shall be proof tested. For Type 2 cable net slope protection, all support rope anchors shall be proof tested. Up to 25 percent of the side and back anchors shall be proof tested at the discretion of the Engineer. If more than three anchors fail, the Contractor shall proof test all anchors.

Proof testing of anchors shall be performed against a temporary yoke or load frame. No part of the temporary yoke or load frame shall bear within three feet of the anchor being tested.

Unless otherwise specified in the Plans, the wire mesh shall be placed on the outside of the cable net panels, and lapped and fastened as detailed in the Plans. With the exception of vertical seaming of the net panels, the wire mesh shall be connected to the cable net panels as shown in the Plans prior to placement on the slope.

All galvanized steel with exposed steel or damaged galvanizing shall be repaired in place after erection of the cable net slope protection in accordance with Section 6-07.3(9)I with paint conforming to Section 9-08.1(2)B.

8-29.4.GR8

Measurement

8-29.4.INST1.GR8

Section 8-29.4 is supplemented with the following:

8-29.4.OPT1.GR8

(April 5, 2010)

Cable net slope protection will be measured by the square foot of cable net panels erected on the slope.

8-29.5.GR8

Payment

8-29.5.INST1.GR8

Section 8-29.5 is supplemented with the following:

8-29.5.OPT1.GR8

(January 3, 2011)

"Cable Net Slope Protection Type ___", per square foot.

The unit contract price per square foot for "Cable Net Slope Protection Type ___" shall be full pay for performing the work as specified, including fabrication and installation of all steel posts and anchors and all anchor proof testing.

8-31.GR8

Temporary Stream Diversion

8-31.3.GR8

Construction Requirements

8-31.3(1).GR8

General

8-31.3(1)A.GR8

General TSD Requirements

8-31.3(1)A.INST1.GR8

Section 8-31.3(1)A is supplemented with the following:

8-31.3(1)A.OPT1.FR8

(October 3, 2022)

Minimum Stream Flows

At all times of operation, the Contractor's temporary stream diversion shall be designed to convey the following minimum flow rate of water in cubic feet per second:

*** $$1$$ ***

8-31.3(1)A.OPT2.FR8

(October 3, 2022)

Minimum Stream Flows (Contingency System)

A Contingency System is required for this Project. The Contractor's contingency system shall be designed to convey the following minimum flow rate of water in cubic feet per second:

*** $$1$$ ***

8-31.3(1)B.GR8

TSD Plan Implementation Meeting

8-31.3(3).GR8

Fish Block Net Installation and Fish and Aquatic Species Exclusion

8-31.3(3)B.GR8

Contracting Agency Provided Materials

8-31.3(3)B.INST1.GR8

Section 8-31.3(3)B is supplemented with the following:

8-31.3(3)B.OPT1.FR8

(October 3, 2022)

The Contracting Agency will provide the following fish exclusion materials:

*** $$1$$ ***

8-SA1.GR8

(August 7, 2017)
FIELD OFFICE BUILDING

Description

This work shall consist of furnishing and setting-up a temporary office building for the sole use of the Contracting Agency.

Construction Requirements

The building shall be set-up, at the location designated by the Engineer, within the first 10 working days, unless the Engineer has approved a different schedule.

The building shall be weather-tight, installed plumb and level, and provided with the following as a minimum:

1. 240 square feet of floor space
2. Above ground floor
3. Heat
4. Electric lights
5. Telephone
6. Adequate windows
7. Six square feet of shelving
8. Plan table: 3 feet 6 inches deep by 6 feet wide by 3 feet 3 inches high
9. Drafting stool
10. Conference table: 4 foot by 8 foot
11. Four chairs
12. Cylinder door lock and six keys
13. Sanitary facilities (unless existing facilities are available)

The building shall remain the property of the Contractor and removed from the site upon physical completion of the contract, or when designated by the Engineer.

Payment

Payment will be made for the following bid item when included in the proposal:

"Field Office Building", lump sum.

The lump sum contract price for "Field Office Building" shall be full pay for furnishing, installing, maintaining, and removing the facility, including all costs associated with all required utility hook-ups and disconnects, and monthly utility charges for all utilities except telephone.

The monthly telephone costs will be paid by the Contracting Agency.

8-SA2.GR8

(October 3, 2022)

BOLLARDS

Description

This work shall consist of furnishing and installing steel bollards in accordance with the Plans, Standard Plans, and these Specifications, at the locations shown in the Plans or as staked by the Engineer.

Materials

Posts and Hardware

Type 1 and Type 2 bollard posts shall be in accordance with the Standard Plans and ASTM A 53, NPS 3 (3” Nom.) schedule 80 steel pipe. Post sleeves shall be ASTM A 53, NPS 4 (4”Nom.) schedule 40 steel pipe.

Type 3 bollard posts shall be steel structural tubing in accordance with the Plans and ASTM A 500 Gr B.

Steel plate shall be in accordance with ASTM A 36.

All steel parts shall be hot-dip galvanized after fabrication in accordance with AASHTO M 111.

Reflective Tape

Reflective tape shall be in accordance with Section 9-28.12.

Concrete

Footings shall be constructed using concrete Class 3000.

Construction Requirements

Bollards shall be constructed in accordance with the Standard Plans.

Bollards shall not vary more than ½ inch in 30 inches from a vertical plane.

Bollard posts and the exposed parts of the base assembly shall be painted in accordance with Section 6-07.3(11) for galvanized surfaces. The top coat shall match SAE AMS Standard 595, Color No. 33538 Traffic Signal Yellow.

Measurement

Measurement for bollards will be by the unit for each type of bollard furnished and installed.

Payment

Payment will be made for the following bid items when included in the proposal:

"Bollard Type ___", per each.

8-SA3.GR8

(August 6, 2018)
Environmental Compliance

Description

It is the Contractor's responsibility to conduct and perform all Work in accordance with Environmental Regulations, Environmental Commitments, permits, and Plans that the Work is subject to. The Environmental Compliance Lead (ECL) shall be the Contractor's representative that is responsible for management of the Contractor's environmental compliance.

Construction Requirements

Environmental Compliance Lead (ECL)

The Contractor shall designate a primary ECL and an alternate ECL to perform the duties of the ECL. The Contractor shall provide the Engineer with a copy of the formal assignment in writing prior to the start of construction. The Contractor's superintendent and/or foreman cannot be designated as the primary or alternate ECL.

The ECL shall represent all Contractor work actions for the project, regardless of whether the work is performed by the Contractor or one of the subcontractors. The ECL shall have the authority to direct work to expeditiously correct any environmental compliance deficiency and coordinate these measures with the Engineer, and to order the

Contractor's on-site personnel to stop work that is not being performed in compliance with the permits.

The ECL shall be on-site during all work activities unless otherwise approved by the Engineer. The Contractor shall maintain 24-hour telephone numbers at which the Contractor's designated ECL can be contacted and be available upon the Engineer's request during other than normal working hours. ECL and alternate(s) shall be listed on the Emergency Contact List required under Section 1-05.13(1).

The ECLs shall have, for the life of the Contract, a current Certificate of Training in Construction Site Erosion and Sediment Control (CESCL) from a course approved by the Washington State Department of Ecology.

The primary responsibilities of the ECL are to assist the Contractor's superintendent in planning and scheduling work activities to achieve environmental compliance; and be present on-site to observe work activities and resolve environmental compliance issues as they may develop.

The duties of the ECL shall also include the following requirements:

- Erosion and Sediment Control (ESC) Lead, Section 8-01.3(1)B,
- Updating the Spill Prevention, Control and Countermeasures Plan, Section 1-07.15(1),
- Attending the preconstruction conference (ECL and alternates),
- Evaluation of the Contractor's work operations and schedule in regard to environmental risks,
- Providing advanced notification to the Engineer of work activities that may create environmental compliance concerns.

Payment

Payment will be made for each of the following Bid items that are included in the Proposal:

"Environmental Compliance Lead", lump sum.
The lump sum Contract price for "Environmental Compliance Lead" shall be full payment for all costs for the Work. When the proposal includes an item for Environmental Compliance Lead all costs for ESC Lead in Section 8-01 shall be included in the lump sum price.

8-SA5.GR8

(January 6, 2025)

WOODY MATERIAL

Description

This Work shall consist of furnishing and installing woody material where shown in the Plans or where specified by the Engineer.

Definitions

Diameter at breast height (DBH) - The method of expressing the diameter of the trunk of a tree measured 4.5 feet above ground when standing.

Large Woody Material (LWM) - Trees and parts of trees including any variation of logs, rootwads, or stumps greater than 4 inches in diameter.

Small Woody Material (SWM) - Small trees and parts of trees where the trunk is 2 to 4 inches in diameter.

Slash - Small trees and parts of trees where the trunk is less than 2 inches in diameter.

Materials

Large Woody Material (LWM)

LWM shall be a log with or without rootwad as specified in the Plans. LWM shall be free of soil and rocks, rot and disease, and shall be free of fractures. It shall retain at least 50% of the original bark in its final placement. Cleaning shall not strip LWM of bark and roots.

Log without Rootwad

When a log without rootwad is specified in the Plans, it shall meet the following requirements:

1. The trunk shall be of a native coniferous tree excluding Western red cedar (Thuja plicata).

2. Diameter shall be as specified in the Plans with an acceptable tolerance of ±10%. Diameter shall be measured at the midpoint of the cut log.

3. The length shall be as specified in the Plans with an acceptable tolerance of ±6 inches. The length shall be measured from cut end to cut end.

Log with Rootwad

When a log with rootwad is specified in the Plans, it shall meet the following requirements:

1. The trunk shall be of a trunk of a native coniferous tree excluding Western red cedar (Thuja plicata).

2. Diameter is defined as the DBH as specified in the Plans with an acceptable tolerance of ±10%.

3. The length shall be as specified in the Plans with an acceptable tolerance of ±6 inches. The length shall be measured from the cut end of the log to the start of the rootwad mass.

4. The rootwad diameter, averaged from two orthogonal measurements, shall be a minimum of 2.5 times DBH and maximum as determined by the Engineer with roots intact. Rootwads shall not be cut, unless approved by the Engineer.

Boulder Anchoring

When anchoring of the LWM is specified in the Plans, the anchoring shall meet the following requirements:

1. Wire Rope - Wire Rope utilized for connecting LWM to the boulders shall be ½-inch stainless steel, multi-strand, flexible wire rope. Wire rope shall meet the requirements of ASTM A492.

2. Wire Rope Clips and Thimbles - Shall meet the requirements of Section 9-16.4(4).

3. Epoxy Adhesive - Epoxy adhesive used for boulder anchors shall be Type IV and meet the requirements of Section 9-26.

4. Rebar Pin - Rebar used to anchor the LWM shall be No. 4 (½-inch) steel reinforcing bar conforming to Section 9-07.2.

5. Eye Bolt - Eye Bolt used for connecting the LWM to the streambed boulders shall be ¾-inch diameter stainless steel (ASTM A193) threaded eye bolt with a minimum of a 4,000-pound working load limit and pull out strength. Eye Bolts shall have a minimum 1½ inch opening for the “eye” and have sufficient length and threads to be embedded a minimum of 6 inches into the Boulder Anchor. Eye Bolt shall meet the requirements of ASTM A489.

6. No galvanized steel shall be used.

7. Boulders - Boulders used for anchoring shall meet the requirements for Streambed Boulders in accordance with Section 9-03.11(5).

Small Woody Material (SWM)

SWM shall consist of a random assortment of branches, trees, brush and treetops of the following native species: Western red cedar (Thuja plicata), douglas fir (Pseudotsuga mensezeii), western hemlock (Tsuga heterophylla) coniferous trees, or various hardwood trees. No more than 50% of hardwood species shall be used. Branches, twigs, leaves and needles shall be left intact to the extent possible given the mechanics of handling SWM. The maximum diameter of any piece of SWM shall be 4 inches. The maximum length of any piece of SWM shall be 6 feet. SWM shall not contain any material which causes turbidity.

Slash

Slash shall consist of a random assortment of branches, trees, brush and treetops of the following native species: Western red cedar (Thuja plicata), douglas fir (Pseudotsuga mensezeii), western hemlock (Tsuga heterophylla), sitka spruce (Picea sitchensis) coniferous trees, or various hardwood trees. No more than 50% of hardwood species shall be used. Branches, twigs, leaves and needles shall be left intact to the extent possible given the mechanics of handling Slash. The maximum diameter of any piece of Slash shall be 2 inches. The maximum length of any piece of Slash shall be 6 feet. Slash shall not contain any material which causes turbidity.

Woody material may be available from trees removed by excavation or clearing and grubbing limits as shown in the Plans. Components of the removed trees which meet the criteria for the specific woody material may be used to supplement the woody material and will be accepted based on a visual inspection by the Engineer.

Acceptance of Woody Material will be based upon inspection by the Engineer prior to placement.

Construction Requirements

General

The Contractor shall install woody material at the location shown in the Plans and as directed by the Engineer.

The Contractor shall exercise care when installing and transporting the Woody Material to avoid damage. Rootwads shall remain intact during delivery and installation.

The streambed and bank shall be temporarily excavated to allow placement of the woody material as specified in the Plans. Backfill shall be native material or streambed material, unless otherwise shown in the Plans. Backfill shall be placed in lifts no thicker than 12 inches and shall be compacted to be uniformly dense and unyielding as approved by the Engineer.

The Contractor shall exercise care when placing the Woody Material to ensure that the method of installation minimizes disturbance of waterways and prevents sediment or pollutant discharge into water.

After the woody material has been placed, the area shall be graded as shown in the Plans.

Boulder Anchoring

When anchoring LWM is called out in the Plans, each anchor shall consist of two boulders as detailed in the Plans. One ⅞ inch hole shall be drilled a minimum of 6 inches deep into each boulder. After the hole is drilled in the boulder anchors, the hole shall be cleaned using compressed air to blow out the dust and rock particles. After being cleaned, the hole in the boulder anchors shall be filled with epoxy adhesive in accordance with the manufacturer's instructions, and eye bolt inserted as shown in the Plans. Note that the minimum amount of epoxy adhesive to place in each hole is equal to the amount necessary to fill the hole to the top with the eye bolt inserted.

After epoxy adhesive has cured, in accordance with the manufacturer's instructions, the Contractor shall anchor the LWM to the boulders as shown in the Plans. All LWM to be anchored shall be anchored such that there is no slack in the wire rope. The wire rope shall be looped around a thimble, through the eye bolt, then doubled back on itself. The end of the wire rope shall be secured using three wire rope clips, with the saddle of the clip placed on the "live" end of the wire rope, as described in Section 6-02.3(17)F2. Three stainless steel, malleable wire rope clips per connection shall be used to complete the anchor assembly as specified in the Plans. Stainless steel thimbles shall be used wherever the wire rope terminates in a loop.

Measurement

Large Woody Material – Log without Rootwad DIA___, Large Woody Material – Log with Rootwad DIA ___, Boulder Anchor will be measured per each.

SWM and Slash will be measured by the cubic yard, in the hauling conveyance.

Payment

Payment will be made in accordance with Section 1-04.1, for each of the following bid items.

"Large Woody Material - Log without Rootwad DIA_____", per each.
"Large Woody Material - Log with Rootwad DIA_____", per each.

The unit contract price for each “Large Woody Material - Log without Rootwad DIA_____” and “Large Woody Material -Log with Rootwad DIA_____” shall be full payment for all Work as specified, including acquiring, storing, hauling to the site, unloading, assembling, pinning, bundling, installing, excavation, backfill, compaction and grading.

“Boulder Anchor”, per each.
“Boulder Anchor” shall be full payment for all Work as specified, including acquiring, storing, hauling to the site, unloading, assembling, bundling, drilling, epoxy, installing, anchoring, excavation, backfill, compaction and grading.

“Slash” and “Small Woody Material”, per cubic yard.
The unit Contract price per cubic yard for “Slash” and “Small Woody Material” shall be full payment for all Work as specified, including acquiring, storing, hauling to the site, unloading, assembling, bundling, installing, excavation, backfill, compaction and grading.

DIVISION9.GR9

Division 9
Materials

APPENDIX1.FR9

Appendices
(January 2, 2012)

The following appendix is attached and made a part of this contract:

*** $$1$$ ***

[Fill-in is the name, title, and if necessary the page numbers of the appendix, formatted as shown in the following sample:]

APPENDIX A:
Summary of Geotechnical Conditions, Page __ through Page __.

APPENDIX2.FR9

Appendices
(January 2, 2012)

The following appendices are attached and made a part of this contract:

*** $$1$$ ***

[Fill-in is the name, title, and if necessary the page numbers of the appendices, formatted as shown in the following sample:]

APPENDIX A:
Summary of Geotechnical Conditions, Page __ through Page __.

APPENDIX B:
(Name of Report or Document), Page __ through Page __.

STDPLANS.GR9

(November 4, 2024)

Standard Plans

The Washington State Department of Transportation *Standard Plans* M21-01, published September 2024, is made a part of this Contract with the following revisions:

A-10.30

RISER RING detail (Including SECTION view and RISER RING DIMENSIONS table): The RISER RING detail is deleted from the plan.

INSTALLATION detail, SECTION A: The “1/4”” callout is revised to read “+/- 1/4" (SEE CONTRACT ~ Note: The + 1/4" installation is shown in the Section A view)”

A-40.20

Sheet 1, NOTES 1, 2, 3, and 4 are replaced with the following:

1. Use the ½ inch joint details for bridges with expansion length less than 100 feet and for bridges with L type abutments. Use the 1 inch joint details for other applications.

2. Use detail 5, 6, 7 on steel trusses and timber bridges with concrete bridge deck panels.

3. For details 1, 2, 3, and 4, the item “HMA Joint Seal at Bridge End” shall be used for payment. For details 5 and 6, the item “HMA Joint Seal at Bridge Deck Panel Joint” shall be used for payment. For detail 7, the item “Clean and Seal Bridge Deck Panel Joint” shall be used for payment.

Sheet 2, Detail 8 reference to “6-09.3(6)” is revised to read “6-21.3(7)”.

A-50.40

Sheet 1, Plan View: The callout “BEAM GUARDRAIL TYPE 31 TRANSITION SECTION TYPE 21 OR TYPE 24 (SEE STANDARD PLAN C-25.20 OR C-25.30)” is revised to read “BEAM GUARDRAIL TYPE 31 TRANSITION SECTION TYPE 21, 24, OR 25 (SEE STANDARD PLAN C-25.20, C-25.30, OR C-25.32)”

A-60.40

Note 2 reference to “6-09.3(6)” is revised to read “6-21.3(7)”.

B-90.40

Valve Detail – DELETED

C-23.70

Sheet 2, ANCHOR BRACKET ASSEMBLY DETAIL, dimension, “R. 5/16” is revised to read; R. 15/16”

ANCHOR PLATE DETAIL, weld callout (fillet), 1/4" is revised to read; 3/16”

C-60.20

Sheet 1, Plan view, callout – “1/2” (IN) DIAMETER X 6 1/2" (IN) LONG ANCHOR BOLT ~ PER STD. SPEC. SECT. 9-06.5(4) (TYPICAL) (SEE NOTE 7)” is revised to read: “5/8”

DIAMETER x 6 1/2" (IN) LONG ANCHOR BOLT ~ PER STD. SPEC. SECT. 9-06.5(4) (TYPICAL) (SEE NOTE 7)"

C-81.15

Sheet 1, General Notes, Add Note 7, to read;"7. The concrete class for the moment slab shall be class 4000 typically and class 4000A when the top of the slab is used as the roadway, or sidewalk, surface. The concrete class for the barrier is defined in Standard Specification Section 6-10.3."

C-85.11

On Section B, the callout "3" EXPANDED POLYSTYRENE AROUND COLUMN (TYP.)" is revised to read "3" EXPANDED POLYSTYRENE OR POLYETHYLENE FOAM AROUND COLUMN (TYP.)"

D-3.09

Sheet 1, Geosynthetic Wall with 2 FT Traffic Surcharge detail, callout – "BARRIER ON WALL ~ SEE Standard Plan D-3.15 or D-3.16" is revised to read: "BARRIER ON WALL ~ SEE Standard Plan C-81.10 and/or C-81.15"

D-3.10

Sheet 1, Typical Section, callout – "FOR WALLS WITH SINGLE SLOPE TRAFFIC BARRIER. USE THE DETAILS ABOVE THE MATCH LINE ON STANDARD PLAN D-3.15" is revised to read; "FOR WALLS WITH SINGLE SLOPE TRAFFIC BARRIER, SEE CONTRACT PLANS"

Sheet 1, Typical Section, callout – "FOR WALLS WITH F-SHAPE TRAFFIC BARRIER. USE THE DETAILS ABOVE THE MATCH LINE ON STANDARD PLAN D-3.16" is revised to read; "FOR WALLS WITH F-SHAPE TRAFFIC BARRIER, SEE CONTRACT PLANS"

D-3.11

Sheet 1, Typical Section, callout – ""B" BRIDGE APPROACH SLAB (SEE BRIDGE PLANS) OR PERMANENT GEOSYNTHETIC WALL BARRIER ~ SEE STANDARD PLANS D-3.15 OR D-3.16" is revised to read; "B" BRIDGE APPROACH SLAB OR MOMENT SLAB (SEE CONTRACT PLANS)

Sheet 1, Typical Section, callout – "TYPICAL BARRIER ON BRIDGE APPROACH SLAB (SEE BRIDGE PLANS) OR PERMANENT GEOSYNTHETIC WALL BARRIER ~ SEE STANDARD PLANS D-3.15 OR D-3.16" is revised to read; "TYPICAL BARRIER ON BRIDGE APPROACH SLAB OR MOMENT SLAB (SEE CONTRACT PLANS)

D-10.10

Note 7, "If Traffic Barriers are required, See Standard Plans D-15.10, D-15.20 and D-15.30" is revised to read "Traffic Barriers shall not be structurally connected to the Reinforced Concrete Retaining Wall Type 1 and 1SW".

D-10.15

Note 7, "If Traffic Barriers are required, See Standard Plans D-15.10, D-15.20 and D-15.30" is revised to read "Traffic Barriers shall not be structurally connected to the Reinforced Concrete Retaining Wall Type 2 and 2SW".

D-10.30

Wall Type 5 may be used in all cases.

D-10.35

Wall Type 6 may be used in all cases.

D-10.40

Note 5, “If Traffic Barriers are required, See Standard Plans D-15.10, D-15.20 and D-15.30” is revised to read “Traffic Barriers shall not be structurally connected to the Reinforced Concrete Retaining Wall Type 7”.

D-10.45

Note 5, “If Traffic Barriers are required, See Standard Plans D-15.10, D-15.20 and D-15.30” is revised to read “Traffic Barriers shall not be structurally connected to the Reinforced Concrete Retaining Wall Type 8”.

F-10.18

General Note 1; “Construct curb joints at concrete pavement transverse joint locations. If all adjacent pavement is HMA, see Standard Plam F-30.10 for Curb Expansion and Contraction Joint Spacing.” Is revised to read – “See Standard Plan F-30.10 and Standard Specification Section 8-04.3 for Curb Expansion and Contraction Joint details and spacing.”

F-30.10

All five instances of the “2.0% MAX.” are replaced with “2.1% MAX.”

F-40.12

The one instance of “2.0% MAX.” is replaced with “2.1% MAX.”
Note 7 is replaced with the following:
7. The running slope of curb ramps shall not exceed 8.3% maximum except as noted herein. If the 8.3% running slope creates a ramp that exceeds 15ft, see contract plans for details. Use a single constant slope from bottom of ramp to top of ramp to match into the landing. Do not include the abutting landing in the Curb Ramp length measurement. When a ramp is constructed on a radius, the Curb Ramp length is measured on the inside radius along the back of the walkway.
Section B is amended as follows:
Delete: “15’ – 0” MAX. (TYP.)”
Section C is amended as follows:
Delete: “15’ – 0” MAX. (TYP.)”

F-40.14

The one instance of “2.0% MAX.” is replaced with “2.1% MAX.”
Note 7 is replaced with the following:
7. The running slope of curb ramps shall not exceed 8.3% maximum except as noted herein. If the 8.3% running slope creates a ramp that exceeds 15ft, see contract plans for details. Use a single constant slope from bottom of ramp to top of ramp to match into the landing. Do not include the abutting landing in the Curb Ramp length measurement. When a ramp is constructed on a radius, the Curb Ramp length is measured on the inside radius along the back of the walkway.
Section A is amended as follows:
Delete: “15’ – 0” MAX. (TYP.)”
Section C is amended as follows:
Delete: “15’ – 0” MAX. (TYP.)”

F-40.15

The one instance of “2.0% MAX.” is replaced with “2.1% MAX.”

Note 7 is replaced with the following:
7. The running slope of curb ramps shall not exceed 8.3% maximum except as noted herein. If the 8.3% running slope creates a ramp that exceeds 15ft, see contract plans for details. Use a single constant slope from bottom of ramp to top of ramp to match into the landing. Do not include the abutting landing in the Curb Ramp length measurement.
Section A is amended as follows:
Delete: “15’ – 0” MAX. (TYP.)”

F-40.16
The one instance of “2.0% MAX.” is replaced with “2.1% MAX.”
Note 8 is replaced with the following:
7. The running slope of curb ramps shall not exceed 8.3% maximum except as noted herein. If the 8.3% running slope creates a ramp that exceeds 15ft, see contract plans for details. Use a single constant slope from bottom of ramp to top of ramp to match into the landing. Do not include the abutting landing in the Curb Ramp length measurement.
Section A is amended as follows:
Delete: “15’ – 0” MAX. (TYP.)”
Section B is amended as follows:
Delete: “15’ – 0” MAX. (TYP.)”

F-80.10
The one instance of “2.0% MAX.” is replaced with “2.1% MAX.”
Note 6 is replaced with the following:
The running slope of the Pedestrian Ramp shall not exceed 8.3% maximum except as noted herein. If the 8.3% running slope creates a ramp that exceeds 15ft, see contract plans for details. Use a single constant slope from bottom of ramp to top of ramp to match into the sidewalk.
Section A is amended as follows:
Delete: “15” Max.”

J-10.10
Sheet 4 of 6, “Foundation Size Reference Table”, PAD WIDTH column, Type 33xD=6’ – 3” is revised to read: 7’ – 3”. Type 342LX / NEMA P44=5’ – 10” is revised to read: 6’ – 10”
Sheet 5 of 6, Plan View, “FOR EXAMPLE PAD SHOWN HERE:, “first bullet” item, “-SPACE BETWEEN TYPE B MOD. CABINET AND 33x CABINET IS 6” (IN)” IS REVISED TO READ: “SPACE BETWEEN TYPE B MOD. CABINET (BACK OF ALL CHANNEL STEEL) AND 33x CABINET IS 6” (IN) (CHANNEL STEEL ADDS ABOUT 5” (IN)”

J-10.16
Key Note 1, Standard Plan J-10.30 revised to Standard Plan J-10.14

J-10.17
Key Note 1, Standard Plan J-10.30 revised to Standard Plan J-10.14

J-10.18
Key Note 1, Standard Plan J-10.30 revised to Standard Plan J-10.14

J-20.10
DELETED

J-20.11
DELETED

J-20.26

Add Note 1, “1. One accessible pedestrian pushbutton station per pedestrian pushbutton post.”

Add General Note 2, to read: “Signs shown are for locations with pedestrian signal displays (Accessible Pedestrian Signals/APS). Accessible information device (AID) pushbuttons signs not shown.”

Revise View Titles (Both Sheets) to read: “ACCESSIBLE PEDESTRIAN PUSHBUTTON ASSEMBLY”

J-20.16

View A, callout, was – LOCK NIPPLE, is revised to read; CHASE NIPPLE

J-21.10

Sheet 1, Anchor Bolt Template, callout; “9” (IN) BOLT CIRCLE” is revised to read: “9” (IN) DIA.BOLT CIRCLE”

Base Plate Detail, callout; “3/4” (IN) STEEL PLATE WITH HOLE = POLE BASE + 1/6” (IN)” IS REVISED TO READ; “3/4” (IN) STEEL PLATE WITH HOLE = POLE BASE + 1/16” (IN)”

Flat Foundation Detail – Elevation, callout; “ANCHOR BOLTS ~ ¾” (IN) x 30” (IN) FULL THREAD ~ THREE REQ’D. PER ASSEMBLY” is revised to read; “ANCHOR BOLTS ~ ¾” (IN) x 30” (IN) FULL THREAD ~ FOUR REQ’D. PER ASSEMBLY”

Flat Foundation Detail – Elevation, dimension; 4’ – 0” is revised to read; “4’ – 0” ROUND OR 3’ – 0” SQUARE”

J-21.15

Partial View, callout, was – LOCK NIPPLE ~ 1 ½” DIAM., is revised to read; CHASE NIPPLE ~ 1 ½” (IN) DIAM.

J-28.30

General Note 13 – “See Standard Plans C-8b and C-85.14 for steel light standards on traffic barrier” is revised to read; “See Standard Plan C-85.15 for steel light standards on traffic barrier.”

J-40.10

Sheet 2 of 2, Detail F, callout, “12 – 13 x 1 ½” S.S. PENTA HEAD BOLT AND 12” S. S. FLAT WASHER” is revised to read; “12 – 13 x 1 ½” S.S. PENTA HEAD BOLT AND 1/2” (IN) S. S. FLAT WASHER”

J-40.36

Note 1, second sentence; ”Finish shall be # 2B for backbox and # 4 for the cover.” Is revised to read; ”Finish shall be # 2B for barrier box and HRAP (Hot Rolled Annealed and Pickled) for the cover.

J-40.37

Note 1, second sentence; ”Finish shall be # 2B for backbox and # 4 for the cover.” Is revised to read; ”Finish shall be # 2B for barrier box and HRAP (Hot Rolled Annealed and Pickled) for the cover.

J-75.20

Key Notes, note 16, second bullet point, was: “1/2” (IN) x 0.45” (IN) Stainless Steel Bands”, add the following to the end of the note: “Alternate: Stainless steel cable with

stainless steel ends, nuts, bolts, and washers may be used in place of stainless steel bands and associated hardware."

J-75.55
Notes, Note A1, Revise reference, was – G-90.29, should be – G-90.20.

L-5.10
Add new general Note 9 on sheet 1 – "9. The top of wall in Section A on Sheet 1 shall be located as follows: 1) flush with the finished grade when placed within the deflection distance of the long span guardrail system (Std. Plan C-20.40), 2) Two inches maximum above finished grade when placed behind a box culvert guardrail steel post system (Std. Plan C-20.41 or C-20.43), 3) Six inches minimum for all other applications. The bottom rail shall be located at mid height between the top rail and the top of structure."

M-20.30
Wide Dotted Lane Line Detail, reference below title, (SEE NOTE 6) is revised to read: (SEE NOTE 5)

M-40.10
Guide Post Type ~ Reflective Sheeting Applications Table, remove reference - "(SEE NOTE 5)"

The following are the Standard Plan numbers applicable at the time this project was advertised. The date shown with each plan number is the publication approval date shown in the lower right-hand corner of that plan. Standard Plans showing different dates shall not be used in this contract.

A-10.10-00..... 8/7/07	A-30.35-00.....10/12/07	A-50.10-02 .....7/18/24
A-10.20-00.....10/5/07	A-40.00-01.....7/6/22	A-50.40-01 .....8/17/21
A-10.30-00.....10/5/07	A-40.10-04.....7/31/19	A-60.10-03 .....12/23/14
A-20.10-00.....8/31/07	A-40.15-00..... 8/11/09	A-60.20-03 .....12/23/14
A-30.10-00.....11/8/07	A-40.20-04.....1/18/17	A-60.30-01 .....6/28/18
A-30.30-01.....6/16/11	A-40.50-03..... 9/12/23	A-60.40-00 .....8/31/07

B-5.20-03..... 9/9/20	B-30.50-03 .....2/27/18	B-75.20-03 ..... 8/17/21
B-5.40-02.....1/26/17	B-30.60-00 ..... 9/9/20	B-75.50-02 ..... 3/15/22
B-5.60-02.....1/26/17	B-30.40-03 .....2/27/18	B-70.60-01 ..... 1/26/17
B-10.20-03.....8/23/23	B-30.70-04 .....2/27/18	B-75.60-00 ..... 6/8/06
B-10.40-02.....8/17/21	B-30.80-01 .....2/27/18	B-80.20-00 ..... 6/8/06
B-10.70-03.....8/23/23	B-30.90-02 ..... 1/26/17	B-80.40-00 ..... 6/1/06
B-15.20-01..... 2/7/12	B-35.20-00 .....6/8/06	B-85.10-01 ..... 6/10/08
B-15.40-01..... 2/7/12	B-35.40-01 .....8/23/23	B-85.20-00 ..... 6/1/06
B-15.60-02.....1/26/17	B-40.20-00 .....6/1/06	B-85.30-00 ..... 6/1/06
B-20.20-02.....3/16/12	B-40.40-02 ..... 1/26/17	B-85.40-00 ..... 6/8/06
B-20.40-04.....2/27/18	B-45.20-01 ..... 7/11/17	B-85.50-01 ..... 6/10/08
B-20.60-03.....3/15/12	B-45.40-01 .....7/21/17	B-90.10-00 ..... 6/8/06
B-25.20-02.....2/27/18	B-50.20-00 .....6/1/06	B-90.20-00 ..... 6/8/06
B-25.60-03.....8/23/23	B-55.20-03 .....8/17/21	B-90.30-00 ..... 6/8/06
B-30.05-00..... 9/9/20	B-60.20-02 ..... 9/9/20	B-90.40-01 ..... 1/26/17
B-30.10-03.....2/27/18	B-60.40-01 .....2/27/18	B-90.50-00 ..... 6/8/06
B-30.15-00.....2/27/18	B-65.20-01 .....4/26/12	B-95.20-02 ..... 8/17/21
B-30.20-04.....2/27/18	B-65.40-00 .....6/1/06	B-95.40-01 ..... 6/28/18

B-30.30-03.....2/27/18
B-70.20-01 ..... 3/15/22

1

C-1..... 9/8/22
C-1b.....10/12/23
C-1d.....10/31/03
C-6a..... 9/8/22
C-7..... 9/8/22
C-7a..... 9/8/22
C-20.10-09.....10/12/23
C-20.14-05..... 9/8/22
C-20.15-03.....10/12/23
C-20.18-04..... 9/8/22
C-20.40-10.....10/12/23
C-20.41-05.....7/18/24
C-20.43-01.....7/18/24
C-20.44-00.....8/13/24
C-20.45-03..... 9/8/22
C-20.55-00.....7/30/24
C-22.16-08.....10/17/23
C-22.40-11.....7/21/24
C-22.45-07.....7/21/24
C-23.70-01 ..... 10/16/23
C.24.10-05 ..... 7/21/24
C-24.15-00 ..... 3/15/22
C-25.20-07 ..... 8/20/21
C-25.22-06 ..... 8/20/21
C-25.26-05 ..... 8/20/21
C-25.30-01 ..... 8/20/21
C-25.32-00 ..... 7/29/24
C-25.80-05 ..... 8/12/19
C-60.10-04 ..... 7/21/24
C-60.15-01 ..... 7/21/24
C-60.20-01 ..... 9/8/22
C-60.30-02 ..... 7/21/24
C-60.40-01 ..... 7/21/24
C-60.45-01 ..... 7/21/24
C-60.50-01 ..... 7/21/24
C-60.60-01 ..... 7/21/24
C-60.70-01 ..... 9/8/22
C-60.80-02 ..... 7/21/24
C-70.10-04 ..... 10/16/23
C-70.15-01 ..... 7/21/24
C-75.10-02 ..... 9/16/20
C-75.20-03 ..... 8/20/21
C-75.30-03 ..... 8/20/21
C-80.10-03 ..... 10/16/23
C-80.20-01 ..... 6/11/14
C-80.30-02 ..... 8/20/21
C-80.40-01 ..... 6/11/14
C-85.10-00 ..... 4/8/12
C-85.11-01 ..... 9/16/20
C-85.15-03 ..... 10/17/23
C-85-18-03..... 9/8/22
C-81.10-00 ..... 9/12/23
C-81.15-00 ..... 9/12/23

2

D-2.36-03.....6/11/14
D-2.46-02.....8/13/21
D-2.84-00..... 11/10/05
D-2.92-01.....4/26/22
D-3.09-00.....5/17/12
D-3.10-01.....5/29/13
D-3.11-03 ..... 6/11/14
D-4 ..... 12/11/98
D-6 ..... 6/19/98
D-10.10-01 ..... 12/2/08
D-10.15-01 ..... 12/2/08
D-10.20-01 ..... 8/7/19
D-10.25-01 ..... 8/7/19
D-10.30-00 ..... 7/8/08
D-10.35-00 ..... 7/8/08
D-10.40-01 ..... 12/2/08
D-10.45-01 ..... 12/2/08
D-20.10-00 ..... 10/9/23

3

E-1.....2/21/07
E-2.....5/29/98
E-4 ..... 8/27/03
E-4a 8/27/03
E-20.10-00 ..... 9/12/23
E-20.20-00 ..... 10/4/23

4

F-10.12-04 .....9/24/20
F-10.16-00 .....12/20/06
F-10.18-04 .....6/28/24
F-10.40-04 .....9/24/20
F-10.42-00 .....1/23/07
F-10.62-02..... 4/22/14
F-10.64-03..... 4/22/14
F-30.10-04..... 9/25/20
F-40.12-03..... 6/29/16
F-40.14-03..... 6/29/16
F-40.15-04 ..... 9/25/20
F-40.16-03 ..... 6/29/16
F-45.10-05 ..... 6/4/24
F-80.10-04 ..... 7/15/16

5

G-10.10-00 .....9/20/07
G-20.10-03 .....8/20/21
G-22.10-04 .....6/28/18
G-24.10-00 ..... 11/8/07
G-24.20-01 ..... 2/7/12
G-24.30-02 .....6/28/18
G-24.40-07 .....6/28/18
G-24.50-05..... 8/7/19
G-24.60-05..... 6/28/18
G-25.10-05..... 9/16/20
G-26.10-00..... 7/31/19
G-30.10-04..... 6/23/15
G-50.10-03..... 6/28/18
G-90.10-03..... 7/11/17
G-90.20-05..... 7/11/17
G-90.30-04..... 7/11/17
G-95.10-02..... 6/28/18
G-95.20-03..... 6/28/18
G-95.30-03..... 6/28/18

6

H-10.10-01..... 6/2/24
H-10.11-00..... 6/2/24
H-10.15-01..... 6/2/24
H-10.16-00..... 6/2/24
H-30.10-00 ..... 10/12/07
H-32.10-00 ..... 9/20/07
H-60.10-01 ..... 7/3/08
H-60.20-01 ..... 7/3/08
H-70.10-02 ..... 8/17/21
H-70.20-02 ..... 8/17/21

7

I-10.10-01 .....8/11/09
I-30.20-00..... 9/20/07
I-40.20-00..... 9/20/07

I-30.10-02 .....3/22/13
I-30.15-02 .....3/22/13
I-30.16-01 .....7/11/19
I-30.17-01 .....6/12/19
I-30.30-02..... 6/12/19
I-30.40-02..... 6/12/19
I-30.60-02..... 6/12/19
I-40.10-00..... 9/20/07
I-50.20-02..... 7/6/22
I-60.10-01..... 6/10/13
I-60.20-01..... 6/10/13
I-80.10-02..... 7/15/16

1

J-05.50-00 .....8/30/22
J-10 .....7/18/97
J-10.10-04 .....9/16/20
J-10.12-00 .....9/16/20
J-10.14-00 .....9/16/20
J-10.15-01 .....6/11/14
J-10.16-02 .....8/18/21
J-10.17-02 .....8/18/21
J-10.18-02 .....8/18/21
J-10.20-04 .....8/18/21
J-10.21-02 .....8/18/21
J-10.22-03 .....10/4/23
J-10.25-01 .....6/21/24
J-10.26-00 .....8/30/22
J-12.15-00 .....6/28/18
J-12.16-00 .....6/28/18
J-15.10-01 .....6/11/14
J-15.15-02 .....7/10/15
J-20.01-01 .....6/21/24
J-20.05-00 .....6/21/24
J-20.10-05 .....10/4/23
J-20.11-03.....7/31/19
J-20.15-04 .....6/21/24
J-20.16-02 .....6/30/14
J-20.20-02 .....5/20/13
J-20.26-01 .....7/12/12
J-21.10-05 .....6/21/24
J-21.15-01 .....6/10/13
J-21.16-02 .....6/21/24
J-21.17-01 .....6/10/13
J-21.20-01 .....6/10/13
J-22.15-03 .....6/21/24
J-22.16-03 .....7/10/15
J-22.17-00 .....6/21/24
J-26.10-03..... 7/21/16
J-26.15-01..... 5/17/12
J-26.20-01..... 6/28/18
J-27.10-01..... 7/21/16
J-27.15-00..... 3/15/12
J-28.01-00..... 8/30/22
J-28.10-02..... 8/7/19
J-28.22-00..... 8/07/07
J-28.24-02..... 9/16/20
J-28.26-01..... 12/02/08
J-28.30-04..... 6/18/24
J-28.40-02..... 6/11/14
J-28.42-01..... 6/11/14
J-28.43-01..... 6/28/18
J-28.45-03..... 7/21/16
J-28.50-03..... 7/21/16
J-28.60-03..... 8/27/21
J-28.70-04..... 8/30/22
J-29.10-02..... 8/26/22
J-29.15-01..... 7/21/16
J-29.16-02..... 7/21/16
J-30.10-01..... 8/26/22
J-40.01-00..... 8/30/22
J-40.05-00..... 7/21/16
J-40.10-04..... 4/28/16
J-40.20-03..... 4/28/16
J-40.30-04..... 4/28/16
J-40.35-01..... 5/29/13
J-40.36-02..... 7/21/17
J-40.37-02..... 7/21/17
J-40.38-01..... 5/20/13
J-40.39-00..... 5/20/13
J-40.40-02..... 7/31/19
J-45.36-00..... 7/21/17
J-50.05-00..... 7/21/17
J-50.10-01..... .7/31/19
J-50.11-02..... 7/31/19
J-50.12-02..... 8/7/19
J-50.13-01..... 8/30/22
J-50.15-01..... 7/21/17
J-50.16-01..... 3/22/13
J-50.18-00..... 8/7/19
J-50.19-00..... 8/7/19
J-50.20-00..... 6/3/11
J-50.25-00..... 6/3/11
J-50.30-00..... 6/3/11
J-60.05-01..... 7/21/16
J-60.11-00..... 5/20/13
J-60.12-00..... 5/20/13
J-60.13-00..... 6/16/10
J-60.14-01..... 7/31/19
J-75.10-02..... 7/10/15
J-75.20-01..... 7/10/15
J-75.30-02..... 7/10/15
J-75.50-00..... 8/30/22
J-75.55-00..... 8/30/22
J-80.05-00..... 8/30/22
J-80.10-01..... 8/18/21
J-80.12-00..... 8/18/21
J-80.15-00..... 6/28/18
J-81.10-02..... 8/18/21
J-81.12-00..... 9/3/21
J-84.05-00..... 8/30/22
J-86.10-00..... 6/28/18
J-90.10-03..... 6/28/18
J-90.20-03..... 6/28/18
J-90.21-02..... 6/28/18
J-90.50-00..... 6/28/18

2

K-70.20-01..... 6/1/16
K-80.10-02.....9/25/20
K-80.32-00 ..... 8/17/21
K-80.34-00 ..... 8/17/21
K-80.35-01 ..... 9/16/20
K-80.37-01 ..... 9/16/20

3

L-5.10-02 ..... 6/5/24
L-5.15-00 .....9/19/22
L-10.10-02 .....6/21/12
L-20.10-03..... 7/14/15
L-30.10-02..... 6/11/14
L-40.15-01..... 6/16/11
L-40.20-02..... 6/21/12
L-70.10-01..... 5/21/08
L-70.20-01..... 5/21/08

4

M-1.20-04 .....9/25/20
M-1.40-03 .....9/25/20
M-1.60-03 .....9/25/20
M-1.80-03 .....6/3/11
M-2.20-03 .....7/10/15
M-9.60-00..... 2/10/09
M-11.10-04 ..... 8/2/22
M-12.10-04..... 6/28/24
M-15.10-02..... 7/17/23
M-17.10-02..... 7/3/08
M-24.66-00..... 7/11/17
M-40.10-04..... 10/17/23
M-40.20-00..... 10/12/07
M-40.30-01..... 7/11/17
M-40.40-00..... 9/20/07

M-2.21-00 .....7/10/15
M-3.10-04 .....9/25/20
M-3.20-04 ..... 8/2/22
M-3.30-04 .....9/25/20
M-3.40-04 .....9/25/20
M-3.50-03 .....9/25/20
M-5.10-03 .....9/25/20
M-7.50-01 .....1/30/07
M-9.50-02 .....6/24/14
M-20.10-04..... 8/2/22
M-20.20-02..... 4/20/15
M-20.30-05..... 6/28/24
M-20.40-03..... 6/24/14
M-20.50-02..... 6/3/11
M-24.20-02..... 4/20/15
M-24.40-02..... 4/20/15
M-24.60-04..... 6/24/14
M-24.65-00..... 7/11/17
M-40.50-00..... 9/20/07
M-40.60-00..... 9/20/07
M-60.10-01..... 6/3/11
M-60.20-03..... 8/17/21
M-65.10-03..... 8/17/21
M-80.10-01..... 6/3/11
M-80.20-00..... 6/10/08
M-80.30-00..... 6/10/08