

**WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
AMENDMENTS TO THE 2010 STANDARD SPECIFICATIONS BOOK**

Revised: 8/1/11

1 INTRO.AP1

2 **INTRODUCTION**

3 The following Amendments and Special Provisions shall be used in conjunction with the
4 2010 Standard Specifications for Road, Bridge, and Municipal Construction.

5

6

AMENDMENTS TO THE STANDARD SPECIFICATIONS

7

8 The following Amendments to the Standard Specifications are made a part of this contract
9 and supersede any conflicting provisions of the Standard Specifications. For informational
10 purposes, the date following each Amendment title indicates the implementation date of the
11 Amendment or the latest date of revision.

12

13 Each Amendment contains all current revisions to the applicable section of the Standard
14 Specifications and may include references which do not apply to this particular project.

15

16 1-01.AP1

17 **SECTION 1-01, DEFINITIONS AND TERMS**

18 **August 2, 2010**

19 **1-01.2(1) Associations and Miscellaneous**

20 The abbreviation and definition "AREA American Railway Engineering Association" is
21 replaced with the following:

22

23 AREMA American Railway Engineering and Maintenance Association

24

25 1-02.AP1

26 **SECTION 1-02, BID PROCEDURES AND CONDITIONS**

27 **July 11, 2011**

28 **1-02.5 Proposal Forms**

29 The first paragraph is revised to read:

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31 At the request of a prequalified Bidder, the Contracting Agency will provide a physical
32 Proposal Form for any project on which the Bidder is eligible to Bid. For certain projects
33 selected at the sole discretion of the Contracting Agency, the Bidder may also be
34 authorized to access an electronic Proposal Form for submittal via Trns·Port Expedite®
35 software and BidExpress®.

36

37 **1-02.6 Preparation of Proposal**

38 The first paragraph is revised to read:

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40 The Contracting Agency will accept only those Proposals properly executed on physical
41 forms it provides, or electronic forms that the bidder has been authorized to access.
42 Unless it approves in writing, the Contracting Agency will not accept Proposals on forms
43 attached to the Plans and stamped "Informational".

44

45 The second paragraph is revised to read:

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47 All prices shall be in legible figures (not words) written in ink or typed, and expressed in
48 U.S. dollars and cents. The Proposal shall include:

49

- 1 1. A unit price for each item (omitting digits more than four places to the right of
- 2 the decimal point),
- 3
- 4 2. An extension for each unit price (omitting digits more than two places to the
- 5 right of the decimal point), and
- 6
- 7 3. The total Contract price (the sum of all extensions).
- 8

9 In the space provided on the signature sheet, the Bidder shall confirm that all Addenda
10 have been received.

11

12 The third paragraph is revised to read:

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14 The Bidder shall submit with the Bid a completed Disadvantaged Business Enterprises
15 (DBE) Utilization Certification, when required by the Special Provisions. For each and
16 every DBE firm listed on the Bidder's completed DBE Utilization Certification, the Bidder
17 shall submit written confirmation from that DBE firm that the DBE is in agreement with
18 the DBE participation commitment that the Bidder has made in the Bidders completed
19 DBE Utilization Certification. WSDOT Form 422-031 EF (DBE Written Confirmation
20 Document) is available for this purpose. Bidder must submit good faith effort
21 documentation with the DBE Utilization Certification **ONLY In The Event** the bidder's
22 efforts to solicit sufficient DBE participation have been unsuccessful. Directions for
23 delivery of the DBE Written Confirmation Documents and DBE Good Faith Effort
24 documentation are included in Section 1-02.9 Delivery of Proposal and Section 1-02.10
25 Withdrawing, Revising or Supplementing Proposal.

26

27 **1-02.7 Bid Deposit**

28 This section is revised to read:

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30 A deposit of at least 5-percent of the total Bid shall accompany each Bid. This deposit
31 may be cash, certified check, cashier's check, or a proposal bond (Surety bond). For
32 projects that are selected by the Contracting Agency to be bid electronically, the
33 proposal bond may be in either a physical format, or an electronic format via
34 Surety2000.com or Insurevision.com and BidExpress®. When a physical bid deposit or
35 proposal bond is furnished to accompany an electronic Proposal Form, the Bid deposit
36 shall be received by the Contracting Agency at the location specified for receipt of bids
37 prior to the time set for receipt of Bids. Any proposal bond shall be on a form
38 acceptable to the Contracting Agency and shall be signed by the Bidder and the Surety.
39 A proposal bond shall not be conditioned in any way to modify the minimum 5-percent
40 required. The Surety shall: (1) be registered with the Washington State Insurance
41 Commissioner, and (2) appear on the current Authorized Insurance List in the State of
42 Washington published by the Office of the Insurance Commissioner.

43

44 The failure to furnish a Bid deposit of a minimum of 5-percent with the Bid or as a
45 physical supplement to the electronic Proposal Form shall make the Bid nonresponsive
46 and shall cause the Bid to be rejected by the Contracting Agency.

47

48 **1-02.8(2) Lobbying Certification**

49 The last paragraph is revised to read:

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51 The Certification for Federal-Aid Contracts (Form DOT 272-040) may be reproduced
52 from the Proposal form. The disclosure form is available from the Washington State

1 Department of Transportation's Contract Ad & Award Office, Transportation Building,
2 Olympia, Washington 98504.

3
4 **1-02.9 Delivery of Proposal**

5 This section is revised to read:
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7 For projects scheduled for bid opening in Olympia, each Proposal shall be sealed and
8 submitted in the envelope provided with it, or electronically via Trns·Port Expedite®
9 software and BidExpress® at the location and time identified in Section 1-02.12. The
10 Bidder shall fill in all blanks on this envelope to ensure proper handling and delivery.

11
12 For projects scheduled for bid opening in other locations, each Proposal shall be sealed
13 and submitted in the envelope provided with it, at the location and time identified in
14 Section 1-02.12. The Bidder shall fill in all blanks on this envelope to ensure proper
15 handling and delivery.
16

17 The Contracting Agency will not open or consider any Proposal or any supplement to a
18 Proposal that is received after the time specified for receipt of Proposals, or received in
19 a location other than that specified for receipt of Proposals.
20

21 NOTE: Certain documents that are required for an electronic Bid Proposal to be
22 responsive CANNOT be submitted electronically via Trns·Port Expedite®
23 software and BidExpress®. These documents include:
24

- 25 1. DBE Written Confirmation Documents; and,
- 26 2. Good Faith Effort Documentation; and,
- 27 3. Cash, certified checks, cashier's checks, or a proposal bond (Surety
28 bond) in formats other than via Surety2000.com or Insurevision.com.
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32 The Bidder shall provide all documents that are required for an electronic Bid Proposal
33 to be responsive (but cannot be submitted electronically via Trns·Port Expedite®
34 software and BidExpress®) as a supplement to their electronic Bid Proposal in one of
35 the following methods:
36

- 37 1. Physically in a sealed envelope marked as "BID SUPPLEMENT" and bearing
38 the Bidders company name, project title, Bid date, and description of contents
39 (for example: DBE Written Confirmation, DBE Good Faith Efforts, Proposal
40 Deposit, etc.); or,
41
- 42 2. Except for Item #3 above, by facsimile to the following FAX number: (360)
43 705-6966.
44

45 E-mailed submittals are not acceptable. The Contracting Agency is not responsible for
46 delayed, partial, failed, illegible or partially legible FAX document transmissions, and
47 such documents may be rejected as incomplete at the Bidder's risk.
48

49 **1-02.10 Withdrawal or Revision of Proposal**

50 This section including title is revised to read:
51

1 **Withdrawing, Revising, or Supplementing Proposal**

2 After submitting a physical Bid Proposal to the Contracting Agency, the Bidder may
3 withdraw, revise, or supplement it if:

- 4
- 5 1. The Bidder submits a written request signed by an authorized person, and
 - 6
 - 7 2. The Contracting Agency receives the request before the time set for receipt of
 - 8 Proposals.
 - 9

10 The original physical Bid Proposal may be supplemented, or revised and resubmitted as
11 the official Bid Proposal if the Contracting Agency receives it before the time set for
12 receipt of Proposals. Faxed Bid revisions and supplements will be accepted only if they
13 are submitted in accordance with the "Example Format for Facsimile Bid Changes"
14 instructions posted on the WSDOT website at
15 <http://www.wsdot.wa.gov/biz/contaa/bulletin/>.

16

17 E-mailed requests to withdraw, revise or supplement a Proposal are not acceptable.
18 The contracting Agency is not responsible for delayed, partial, failed, illegible or partially
19 legible FAX document transmissions, and such documents may be rejected as
20 incomplete at the Bidders risk.

21

22 The Contracting Agency will not accept requests to revise or withdraw electronic **Bid**
23 **Proposals**. Such requests shall be furnished directly to BidExpress® and in
24 accordance with their terms and conditions.

25

26 **1-02.13 Irregular Proposals**

27 In the first paragraph, Item h beneath item number 1 is revised to read:

- 28
- 29 h. The Bidder fails to submit or properly complete a Disadvantaged Business
 - 30 Enterprise Utilization Certification, if applicable, as required in Section 1-02.6;
 - 31

32 In the first paragraph, item I beneath item number 1 is revised to read:

- 33
- 34 i. The Bidder fails to submit written confirmation from each DBE firm listed on the
 - 35 Bidder's completed DBE Utilization Certification that they are in agreement with the
 - 36 bidders DBE participation commitment, if applicable, as required in Section 1-02.6,
 - 37 or if the written confirmation that is submitted fails to meet the requirements of the
 - 38 Special Provisions;
 - 39

40 Item 1 in the first paragraph is supplemented with the following:

- 41
- 42 j. The Bidder fails to submit DBE Good Faith Effort documentation, if applicable, as
 - 43 required in Section 1-02.6, or if the documentation that is submitted fails to
 - 44 demonstrate that a Good Faith Effort to meet the Condition of Award was made; or
 - 45
 - 46 k. The Bid Proposal does not constitute a definite and unqualified offer to meet the
 - 47 material terms of the Bid invitation.
 - 48

1 1-06.AP1
2 **SECTION 1-06, CONTROL OF MATERIALS**
3 **January 3, 2011**

4 **1-06.1 Approval of Materials Prior to Use**

5 This section is supplemented with the following new sub-section:
6

7 **1-06.1(4) Fabrication Inspection Expense**

8 In the event the Contractor elects to have items fabricated beyond 300 miles from
9 Seattle, Washington the Contracting Agency will deduct from payment due the
10 Contractor costs to perform fabrication inspection on the following items:
11

- 12 • Steel Bridges and Steel Bridge components
- 13 • Cantilever Sign Structures and Sign Bridges
- 14 • Prestressed Concrete Girders and Precast Bridge Components
- 15 • Cylindrical, Disc, Pin, and Spherical Bearings
- 16 • Modular Expansion Joints
- 17 • Epoxy Coated Reinforcing Steel
- 18 • Painted and Powder Coated Luminaire and Signal Poles
- 19 • Additional items as may be determined by the Engineer
20

21 The deductions for fabrication inspection costs will be as shown in the Payment Table
22 below.
23

Zone	Place of Fabrication	Reduction in Payment
1	Within 300 airline miles from Seattle	None
2	Between 300 and 3,000 airline miles from Seattle	\$700.00 per *inspection day
3	Over 3,000 airline miles from Seattle	\$1,000 per *inspection day, but not less than \$2,500 per trip

24 *Note - An inspection day includes any calendar day or portion of a calendar
25 day spent inspecting at or traveling to and from a place of fabrication.
26

27 Where fabrication of an item takes place in more than one zone, the reduction in
28 payment will be computed on the basis of the entire item being fabricated in the furthest
29 of zones where any fabrication takes place on that item.
30

31 The rates for Zone 2 and 3 shall be applied for the full duration time of all fabrication
32 inspection activities to include but not limited to; plant approvals, prefabrication
33 meetings, fabrication, coatings and final inspection.
34

1 **1-06.2(2)A General**
 2 Table 2 “Pay Factors” on page 1-39 is revised to read:
 3

Table 2
Pay Factors

PAY FACTOR	Minimum Required Percent of Work Within Specification Limits for a Given Factor (PU + PL) – 100															
	Category	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10 to n=11	n=12 to n=14	n=15 to n=17	n=18 to n=22	n=23 to n=29	n=30 to n=42	n=43 to n=66	n=67 to ∞
1.05							100	100	100	100	100	100	100	100	100	100
1.04					100	100	99	97	95	96	96	96	97	97	97	97
1.03				100	99	98	96	94	92	93	93	94	95	95	96	96
1.02				99	97	94	91	89	90	91	92	93	93	94	94	94
1.01	100	100	100	98	95	92	89	87	88	89	90	91	92	92	93	93
1.00	69	75	78	80	82	83	84	85	86	87	88	89	90	91	92	92
0.99	66	72	76	78	80	81	82	83	84	85	86	87	89	90	91	91
0.98	64	70	74	76	78	79	80	81	82	84	85	86	87	88	90	90
0.97	63	68	72	74	76	77	78	79	81	82	83	84	86	87	88	88
0.96	61	67	70	72	74	75	76	78	79	81	82	83	84	86	87	87
0.95	59	65	68	71	72	74	75	76	78	79	80	82	83	84	86	86
0.94	58	63	67	69	71	72	73	75	76	78	79	80	82	83	85	85
0.93	57	62	65	67	69	71	72	73	75	76	78	79	80	82	84	84
0.92	55	60	63	66	68	69	70	72	73	75	76	78	79	81	82	82
0.91	54	59	62	64	66	68	69	70	72	74	75	76	78	79	81	81
0.90	53	57	61	63	65	66	67	69	71	72	74	75	77	78	80	80
0.89	51	56	59	62	63	65	66	68	69	71	72	74	75	77	79	79
0.88	50	55	58	60	62	64	65	66	68	70	71	73	74	76	78	78
0.87	49	53	57	59	61	62	63	65	67	68	70	71	73	75	77	77
0.86	48	52	55	58	59	61	62	64	66	67	69	70	72	74	76	76

(Continued)

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Table 2 “Pay Factors” on page 1-40 is revised to read:

Table 2
Pay Factors (continued)

PAY FACTOR	Minimum Required Percent of Work Within Specification Limits for a Given Factor (P _U + P _L) – 100															
	Category	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10 to n=11	n=12 to n=14	n=15 to n=17	n=18 to n=22	n=23 to n=29	n=30 to n=42	n=43 to n=66	n=67 to ∞
0.85	46	51	54	56	58	60	61	62	64	66	67	69	71	72	75	75
0.84	45	49	53	55	57	58	60	61	63	65	66	68	70	71	73	73
0.83	44	48	51	54	56	57	58	60	62	64	65	67	69	70	72	72
0.82	43	47	50	53	54	56	57	59	61	62	64	66	67	69	71	71
0.81	41	46	49	51	53	55	56	58	59	61	63	64	66	68	70	70
0.80	40	44	48	50	52	54	55	56	58	60	62	63	65	67	69	69
0.79	39	43	46	49	51	52	54	55	57	59	61	62	64	66	68	68
0.78	38	42	45	48	50	51	52	54	56	58	59	61	63	65	67	67
0.77	36	41	44	46	48	50	51	53	55	57	58	60	62	64	66	66
0.76	35	39	43	45	47	49	50	52	54	56	57	59	61	63	65	65
0.75	33	38	42	44	46	48	49	51	53	54	56	58	60	62	64	64
REJECT	Values Less Than Those Shown Above															
Reject Quality Levels Less Than Those Specified for a 0.75 Pay Factor																
Note: If the value of (P _U + P _L) - 100 does not correspond to a (P _U + P _L) - 100 value in this table, use the next smaller (P _U + P _L) - 100 value.																

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1-07.AP1
SECTION 1-07, LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC
August 1, 2011

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1-07.2 Sales Tax
 The third sentence in the first paragraph is revised to read:

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The Contractor shall contact the Contract Payment section of the Division of Accounting & Financial Services of the Department of Transportation, Olympia WA for questions on sales tax.

The first sentence in the third paragraph is revised to read:

The Contracting Agency will pay the retained percentage only if the Contractor has obtained from the State Department of Revenue a certificate showing that all Contract-related taxes have been paid (RCW 60.28.051).

1-07.5(3) State Department of Ecology

Item No. 4. in the first paragraph is revised to read:

- 4. Perform Work in such a manner that all materials and substances not specifically identified in the Contract documents to be placed in the water do not enter waters of the State, including wetlands. These include, but are not limited to, petroleum products, hydraulic fluid, fresh concrete, concrete wastewater, process wastewater, slurry materials and waste from shaft drilling, sediments, sediment-laden water, chemicals, paint, solvents, or other toxic or deleterious materials.

1-07.9(1) General

The second sentence in the fourth paragraph is revised to read:

When the project involves highway Work, heavy Work and building Work, the Contract Provisions may list a Federal wage and fringe benefit rate for the highway Work, a separate Federal wage and fringe benefit rate for both the heavy Work and the building Work.

1-07.13(4) Repair of Damage

The last sentence in the first paragraph is revised to read:

For damage qualifying for relief under Sections 1-07.13(1), 1-07.13(2), 1-07.13(3), or 8-17.5, payment will be made in accordance with Section 1-09.4 using the estimated bid item "Reimbursement for Third Party Damage".

1-07.14 Responsibility for Damage

The third, fourth and fifth paragraphs are revised to read:

Subject to the limitations in this section and RCW 4.24.115 the Contractor shall indemnify, defend, and save harmless the State, Governor, Commission, Secretary, and all officers and employees of the State from all claims, suits, or actions brought for injuries to, or death of, any persons or damages resulting from construction of the Work or in consequence of any negligence or breach of contract regarding the Work, or the use of any improper materials in the Work, caused in whole or in part by any act or omission by the Contractor or the agents or employees of the Contractor during performance or at any time before final acceptance. In addition to any remedy authorized by law, the State may retain so much of the money due the Contractor as deemed necessary by the Engineer to ensure indemnification until disposition has been made of such suits or claims.

1 Subject to the limitations in this section and RCW 4.24.115, the Contractor shall
2 indemnify, defend, and save harmless any county, city, or region, its officers, and
3 employees connected with the Work, within the limits of which county, city, or region the
4 Work is being performed, all in the same manner and to the same extent as provided
5 above for the protection of the State, its officers and employees, provided that no
6 retention of money due the Contractor be made by the State except as provided in
7 RCW 60.28, pending disposition of suits or claims for damages brought against the
8 county, city, or district.

9
10 Pursuant to RCW 4.24.115, where such claims, suits, or actions result from the
11 concurrent negligence of (a) the indemnitee or the indemnitee's agents or employees
12 and (b) the Contractor or the Contractor's agent or employees, the indemnity provisions
13 provided in the preceding paragraphs of this section shall be valid and enforceable only
14 to the extent of the Contractor's negligence or the negligence of its agents and
15 employees.

16
17 This section is supplemented with the following:

18
19 THE CONTRACTOR SPECIFICALLY ASSUMES ALL POTENTIAL LIABILITY FOR
20 ACTIONS BROUGHT BY EMPLOYEES OF THE CONTRACTOR AND, SOLELY FOR
21 THE PURPOSE OF ENFORCING THE DEFENSE AND INDEMNIFICATION
22 OBLIGATIONS SET FORTH IN SECTION 1-07.14, THE CONTRACTOR
23 SPECIFICALLY WAIVES ANY IMMUNITY GRANTED UNDER THE STATE
24 INDUSTRIAL INSURANCE LAW, RCW TITLE 51. THIS WAIVER HAD BEEN
25 MUTUALLY NEGOTIATED BY THE PARTIES. THE CONTRACTOR SHALL
26 SIMILARLY REQUIRE THAT EACH SUBCONTRACTOR IT RETAINS IN
27 CONNECTION WITH THE PROJECT COMPLY WITH THE TERMS OF THIS
28 PARAGRAPH, WAIVE ANY IMMUNITY GRANTED UNDER RCW TITLE 51 AND
29 ASSUME ALL LIABILITY FOR ACTIONS BROUGHT BY EMPLOYEES OF THE
30 SUBCONTRACTOR.

31
32 **1-07.15 Temporary Water Pollution/Erosion Control**

33 The fourth paragraph is deleted.

34
35 **1-07.15(1) Spill Prevention, Control and Countermeasures Plan**

36 This section is deleted in its entirety and replaced with the following:

37
38 The Contractor shall prepare and implement a project-specific spill prevention, control,
39 and countermeasures plan (SPCC Plan) for the duration of the project. The Contractor
40 shall submit the plan to the Project Engineer no later than the date of the
41 preconstruction conference. No on-site construction activities may commence until the
42 Contracting Agency accepts an SPCC Plan for the project. SPCC Plan template and
43 guidance information is available at:
44 <http://www.wsdot.wa.gov/Environment/HazMat/SpillPrevention.htm>.

45
46 The SPCC Plan shall address all fuels, petroleum products and hazardous materials, as
47 defined in Chapter 447 of the WSDOT Environmental Procedures Manual (M 31-11).
48 Occupational safety and health requirements that may pertain to SPCC Plan
49 implementation are contained in, but not limited to, WAC 296-824 and WAC 296-843.
50 The SPCC Plan shall address conditions that may be required by Section 3406 of the
51 current International Fire Code, or as approved by the local Fire Marshal.

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Implementation Requirements

The Contractor shall update the SPCC Plan throughout project construction so that the written plan reflects actual site conditions and practices. The Contractor shall update the SPCC Plan at least annually and maintain a copy of the updated SPCC Plan on the project site. The Contractor shall fully implement the SPCC Plan, as accepted and updated, at all times.

SPCC Plan Element Requirements

The SPCC Plan shall set forth the following information in the following order:

1. Responsible Personnel
Identify the names, titles, and contact information for the personnel responsible for implementing and updating the plan and for responding to spills.
2. Spill Reporting
List the names and telephone numbers of the Federal, State, and local agencies the Contractor shall notify in the event of a spill.
3. Project and Site Information
Describe the following items:
 - A. The project Work.
 - B. The site location and boundaries.
 - C. The drainage pathways from the site.
 - D. Nearby waterways and sensitive areas and their distances from the site.
4. Potential Spill Sources
Describe each of the following for all potentially hazardous materials brought or generated on-site (including materials used for equipment operation, refueling, maintenance, or cleaning):
 - A. Name of material and its intended use.
 - B. Estimated maximum amount on-site at any one time.
 - C. Location(s) (including any equipment used below the ordinary high water line) where the material will be staged, used, and stored and the distance(s) from nearby waterways and sensitive areas.
5. Pre-Existing Contamination
Describe any pre-existing contamination and contaminant sources (such as buried pipes or tanks) in the project area that are described in the Contract provisions and Plans. Identify equipment and work practices that shall be used to prevent the release of contamination.
6. Spill Prevention and Response Training

- 1 Describe how and when all project personnel, including refueling personnel
2 and other Subcontractors, shall be trained in spill prevention, containment, and
3 response and in the location of spill response kits.
4
- 5 7. Spill Prevention
6 Describe the following items:
7
- 8 A. The contents and locations of spill response kits that the Contractor
9 shall supply and maintain that are appropriately stocked, located in
10 close proximity to hazardous materials and equipment, and
11 immediately accessible.
12
 - 13 B. Security measures for potential spill sources to prevent accidental
14 spills and vandalism.
15
 - 16 C. Methods used to prevent stormwater from contacting hazardous
17 materials.
18
 - 19 D. Secondary containment for each potential spill source listed in 4,
20 above. Secondary containment structures shall be in accordance
21 with Section S9.D.9 of Ecology's Construction Storm water General
22 NPDES Permit, where secondary containment means placing tanks
23 or containers within an impervious structure capable of containing
24 110% of the volume contained in the largest tank within the
25 containment structure. Double-walled tanks do not require additional
26 secondary containment.
27
 - 28 E. BMP Methods used to prevent discharges to ground or water during
29 mixing and transfers of hazardous materials and fuel. Methods to
30 control pollutants shall use BMPs in accordance with Ecology's
31 Construction Stormwater General NPDES Permit. BMPs guidance is
32 provided in Ecology's Stormwater Management Manuals, such as
33 Volume II – Construction Stormwater Pollution Prevention, BMP C153
34 and Volume IV Source Control BMPs.
35
 - 36 F. Refueling procedures for equipment that cannot be moved from
37 below the ordinary high water line.
38
 - 39 G. Daily inspection and cleanup procedures that ensure all equipment
40 used below the ordinary high water line is free of all external
41 petroleum-based products.
42
 - 43 H. Routine equipment, storage area, and structure inspection and
44 maintenance practices to prevent drips, leaks or failures of hoses,
45 valves, fittings, containers, pumps, or other systems that contain or
46 transfer hazardous materials.
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 - 48 I. Site inspection procedures and frequency.
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- 50 8. Spill Response
51 Outline the response procedures the Contractor shall follow for each scenario
52 listed below, indicating that if hazardous materials are encountered or spilled

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during construction, the Contractor shall do everything possible to control and contain the material until appropriate measures can be taken. Include a description of the actions the Contractor shall take and the specific on-site spill response equipment that shall be used to assess the spill, secure the area, contain and eliminate the spill source, clean up spilled material, decontaminate equipment, and dispose of spilled and contaminated material.

- A. A spill of each type of hazardous material at each location identified in 4, above.
- B. Stormwater that has come into contact with hazardous materials.
- C. A release or spill of any pre-existing contamination and contaminant source described in 5, above.
- D. A release or spill of any unknown pre-existing contamination and contaminant sources (such as buried pipes or tanks) encountered during project Work.
- E. A spill occurring during Work with equipment used below the ordinary high water line.

If the Contractor will use a Subcontractor for spill response, provide contact information for the Subcontractor under item 1 (above), identify when the Subcontractor shall be used, and describe actions the Contractor shall take while waiting for the Subcontractor to respond.

9. Project Site Map

Provide a map showing the following items:

- A. Site location and boundaries.
- B. Site access roads.
- C. Drainage pathways from the site.
- D. Nearby waterways and sensitive areas.
- E. Hazardous materials, equipment, and decontamination areas identified in 4, above.
- F. Pre-existing contamination or contaminant sources described in 5, above.
- G. Spill prevention and response equipment described in 7 and 8, above.

10. Spill Report Forms

Provide a copy of the spill report form(s) that the Contractor shall use in the event of a release or spill.

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Payment

Payment will be made in accordance with Section 1-04.1 for the following bid item when it is included in the Proposal:

“SPCC Plan,” lump sum.

When the written SPCC Plan is accepted by Contracting Agency, the Contractor shall receive 50-percent of the lump sum Contract price for the plan. The remaining 50-percent of the lump sum price will be paid after the materials and equipment called for in the Plan are mobilized to the project.

The lump sum payment for “SPCC Plan” shall be full pay for all costs associated with creating and updating the accepted SPCC Plan, all costs associated with the set up of prevention measures, and implementing the current SPCC Plan as required by this Specification.

As to other costs associated with releases or spills, including restocking spill kits, the Contractor may request payment as provided for in the Contract. No payment shall be made if the release or spill was caused by or resulted from the Contractor’s operations, negligence, or omissions.

1-07.16(2) Vegetation Protection and Restoration

The second paragraph is revised to read:

Damage which may require replacement of vegetation includes torn bark stripping, broken branches, exposed root systems, cut root systems, poisoned root systems, compaction of surface soil and roots, puncture wounds, drastic reduction of surface roots or leaf canopy, changes in grade greater than 6-inches, or any other changes to the location that may jeopardize the survival or health of the vegetation to be preserved.

The third paragraph is revised to read:

When large roots of trees designated to be saved are exposed by the Contractor’s operation, they shall be wrapped with heavy, moist material such as burlap or canvas for protection and to prevent excessive drying. The material shall be kept moist and securely fastened until the roots are covered to finish grade. All material and fastening material shall be removed from the roots before covering. All roots 1-inch or larger in diameter, which are damaged, shall be pruned with a sharp saw or pruning shear. Damaged, torn, or ripped bark shall be removed as designated by the Engineer at no additional cost to the Contracting Agency.

The fourth paragraph is revised to read:

Any pruning activity required to complete the Work as specified shall be performed by a Certified Arborist as designated by the Engineer.

1-07.18 Public Liability and Property Damage Insurance

This section is deleted in its entirety and replaced with the following:

1-07.18 Public Liability and Property Damage Insurance

The Contractor shall obtain and keep in force the following policies of insurance. The policies shall be with companies or through sources approved by the State Insurance

1 Commissioner pursuant to Chapter 48.05, RCW. Unless otherwise indicated below, the
2 policies shall be kept in force from the execution date of the Contract until the date of
3 acceptance by the Secretary ([Section 1-05.12](#)).
4

5 1. Owners and Contractors Protective (OCP) Insurance providing bodily injury and
6 property damage liability coverage with limits of \$3,000,000 per occurrence and,
7 per project, in the aggregate for each policy period, written on Insurance Services
8 Office (ISO) form CG0009 1204, together with Washington State Department of
9 Transportation amendatory endorsement CG 2908 1195, specifying the Contracting
10 Agency, the State, the Governor, the Commission, the Secretary, the Department
11 and all officers and employees of the State as named insured.
12

13 2. Commercial General Liability (CGL) Insurance written under ISO Form CG0001 or
14 its equivalent with minimum limits of \$3,000,000 per occurrence and in the
15 aggregate for each one year policy period. This coverage may be any combination
16 of primary, umbrella or excess liability coverage affording total liability limits of not
17 less than \$3,000,000 per occurrence and in the aggregate. Products and
18 completed operations coverage shall be provided for a period of three years
19 following Substantial Completion of the Work.
20

21 3. Commercial Automobile Liability Insurance providing bodily injury and property
22 damage liability coverage for all owned and nonowned vehicles assigned to or used
23 in the performance of the Work with a combined single limit of not less than \$1,000,
24 000 each occurrence. This coverage may be any combination of primary, umbrella
25 or excess liability coverage affording total liability limits of not less than \$1,000,000
26 per occurrence with the State named as an additional insured or designated
27 insured in connection with the Contractor's Performance of the Contract. If
28 pollutants are to be transported, MCS 90 and CA 99 48 endorsements are required
29 on the Commercial Automobile Liability insurance policy unless in-transit pollution
30 risk is covered under a Pollution Liability insurance policy.
31

32 4. The Contractor shall be Named Insured and the Contracting Agency, the State, the
33 Governor, the Commission, the Secretary, the Department, all officers and
34 employees of the State, and their respective members, directors, officers,
35 employees, agents and consultants (collectively the "Additional Insureds") shall be
36 included as Additional Insureds for all policies and coverages specified in this
37 Section, with the exception of the OCP policy. Said insurance coverage shall be
38 primary and non-contributory insurance with respect to the insureds and the
39 Additional Insureds. Any insurance or self-insurance beyond that specified in this
40 Contract that is maintained by any Additional Insured shall be in excess of such
41 insurance and shall not contribute with it. All insurance coverage required by this
42 Section shall be written and provided by "occurrence-based" policy forms rather
43 than by "claims made" forms.
44

45 All endorsements adding Additional Insureds to required policies shall be issued on
46 (i) form CG 20 10 11 85 or a form deemed equivalent by the Contracting Agency,
47 providing the Additional Insureds with all policies and coverages set forth in this
48 Section, with the exception of the OCP and Commercial Auto policies or (ii) form
49 CA 20 48 or forms deemed equivalent by Contracting Agency, providing the
50 Additional Insureds with all coverage's required under the Commercial Automobile
51 Liability.
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5. The coverage limits to be provided by Contractor for itself and to the Contracting Agency and Additional Insureds pursuant to this section or any Special Provision, shall be on a “per project” aggregate basis with the minimum limits of liability as set forth herein for both general liability and products/completed operations claims. The additional insured coverage required under this Section for products/completed operations claims shall remain in full force and effect for not less than three years following Substantial Completion of the project. If the Contractor maintains, at any time, coverage limits for itself in excess of limits set forth in this Section 1-07.18 or any Special Provision, then those additional coverage limits shall also apply to the Contracting Agency and the Additional Insureds. This includes, but is not limited to, any coverage limits provided under any risk financing program of any description, whether such limits are primary, excess, contingent or otherwise.
 6. All insurance policies and coverage's required under Section 1-07.18 and Section 1-07.10 shall contain a waiver of subrogation against the Contracting Agency , the State, any Additional Insured and their respective departments, agencies, boards, and commissions and their respective officers, officials, agents, and employees for losses arising from Work performed by or on behalf of the Contractor. This waiver has been mutually negotiated by the parties.
 7. Where applicable, the Contractor shall cause each Subcontractor to provide insurance that complies with all applicable requirements of the Contractor-provided insurance as set forth herein, in circumstances where the Subcontractor is not covered by the Contractor-provided insurance. The Contractor shall have sole responsibility for determining the limits of coverage required, if any, to be obtained by Subcontractors, which determination shall be made in accordance with reasonable and prudent business practices. In the event that a Subcontractor is required to add the Contractor as an additional insured pursuant to its contract for Work at the Project, then the Contractor shall also cause each Subcontractor to include the Contracting Agency and the Additional Insureds as additional insureds as well, for primary and non-contributory limits of liability under each Subcontractor's Commercial General Liability, Commercial Automobile Liability and, any other coverage's which may be required pursuant to a “Special Provision”.
 8. Unless specifically noted otherwise in the Contract Documents, the parties to this Contract do not intend by any of the provisions of this Contract to cause the public or any member thereof or any other Person to be a third party beneficiary of the Contract Documents. Nothing in this Contract authorizes anyone not a party to this Contract or a designated third party beneficiary to this Contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of this Contract. It is the further intent of the Contracting Agency and the Contractor in executing the Form of Contract that no individual, firm, corporation or any combination thereof which supplies materials, labor, services, or equipment to the Contractor for the performance of the Work shall become thereby a third party beneficiary of this Contract.

The Contract Documents shall not be construed to create a contractual relationship of any kind between the Contracting Agency and a Subcontractor or any other Person except the Contractor.
 9. The Owners and Contractors Protective Insurance policy shall not be subject to a deductible or contain provisions for a deductible. The Commercial General Liability

1 policy and the Commercial Automobile Liability Insurance policy may, at the
2 discretion of the Contractor, contain such provisions. If a deductible applies to any
3 claim under these policies, then payment of that deductible will be the responsibility
4 of the Contractor, notwithstanding any claim of liability against the Contracting
5 Agency. However in no event shall any provision for a deductible provide for a
6 deductible in excess of \$50,000.00.
7

8 10. With the exception of the Commercial Automobile liability coverage, no policies of
9 insurance required under this Section shall contain an arbitration or alternative
10 dispute resolution clause applicable to disputes between the insurer and its
11 insureds. Any and all disputes concerning (i) terms and scope of insurance
12 coverage afforded by the policies required hereunder and/or (ii) extra contractual
13 remedies and relief which may be afforded policy holders in connection with
14 coverage disputes, shall be resolved in Washington Superior Court, applying
15 Washington law.
16

17 11. Prior to Contract execution, the Contractor shall file with the Department of
18 Transportation, Contract Payment Section, P.O. Box 47420, Olympia, WA 98504-
19 7420, ACORD Form Certificates of Insurance evidencing the minimum insurance
20 coverages required under these Specifications. Within 30 days of being awarded a
21 Contract, the Contractor shall provide the Department with complete copies, which
22 may be electronic copies, of all insurance policies required under this section and
23 any Special Provisions.
24

25 12. The Contractor shall provide written notice to the Engineer of any policy
26 cancellations and provide the Department of Transportation, Contract Payment
27 Section, P.O. Box 47420 Olympia, WA 98504-7420, by U.S Mail, notice of any
28 policy cancellation within two business days of receipt of cancellation.
29

30 13. Failure on the part of the Contractor to maintain the insurance as required, or to not
31 provide certification and copies of the insurance prior to the time specified in
32 subsection 11 above, shall constitute a material breach of Contract upon which the
33 Contracting Agency may, after giving 5-business days notice to the Contractor to
34 correct the breach, immediately terminate the Contract or, at its discretion, procure
35 or renew such insurance and pay any and all premiums in connection therewith,
36 with any sums so expended to be repaid to the Contracting Agency on demand, or
37 at the sole discretion of the Contracting Agency, offset against funds due the
38 Contractor from the Contracting Agency. All costs for insurance, including any
39 payments of deductible amounts, shall be considered incidental to and included in
40 the unit Contract prices and no additional payment will be made.
41

42 1-08.AP1

43 **SECTION 1-08, PROSECUTION AND PROGRESS**

44 **April 4, 2011**

45 **1-08.1 Subcontracting**

46 The second and third sentences in the eighth paragraph are revised to read:
47

48 This Certification shall be submitted to the Project Engineer on WSDOT form 421-023,
49 "Quarterly Report of Amounts Paid as MBE/WBE Participants", quarterly for the State
50 fiscal quarters: January 1 through March 31, April 1 through June 30, July 1 through
51 September 30, October 1 through December 31, and for any remaining portion of a

1 quarter through Physical Completion of the Contract. The report is due 20 calendar days
2 following the fiscal quarter end or 20-calendar days after Physical Completion of the
3 Contract.

4
5 The first sentence in the ninth paragraph is revised to read:

6
7 On all projects funded with both Contracting Agency funds and Federal assistance the
8 Contractor shall submit a "Quarterly Report of Amounts Credited as DBE Participation"
9 on a quarterly basis in which DBE work is accomplished, for every quarter in which the
10 Contract is active or upon completion of the project, as appropriate.

11
12 The last sentence in the ninth paragraph is revised to read:

13
14 When required, this "Quarterly Report of Amounts Credited as DBE Participation" is in
15 lieu of WSDOT form 421-023, "Quarterly Report of Amounts Paid as MBE/WBE
16 Participants".

17
18 **1-08.5 Time for Completion**

19 The last two sentences in the first paragraph are revised to read:

20
21 When any of these holidays fall on a Sunday, the following Monday shall be counted a
22 nonworking day. When the holiday falls on a Saturday, the preceding Friday shall be
23 counted a nonworking day. The days between December 25 and January 1 will be
24 classified as nonworking days.

25
26 Item number 2.c. in the sixth paragraph is revised to read:

27
28 c. Quarterly Reports of Amounts Paid as MBE/WBE Participants, or Quarterly Reports
29 of Amounts Credited as DBE Participation, as required by the Contract Provisions.

30
31 1-09.AP1

32 **SECTION 1-09, MEASUREMENT AND PAYMENT**

33 **August 1, 2011**

34 **1-09.2(1) General Requirement for Weighing Equipment**

35 This section is revised to read:

36
37 Unless specified otherwise, any Highway or Bridge construction materials to be
38 proportioned or measured and paid for by weight shall be weighed on a scale.

39
40 **Scales**

41 Scales shall:

- 42
43 1. be accurate to within 0.5-percent of the correct weight throughout the range of
44 use;
45
46 2. not include spring balances;
47
48 3. include beams, dials, or other reliable readout equipment;
49
50 4. be built to prevent scale parts from binding, vibrating, or being displaced and to
51 protect all working parts and;

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5. be carefully maintained, with bunkers and platforms kept clear of accumulated materials that could cause errors.

Scale Operations

Contractor provided scale operations are defined as operations where a scale is set up by the Contractor specifically for the project and most, if not all, material weighed on the scale is utilized for Contract Work. In this situation, the Contractor shall provide a person to operate the project scale, write tickets, perform scale checks and prepare reports.

Commercial scale operations include the use of established scales used to sell materials to the public on a regular basis. In addition, for the purposes of this specification, all batch, hopper, and belt scales are considered to be commercial scales. When a commercial scale is used as the project scale, the Contractor may utilize a commercial scale operator provided it is at no additional cost to the contracting agency.

In addition, the Contractor shall ensure that:

1. the Engineer is allowed to observe the weighing operation and check the daily scale weight record;
2. scale verification checks are performed at the direction of the Contracting Agency (see Section 1-09.2(5));
3. several times each day, the scale operator records and makes certain the platform scale balances and returns to zero when the load is removed; and
4. test results and scale weight records for each day's hauling operations are provided to the Engineer daily. Unless otherwise approved, reporting shall utilize form 422-027, Scaleman's Daily Report.

Trucks and Tickets

Each truck to be weighed shall bear a unique identification number. This number shall be legible and in plain view of the scale operator. Each vehicle operator shall obtain a weigh or load ticket from the scale operator. The Contracting Agency will provide item quantity tickets for scales that are not self-printing. The Contractor shall provide tickets for self-printing scales. All tickets shall, at a minimum, contain the following information:

1. date of haul;
2. contract number;
3. contract unit Bid item;
4. unit of measure;
5. identification number of hauling vehicle; and
6. weight delivered
 - a. net weight in the case of batch and hopper scales

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- b. gross weight, tare and net weight in the case of platform scales (tare may be omitted if a tare beam is used)
- c. approximate load out weight in the case of belt conveyor scales

The vehicle operator shall deliver the ticket in legible condition to the material receiver at the material delivery point. The material delivery point is defined as the location where the material is incorporated into the permanent Work.

1-09.2(2) Specific Requirements for Batching Scales

In the first paragraph, the last sentence is revised to read:

Batching scales used for Portland Cement concrete or hot mix asphalt shall not be used for batching other materials.

1-09.2(3) Specific Requirements for Platform Scales

In the first paragraph, the last sentence is revised to read:

A tare weight shall be taken of each hauling vehicle at least once daily.

The third paragraph is deleted.

1-09.2(5) Measurement

This section is revised to read:

Scale Verification Checks

The Engineer will verify the accuracy of each batch, hopper or platform scale. The frequency of verification checks will be such that at least one test weekly is performed for each weighed contract item of work being performed during that week.

Verification checks may not be routinely conducted for weighed material, who's proposal quantity multiplied by the unit bid price, has a value less than \$20,000.

The verification will consist of one of the following methods and be at the Contractor's option:

1. Weigh a loaded truck on a separate certified platform scale designated by the Contractor, for the purpose of scale verification.
2. Weigh a vehicle that weighs at least 10,000 pounds on a separate certified scale and then check the project scale with it.
3. Establish a certified fixed load weighing at least 10,000 pounds as a check-weight. The certification shall consist of an affidavit affirming the correct weight of the fixed load.

Should the scale verification check reveal a weight difference of more than 0.5-percent, a second scale verification check shall be performed immediately. If the weight differences of both comparison checks exceed the 0.5-percent limit and the scale has been over weighing, the Contractor shall immediately stop weighing and the scale shall be recertified at the Contractor's expense. If the weight difference of both comparison

1 checks exceed the 0.5-percent limit and the scale is under weighing, it shall be adjusted
2 immediately. The Contractor will not be compensated for any loss from under weighing.

3 4 ***Belt Scales***

5 To test the accuracy of a belt-conveyor scale, the Contractor shall weigh five or more
6 payloads from sequential hauling units and compare these weights with weights of the
7 same payloads taken on a separate certified platform scale. If the test results fluctuate,
8 the Engineer may require more than five check loads. Conveyor weights will be based
9 on tonnage values taken from the sealed odometer at the beginning and end of each
10 check period.

11
12 If scale verification checks show the scale has been under weighing, it shall be adjusted
13 immediately. The Contractor will not be compensated for any loss from under weighing.

14
15 If scale verification checks show the scale has been overweighing, its operation will
16 cease immediately until adjusted.

17 18 ***Minor Construction Items***

19 If the specifications and plans require weight measurement for minor construction items,
20 the Contractor may request permission to convert volume to weight. If the Engineer
21 approves, an agreed factor may be used to make this conversion and volume may be
22 used to calculate the corresponding weight for payment.

23 24 **1-09.2(6) Payment**

25 This section is revised to read:

26
27 Unless specified otherwise the Contracting Agency will pay for no materials received by
28 weight unless they have been weighed as required in this section or as required by
29 another method the Engineer has approved in writing.

30
31 The Contractor shall not be compensated for any loss from under weighing that is
32 revealed by scale verification checks.

33
34 If scale verification checks reveal that the scale is over weighing, then payment for all
35 material weighed since the last valid scale verification check will be adjusted. The
36 contracting agency will calculate the combined weight of all materials weighed after the
37 last verification check showing accurate results. This combined weight will then be
38 reduced for payment by the percentage of scale error that exceeds 0.5-percent unless
39 the Contractor demonstrates to the satisfaction of the Engineer that the defect in the
40 scale was present for a lesser period of time.

41
42 Unit contract prices for the various pay items of the project cover all costs related to
43 weighing and proportioning materials for payment. These costs include but are not
44 limited to:

- 45
46 • furnishing, installing, certifying, and maintaining scales;
- 47
48 • providing a weigher to operate a Contractor provided scale;
- 49
50 • providing a weigher to operate a commercial scale, if necessary;
- 51
52 • providing self-printing tickets, if necessary;

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- rerouting a truck for verification weighing;
- assisting the Engineer with scale verification checks;
- any other related costs associated with meeting the requirements of this section.

1-09.9 Payments

The first paragraph is revised to read:

The basis of payment will be the actual quantities of Work performed according to the Contract and as specified for payment.

The Contractor shall submit a breakdown of the cost of lump sum Items to enable the Project Engineer to determine the Work performed on a monthly basis. Lump sum item breakdowns shall be submitted prior to the first progress payment that includes payment for the Bid Item in question. A breakdown is not required for lump sum items that include a basis for incremental payments as part of the respective Specification. Absent a lump sum breakdown the Project Engineer will make a determination based on information available. The Project Engineer's determination of the cost of work shall be final.

In the third paragraph, the second sentence is deleted.

1-09.11(1)A Disputes Review Board Membership

This section is supplemented with the following new paragraph:

The Contracting Agency and Contractor shall indemnify and hold harmless the Board Members from and against all claims, damages, losses and expenses, including but not limited to attorney's fees arising out of and resulting from the actions and recommendations of the Board.

1-10.AP1

SECTION 1-10, TEMPORARY TRAFFIC CONTROL

April 4, 2011

In Division 1-10, all references to "truck mounted" are revised to read "transportable".

1-10.1 General

The following sentence is inserted at the beginning of this section:

Temporary traffic control refers to the control of all types of traffic, including vehicles, bicyclists, and pedestrians (including pedestrians with disabilities).

1-10.2(1)A Traffic Control Management

Item number 2. in the first paragraph is revised to read:

2. Providing the Contractor's designated TCS with approved Traffic Control Plans (TCPs) which are compatible with the Work operations and traffic control for which they will be implemented. Having the latest adopted edition of the Manual On Uniform Traffic Control Devices for Streets and Highways (MUTCD,) including the

1 Washington State Modifications to the MUTCD, the most current edition of the
2 Public Rights-Of-Way Accessibility Guidelines (PROWAG), and applicable
3 standards and Specifications available at all times on the project.
4

5 **1-10.2(1)B Traffic Control Supervisor**

6 Item number 1. in the third paragraph is revised to read:
7

- 8 1. Having a current set of approved traffic control plans (TCPs), applicable Contract
9 Provisions as provided by the Contractor, the latest adopted edition of the MUTCD,
10 including the Washington State Modifications to the MUTCD, the book Quality
11 Guidelines for Temporary Work Zone Traffic Control Devices, the most current
12 edition of the PROWAG, and applicable standards and Specifications.
13

14 The third paragraph is supplemented with the following:
15

- 16 7. Ensuring that all pedestrian routes or access points, existing or temporary, are kept
17 clear and free of obstructions and that all temporary pedestrian routes or access
18 points are detectable and accessible to persons with disabilities as provided for in
19 the approved Plans.
20

21 **1-10.2(2) Traffic Control Plans**

22 The second paragraph is revised to read:
23

24 When the Contractor's chosen method of performing the Work in the Contract requires
25 some form of temporary traffic control for vehicles, bicyclists, or pedestrians, the
26 Contractor shall either: (1.) designate and adopt, in writing, the traffic control plan or
27 plans from the Contract documents that support that method; or (2.) submit a
28 Contractor's plan that modifies, supplements or replaces a plan from the Contract
29 documents. Any Contractor-proposed modification, supplement or replacement shall
30 show the necessary construction signs, flaggers, spotters and other traffic control
31 devices required to support the Work. Any Contractor-proposed traffic control plan shall
32 conform to the established standards for plan development as shown in the MUTCD,
33 Part 6 and the most current edition of the PROWAG. The Contractor's submittal, either
34 designating and adopting a traffic control plan from the Contract documents or
35 proposing a Contractor-developed plan, shall be provided to the Engineer for approval
36 at least 10-calendar days in advance of the time the signs and other traffic control
37 devices are scheduled to be installed and utilized. The Contractor shall be solely
38 responsible for submitting any proposed traffic control plan or modification, obtaining the
39 Engineer's approval and providing copies of the approved Traffic Control Plans to the
40 Traffic Control Supervisor.
41

42 **1-10.2(3) Conformance to Established Standards**

43 The reference "(TMA's)" in the paragraph that starts with "Category 3" is deleted.
44

45 The first paragraph is revised to read:
46

47 Flagging, signs, and all other traffic control devices and procedures furnished or
48 provided shall conform to the standards established in the latest WSDOT adopted
49 edition of the Manual On Uniform Traffic Control Devices for Streets and Highways
50 (MUTCD,) published by the U.S. Department of Transportation and the Washington
51 State Modifications to the MUTCD and the most current edition of the Public Rights-Of-
52 Way Accessibility Guidelines (PROWAG). Judgment of the quality of devices furnished

1 will be based upon Quality Guidelines for Temporary Traffic Control Devices, published
2 by the American Traffic Safety Services Association. Copies of the MUTCD and Quality
3 Guidelines for Temporary Control Devices may be purchased from the American Traffic
4 Safety Services Association, 15 Riverside Parkway, Suite 100, Fredericksburg, Virginia
5 22406-1022. The Washington State Modifications to the MUTCD may be obtained from
6 the Department of Transportation, Olympia, Washington 98504. The most current
7 edition of the Public Rights-Of-Way Accessibility Guidelines (PROWAG) can be
8 downloaded from the United States Access Board web site ([www. access-board.gov](http://www.access-board.gov)).
9

10 **1-10.3(1) Traffic Control Labor**

11 The first paragraph is revised to read:

12

13 The Contractor shall furnish all personnel for flagging, spotting, for the execution of all
14 procedures related to temporary traffic control and for the setup, maintenance and
15 removal of all temporary traffic control devices and construction signs necessary to
16 control vehicular, bicycle, and pedestrian traffic during construction operations.
17

18 **1-10.3(2)C Lane Closure Setup/Takedown**

19 Item number 1 in the first paragraph is revised to read:

20

- 21 1. If the Plans show a portable changeable message sign, it shall be established in
22 advance of the operation; far enough back to provide warning of both the operation
23 and any queue of traffic that has formed during the operation.
24

25 In the second paragraph, the reference to "TMA/arrow board" is revised to read
26 "transportable attenuator/arrow board".
27

28 **1-10.3(3) Traffic Control Devices**

29 The following paragraph is inserted at the beginning of this section:

30

31 Traffic control devices, including signs, furnished or provided shall conform to the
32 standards established in the latest WSDOT adopted edition of the Manual On Uniform
33 Traffic Control Devices for Streets and Highways (MUTCD,) published by the U.S.
34 Department of Transportation and the Washington State Modifications to the MUTCD.
35 Requirements for pedestrian traffic control devices are addressed in the MUTCD.
36

37 **1-10.3(3)A Construction Signs**

38 In the fourth paragraph "height" is replaced with "top of the ballast".
39

40 **1-10.3(3)J Truck Mounted Attenuator**

41 The title for this section is revised to read:

42

43 **1-10.3(3)J Transportable Attenuator**

44

45 In the second and fourth paragraphs, the references to "TMA" are revised to read
46 "Transportable Attenuator".
47

48 In the first paragraph, the first sentence is revised to read:
49

1 Where shown on an approved traffic control plan or where ordered by the Engineer, the
2 Contractor shall provide, operate, and maintain transportable impact attenuators as
3 required in Section 9-35.12.
4

5 In the third paragraph, the reference to "truck's" is revised to read "host vehicle's".
6

7 **1-10.4(2) Item Bids with Lump Sum for Incidentals**

8 All references to "Truck Mounted Impact Attenuator(s)" are revised to read "Transportable
9 Attenuator(s)".
10

11 In the eighth paragraph, the first sentence is revised to read:
12

13 "Transportable Attenuator" will be measured per each one time only for each host
14 vehicle with mounted or attached impact attenuator used on the project.
15

16 In the last sentence of the ninth paragraph, the reference to "TMA" is replaced with
17 "transportable attenuator".
18

19 This Section is supplemented with the following:
20

21 No specific unit of measurement will apply to the lump sum item of "Pedestrian Traffic
22 Control."
23

24 **1-10.5(2) Item Bids with Lump Sum for Incidentals**

25 All references to "truck mounted impact attenuator(s)" are revised to read "transportable
26 attenuator(s)".
27

28 This Section is supplemented with the following:
29

30 "Pedestrian Traffic Control", lump sum.

31 The lump sum Contract payment shall be full compensation for all costs of labor and
32 materials incurred by the Contractor in performing pedestrian traffic control Contract
33 Work defined in Section 1-10.
34

35 2-01.AP2

36 **SECTION 2-01, CLEARING, GRUBBING, AND ROADSIDE CLEANUP**

37 **April 5, 2010**

38 **2-01.3(2) Grubbing**

39 In the first paragraph Item 2. e. is revised to read:
40

41 e. Upon which embankments will be placed except stumps may be close-cut or
42 trimmed as allowed in Section 2-01.3(1) item 3.
43

44 2-02.AP2

45 **SECTION 2-02, REMOVAL OF STRUCTURES AND OBSTRUCTIONS**

46 **January 4, 2010**

47 **2-02.3 Construction Requirements**

48 The fourth paragraph is revised to read:
49

1 The Contractor may dispose of waste material in Contracting Agency owned sites if the
2 Special Provisions or the Engineer permits it. Otherwise, the Contractor shall arrange
3 to dispose of waste at no expense to the Contracting Agency and the disposal shall
4 meet the requirements of Section 2-03.3(7)C.

5
6 2-09.AP2

7 **SECTION 2-09, STRUCTURE EXCAVATION**
8 **January 3, 2011**

9 **2-09.3(1)E Backfilling**

10 The sixth paragraph is revised to read:

11

12 The water/cement ratio shall be calculated on the total weight of cementitious material.
13 Cementitious materials are those listed in Section 5-05.2.

14

15 **2-09.3(2) Classification of Structure Excavation**

16 Item number 1 is revised to read:

17

18 1. **Class A.** Structure excavation required for bridge and retaining wall footings,
19 geosynthetic retaining wall footings, structural earth walls and sign structure
20 footings, pile or drilled shaft caps, seals, wingwall footings, detention vaults, and
21 noise barrier wall footings shall be classified as Structure excavation Class A. If the
22 excavation requires a cofferdam, structural shoring, or extra excavation, the work
23 outside the neat lines of the Structure excavation Class A shall be classified as
24 shoring or extra excavation Class A.

25

26 **2-09.3(3)D Shoring and Cofferdams**

27 The 14th paragraph is revised to read:

28

29 If soldier piles are placed in drilled holes, and lagging is installed concurrently with the
30 excavation, all backfill above the bottom of the lagging shall consist of controlled density
31 fill or lean concrete. Backfill below the bottom of the lagging may consist of pea gravel.
32 If full-height steel sheet lagging is installed prior to excavation, soldier pile holes may be
33 backfilled with pea gravel.

34

35 **2-09.4 Measurement**

36 The second sentence in the second paragraph, "**Horizontal Limits**", is supplemented with
37 the following:

38

39 (4) more than 1-foot outside the perimeter of the soil reinforcement area for
40 geosynthetic and structural earth walls.

41

42 3-01.AP3

43 **SECTION 3-01, PRODUCTION FROM QUARRY AND PIT SITES AND**
44 **STOCKPILING**
45 **August 1, 2011**

46 **3-01.4(4) Gravel Base**

47 The second paragraph is deleted.

48

1 4-02.AP4
2 **SECTION 4-02, GRAVEL BASE**
3 **August 1, 2011**

4 **4-02.4 Measurement**

5 This section is revised to read:

6
7 Gravel base will be measured in the same manner prescribed for the measurement of
8 crushed surfacing materials as set forth in Section 4-04.4.
9

10 5-01.AP5
11 **SECTION 5-01, CEMENT CONCRETE PAVEMENT REHABILITATION**
12 **August 1, 2011**

13 **5-01.2 Materials**

14 The referenced section for the following item is revised to read:

15
16 Dowel Bars 9-07.5(1)
17

18 **5-01.3(4) Replace Portland Cement Concrete Panel**

19 The thirteenth paragraph is revised to read:

20
21 The tie bar and dowel bar holes shall be blown clean with compressed air before
22 grouting. The bar shall be centered in the hole and all voids around the bar completely
23 filled with grout. Dams, if needed, shall be placed at the front of the holes to confine the
24 grout and center the bars in the holes. The dams shall permit the escape of air without
25 leaking grout and shall not be removed until grout has cured in the hole.
26

27 **5-01.3(6) Dowel Bar Retrofit**

28 The eighth paragraph is revised to read:

29
30 The chair design shall hold the dowel bar tightly in place during placement of the
31 concrete patching material. If the transverse joint or crack is open ¼-inch or more, the
32 Contractor shall caulk the transverse joint or crack at the bottom and sides of the slot as
33 shown in the Plans immediately prior to placement of the dowel bar and concrete
34 patching material. The caulking filler shall not be placed any farther than ½-inch outside
35 either side of the joint or crack. The transverse joint or crack shall be caulked sufficiently
36 to satisfy the above requirements and to prevent any of the patching material from
37 entering the joint/crack at the bottom or sides of the slot.
38

39 The last paragraph is deleted.

40
41 **5-01.3(9) Portland Cement Concrete Pavement Grinding**

42 The third sentence in the first paragraph is revised to read:

43
44 Grind one pass along the edge adjacent to Portland Cement Concrete Pavement
45 (PCCP) placed in accordance with Section 5-05, before the PCCP is placed.
46

47 The second sentence in the second paragraph is deleted.
48

1 5-02.AP5
2 **SECTION 5-02, BITUMINOUS SURFACE TREATMENT**
3 **August 1, 2011**

4 **5-02.3(3) Application of Asphalt Emulsion and Aggregate**
5 The following row is deleted from the table titled, "Application Rate":
6

3/8-inch – No. 10	0.20-0.40	3/8- No. 10	18-30
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7
8 **5-02.5 Payment**

9 The following pay item and related statements are deleted:

10
11 "Asphalt Emulsion Price Adjustment", by calculation.
12

13 5-04.AP5
14 **SECTION 5-04, HOT MIX ASPHALT**
15 **August 1, 2011**

16 **5-04.3(5)E Pavement Repair**

17 The third sentence in the second paragraph is revised to read:

18
19 The minimum width of any pavement repair area shall be 40-inches unless shown
20 otherwise in the Plans.
21

22 **5-04.3(7)A1 General**

23 This section is revised to read:

24
25 The Contractor shall develop a mix design prior to the initial production of HMA and
26 prior to the production of HMA each calendar year thereafter. The mix design aggregate
27 structure and asphalt binder content shall be determined in accordance with Materials
28 Manual WSDOT Standard Operating Procedure No. 732 and meet the requirements of
29 Sections 9-03.8(2) and 9-03.8(6). Mix designs that were developed during the calendar
30 year prior to the current year's production of HMA that have been issued a WSDOT mix
31 design/anti-strip evaluation report will be accepted provided the Contractor submits a
32 certification letter stating that the aggregate and asphalt binder have not changed.
33 Changes to aggregate that may require a new mix design include the source of material
34 or a change in the percentage of material from a stockpile greater than 5-percent. The
35 Contractor may vary the RAP percentage in accordance with Section 5-04.2. Changes
36 to the percentage of material from a stockpile will be calculated exclusive of the RAP
37 content. Changes to asphalt binder that may require a new mix design include the
38 source of the crude petroleum supplied to the refinery, the refining process, and
39 additives or modifiers in the asphalt binder.
40

41 **5-04.3(7)A2 Statistical or Nonstatistical Evaluation**

42 The second paragraph is revised to read:

43
44 The Contractor shall submit representative samples of the mineral materials that are to
45 be used in the HMA production. The Contracting Agency will use these samples to
46 determine anti-strip requirements, if any, in accordance with WSDOT test method T 718.
47 Anti-strip evaluation of HMA mix designs proposed by the Contractor that include RAP

1 will be completed without the inclusion of the RAP. Submittal of RAP samples is not
2 required. A mix design/anti-strip evaluation report will be provided within 25-calendar
3 days after a mix design submittal has been received in the State Materials Laboratory in
4 Tumwater. No paving shall begin prior to issuance of the mix design/anti-strip evaluation
5 report or reference mix design/anti-strip evaluation report for that year.
6

7 **5-04.3(7)A3 Commercial Evaluation**

8 The first sentence in the second paragraph is revised to read:
9

10 Anti-strip evaluation of the mix design by the Contracting Agency is not required.
11

12 **5-04.3(8)A1 General**

13 The second sentence in the second paragraph is revised to read:
14

15 Statistical evaluation will be used for a class of HMA with the same PG grade of asphalt
16 binder, when the Proposal quantities exceed 4,000-tons.
17

18 The third paragraph is revised to read:
19

20 Nonstatistical evaluation will be used for the acceptance of HMA when the Proposal
21 quantities for a class of HMA, with the same PG grade of asphalt binder, are 4,000-tons
22 or less.
23

24 **5-04.3(8)A4 Definition of Sampling Lot and Sublot**

25 The first sentence in the first paragraph is revised to read:
26

27 A lot is represented by randomly selected samples of the same mix design that will be
28 tested for acceptance with a maximum of 15 sublots per lot; the final lot for a mix design
29 may be increased to 25 sublots
30

31 **5-04.3(10)A General**

32 The first paragraph is revised to read:
33

34 Immediately after the HMA has been spread and struck off, and after surface
35 irregularities have been adjusted, the mix shall be thoroughly and uniformly compacted.
36 The completed course shall be free from ridges, ruts, humps, depressions,
37 objectionable marks, checking, cracking and irregularities and shall conform to the line,
38 grade, and cross-section shown in the Plans. If necessary, the JMF may be altered in
39 accordance with Section 9-03.8(7) to achieve desired results.
40

41 The third paragraph is revised to read:
42

43 The type of rollers to be used and their relative position in the compaction sequence
44 shall generally be the Contractor's option, provided the specified densities are attained.
45 An exception shall be that pneumatic tired rollers shall be used for compaction of the
46 wearing course beginning October 1st of any year through March 31st of the following
47 year. Unless the Project Engineer has approved otherwise, rollers shall only be
48 operated in the static mode when the internal temperature of the mix is less than 175°F.
49 Rollers shall only be operated in static mode on bridge decks.
50

51 **5-04.3(10)B1 General**

52 The first sentence in the second paragraph is revised to read:

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A lot is represented by randomly selected samples of the same mix design that will be tested for acceptance with a maximum of 15 sublots per lot; the final lot for a mix design may be increased to 25 sublots.

5-04.3(10)B4 Test Results

The first paragraph is revised to read:

The nuclear moisture-density gauge results of all compaction acceptance testing and the CPF of the lot after three sublots have been tested will be available to the Contractor through WSDOT's website. Determination of the relative density of the HMA with a nuclear moisture-density gauge requires a correlation factor determined in accordance with WSDOT SOP 730 and may require resolution after the correlation factor is known. When a core is taken for gauge correlation at the location of a subplot the relative density of the core will be used for the subplot test result and is exempt from challenge testing. Acceptance of HMA compaction will be based on the statistical evaluation and CPF so determined.

5-04.3(11)D Lots and Sublots

The following new sub-section is inserted at the beginning of this section:

5-04.3(11)D1 General

HMA that has been rejected is subject to the requirements in Section 1-06.2(2) and the Contractor shall submit a proposal to the Project Engineer for approval. When a lot has been rejected and the Contractor's written request for the entire lot to remain in place in accordance with Section 1-06.2(2)B Paragraph 1, Item 3 has been approved the HMA will be accepted and the designated percentage reduction shall be 25-percent.

5-04.3(11)D1 A Partial Sublot

This sections number is revised to read:

5-04.3(11)D2

5-04.3(11)D2 An Entire Sublot

This sections number is revised to read:

5-04.3(11)D3

5-04.3(11)D3 A Lot in Progress

This sections number is revised to read:

5-04.3(11)D4

5-04.3(11)D4 An Entire Lot

The last sentence is deleted.

This sections number is revised to read:

5-04.3(11)D5

1 5-05.AP5
2 **SECTION 5-05, CEMENT CONCRETE PAVEMENT**
3 **August 1, 2011**

4 **5-05.2 Materials**

5 This section is supplemented with the following:

6
7 Cementitious Materials are considered to be the following: portland cement, blended
8 hydraulic cement, fly ash, ground granulated blast-furnace slag, microsilica fume, and
9 metakaolin.

10

11 **5-05.3(1) Concrete Mix Design For Paving**

12 In number 1., the second sentence in the fourth paragraph is revised to read:

13

14 Cementitious materials are those listed in Section 5-05.2.

15

16 In number 3.c., the last paragraph is deleted.

17

18 **5-05.3(4)A Acceptance of Portland Cement Concrete Pavement**

19 All references to "AASHTO T 22" are revised to read "WSDOT FOP for AASHTO T 22".

20

21 In the fifth paragraph "WAQTC FOP for TM 2" is revised to read "WAQTC TM 2".

22

23 The eighth paragraph is revised to read:

24

25 Acceptance testing for compliance of air content and 28-day compressive strength shall
26 be conducted from samples prepared according to WSDOT FOP for WAQTC TM 2. Air
27 content shall be determined by conducting WSDOT FOP for WAQTC /AASHTO T 152.
28 Compressive Strength shall be determined by WSDOT FOP for AASHTO T 23 and
29 WSDOT FOP for AASHTO T 22.

30

31 Under the heading "**Statistical Acceptance**", the second paragraph is revised to read:

32

33 The Specification limits as defined in Section 1-06.2(2)D shall be as follows. The lower
34 Specification limit for Air Content shall be 3-percent, and the upper Specification limit for
35 Air Content shall be 7-percent. The lower Specification limit for compressive strength
36 shall be 4000-psi.

37

38 Under the heading "**Non-Statistical Acceptance**", the first paragraph is revised to read:

39

40 Concrete will be accepted based on conformance to the requirement for air content and
41 the compressive strength at 28-days for sublots as tested and determined by the
42 Contracting Agency. The lower Specification limit for air content shall be 3-percent, and
43 the upper Specification limit for air content shall be 7-percent. The lower Specification
44 limit for compressive strength shall be 4000-psi.

45

46 **5-05.3(11) Finishing**

47 The first sentence in the third paragraph is revised to read:

48

49 On projects requiring less than 1000-square yards of cement concrete pavement,
50 irregular areas, or areas not accessible to slip form pavers, the surface finish may be

1 either longitudinal tining or be given a final finish surface by texturing with a comb
2 perpendicular to the centerline of the pavement.
3
4 The fourth sentence in the third paragraph is deleted.
5
6 The last sentence in the third paragraph is revised to read:
7
8 Regardless of the surface finish, if the pavement has a raised curb without a formed
9 concrete gutter, the texturing shall end 2-feet from the curb line.
10
11 This section is supplemented with the following two new paragraphs:
12
13 The standard method of surface finish shall be longitudinal tining. In advance of curing
14 operations, where longitudinal tining is required, the pavement shall be given an initial
15 and a final texturing. Initial texturing shall be performed with a burlap drag or broom
16 device that will produce striations parallel with centerline. Final texturing shall be
17 performed with a spring steel tine device that will produce grooves parallel with the
18 centerline. The spring steel tine device shall be operated within 5-inches, but not closer
19 than 3-inches, of pavement edges.
20
21 Burlap drags, brooms and tine devices shall be installed on self-propelled equipment
22 having external alignment control. The installation shall be such that when texturing, the
23 area of burlap in contact with the pavement surface shall be maintained constant at all
24 times. Broom and tine devices shall be provided with positive elevation control.
25 Downward pressure on pavement surface shall be maintained at all times during
26 texturing so as to achieve uniform texturing without measurable variations in pavement
27 profile. Self-propelled texturing machines shall be operated so that travel speed when
28 texturing is maintained constant. Failure of equipment to conform to all provisions in
29 this paragraph shall constitute cause for stopping placement of concrete until the
30 equipment deficiency or malfunction is corrected. Spring steel tines of the final texturing
31 device shall be rectangular in cross section, $\frac{3}{32}$ to $\frac{1}{8}$ inch wide, on $\frac{3}{4}$ inch centers, and
32 of sufficient length, thickness and resilience to form grooves approximately $\frac{3}{16}$ inch
33 deep in the fresh concrete surface. Final texture shall be uniform in appearance with
34 substantially all of the grooves having a depth between $\frac{1}{16}$ inch and $\frac{5}{16}$ inch.
35
36 **5-05.3(12) Surface Smoothness**
37 The first paragraph is revised to read:
38
39 The pavement smoothness will be checked with equipment furnished and operated by
40 the Contractor, under supervision of the Engineer, within 48-hours following placement
41 of concrete. Smoothness of all pavement placed except Shoulders, ramp tapers,
42 intersections, tight horizontal curves, and small or irregular areas as defined by Section
43 5-05.3(3) unless specified otherwise, will be measured with a recording profilograph, as
44 specified in Section 5-05.3(3), parallel to centerline, from which the profile index will be
45 determined in accordance with WSDOT Test Method 807. Tight horizontal curves are
46 curves having a centerline radius of curve less than 1,000 feet and pavement within the
47 superelevation transition of those curves.
48
49 **5-05.3(13)A Curing Compound**
50 The tenth paragraph is deleted.
51

1 **5-05.3(16) Protection of Pavement**

2 All references to "AASHTO T 22" are revised to read "WSDOT FOP for AASHTO T 22".

3

4 **5-05.3(17) Opening to Traffic**

5 All references to "AASHTO T 22" are revised to read "WSDOT FOP for AASHTO T 22".

6

7 6-01.AP6

8 **SECTION 6-01, GENERAL REQUIREMENTS FOR STRUCTURES**

9 **August 1, 2011**

10 **6-01.6 Load Restrictions on Bridges Under Construction**

11 In the first paragraph "roadway deck" is deleted and replaced with "bridge deck".

12

13 **6-01.8 Approaches to Movable Spans**

14 In the first paragraph "roadway" is deleted and replaced with "bridge deck".

15

16 **6-01.13 Architectural Features**

17 This section including title is revised to read:

18

19 **6-01.13 Vacant**

20

21 **6-01.14 Premolded Joint Filler**

22 The last sentence in the second paragraph is revised to read:

23

24 This adhesive, however, shall be compatible with the material specified in Section 9-
25 04.1(2) and capable of bonding the filler to Portland cement concrete.

26

27 6-02.AP6

28 **SECTION 6-02, CONCRETE STRUCTURES**

29 **August 1, 2011**

30 In Division 6-02, all references to "roadway slab", "roadway deck" and "deck slab" are
31 deleted and replaced with "bridge deck".

32

33 **6-02.2 Materials**

34 In the first paragraph, the following item is inserted after the item "Microsilica Fume":

35

36 Metakaolin 9-23.12

37

38 **6-02.3(1) Classification of Structural Concrete**

39 The first paragraph is deleted and replaced with the following two new paragraphs:

40

41 The class of concrete to be used shall be as noted in the Plans and these
42 Specifications. The Class includes the specified minimum compressive strength in psi at
43 28 days (numerical class) and may include a letter suffix to denote structural concrete
44 for a specific use. Letter suffixes include A for bridge approach slabs, D for bridge
45 decks, P for piling and shafts, and W for underwater. The numerical class without a
46 letter suffix denotes structural concrete for general purposes.

47

- 1 Concrete of a numerical class greater than 4000 shall conform to the requirements
 2 specified for either Class 4000 (if general purpose) or for the appropriate Class 4000
 3 with a letter suffix, as follows:
 4
 5 1. Mix ingredients and proportioning specified in Section 6-02.3(2) and Section 6-
 6 02.3(2)A.
 7
 8 2. Consistency requirements specified in Section 6-02.3(4)C.
 9
 10 3. Curing requirements specified in 6-02.3(11).
 11

12 **6-02.3(2) Proportioning Materials**

13 The table following the third paragraph is revised to read:

14
 15 Table 2 Cementitious Requirement for Concrete
 16

Class of Concrete	Minimum Cementitious Content (lbs)	Minimum % replacement of fly as for portland cement	Maximum % replacement of fly ash for portland cement	Maximum % replacement of ground granulated blast furnace slag for portland cement
4000	564	*	35	40
4000A	564	*	20	30
4000D	660	10	20	30
4000P	600	15	35	40
4000W	564	*	35	40
3000	564	*	35	40
Commercial Concrete	**564	*	35	40
Pumpable Lean Concrete	*	*	***	***
Lean Concrete	140 - 200	*	35	40

- 17
 18 * No minimum specified
 19 ** For Commercial Concrete the minimum cementitious content is only required for
 20 sidewalks, curbs and gutters
 21 *** No maximum specified
 22

23 The fifth paragraph is revised to read:

24
 25 The water/cement ratio shall be calculated on the total weight of cementitious material.
 26 Cementitious materials are those listed in Section 5-05.2. With the Engineers written
 27 approval microsilica fume and metakaolin can be used in all classifications of Class
 28 4000, Class 3000 and commercial concrete and is limited to a maximum of 10% of the
 29 cementitious material.
 30

- 1 **6-02.3(2)A Contractor Mix Design**
2 The fourth, fifth and sixth sentences of the first paragraph are deleted and replaced with the
3 following sentence:
4
5 All proposed concrete mix shall meet the requirements of Table 2 Cementitious
6 Requirement for Concrete in Section 6-02.3(2).
7
- 8 **6-02.3(2)D Lean Concrete**
9 This section is revised to read:
10
11 Lean concrete shall have a minimum cementitious material content of between 145 and
12 200-pounds per cubic yard and have a maximum water/cement ratio of 2.
13
- 14 **6-02.3(5)E Point of Acceptance**
15 The first paragraph is revised to read:
16
17 Determination of concrete properties for acceptance will be made based on samples
18 taken as follows:
19
20 Bridge decks, overlays, bridge approach slabs, and barriers at the discharge of the
21 placement system. All other placements at the truck discharge.
22
- 23 **6-02.3(6) Placing Concrete**
24 The third paragraph is revised to read:
25
26 All foundations, forms, and contacting concrete surfaces shall be moistened with water
27 just before the concrete is placed. Any standing water on the foundation, on the
28 concrete surface, or in the form shall be removed.
29
- 30 The following new sentence is added after the fourth sentence in the fourth paragraph:
31
32 The submittal to the Engineer shall include justification that the concrete mix design will
33 remain fluid for interruptions longer than 30-minutes between placements.
34
- 35 **6-02.3(6)D Protection Against Vibration**
36 The first paragraph is revised to read:
37
38 Freshly placed concrete shall not be subjected to excessive vibration and shock waves
39 during the curing period until it has reached a 2000-psi minimum compressive strength
40 for structural concrete and lower strength classes of concrete.
41
- 42 **6-02.3(10)D Concrete Placement, Finishing, and Texturing**
43 The following paragraph is inserted at the beginning of this section:
44
45 Before placing bridge approach slab concrete, the subgrade shall be constructed in
46 accordance with Sections 2-06 and 5-05.3(6).
47
- 48 **6-02.3(10)F Bridge Approach Slab Orientation and Anchors**
49 The third sentence in the second paragraph is revised to read:
50
51 All metal parts of the approach expansion anchor shall receive one coat of paint
52 conforming to Section 9-08.1(2)F or be galvanized in accordance with AASHTO M 232.

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6-02.3(11) Curing Concrete

In the fifth paragraph "Type 1D" is revised to read "Type 1D, Class B".

6-02.3(17)B Allowable Design Stresses and Deflections

Under the heading "Timber", the second sentence is revised to read:

The allowable stresses and loads shall not exceed the lesser of stresses and loads given in the table below or factored stresses for designated species and grade in Table 7.3 of the Timber Construction Manual, latest Edition by the American Institute of Timber Construction

Under the heading "Steel", the first sentence is revised to read:

For identified grades of steel, design stresses shall not exceed those specified in the Steel Construction Manual, latest Edition by the American Institute of Steel Construction, except as follows:

6-02.3(17)F Bracing

Under the heading "Temporary Bracing for Bridge Girders", the table is revised to read:

Girder Series	Distance in Inches
W42G	30
W50G	42
W58G	63
W74G	66
Prestressed concrete tub girders with webs with flanges	30
WF36G, WF42G, WF50G, WF58G, WF66G, WF74G, WF83G, WF95G, and WF100G	70
W32BTG, W38BTG, and W62BTG	70
WF74PTG, WF83PTG, WF95PTG, and WF100PTG	70

6-02.3(17)K Concrete Forms on Steel Spans

The second and third paragraphs are revised to read:

The Contractor shall not weld any part of the form to any steel member.

The compression member or bottom connection of cantilever formwork support brackets shall bear either within six inches maximum vertically of the bottom flange or within six inches maximum horizontally of a vertical web stiffener. The Contractor's bridge deck form system shall be designed to prevent rotation of the steel girder. This can be achieved by temporary struts and ties or other methods the Contractor shows to be effective. Partial depth cantilever formwork support brackets that do not conform to the above requirements shall not be used, unless the Contractor submits details showing the additional formwork struts and ties used to brace the steel girder against web

1 distortion caused by the partial depth bracket, and receives the Engineer's approval of
 2 the submittal.

3
 4 **6-02.3(17)N Removal of Falsework and Forms**

5 The first paragraph including table is revised to read:

6
 7 If the Engineer does not specify otherwise, the Contractor may request to remove forms
 8 based on the criteria in the table below. Both compressive strength and minimum time
 9 criteria shall be met if both are listed in the applicable row. The minimum time shall be
 10 from the time of the last concrete placement in the forms. In no case shall the
 11 Contractor remove forms or falsework without the Engineer's approval.
 12

Concrete Placed In	Percent of Specified Minimum Compressive Strength ¹	Minimum Compressive Strength ¹	Minimum Time
Side forms not supporting the concrete weight, including columns, walls, crossbeams, non-sloping box girder webs, abutments, traffic and pedestrian barriers.	—	—	3 days
	or		
	—	1400 psi	18 hours
Side forms of footings, pile caps, and shaft caps. ²	—	—	18 hours
Crossbeams, sloping box girder webs, struts, inclined columns, inclined walls and other forms that support the concrete weight.	80	—	5 days
Bridge decks supported on stringers, beam, or girders. ³	80	—	10 days
Box girders, T-beam girders, and flat-slab Superstructure. ³	80	—	14 days
Arches. ³	80	—	21 days
1 Strength shall be proved by test cylinders made from the last concrete placed into the form. The cylinders shall be cured according to WSDOT FOP for AASHTO T 23. 2 Curing compound shall be immediately applied to the sides when forms are removed. 3 Where continuous spans are involved, the time for all spans will be determined by the last concrete placed affecting any span.			

13
 14
 15 The third and fourth paragraphs are deleted.
 16
 17 The fifth paragraph is revised to read:
 18

1 Curing shall comply as required in Section 6-02.3(11). The concrete surface shall not
2 become dry during form removal if removed during the cure period.
3

4 **6-02.3(20) Grout for Anchor Bolts and Bridge Bearings**

5 In the fourth paragraph "9-20.3(4)" is revised to read "Section 9-20.3(4)".
6

7 **6-02.3(24) Reinforcement**

8 This first paragraph is revised to read:
9

10 Although a bar list is normally included in the Plans, the Contracting Agency does not
11 guarantee its accuracy and it shall be used at the Contractor's risk. Reinforcement
12 fabrication details shall be determined from the information provided in the Plans.
13

14 The third paragraph is deleted.
15

16 **6-02.3(24)C Placing and Fastening**

17 The eighth paragraph is revised to read:
18

19 Mortar blocks may be accepted based on a Manufacturer's Certificate of Compliance.
20

21 The 14th paragraph is revised to read:
22

23 Clearances for main bars shall be at least:
24

25 4-inches between: Bars and the surface of any concrete masonry exposed
26 to the action of salt or alkaline water.
27

28 3-inches between: Bars and the surface of any concrete deposited against
29 earth without intervening forms.
30

31 2-½-inches between: Adjacent bars in a layer. Bridge deck bars and the top of
32 the bridge deck.
33

34 2-inches between: Adjacent layers. Bars and the surface of concrete
35 exposed to earth. Reinforcing bars and the faces of
36 forms for exposed aggregate finish.
37

38 1-½-inches between: Bars and the surface of concrete when not specified
39 otherwise in this Section or in the Plans. Barrier and
40 curb bars and the surface of concrete.
41

42 1-inch between: Slab bars and the bottom of the slab. Slab bars and the
43 top surface of the bottom slab of a cast-in-place
44 concrete box girder.
45

46 The following new paragraph is inserted after the 14th paragraph:
47

48 Cover to ties and stirrups may be ½-inch less than the values specified for main bars
49 but shall not be less than 1-inch.
50

51 **6-02.3(24)F Mechanical Splices**

52 Items 1, 2, and 3 in the fourth paragraph are revised to read:

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1. Mechanical splices shall develop at least 125 percent of the specified yield strength of the unspliced bar. The ultimate tensile strength of the mechanical splice shall exceed that of the unspliced bar.
2. The total slip of the bar within the spliced sleeve of the connector after loading in tension to 30.0 ksi and relaxing to 3.0 ksi shall not exceed the following measured displacements between gage points clear of the splice sleeve:
 - a. 0.01 inches for bar sizes up to No. 14.
 - b. 0.03 inches for No. 18 bars.
3. The maximum allowable bar size for mechanical laps splices shall be No. 6.

6-02.3(25) Prestressed Concrete Girders

Under the heading "**Prestressed Concrete Wide Flange I Girder**" the last sentence is revised to read:

WSDOT standard girders in this category include Series WF36G, WF42G, WF50G, WF58G, WF66G, WF74G, WF83G, WF95G and WF100G.

Under the heading "**Spliced Prestressed Concrete Girder**" the fourth sentence is revised to read:

Ducts shall conform to the Section 6-02.3(26)E requirements for internal embedded installation except that ducts for I girders may be 24 gage, semi-rigid, galvanized, corrugated, ferrous metal. Ducts shall be round, unless the Engineer approves use of elliptical shaped ducts.

Under the heading "**Spliced Prestressed Concrete Girder**" the last sentence is revised to read:

WSDOT standard girders in this category include Series WF74PTG, WF83PTG, WF95PTG and WF100PTG.

6-02.3(25)G Protection of Exposed Reinforcement

The first paragraph is revised to read:

When a girder is removed from its casting bed, all prestressing reinforcement strands projecting from the girder shall be cleaned and painted with a minimum dry film thickness of 1 mil of paint conforming to Section 9-08.1(2)B, and all steel reinforcing bars, including welded wire fabric, projecting from the girder shall be protected in accordance with Section 6-02.3(24)B. During handling and shipping, projecting reinforcement shall be protected from bending or breaking. Just before placing concrete around the projecting bars or strands, the Contractor shall remove from them all spattered concrete remaining from girder casting, dirt, oil, and other foreign matter.

6-02.3(25)I Fabrication Tolerances

Item Number 1 in the first paragraph is revised to read:

1 1. Prestressed Concrete Girder Length (overall): \pm 1/4-inch per 25-feet of beam
2 length, up to a maximum of \pm 1-1/2-inch.
3

4 Item 23 in the first paragraph is revised to read:

5
6 23. Position of Lifting Loops: \pm 3-inches longitudinal, \pm 1/4-inch transverse.
7

8 **6-02.3(25)L Handling and Storage**

9 In the third sentence of the second paragraph, the reference to "1-foot-9-inches" is revised to
10 read "3-foot-0-inches".

11
12 In the fourth paragraph, the second, third, and fourth sentences are revised to read:

13
14 The lifting locations and concrete release strengths shown in the girder schedule in the
15 Plans assume that these temporary strands are pretensioned. Alternatively, these
16 temporary strands may be post-tensioned, provided the same lifting locations indicated
17 in the girder schedule are used and the strands are tensioned prior to lifting the girder
18 from the form. These temporary strands shall be of the same diameter, and shall be
19 tensioned to the same force, as the permanent strands.
20

21 In the fifth paragraph, the following new sentence is inserted after the second sentence:

22
23 When temporary top strands are not needed for lifting but are required for shipping, they
24 shall be post-tensioned on the same day that the permanent prestress is released into
25 the girder.
26

27 **6-02.3(25)M Shipping**

28 The first and second sentences of the third paragraph are revised to read:

29
30 Girder support during shipping shall be located as shown in the Plans and shall be no
31 closer than the girder depth to the ends of the girder at the girder centerline. Support
32 locations shown in the Plans have been determined in accordance with the criteria
33 specified in the WSDOT Bridge Design Manual LRFD Section 5.6.3.D.
34

35 **6-02.3(25)N Prestressed Concrete Girder Erection**

36 The seventh paragraph is supplemented with the following:

37
38 The aspect ratio (height/width) of oak block wedges at the girder centerline shall not
39 exceed 1.0.
40

41 **6-02.3(26)A Shop Drawings**

42 Item 2 in the third paragraph is revised to read:

43
44 2. Technical data on tendons and steel reinforcement, anchorage devices, anchorage
45 device efficiency and acceptance test results and records, anchoring stresses,
46 types of tendon conduit, and all other data on prestressing operations.
47

48 **6-02.3(26)B General Requirements for Anchorages**

49 The second paragraph is revised to read:

50
51 The structure shall be reinforced with steel reinforcing bars in the anchorage zone in the
52 vicinity of the anchorage device. This reinforcement shall be categorized into two zones.

1 The first or local zone shall be the concrete surrounding and immediately ahead of the
2 anchorage device. The second or general zone shall be the overall anchorage zone
3 including the local zone.
4

5 The third paragraph is revised to read:
6

7 The steel reinforcing bars required for concrete confinement in the local zone shall be
8 determined by the post-tensioning system supplier and shall be shown in the shop
9 drawings. The calculations shall be submitted with the shop drawings. The local zone
10 steel reinforcing bars shall be furnished and installed by the Contractor, at no additional
11 cost to the Contracting Agency, in addition to the structural reinforcement required by
12 the Plans. The steel reinforcing bars required in the general zone shall be as shown in
13 the Plans and are included in the appropriate bid items.
14

15 The last paragraph is replaced with the following two new paragraphs:
16

17 Anchorage devices shall meet the requirements listed in either Sections 6-02.3(26)C or
18 6-02.3(26)D.
19

20 All anchorages shall develop at least 96 percent of the actual ultimate strength of the
21 prestressing steel, when tested in an unbonded state, without exceeding anticipated set.
22 This anchor efficiency test shall be performed, or inspected and certified, by an
23 independent testing agency approved by the Engineer.
24

25 **6-02.3(26)C Bearing Type Anchorages**

26 This section including title is revised to read:
27

28 **6-02.3(26)C Normal Anchorage Devices**

29 Normal anchorage devices, defined as post-tensioning anchorage assemblies
30 conforming to the factored bearing resistance requirements specified in this Section,
31 shall provide a factored bearing resistance greater than or equal to 1.2 times the
32 maximum jacking force. The Contractor shall submit calculations showing that the
33 factored bearing resistances of the anchorages are not exceeded.
34

35 The factored bearing resistance of the anchorages shall be taken as:
36

$$37 P_r = \phi f_n A_b$$

38 For which f_n is the lesser of:
39

$$40 f_n = 0.7f_{ci}(A/A_g)^{1/2}$$
$$41 f_n = 2.25f_{ci}$$

42 where:
43

44 ϕ = Resistance factor of 0.70
45

46 A= Maximum area of the portion of the supporting surface that is similar to the
47 loaded area and concentric with it and does not overlap similar areas for
48 adjacent anchorage devices (square inches)

49 A_b = Effective net area of the bearing plate calculated as the area A_g , minus the
50 area of openings in the bearing plate (square inches)

51 A_g = Gross bearing area of the bearing plate calculated in accordance with the
52 requirements specified below (square inches)

1 f_{ci} = Nominal compressive strength of concrete at the time of application of the
2 tendon force (ksi)
3

4 The full bearing plate area may be used for A_g and the calculation of A_b if the plate
5 material does not yield at the factored tendon force and the slenderness of the bearing
6 plate, n/t , conforms to:

7
8
$$(n/t) \leq 0.08(E_b/f_b)^{0.33}$$

9

10 where:

- 11 t = Average thickness of the bearing plate (inches)
12 E_b = Modulus of elasticity of the bearing plate material (ksi)
13 f_b = Stress in the anchor plate at a section taken at the edge of the wedge hole or
14 holes (ksi)
15 n = Projection of the base plate beyond the wedge hole or wedge plate, as
16 appropriate (inches)
17
18

19 For anchorages with separate wedge plates, n may be taken as the largest distance
20 from the outer edge of the wedge plate to the outer edge of the bearing plate. For
21 rectangular bearing plates, this distance shall be measured parallel to the edges of the
22 bearing plate. If the anchorage has no separate wedge plate, n may be taken as the
23 projection beyond the outer perimeter of the group of holes in the direction under
24 consideration.
25

26 For bearing plates that do not meet the slenderness requirement specified above, the
27 effective gross bearing area, A_g , shall be taken as:

- 28
29 1. For anchorages with separate wedge plates, the area geometrically similar to
30 the wedge plate, with dimensions increased by twice the bearing plate
31 thickness.
32 2. For anchorages without separate wedge plates, the area geometrically similar
33 to the outer perimeter of the wedge holes, with dimensions increased by twice
34 the bearing plate thickness.
35

36 **6-02.3(26)D Non Bearing Type Anchorages**

37 This section including title is revised to read:
38

39 **6-02.3(26)D Special Anchorage Devices**

40 Special anchorage devices, defined as post-tensioning anchorage assemblies that do
41 not conform to the factored bearing pressure requirements specified in Section 6-
42 02.3(26)C, shall conform to the acceptance test requirements specified below.
43 Acceptance testing shall be performed, or inspected and certified, by an independent
44 testing agency approved by the Engineer. Results of the special anchorage device
45 acceptance testing shall be recorded and submitted to the Engineer for approval in
46 accordance with Section 6-01.9.
47

48 **6-02.3(26)D1 Test Block Requirements**

49 The test block shall be a rectangular prism of sufficient size to contain all the
50 special anchorage device components that will also be embedded in the concrete
51 of the Structure being post-tensioned. The arrangement of the special anchorage
52 device components shall conform to practical application to the project and the

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special anchorage device manufacturer's recommendations. The test block shall contain an empty duct of a size appropriate for the maximum tendon size that can be accommodated by the special anchorage device.

6-02.3(26)D2 Test Block Dimensions

The dimensions of the test block perpendicular to the tendon in each direction shall be the smaller of the minimum edge distance or the minimum spacing specified by the special anchorage device manufacturer, with the stipulation that the concrete cover over any confining reinforcing steel or supplementary skin reinforcement shall be appropriate for the project specific application and circumstances. The length of the block along the axis of the tendon shall be at least two times the larger of the cross-section dimensions.

6-02.3(26)D3 Local Zone Reinforcement for Confinement

The confining reinforcing steel in the local zone of the test block shall be the same as that recommended by the special anchorage device manufacturer.

6-02.3(26)D4 Supplementary Skin Reinforcement

In addition to the special anchorage device and the associated local zone reinforcement for confinement, supplementary skin reinforcement may be provided throughout the test block. Such supplementary skin reinforcement shall be as specified by the special anchorage device manufacturer, but shall not exceed a volumetric ratio of 0.01.

The Contractor shall furnish and install supplementary skin reinforcement in the anchorage zone of the Structure similar in configuration and equivalent in volumetric ratio to the supplementary skin reinforcement used in the test block, at no additional cost to the Contracting Agency. The steel reinforcing bars shown in the Plans in corresponding portions of the general zone may be counted towards this reinforcement requirement.

6-02.3(26)D5 Test Block Concrete Strength

The compressive strength of the test block at the time of acceptance testing shall not exceed the compressive strength of the Structure being post-tensioned at the time of post-tensioning.

6-02.3(26)D6 Special Anchorage Device Acceptance Testing

Special anchorage device acceptance testing shall be conducted in accordance with one of the following test methods:

- 1. Cyclic load test
- 2. Sustained load test
- 3. Monotonic load test

The loads specified for the tests are specified in fractions of the ultimate load F_{pu} of the largest tendon that the special anchorage device is designed to accommodate. The specimen shall be loaded in accordance with conventional usage of the device in post-tensioning applications, except that the load may be applied directly to the wedge plate or equivalent area.

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6-02.3(26)D7 Cyclic Loading Test

A load of $0.8F_{pu}$ shall be applied. The load shall then be cycled between $0.1F_{pu}$ and $0.8F_{pu}$ until crack widths stabilize, but for not less than ten cycles. Crack widths are considered stabilized if they do not change by more than 0.001 inches over the last three readings. Upon completion of the cyclic loading portion of the test, the specimen shall be loaded to failure, or, if limited by the capacity of the loading equipment, to at least $1.1F_{pu}$.

Crack widths and crack patterns shall be recorded at the initial load of $0.8F_{pu}$, at least at the last three consecutive peak loadings before termination of the cyclic loading portion of the test, and at $0.9F_{pu}$. The maximum load shall also be reported.

6-02.3(26)D8 Sustained Loading Test

A load of $0.8F_{pu}$ shall be applied and held constant until crack widths stabilize, but not less than 48 hours. Crack widths are considered stabilized if they do not change by more than 0.001 inches over the last three readings. Upon completion of the sustained loading portion of the test, the specimen shall be loaded to failure, or, if limited by the capacity of the loading equipment, to at least $1.1F_{pu}$.

Crack widths and crack patterns shall be recorded at the initial load of $0.8F_{pu}$, at least three times at intervals of not less than four hours during the last 12 hours of the sustained loading time period, and at $0.9F_{pu}$. The maximum load shall also be reported.

6-02.3(26)D9 Monotonic Loading Test

A load of $0.9F_{pu}$ shall be applied and held constant for one hour. Upon completion of the one hour load hold period, the specimen shall be loaded to failure, or, if limited by the capacity of the loading equipment, to at least $1.2F_{pu}$.

Crack widths and crack patterns shall be recorded at $0.9F_{pu}$, at the conclusion of the one hour load hold period, and at $1.0F_{pu}$. The maximum load shall also be reported.

6-02.3(26)D10 Special Anchorage Device Test Performance Requirements

The test block shall conform to the following load requirements under test load:

1. The maximum test load for cyclic loading and sustained loading tests shall be $1.1F_{pu}$ minimum.
2. The maximum test load for monotonic loading tests shall be $1.2F_{pu}$ minimum.

The test block shall conform to the following crack width requirements under test load:

1. Cracks shall not exceed 0.010 inches in width at $0.8F_{pu}$ at completion of the cyclic loading test or sustained loading test, or at $0.9F_{pu}$ after the one hour load hold period of the monotonic loading test.
2. Cracks shall not exceed 0.016 inches at $0.9F_{pu}$ for the cyclic loading test or the sustained loading test, or at $1.0F_{pu}$ for the monotonic loading test.

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6-02.3(26)D11 Test Series Requirements

A test series shall consist of three test specimens. Each one of the tested specimens shall conform to the acceptance criteria specified above. If one of the three specimens fails to pass the test, a supplementary test series of three additional specimens shall be conducted. The three additional test specimens shall conform to the specified acceptance criteria.

6-02.3(26)D12 Special Anchorage Device Acceptance Testing Results Report

The special anchorage device acceptance testing results report shall consist of the following:

1. Dimensions of the test specimen.
2. Working drawings with details and dimensions of the special anchorage device, including all confining reinforcing steel.
3. Amount and arrangement of supplementary skin reinforcement.
4. Type and yield strength of reinforcing steel.
5. Type and compressive strength of the concrete at the time of testing.
6. Type of testing procedure and all measurements specified for each specimen under the test.

The special anchorage device manufacturer shall specify auxiliary and confining reinforcement, minimum edge distance, minimum anchor spacing, and minimum concrete strength at the time of stressing required for proper performance of the local zone.

6-02.3(26)E Ducts

Beneath the heading **“Ducts for Internal Embedded Installation”** the second sentence in the second paragraph is revised to read:

Polypropylene ducts shall conform to ASTM D 4101 with a cell classification range of PP0340B14541 to PP0340B67884.

This section is supplemented with the following:

All duct splices, joints, couplings and connections to anchorages shall be made with devices or methods (mechanical couplers, plastic sleeves, shrink sleeve) that are approved by the duct manufacturer and produce a smooth interior alignment with no lips or kinks. All connections and fittings shall be air and mortar tight. Taping is not acceptable for connections and fittings.

6-02.3(26)G Tensioning

Items 1 and 2 in the first paragraph are revised to read:

1. Stressing equipment shall be capable of producing a jacking force of at least 81 percent of the specified tensile strength of the post-tensioning reinforcement.

- 1 2. Jacking force test capacity shall be at least 95 percent of the specified tensile
2 strength of the post-tensioning reinforcement.
3

4 Items 1, 2 and 3 in the sixth paragraph are revised to read:
5

- 6 1. During jacking prior to seating: 90 percent of the yield strength of the steel.
7
8 2. At anchorages after seating: 70 percent of the specified tensile strength of the
9 steel.
10
11 3. At service limit state after losses: 80 percent of the yield strength of the steel.
12

13 The second sentence of the second subparagraph under the eighth paragraph is revised to
14 read:
15

16 The test specimen shall be tensioned to 80 percent of the specified tensile strength in
17 ten increments.
18

19 The last sentence of the eleventh paragraph is revised to read:
20

21 The tendon is acceptable if the verification lift off force is not less than 99 percent of the
22 approved calculated force nor more than 70 percent of the specified tensile strength of
23 the prestressing steel or as approved by the Engineer.
24

25 **6-02.3(26)H Grouting**

26 The first sentence in the last paragraph is deleted.
27

28 **6-02.3(27) Concrete for Precast Units**

29 The first paragraph is supplemented with the following:
30

31 Type III portland cement is permitted to be used in precast concrete units.
32

33 The third paragraph is deleted.
34

35 This section is supplemented with the following new sub-sections:
36

37 **6-02.3(27)A Use of Self Consolidating Concrete for Precast Units**

38 Self Consolidating Concrete (SCC) is concrete that is able to flow under its own weight
39 and completely fill the formwork without the need of any vibration while maintaining
40 homogeneity, even in the presence of dense reinforcement. SCC shall be capable of
41 flowing through the steel reinforcing bar cage without segregation or buildup of
42 differential head inside or outside of the steel reinforcing bar cage.
43

44 SCC may be used for the following precast concrete structure elements:
45

- 46 1. Precast roof, wall and floor panels, and retaining wall panels in accordance
47 with Section 6-02.3(28).
48
49 2. Precast reinforced concrete three sided structures in accordance with Section
50 6-02.3(28) as supplemented in the Special Provisions.
51
52 3. Precast concrete barrier in accordance with Section 6-10.3(1).

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4. Precast concrete wall stem panels in accordance with Section 6-11.3(3).
5. Precast concrete noise barrier wall panels in accordance with Section 6-12.3(6).
6. Structural earth wall precast concrete facing panels in accordance with Section 6-13.3(4).
7. Precast drainage structure elements in accordance with Section 9-05.50.
8. Precast junction boxes, cable vaults, and pull boxes in accordance with Section 9-29.2.

6-02.3(27)B Submittals for Self Consolidating Concrete for Precast Units

With the exception of items 3, 7, and 8 in Section 6-02.3(27)A, the Contractor shall submit the mix design for SCC to the Engineer for annual approval in accordance with Section 6-02.3(28)B . The mix design submittal shall include items specified in Section 6-02.3(2)A and results of the following tests conducted on concrete that has slump flow within the slump flow range defined below:

1. Slump Flow.
 - a. The mix design shall specify the target slump flow in inches, in accordance with WSDOT FOP for ASTM C 1611. The slump flow range is defined as the target slump flow plus or minus 2-inches.
 - b. The visual stability index (VSI) shall be less than or equal to 1, in accordance with ASTM C 1611, Appendix X1, using Filling Procedure B.
 - c. The T_{50} flow rate results shall be less than 6-seconds in accordance with ASTM C 1611, Appendix X1, using Filling Procedure B.
2. Column Segregation.
 - a. The maximum static segregation shall be 10-percent in accordance with ASTM C 1610.
 - b. The Maximum Hardened Visual Stability Index (HVSI) shall be 1 in accordance with AASHTO PP 58.
3. J ring test results for passing ability shall be less than or equal to 1.5-inches in accordance with the WSDOT FOP for ASTM C 1621.
4. Air content shall be tested in accordance with WSDOT Test Method T 818, and shall conform to Section 6-02.3(2)A.
5. Concrete unit weight results in pounds per cubic foot shall be recorded in accordance with AASHTO T 121, except that the concrete shall not be consolidated in the test mold.

- 1 6. The temperature of all concrete laboratory test samples shall be tested in
- 2 accordance with AASHTO T 309 and shall conform to the placement limits
- 3 specified in Section 6-02.3(4)D.
- 4
- 5 7. The modulus of elasticity in pounds per square inch at 28 days shall be
- 6 recorded in accordance with ASTM C 469.
- 7

8 Use of Type III cement is permitted.

9

10 Placement for construction may include consolidation using light vibration, but the

11 requirements of Section 6-02.3(4)C for consistency will not apply.

12

13 Items 3, 7, and 8 in Section 6-02.3(27)A require the precast plant to cast one

14 representative structure acceptable to the Engineer and have the structure sawn in half

15 for examination by the Contracting Agency to determine that segregation has not

16 occurred. The Contracting Agency’s approval of the sawn structure will constitute

17 approval of the precast plant to use SCC and a concrete mix design submittal is not

18 required.

19

20 **6-02.3(27)C Acceptance Testing of Self Consolidating Concrete for Precast**

21 **Units**

22 Acceptance testing shall be performed by the Contractor and test results shall be

23 submitted to the Engineer. Placement of SCC for concrete testing such as cylinder

24 preparation shall be in accordance with WSDOT Test Method T 819.

25

26 SCC for items 1, 2, 4, 5, and 6 in Section 6-02.3(27)A will be accepted in accordance

27 with Section 6-02.3(5) procedures, and based on conformance to the requirements

28 specified above and in Section 6-02.3(2)A, for the following:

- 29
- 30 1. Temperature.
- 31
- 32 2. Air content.
- 33
- 34 3. Compressive strength at 28-days.
- 35
- 36 4. Slump flow within the target slump flow range.
- 37
- 38 5. J ring passing ability less than or equal to 1.5-inches.
- 39
- 40 6. VSI less than or equal to 1.

41

42 SCC for concrete barrier will be accepted in accordance with temperature, air, and

43 compressive strength testing listed above.

44

45 SCC for precast junction boxes, cable vaults, and pull boxes will be accepted in

46 accordance with temperature and compressive strength testing listed above.

47

48 SCC for precast drainage structure elements will be accepted in accordance with the

49 requirements of AASHTO M 199.

50

51 **6-02.3(28) Precast Concrete Panels**

52 In this section, all references to “units” are revised to read “panels”.

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6-02.3(28)B Casting

The second paragraph is revised to read:

Concrete shall meet requirements of Section 6-02.3(25)B for annual pre-approval of the concrete mix design, and slump. If SCC is used the concrete shall conform to Sections 6-02.3(27)B and 6-02.3(27)C.

6-02.3(28)F Tolerances

The reference to "PCI-MNL-166" is revised to read "PCI-MNL-116".

6-02.4 Measurement

The first sentence in the seventh paragraph is revised to read:

All reinforcing steel will be measured by the computed weight of all metal, including mechanical splices, actually in place and required by the Plans or the Engineer.

Item no. 2 in the seventh paragraph is revised to read:

- 2. Extra steel in splices not shown in the Plans or specified in the Plans as optional.

The following new paragraph is inserted after item number 3 in the seventh paragraph:

The weight of mechanical splices will be based on the weight specified in the manufacturer's catalog cut for the specific item.

6-02.5 Payment

The bid item "St. Reinf. Bar" is revised to read:

"St. Reinf. Bar____"

The bid item "Epoxy-Coated St. Reinf. Bar" is revised to read:

"Epoxy-Coated St. Reinf. Bar____"

The paragraph after the bid item "Epoxy-Coated St. Reinf. Bar" is revised to read:

Payment for reinforcing steel shall include the cost of furnishing, fabricating, placing, and splicing the reinforcement. In structures of reinforced concrete where there are no structural steel bid items, such minor metal parts as expansion joints, bearing assemblies, and bolts will be paid for at the unit contract price for "St. Reinf. Bar____" unless otherwise specified.

6-03.AP6

SECTION 6-03, STEEL STRUCTURES

August 1, 2011

6-03.3(7) Erection Methods

The second and third sentences in the first paragraph are deleted.

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6-03.3(25) Repair Welding

In the first paragraph “2002” is revised to read “2008”.

6-03.3(25)A Welding Inspection

In the first paragraph “2002” is revised to read “2008”.

In the paragraph below the heading “**Radiographic Inspection**” “2002 Structural” is revised to read “2008 Bridge”.

6-03.3(29) Vacant

This section including title is revised to read:

Welded Shear Connectors

All welded shear connectors on steel girder top flanges shall be installed in the field after the forms for the concrete bridge deck are in place. The steel surface to be welded shall be prepared to SSPC-SP 11, power tool cleaning, just prior to welding. Installation, production control, and inspection of welded shear connectors shall conform to Chapter 7 of the AASHTO/AWS D1.5M/D1.5:2008 Bridge Welding Code. After the welded shear connectors are installed, the weld and the disturbed steel surface shall be cleaned and painted in accordance with Section 6-07.3(9)I.

6-03.3(32) Assembling and Bolting

The third paragraph is revised to read:

Cylindrical erection pins (drift pins) shall be placed throughout each field connection and each field joint with the greatest concentration in the outer edges of a splice plate or member being bolted. Drift pins shall be double tapered barrel pins of hardened steel. The diameter of the drift pins shall at least be 1/32-inch larger than the diameter of the bolts in the connection or the full hole diameter.

6-03.3(33) Bolted Connections

This section is revised to read:

Fastener components shall consist of bolts, nuts, washers, tension control bolt assemblies, and direct tension indicators. Fastener components shall meet the requirements of Section 9-06.5(3).

The Contractor shall submit documentation of the bolt tension calibrator for approval by the Engineer and shall include brand, capacity, model, date of last calibration, and manufacturer’s instructions for use. The Contractor shall be responsible to supply the approved bolt tension calibrator and all accompanying hardware and calibrated torque wrenches to conduct all testing and inspection described herein. Use of the bolt tension calibrator shall comply with manufacturer’s recommendations.

Fastener components shall be protected from dirt and moisture in closed containers at the site of installation. Only as many fastener components as are anticipated to be installed during the Work shift shall be taken from protected storage. Fastener components that are not incorporated into the Work shall be returned to protected storage at the end of the Work shift. Fastener components shall not be cleaned or modified from the as-delivered condition. Fastener components that accumulate rust or

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dirt shall not be incorporated into the Work. Tension control bolt assemblies shall not be relubricated, except by the manufacturer.

All bolted connections are slip critical. Painted structures require either Type 1 or Type 3 bolts. Unpainted structures require Type 3 bolts. AASHTO M 253 bolts shall not be galvanized or be used in contact with galvanized metal.

Washers are required under turned elements for bolted connections and as required in the following:

1. Washers shall be used under both the head and the nut when AASHTO M 253 bolts are to be installed in structural carbon steel, as specified in Section 9-06.1.
2. Where the outer face of the bolted parts has a slope greater than 1:20 with respect to a plane normal to the bolt axis, a beveled washer shall be used.
3. Washers shall not be stacked unless otherwise approved by the Engineer.
4. It is acceptable to place a washer under the unturned element.

All galvanized nuts shall be lubricated by the manufacturer with a lubricant containing a visible dye so a visual check for the lubricant can be made at the time of field installation. Black bolts shall be lubricated by the manufacturer and shall be "oily" to the touch when installed.

After assembly, bolted parts shall fit solidly together. They shall not be separated by washers, gaskets, or any other material. Assembled joint surfaces, including those next to bolt heads, nuts, and washers, shall be free of loose mill scale, burrs, dirt, and other foreign material that would prevent solid seating.

When all bolts in a joint are tight, each bolt shall carry at least the proof load shown in Table 3 below:

Table 3 Minimum Bolt Tension		
Bolt Size (inches)	AASHTO M 164 and ASTM F 1852 (pounds)	AASHTO M 253 (pounds)
1/2	12,050	14,900
5/8	19,200	23,700
3/4	28,400	35,100
7/8	39,250	48,500
1	51,500	63,600
1 1/8	56,450	80,100
1 1/4	71,700	101,800
1 3/8	85,450	121,300
1 1/2	104,000	147,500

34

1 Prior to final tightening of any bolts in a bolted connection, the connection shall be
 2 compacted to a snug-tight condition. Snug tight shall include bringing all plies of the
 3 connection into firm contact and snug-tightening all bolts in accordance with Section 6-
 4 03.3(32).

5
 6 Final tightening may be done by either the turn-of-nut method, the direct-tension
 7 indicator method, or twist off type tension control structural bolt/nut/washer assembly
 8 method. Preferably, the nut shall be turned tight while the bolt is prevented from rotating.
 9 However, if required by either turn-of-nut or direct-tension-indicator methods, because
 10 of bolt entering and/or wrench operational clearances, tightening may be done by
 11 turning the bolt while the nut is prevented from rotating.

12
 13 **1. Turn-of-Nut Method.** After all specified bolting conditions satisfied, and before final
 14 tightening, the Contractor shall match-mark with crayon or paint the outer face of
 15 each nut and the protruding part of the bolt. Each bolt shall be final tightened to the
 16 specified minimum tension by rotating the amount specified in Table 4. To ensure
 17 that this tightening method is followed, the Engineer will (1) observe as the
 18 Contractor installs, snug-tightens, and final tightens all bolts and (2) inspect each
 19 match-mark.
 20

Table 4 Turn-of-Nut Tightening Method Nut Rotational from Snug-Tight Condition			
Bolt Length	Disposition of Outer Faces of Bolted Parts		
	Condition 1	Condition 2	Condition 3
L ≤ 4D	1/3 turn	1/2 turn	2/3 turn
4D < L ≤ 8D	1/2 turn	2/3 turn	5/6 turn
8D < L ≤ 12D	2/3 turn	5/6 turn	1 turn

21 Bolt length measured from underside of head to top of nut.

22
 23 *Condition 1* — both faces at right angles to bolt axis.

24
 25 *Condition 2* — one face at right angle to bolt axis, one face sloped no more than
 26 1:20, without bevel washer.

27
 28 *Condition 3* — both faces sloped no more than 1:20 from right angle to bolt axis,
 29 without bevel washer.

30
 31 Nut rotation is relative to the bolt regardless of which element (nut or bolt) is being
 32 turned. Tolerances permitted plus or minus 30 degrees (1/12 turn) for final turns of 1/2
 33 turn or less; plus or minus 45 degrees (1/8 turn) for final turns of 2/3 turn or more.

34
 35 D = nominal bolt diameter of bolt being tightened.

36
 37 When bolt length exceeds 12D, the rotation shall be determined by actual tests in
 38 which a suitable tension device simulates actual conditions.

39
 40 **2. Direct-Tension-Indicator Method.** Direct-Tension-Indicators (DTIs) shall not be
 41 used under the turned element. DTIs shall be placed under the bolt head with the

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protrusions facing the bolt head when the nut is turned. DTIs shall be placed under the nut with the protrusions facing the nut when the bolt is turned.

Table 5 Direct Tension Indicator Requirements						
Bolt Size, inches	DTI Spaces		Maximum Snug-tight Refusals		Minimum Final Tighten Refusals	
	M 164	M 253	M 164	M 253	M 164	M 253
1/2	4	5	1	2	2	3
5/8	4	5	1	2	2	3
3/4	5	6	2	2	3	3
7/8	5	6	2	2	3	3
1	6	7	2	3	3	4
1-1/8	6	7	2	3	3	4
1-1/4	7	8	3	3	4	4
1-3/8	7	8	3	3	4	4
1-1/2	8	9	3	4	4	5

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Gap refusal shall be measured with a 0.005 inch tapered feeler gage. After all specified bolting conditions are satisfied, the snug-tightened gaps shall meet Table 5 snug-tight limits.

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Each bolt shall be final-tightened to meet Table 5 final tighten limits. If the bolt is tensioned so that no visible gap in any space remains, the bolt and DTI shall be removed and replaced by a new properly tensioned bolt and DTI.

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The Contractor shall tension all bolts, inspecting all DTIs with a feeler gage, in the presence of the Engineer. DTIs shall be installed by 2 or more person crews with 1 individual preventing the element at the DTI from turning, and measuring the gap of the DTI to determine the proper tension of the bolt.

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If a bolt, that has had its DTI brought to full load, loosens during the course of bolting the connection, it shall be rejected. Reuse of the bolt and nut are subject to the provisions of this section. The used DTI shall not be reinstalled.

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3. Twist Off Type Tension Control Structural Bolt/Nut/Washer Assembly Method (Tension Control Bolt Assembly). Tension control bolt assemblies shall include the bolt, nut, and washer(s) packaged and shipped as a single assembly. Tension control bolt assembly components shall not be interchanged for testing or installation and shall comply with all provisions of ASTM F 1852.

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The tension control bolts shall incorporate a design feature intended to either indirectly indicate, or to automatically provide, the minimum tension specified in Table 3 of Section 6-03.3(33).

1 The Contractor shall submit the tension control bolt assembly to the Engineer for
2 approval with bolt capacities, type of bolt, nut, and washer lubricant, method of
3 packaging and protection of the lubricated bolt, installation equipment, calibration
4 equipment, and installation procedures.

5
6 The tension control bolt manufacturer's installation procedure shall be followed for
7 installation of bolts in the verification testing device, in all calibration devices, and in
8 all structure connections.

9
10 In some cases, proper tensioning of the bolts may require more than one cycle of
11 systematic partial tightening prior to final yield or fracture of the tension control
12 element of each bolt. If yield or fracture of the tension control element of a bolt
13 occurs prior to the final tightening cycle, that bolt shall be replaced with a new one.

14
15 Additional field verification testing shall be performed as requested by the Engineer.

16
17 All bolts and connecting hardware shall be stored and handled in a manner to
18 prevent corrosion and loss of lubricant. Bolts which are installed without the same
19 lubricant coating as tested under the verification test will be rejected and shall be
20 removed from the joint and be replaced with new lubricated bolts at no additional
21 cost to the Contracting Agency.

22
23 AASHTO M 253 bolts, galvanized AASHTO M 164 bolts, and ASTM F 1852 tension
24 control bolt assemblies shall not be reused. Black AASHTO M 164 bolts may be reused
25 once if approved by the Engineer. All bolts to be reused shall have their threads
26 inspected for distortion by reinstalling the used nut on the bolt and turning the nut for the
27 full length of the bolt threads by hand. Bolts to be reused shall be relubricated in
28 accordance with the manufacturer's recommendations and as approved by the
29 Engineer. Used bolts shall be subject to a rotational capacity test as specified in Section
30 6-03.3(33)A Pre-Erection Testing. Touching up or retightening bolts previously tightened
31 by the turn-of-nut method, which may have been loosened by the tightening of adjacent
32 bolts shall not be considered as reuse, provided the snugging up continues from the
33 initial position and does not require greater rotation, including the tolerance, than that
34 required by Table 4.

35 36 **6-03.3(33)A Pre-Erection Testing**

37 This section is revised to read:

38
39 High strength bolt assemblies (bolt, nut, direct tension indicator, and washer), black and
40 galvanized, shall be subjected to a field rotational capacity test, as outlined below, prior
41 to any permanent fastener installation. For field installations, the rotational capacity test
42 shall be conducted at the jobsite. Each combination of bolt production lot, nut
43 production lot, washer production lot, and direct tension indicator production lot shall be
44 tested as an assembly, except tension control bolt assemblies which shall be tested as
45 supplied by the manufacturer. Each rotational capacity test shall include three
46 assemblies. Once an assembly passes the rotational capacity test, it is approved for
47 use for the remainder of the project, unless the Engineer deems further testing is
48 necessary. All tests shall be performed in a bolt tension calibrator by the Contractor in
49 the presence of the Engineer. High-strength bolt assemblies used in this test shall not
50 be reused. The bolt assemblies shall meet the following requirements after being
51 pretensioned to 15 percent of the minimum bolt tension in Table 3. The assembly shall

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be considered as nonconforming if the assembly fails to pass any one of the following specified requirements.

1. The measured torque to produce the minimum bolt tension shall not exceed the maximum allowed torque value obtained by the following equation.

$$\text{Torque} = 0.25 PD$$

Where: Torque = Calculated Torque (foot-pounds)
P = Measured Bolt Tension (pounds)
D = Normal Bolt Diameter (feet)

2. After placing the assembly through two cycles of the required number of turns, where turns are measured from the 15 percent pretention condition, as indicated in Table 4 of Section 6-03.3(33),
 - a. The maximum recorded tension after the two turns shall be equal to or greater than 1.15 times the minimum bolt tension listed in Table 3 of Section 6.03.3(33).
 - b. Each assembly shall be successfully installed to the specified number of turns.
 - c. The fastener components in the assembly shall not exhibit shear failure or stripping of the threads as determined by visual examination of bolt and nut threads following removal.
 - d. The bolts in the assembly shall not exhibit torsional or torsional/tension failure.
3. If any specimen fails, the assembly will be rejected. Elongation of the bolt between the bolt head and the nut is not considered to be a failure.

Bolts that are too short to test in the bolt tension calibrator shall be tested in a steel joint. The Contractor shall (1) install the high-strength bolt assemblies (bolt, nut, direct tension indicator and washer) in a steel joint of the proper thickness, (2) tighten to the snug tight condition, (3) match-mark the outer face of each nut and the protruding part of the bolt with crayon or paint, (4) rotate to the requirements of Table 4, and (5) record the torque that is required to achieve the required amount of rotation. The assembly shall be considered as non-conforming if the assembly fails to pass any one of the following specified requirements.

1. The recorded torque to produce the minimum rotation shall not exceed the maximum allowed torque value obtained by the following equation.

$$\text{Torque} = 0.25 PD$$

Where: Torque = Calculated Maximum Allowed Torque (foot-pounds)
P = Specified Bolt Tension per Table 3, multiplied by a factor of 1.15 (pounds)
D = Normal Bolt Diameter (feet)

2. After placing the assembly through two cycles of the required number of turns, where turns are measured from the snug tight condition specified in Section 6-03.3(32),

- 1 a. Each assembly shall be successfully installed to the specified number
2 of turns.
3
4 b. The fastener components in the assembly shall not exhibit shear
5 failure or stripping of the threads as determined by visual examination
6 of bolt and nut threads following removal.
7
8 c. The bolts in the assembly shall not exhibit torsional or
9 torsional/tension failure.
10
11 3. If any specimen fails, the assembly will be rejected. Elongation of the bolt
12 between the bolt head and the nut is not considered to be a failure.
13

14 The Contractor shall submit the manufacturer's detailed procedure for pre-erection
15 (rotational capacity) testing of tension control bolt assemblies to the Engineer for
16 approval and shall have an approved procedure prior to testing.
17

18 Three DTIs, per lot, shall be tested in a bolt tension calibrator. The bolts shall be
19 tensioned to 105-percent of the tension shown in Table 3 of Section 6-03.3(33). If all of
20 the DTI protrusions are completely crushed (all 5 openings with zero gap), this lot of
21 DTIs is rejected.
22

23 **6-03.3(33)B Bolting Inspection**

24 The first paragraph is revised to read:

25
26 The Contractor, in the presence of the Engineer, shall inspect the tightened bolt using a
27 calibrated inspection torque wrench, regardless of bolting method. The Contractor shall
28 supply the inspection torque wrench.
29

30 The first sentence in the second paragraph is revised to read:

31
32 If the bolts to be installed are not long enough to fit in the bolt tension calibrator, five
33 bolts of the same grade, size, and condition as those under inspection shall be tested
34 using Direct-Tension-Indicators (DTIs) to measure bolt tension.
35

36 The first sentence in the third paragraph is revised to read:

37
38 Five representative bolts/nuts/washers and DTIs, if used (provided by the Contractor) of
39 the same grade, size, and condition as those under inspection shall be placed
40 individually in a bolt tension calibrator to measure bolt tension.
41

42 The fourth and fifth sentences in the third paragraph are revised to read:

43
44 In the bolt tension calibrator, each bolt shall be tightened by any convenient means to
45 the specified tension. The inspection torque wrench shall then be applied to the
46 tightened bolt to determine the torque required to turn the nut or head 5 degrees
47 (approximately 1-inch at a 12-inch radius) in the tightening direction.
48

49 The fourth paragraph is revised to read:

50
51 Ten percent (at least two), or as specified by the Engineer, of the tightened bolts on the
52 Structure represented by the test bolts shall be selected at random in each connection.

1 The job-inspection torque shall then be applied to each with the inspecting wrench
2 turned in the tightening direction, with no restraint applied to the opposite end of the
3 bolt. If this torque turns no bolt head or nut, the Contracting Agency will accept the
4 connection as being properly tightened. If the torque turns one or more bolt heads or
5 nuts, the job-inspection torque shall then be applied to all bolts in the connection.
6 Except for tension control bolt assemblies and DTIs with zero gap at all protrusion
7 spaces, any bolt whose head or nut turns at this stage shall be tightened and
8 reinspected. Any tension control bolt assemblies or DTIs that have zero gap at all
9 protrusion spaces shall be replaced if the head or nut turns at this stage.

10

11 This section is supplemented with the following new paragraph:

12

13 The Contractor shall submit the manufacturer's detailed procedure for routine
14 observation to ensure proper use of the tension control bolt assemblies to the Engineer
15 for approval and shall have an approved procedure prior to any assembling of bolted
16 connections.

17

18 **6-03.3(39) Swinging the Span**

19 The first paragraph is revised to read:

20

21 Forms weighing less than five pounds per square foot of bridge deck area and uniformly
22 distributed along the steel spans may be placed before the spans swing free on their
23 supports. Steel reinforcing bars or concrete bridge deck shall not be placed on steel
24 spans until the spans swing free on their supports and elevations recorded. No simple
25 span or any series of continuous spans will be considered as swinging free until all
26 temporary supports have been released. Reinforcing steel or concrete bridge decks
27 shall not be placed on any simple or continuous span steel girder bridge until all its
28 spans are adjusted and its masonry plates, shoes, and keeper plates grouted. For this
29 specification, the structure shall be considered as continuous across hinged joints.

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31 6-05.AP6

32 **SECTION 6-05, PILING**

33 **August 1, 2011**

34 **6-05.5 Payment**

35 In the second paragraph, the following sentence is inserted after the first sentence:

36

37 For cast-in-place concrete test piles, this price shall include furnishing, fabricating and
38 installing the steel reinforcing bar cage, and furnishing, casting and curing the concrete.

39

40 The paragraph after the bid item "Furnishing St. Piling" is revised to read:

41

42 The unit Contract price per linear foot for "Furnishing (type) Piling (____)" shall be full
43 pay for furnishing the piling specified, including furnishing, fabricating and installing the
44 steel reinforcing bar cage, and furnishing, casting and curing the concrete, as required
45 for concrete piling. Such price shall also be full pay, for furnishing timber, precast
46 concrete, or precast-prestressed concrete piling length ordered from an Engineer's
47 order sheet but not driven.

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1 6-07.AP6
2 **SECTION 6-07, PAINTING**
3 **August 1, 2011**

4 **6-07.3(2)C Paint System Manufacturer and Paint System Information Submittal**
5 **Component**

6 Item 1 in the first paragraph is supplemented with the following:

- 7
8 h. Minimum wet film thickness for each coat to achieve the specified minimum dry film
9 thickness.

10
11 **6-07.3(9)F Shop Surface Cleaning and Preparation**

12 The third sentence is revised to read:

13
14 The entire steel surface to be painted, including surfaces specified in Section 6-
15 07.3(9)G to receive a mist coat of primer, shall be cleaned to a near white condition in
16 accordance with SSPC-SP 10 and shall be in this condition immediately prior to paint
17 application.

18
19 **6-07.3(9)G Application of Shop Primer Coat**

20 In the second paragraph, the second, third, and fourth sentences are deleted.

21
22 **6-07.3(9)I Application of Field Coatings**

23 The following new paragraph is inserted preceding the first paragraph:

24
25 Prior to applying field coatings, the Contractor shall field install welded shear connectors
26 on the steel girder top flanges in accordance with Section 6-03.3(29) and as shown in
27 the Plans. After installation of the welded shear connectors, the weld and the disturbed
28 surface of the steel girder top flange shall be cleaned in accordance with SSPC-SP 11
29 and primed.

30
31 The first sentence in the second paragraph (with above amendment applied) is revised to
32 read:

33
34 Upon completion of erection Work, all uncoated areas remaining, including bolts, nuts,
35 washers and splice plates, shall be prepared in accordance with Section 6-07.3(9)F,
36 followed by a field primer coat of an organic zinc paint selected from the same approved
37 paint system and paint manufacturer as the other paint for the structure.

38
39 **6-07.3(10)H Paint System**

40 In the first sentence of the first paragraph "new steel" is revised to read "existing steel".

41
42 **6-07.3(10)K Coating Thickness**

43 This section is revised to read:

44
45 The minimum dry film thickness of each coat (primer, intermediate, top, and all stripe
46 coats) shall not be less than 3.0 mils. The dry film thickness shall not be thicker than
47 the paint manufacturer's recommended maximum thickness.

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49 The minimum wet film thickness of each coat shall be specified by the paint
50 manufacturer to achieve the minimum dry film thickness.

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Film thickness, wet and dry, will be measured by gages conforming to Section 6-07.3(8)A. Wet measurements will be taken immediately after the paint is applied in accordance with ASTM D 4414. Dry measurements will be taken after the coating is dry and hard in accordance with SSPC Paint Application Specification Section No. 2.

Each painter shall be equipped with a wet film thickness gauge, and shall be responsible for performing frequent checks of the paint film thickness throughout application.

Coating thickness measurements may be made by the Engineer after the application of each coat and before the application of the succeeding coat. In addition, the Engineer may inspect for uniform and complete coverage and appearance. One hundred percent of all thickness measurements shall meet or exceed the minimum wet film thickness. In areas where wet film thickness measurements are impractical, dry film thickness measurements may be made. If a question arises about an individual coat thickness or coverage, it may be verified by the use of a Tooke gauge in accordance with ASTM D 4138.

If the specified number of coats does not produce a combined dry film thickness of at least the sum of the thicknesses required per coat, or if an individual coat does not meet the minimum thickness, or if visual inspection shows incomplete coverage, the coating system will be rejected, and the Contractor shall discontinue painting and surface preparation operations and shall submit a proposal for repair to the Engineer. The repair proposal shall include documentation demonstrating the cause of the less than minimum thickness along with physical test results, as necessary, and modifications to work methods to prevent similar results. The Contractor shall not resume painting or surface preparation operations until receiving the Engineer's approval of the completed repair.

6-07.5 Payment

The last sentence in the paragraph starting with "Progress payments for "Cleaning and Painting" is revised to read:

Payment will not be made for areas that are otherwise complete but have repairs outstanding.

6-09.AP6

**SECTION 6-09, MODIFIED CONCRETE OVERLAYS
August 2, 2010**

6-09.3(1)E Air Compressor

In the first paragraph "roadway" is deleted and replaced with "bridge".

6-09.3(6) Further Deck Preparation

In the second paragraph, item number 3. and 4. are revised to read:

- 3. Existing non-concrete patches as authorized by the Engineer.
- 4. Additionally, for concrete surfaces scarified by rotomilling only, exposure of reinforcing steel to a depth of one-half of the periphery of a bar for a distance of 12-inches or more along the bar.

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6-09.3(6)B Deck Repair Preparation

In the first paragraph, the second sentence is revised to read:

For concrete surfaces scarified by rotomilling, concrete shall be removed to provide a 3/4-inch minimum clearance around the top mat of steel reinforcing bars only where unsound concrete exists around the top mat of steel reinforcing bars, or if the bond between concrete and the top mat of steel is broken.

6-10.AP6

**SECTION 6-10, CONCRETE BARRIER
January 3, 2011**

6-10.3(1) Precast Concrete Barrier

The third paragraph is deleted.

In the seventh paragraph, the following sentence is inserted after the first sentence:

If Self Consolidating Concrete is used the concrete shall conform to Sections 6-02.3(27)B and 6-02.3(27)C.

In the 12th paragraph, the first sentence is revised to read:

Only 1 section less than 20-feet long for single slope barrier and 10-feet long for all other barriers may be used in any single run of precast barrier, and it must be at least 8-feet long.

6-10.3(6) Placing Concrete Barrier

The first paragraph is revised to read:

Precast concrete barrier Type 2, 3, 4 and transitions shall rest on a paved foundation shaped to a uniform grade and section. The foundation surface for precast concrete barrier Type 2, 3, 4 and transitions shall meet this test for uniformity:

When a 10-foot straightedge is placed on the surface parallel to the centerline for the barrier, the surface shall not vary more than 1/4-inch from the lower edge of the straightedge. If deviations exceed 1/4-inch, the Contractor shall correct them as required in Section 5-04.3(13).

In the second paragraph, the first sentence is revised to read:

The Contractor shall align the joints of all precast barrier segments so that they offset no more than 1/4-inch transversely and no more than 3/4-inch vertically.

6-11.AP6

**SECTION 6-11 REINFORCED CONCRETE WALLS
January 3, 2011**

6-11.3(3) Precast Concrete Wall Stem Panels

The first paragraph is supplemented with the following:

1 If Self Consolidating Concrete is used the concrete shall conform to Sections 6-
2 02.3(27)B and 6-02.3(27)C.

3
4 6-12.AP6

5 **SECTION 6-12, NOISE BARRIER WALLS**

6 **January 3, 2011**

7 **6-12.3(6) Precast Concrete Panel Fabrication and Erection**

8 Item number 1 is revised to read:

9
10 1. Concrete shall conform to Class 4000. If Self Consolidating Concrete is used the
11 concrete shall conform to Sections 6-02.3(27)B and 6-02.3(27)C.

12
13 The second sentence of the first paragraph in Item 3 is revised to read:

14
15 The Contractor shall cast the precast concrete panels horizontally.

16
17 6-13.AP6

18 **SECTION 6-13, STRUCTURAL EARTH WALLS**

19 **August 1, 2011**

20 **6-13.3(2) Submittals**

21 This section is revised to read:

22
23 The Contractor, or the supplier as the Contractor's agent, shall furnish to the Engineer a
24 Manufacturer's Certificate of Compliance in accordance with Section 1-06.3, certifying
25 that the structural earth wall materials conform to the specified material requirements.
26 This includes providing a Manufacturer's Certificate of Compliance for all concrete
27 admixtures, cement, fly ash, steel reinforcing bars, reinforcing strips, reinforcing mesh,
28 tie strips, fasteners, welded wire mats, backing mats, construction geotextile for wall
29 facing, drainage geosynthetic fabric, block connectors, and joint materials. The
30 Manufacturer's Certificate of Compliance for geogrid reinforcement shall include the
31 information specified in Section 9-33.4(4) for each geogrid roll, and shall specify the
32 geogrid polymer types for each geogrid roll.

33
34 A copy of all test results, performed by the Contractor or the Contractor's supplier, which
35 are necessary to assure compliance with the specifications, shall be submitted to the
36 Engineer along with each Manufacturer's Certificate of Compliance.

37
38 Before fabrication, the Contractor shall submit a field construction manual for the
39 structural earth walls, prepared by the wall manufacturer, to the Engineer for approval in
40 accordance with Section 6-01.9. This manual shall provide step-by-step directions for
41 construction of the wall system.

42
43 The Contractor, through the license/patent holder for the structural earth wall system,
44 shall submit detailed design calculations and working drawings to the Engineer for
45 approval in accordance with Section 6-01.9. If not prepared by the license/patent holder
46 for the structural earth system, the design calculation and working drawing submittal
47 shall include documentation that the design calculation and working drawing submittal
48 has been reviewed by, and received the concurrence of, the headquarters organization
49 of the structural earth wall manufacturer as identified in the Special Provisions. Review
50 and concurrence by a sales representative office is not acceptable.

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The Contractor shall not begin wall construction until receiving the Engineer's written approval of the material certifications and test results, design calculations and working drawing submittals.

This section is supplemented with the following new subsections:

6-13.3(2)A Design Calculation Content Requirements

The design calculation submittal shall include detailed design calculations based on the wall geometry and design parameters specified in the Plans and Special Provisions. The calculations shall include detailed explanations of any symbols, design input, materials property values, and computer programs used in the design of the walls. All computer output submitted shall be accompanied by supporting hand calculations detailing the calculation process. If MSEW 3.0, or later version, is used for the wall design, hand calculations supporting MSEW are not required.

The design calculations shall be based on the current AASHTO LRFD Bridge Design Specifications, including current interims, the current WSDOT Bridge Design Manual LRFD (BDM) and WSDOT Geotechnical Design Manual (GDM), and also based on the following:

1. The wall design calculations shall address all aspects of wall internal stability for the service, strength, and extreme event limit states.
2. The wall surcharge conditions (backfill slope) shown in the Plans.
3. If a highway is adjacent to and on top of the wall, a two foot surcharge shall be used in the design.
4. If the Plans detail an SEW traffic barrier or SEW pedestrian barrier on top of the wall, the barrier shall be designed for a minimum TL-4 impact load, unless otherwise specified in the Plans or Special Provisions.
5. If the Plans detail an SEW traffic barrier or SEW pedestrian barrier on top of the wall, the wall shall be designed for the impact load transferred from the barrier to the wall.
6. The geotechnical design parameters for the wall shall be as specified in the Special Provisions
7. The soil reinforcement length shall be as shown in the Plans. If the Plans do not show a length, the length shall be either 6'-0" or 0.7 times the wall design height H, whichever is greater.

If there are differences in design requirements between the AASHTO LRFD Bridge Design Specifications and the BDM or GDM, the BDM and GDM requirements shall govern.

6-13.3(2)B Working Drawing Content Requirements

All design details shown in the working drawings shall be selected from the design details and products specified for the specific structural earth wall manufacturer in the Preapproved Wall Appendix in the current WSDOT Geotechnical Design Manual (GDM). Geosynthetic reinforcement shown in the working drawings shall be selected

- 1 from the products listed in the current WSDOT Qualified Products List (QPL).
2 Substitution of design details and products not listed in the current WSDOT GDM or
3 QPL will not be allowed.
4
- 5 The working drawing submittal shall include all details, dimensions, quantities, and
6 cross-sections necessary to construct the wall based on the wall geometry and design
7 parameters specified in the Plans and Special Provisions, and shall include, but not be
8 limited to, the following items:
9
- 10 1. A plan and elevation sheet or sheets for each wall, containing the following:
 - 11 a. An elevation view of the wall that includes the following:
 - 12 i. the elevation at the top of the wall, at all horizontal and vertical break
13 points, and at least every 50-feet along the wall;
 - 14 ii. elevations at the base of welded wire mats or the top of leveling pads
15 and foundations, and the distance along the face of the wall to all
16 steps in the welded wire mats, foundations and leveling pads;
 - 17 iii. the designation as to the type of panel, block, or module;
 - 18 iv. the length, size, and number of geogrids or mesh or strips, and the
19 distance along the face of the wall to where changes in length of the
20 geogrids or mesh or strips occur; or
 - 21 v. the length, size, and wire sizes and spacing of the welded wire mats
22 and backing mats, and the distance along the face of the wall to
23 where changes in length, size, and wire sizes and spacing of the
24 welded wire mats and backing mats occur; and
 - 25 vi. the location of the original and final ground line.
 - 26 b. A plan view of the wall that indicates the offset from the construction
27 centerline to the face of the wall at all changes in horizontal alignment; the
28 limit of the widest module, geogrid, mesh, strip or welded wire mat, and
29 the centerline of any drainage structure or drainage pipe which is behind
30 or passes under or through the wall.
 - 31 c. General notes, if any, required for design and construction of the wall
 - 32 d. All horizontal and vertical curve data affecting wall construction.
 - 33 e. A listing of the summary of quantities provided on the elevation sheet of
34 each wall for all items including incidental items.
 - 35 f. Cross-section showing limits of construction. In fill sections, the cross-
36 section shall show the limits and extent of select granular backfill material
37 placed above original ground.
 - 38 g. Limits and extent of reinforced soil volume.

- 1 2. All details including steel reinforcing bar bending details. Bar bending details
2 shall be in accordance with Section 9-07.1.
3
- 4 3. All details for foundations and leveling pads, including details for steps in the
5 foundations or leveling pads.
6
- 7 4. All modules and facing elements shall be detailed. The details shall show all
8 dimensions necessary to construct the element, all steel reinforcing bars in the
9 element, and the location of reinforcement element attachment devices
10 embedded in the precast concrete facing panel or concrete block.
11
- 12 5. All details for construction of the wall around drainage facilities, sign, signal,
13 luminaire, and noise barrier wall foundations, and structural abutment and
14 foundation elements shall be clearly shown.
15
- 16 6. All details for connections to SEW traffic or pedestrian barriers, coping,
17 parapets, noise barrier walls, and attached lighting shall be shown.
18
- 19 7. All details for the SEW traffic or pedestrian barrier attached to the top of the
20 wall (if shown in the Plans) including interaction with bridge approach slabs.
21

22 **6-13.3(3) Excavation and Foundation Preparation**

23 The first sentence in the first paragraph is revised to read:

24
25 Excavation shall conform to Section 2-09.3(3).
26

27 **6-13.3(4) Precast Concrete Facing Panel and Concrete Block Fabrication**

28 Item number 1 in the first paragraph is revised to read:

- 29
30 1. Have a minimum 28 day compressive strength of 4,000 pounds per square inch,
31 unless otherwise specified in the Special Provisions for specific proprietary wall
32 systems. If Self Consolidating Concrete is used the concrete shall conform to
33 Sections 6-02.3(27)B and 6-02.3(27)C.
34

35 **6-13.4 Measurement**

36 The fourth paragraph is deleted
37

38 **6-13.5 Payment**

39 The bid items "Structure Excavation Class B", per cubic yard, "Structure Excavation Class B
40 Incl. Haul", per cubic yard, and "Shoring Or Extra Excavation Class B", per square foot, are
41 deleted from this section.
42

43 The paragraph after the bid item "Structural Earth Wall" is revised to read:

44
45 "Structural Earth Wall", per square foot.

46 The unit Contract price per square foot for "Structural Earth Wall" shall be full payment
47 for all costs to perform the Work in connection with constructing structural earth walls
48 including leveling pads and copings when specified.
49

50 The paragraph after the bid item "Backfill for Structural Earth Wall" is revised to read:
51

1 The unit Contract price per cubic yard for “Backfill for Structural Earth Wall Incl. Haul”
2 shall be full payment for all costs to perform the Work in connection with furnishing and
3 placing backfill for structural earth wall including hauling and compacting the backfill,
4 and furnishing and placing the wall facing backfill for welded wire faced structural earth
5 walls.

6
7 6-14.AP6

8 **SECTION 6-14, GEOSYNTHETIC RETAINING WALLS**

9 **April 4, 2011**

10 **6-14.2 Materials**

11 In the first paragraph, the following three items are inserted above the item “Gravel Borrow
12 For Geosynthetic Retaining Wall”:

13

14	Portland Cement	9-01
15	Aggregates for Portland Cement Concrete	9-03.1
16	Sand	9-03.13(1)

17

18 In the first paragraph, the following four items are inserted after the item “Gravel Borrow For
19 Geosynthetic Retaining Wall”:

20

21	Anchor rods and associated nuts, washers and couplers	9-06.5(1)
22	Reinforcing Steel	9-07
23	Wire Mesh for Concrete Reinforcement	9-07.7
24	Grout	9-20.3(2)

25

26 **6-14.3(3) Excavation and Foundation Preparation**

27 The first sentence in the first paragraph is revised to read:

28
29 Excavation shall conform to Section 2-09.3(3).

30
31 **6-14.3(6) Permanent Facing**

32 The last sentence in the first paragraph is revised to read:

33
34 Concrete fascia panel, if shown in the Plans, shall conform to Section 6-15.3(9), if cast-
35 in-place, and shall conform to Section 6-02.3(28), if precast.

36
37 **6-14.4 Measurement**

38 The fifth paragraph is deleted

39
40 **6-14.5 Payment**

41 The bid items “Structure Excavation Class B”, per cubic yard, “Structure Excavation Class B
42 Incl. Haul”, per cubic yard, and “Shoring Or Extra Excavation Class B”, per square foot, are
43 deleted from this section.

44
45 The paragraph following the bid item “Concrete Fascia Panel” is revised to read:

46
47 All costs in connection with constructing the concrete fascia panels as specified shall be
48 included in the unit contract price per square foot for “Concrete Fascia Panel”, including
49 all steel reinforcing bars, premolded joint filler, polyethylene bond breaker strip, joint
50 sealant, PVC pipe for weep holes, exterior surface finish, and pigmented sealer (when
51 specified), and all costs associated with precast concrete construction of concrete fascia

1 panels, including working drawing submittals, shipping, handling, protection, erection,
2 temporary support following erection, constructing and placing the concrete leveling
3 pad, edge beam, anchor beam, anchor rod assembly and backfill.
4

5 6-16.AP6

6 **SECTION 6-16, SOLDIER PILE AND SOLDIER PILE TIEBACK WALLS**

7 **August 2, 2010**

8 **6-16.5 Payment**

9 The first sentence in the paragraph following the bid item "Furnishing Soldier Pile ____", per
10 linear foot, is revised to read:

11

12 All costs in connection with furnishing soldier pile assemblies shall be included in the
13 unit contract price per linear foot for "Furnishing Soldier Pile - ____", including fabricating
14 and painting the pile assemblies, and field splicing and field trimming the soldier piles.
15

16 6-17.AP6

17 **SECTION 6-17, PERMANENT GROUND ANCHORS**

18 **August 1, 2011**

19 **6-17.3(3) Submittals**

20 Item number 2 in the third paragraph is revised to read:

21

22 2. Ground anchor factored design load
23

24 **6-17.3(5) Tendon Fabrication**

25 In the second paragraph, the second sentence is revised to read:

26

27 The tendon shall be sized so the factored design load does not exceed 80 percent of
28 the minimum guaranteed ultimate tensile strength of the tendon.
29

30 In the third paragraph, the first sentence is revised to read:

31

32 The Contractor shall be responsible for determining the bond length and tendon bond
33 length necessary to develop the factored design load indicated in the Plans in
34 accordance with Sections 6-17.3(8)A, 6-17.3(8)B, and 6-17.3(8)C.
35

36 **6-17.3(8)B Performance Testing**

37 The second paragraph including the following performance test schedule is revised to read:

38

39 The performance test shall be made by incrementally loading and unloading the ground
40 anchor in accordance with the following schedule, consistent with the Load Resistance
41 Factor Design (LRFD) design method. The load shall be raised from one increment to
42 another immediately after a deflection reading.
43

44 Performance Test Schedule
45

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
Jack to lock-off load

1
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Where: AL - is the alignment load
FDL - is the factored design load.

6-17.3(8)C Proof Testing

In the first paragraph, the first sentence is revised to read:

Proof tests shall be performed by incrementally loading the ground anchor in accordance with the following schedule, consistent with the LRFD design method.

The proof test schedule following the first paragraph is revised to read:

Proof Test Schedule
Load
AL
0.25FDL
0.50FDL
0.75FDL
1.00FDL
Jack to lock-off load

13
14
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19
20
21
22

Where: AL - is the alignment load
FDL - is the factored design load

6-18.AP6

SECTION 6-18, SHOTCRETE FACING

January 3, 2011

6-18.2 Materials

In the first paragraph, the following three items are inserted after the item "Fly Ash 9-23.9":

1		
2	Ground Granulated Blast Furnace Slag	9-23.10
3	Microsilica Fume	9-23.11
4	Metakaolin	9-23.12
5		

6 **6-18.3(3) Testing**

7 The first paragraph is revised to read:

8
9 The Contractor shall make shotcrete test panels for evaluation of shotcrete quality,
10 strength, and aesthetics. Both preproduction and production test panels, shall be
11 prepared. The Contractor shall remove at least 3 cores from shotcrete test panels in
12 accordance with AASHTO T 24 except all cores obtained for the purpose of shotcrete
13 strength testing shall meet the following:

- 14
- 15 a. The core diameter shall be at least 3 times the maximum aggregate size, but
 - 16 not less than 4-inches.
 - 17 b. The core length shall be a minimum of 2.0 times the core diameter.
 - 18 c. Cores shall be taken at a minimum distance of 1-inch from edge of core to
 - 19 edge of test panel and a minimum clear distance of 1-inch between them.
 - 20 d. Test panels shall be sized to meet the core spacing specified above, but in no
 - 21 case shall be smaller than 12-inch by 12-inch.

22
23 The first sentence in the second paragraph is deleted.

24
25 The second sentence in the second paragraph is revised to read :

26
27 Cores removed from the panels shall be wiped off to remove surface drill water and
28 immediately wrapped in wet burlap and sealed in a plastic bag.

29
30 **6-18.3(3)A Pre-production Testing**

31 This section is revised to read:

32
33 At least three cores for each mix design shall be prepared for evaluation and testing of
34 the shotcrete quality and strength. One 48-inch by 48-inch qualification panel shall be
35 prepared for evaluation and approval of the proposed method for shotcrete installation,
36 finishing, and curing. Both the test panel and the 48-inch qualification panels shall be
37 constructed using the same methods and initial curing proposed to construct the
38 shotcrete facing, except that the test panel shall not include wire reinforcement. The test
39 panel shall be constructed to the minimum thickness necessary to obtain the required
40 core samples. The 48-inch qualification panel shall be constructed to the same
41 thickness as proposed for the production facing. Production shotcrete Work shall not
42 begin until satisfactory test results are obtained and the panels are approved by the
43 Engineer.

44
45 **6-18.3(3)B Production Testing**

46 The first sentence is revised to read:

47
48 The Contractor shall provide three cores for each section of facing shot.

49
50 This section is supplemented with the following:

51

1 Core acceptance testing for the 28 day compressive strength will be performed in
2 accordance with AASHTO T 24.

3
4 **6-18.3(4) Qualifications of Contractor's Personnel**

5 The second paragraph is supplemented with the following:

6
7 The 7 day core compressive strength shall be tested by the Contractor in accordance
8 with AASHTO T 24.

9
10 7-02.AP7

11 **SECTION 7-02, CULVERTS**

12 **January 3, 2011**

13 **7-02.2 Materials**

14 In the first paragraph, the following three items are inserted after the item "Corrugated
15 Polyethylene Culvert Pipe 9-05.19":

16

17 Steel Rib Reinforced Polyethylene Culvert Pipe	9-05.21
18 High Density Polyethylene (HDPE) Pipe	9-05.23
19 Polypropylene Culvert Pipe	9-05.25

20

21 The third paragraph is revised to read:

22
23 Thermoplastic culvert pipe includes solid wall PVC culvert pipe, profile wall PVC culvert
24 pipe, corrugated polyethylene culvert pipe, and polypropylene culvert pipe.

25
26 In the 'Culvert Pipe Schedules' table, the last column is revised to read:

27

Thermoplastic PE ¹ , PVC ² or PP ³
PE, PVC, or PP
PE, PVC, or PP
PE, PVC, or PP
PE, PVC, or PP
PE, PVC, or PP
PE, PVC, or PP
None
None
None
None
None
None
None

28

29 The footnotes below the 'Culvert Pipe Schedules' table are supplemented with the
30 following:

31

32 3 Polypropylene pipe

33

34 **7-02.5 Payment**

35 This section is supplemented with the following:

36

- 1 "Steel Rib Reinforced Polyethylene Culvert Pipe ____ In. Diam.", per linear foot.
- 2 "High Density Polyethylene (HDPE) Pipe ____ In. Diam.", per linear foot.
- 3 "Polypropylene Culvert Pipe ____ In. Diam.", per linear foot.

4
5 7-04.AP7

6 **SECTION 7-04, STORM SEWERS**

7 **January 3, 2011**

8 **7-04.2 Materials**

9 In the first paragraph, the following three items are inserted after the item "Corrugated
10 Polyethylene Storm Sewer Pipe 9-05.20":

11

12	Steel Rib Reinforced Polyethylene Storm Sewer Pipe	9-05.22
13	High Density Polyethylene (HDPE) Pipe	9-05.23
14	Polypropylene Storm Sewer Pipe	9-05.25

15
16 The third paragraph is revised to read:

17
18 Thermoplastic storm sewer pipe includes solid wall PVC storm sewer pipe, profile wall
19 PVC storm sewer pipe, corrugated polyethylene storm sewer pipe, and polypropylene
20 storm sewer pipe.

21
22 In the '**Storm Sewer Pipe Schedules**' table, the fifth column heading is revised to read:

23

PE ²
PP ⁴

24
25 The footnotes below the '**Storm Sewer Pipe Schedules**' table are supplemented with the
26 following:

27
28 4 PP=Polypropylene pipe

29
30 **7-04.5 Payment**

31 This section is supplemented with the following:

- 32
- 33 "Steel Rib Reinforced Polyethylene Storm Sewer Pipe ____ In. Diam.", per linear foot.
 - 34 "High Density Polyethylene (HDPE) Pipe ____ In. Diam.", per linear foot.
 - 35 "Polypropylene Storm Sewer Pipe ____ In. Diam.", per linear foot.

36
37 7-09.AP7

38 **SECTION 7-09, WATER MAINS**

39 **August 1, 2011**

40 **7-09.3(24)A Flushing**

41 The last two paragraphs are revised to read:

42
43 The Contractor shall be responsible for disposal of treated water flushed from mains
44 and shall neutralize the wastewater for protection of aquatic life in the receiving water
45 before disposal into any natural drainage channel i.e., receiving water, waters of the
46 State, including wetlands. The Contractor shall be responsible for disposing of
47 disinfecting solution to the satisfaction of the Contracting Agency and local authorities.
48 At a minimum, chlorinated water shall be dechlorinated to a concentration of 0.1 parts

1 per million(ppm) or less, and pH adjustment to within 6.5 – 8.5 standard units before
2 discharging to surface waters of the State or to a storm sewer system that drains to
3 surface waters of the State.
4

5 If approved by the Engineer and by the local authority responsible for the sanitary sewer
6 system, disposal of treated water from mains may be made to an available sanitary
7 sewer provided the rate of disposal will not overload the sewer.
8

9 **7-09.3(24)N Final Flushing and Testing**

10 The section is supplemented with the following:

11
12 At a minimum, chlorinated water shall be dechlorinated to a concentration of 0.1 parts
13 per million(ppm) or less, and pH adjustment to within 6.5 – 8.5 standard units, if
14 necessary, before discharging to surface waters of the State or to a storm sewer system
15 that drains to surface waters of the State.
16

17 **7-09.5 Payment**

18 The paragraph following the bid item “_____ Pipe for Water Main _____ In. Diam.” is
19 revised to read:

20
21 The unit Contract price per linear foot for each size and kind of “_____ Pipe for
22 Water Main _____ In. Diam.” shall be full pay for all Work to complete the installation of
23 the water main including but not limited to trench excavation, bedding, laying and
24 jointing pipe and fittings, backfilling, concrete thrust blocking, testing, disinfecting the
25 pipeline, flushing, dechlorination of water used for flushing and cleanup.
26

27 7-17.AP7

28 **SECTION 7-17, SANITARY SEWERS** 29 **January 3, 2011**

30 **7-17.2 Materials**

31 The first paragraph is revised to read:

32
33 Pipe used for sanitary sewers may be:

34	35 Rigid	36 Thermoplastic
36	Concrete	ABS Composite
37	Vitrified Clay	PVC (Polyvinyl Chloride)
38	Ductile Iron	Polypropylene

39
40 The fourth paragraph is supplemented with the following item:

41
42 Polypropylene Sewer pipe 9-05.25
43

44 **7-17.5 Payments**

45 The following bid item is inserted after the bid item “ABS Composite Sewer Pipe__In. Diam”:

46
47 “Polypropylene Sewer Pipe _____ In. Diam.”, per linear foot.
48

1 8-01.AP8
2 **SECTION 8-01, EROSION CONTROL AND WATER POLLUTION CONTROL**
3 **August 1, 2011**

4 **8-01.2 Materials**

5 In the first paragraph, the following is inserted after the first sentence:

6
7 Corrugated Polyethylene Drain Pipe 9-05.1(6)
8

9 **8-01.3(1) General**

10 In the sixth paragraph, the first sentence is revised to read:

11
12 When natural elements rut or erode the slope, the Contractor shall restore and repair
13 the damage with the eroded material where possible, and remove and dispose of any
14 remaining material found in ditches and culverts.
15

16 In the seventh paragraph the first two sentences are deleted.

17
18 The table in the seventh paragraph is revised to read:

19

<u>Western Washington (West of the Cascade Mountain crest)</u>	
May 1 through September 30	17 Acres
October 1 through April 30	5 Acres

23

<u>Eastern Washington (East of the Cascade Mountain crest.)</u>	
April 1 through October 31	17 Acres
November 1 through March 31	5 Acres

27

28 The eighth paragraph is revised to read:

29
30 The Engineer may increase or decrease the limits based on project conditions.
31

32 The ninth paragraph is revised to read:

33
34 Erodible earth is defined as any surface where soils, grindings, or other materials may
35 be capable of being displaced and transported by rain, wind, or surface water runoff.
36

37 The 10th paragraph is revised to read:

38
39 Erodible earth not being worked, whether at final grade or not, shall be covered within
40 the specified time period, (see the tables below) using an approved soil covering
41 practice.
42

43

<u>Western Washington (West of the Cascade Mountain crest)</u>	
October 1 through April 30	2-days maximum
May 1 to September 30	7-days maximum

46

47

<u>Eastern Washington (East of the Cascade Mountain crest.)</u>	
October 1 through June 30	5-days maximum
July 1 through September 30	10-days maximum

51

1 **8-01.3(1)A Submittals**

2 This section is revised to read:

3

4 When a Temporary Erosion and Sediment Control (TESC) Plan is included in the Plans,
5 the Contractor shall either adopt or modify the existing TESC Plan. The Contractor shall
6 provide a schedule for TESC Plan implementation and incorporate it into the
7 Contractor's progress schedule. The Contractor shall obtain the Engineer's approval of
8 the TESC Plan and schedule before any work begins.

9

10 Modified TESC Plans shall meet all requirements of Chapter 6, Section 6-2 of the
11 current edition of the WSDOT Highway Runoff Manual. The TESC Plan shall cover all
12 areas the Contractor's Work may affect inside and outside the limits of the project
13 (including all Contracting Agency provided sources, disposal sites, and haul roads, and
14 all nearby land, streams, and other bodies of water).

15

16 The Contractor shall allow at least 5-working days for the Engineer to review any
17 original or revised TESC Plan. Failure to approve all or part of any such Plan shall not
18 make the Contracting Agency liable to the Contractor for any Work delays.

19

20 **8-01.3(1)B Erosion and Sediment Control (ESC) Lead**

21 The first sentence in the third paragraph is revised to read:

22

23 When a TESC Plan is included in the Contract Plans, the ESC Lead shall also inspect
24 all areas disturbed by construction activities, all on-site erosion and sediment control
25 BMP's, and all stormwater discharge points at least once every calendar week and
26 within 24-hours of runoff events in which stormwater discharges from the site.
27 Inspections of temporarily stabilized, inactive sites may be reduced to once every
28 calendar month.

29

30 In the last paragraph, "Form Number 220-030 EF" is revised to read "WSDOT Form Number
31 220-030 EF".

32

33 **8-01.3(1)C Water Management**

34 In number 2., the reference to "Standard Specification" is revised to read "Section".

35

36 Number 3., is revised to read:

37

38 3. Offsite Water

39 Prior to disruption of the normal watercourse, the Contractor shall intercept the
40 offsite stormwater and pipe it either through or around the project site. This water
41 shall not be combined with onsite stormwater. It shall be discharged at its pre-
42 construction outfall point in such a manner that there is no increase in erosion
43 below the site. The method for performing this Work shall be submitted by the
44 Contractor for the Engineer's approval.

45

46 **8-01.3(1)D Dispersion/Infiltration**

47 This section is revised to read:

48

49 Water shall be conveyed only to dispersion or infiltration areas designated in the TESC
50 Plan or to sites approved by the Engineer. Water shall be conveyed to designated
51 dispersion areas at a rate such that, when runoff leaves the area, and enters waters of

1 the State, turbidity standards are achieved. Water shall be conveyed to designated
2 infiltration areas at a rate that does not produce surface runoff.

3

4 **8-01.3(2)B Seeding and Fertilizing**

5 The fourth paragraph is revised to read:

6

7 The seed applied using a hydroseeder shall have a tracer added to visibly aid uniform
8 application. This tracer shall not be harmful to plant, aquatic or animal life. If Short Term
9 Mulch is used as a tracer, the application rate shall not exceed 250-pounds per acre.

10

11 In the fifth paragraph, "hydro seeder" is revised to read "hydroseeder".

12

13 **8-01.3(2)D Mulching**

14 In the second paragraph, the second sentence is revised to read:

15

16 Wood strand mulch shall be applied by hand or by straw blower on seeded areas.

17

18 In the third paragraph, "1" is revised to read "a single" and "hydro seeder" is revised to read
19 "hydroseeder".

20

21 The fourth paragraph is revised to read:

22

23 Temporary seed applied outside the application windows established in 8-01.3(2)F shall
24 be covered with a mulch containing either Moderate Term Mulch or Long Term Mulch,
25 as designated by the Engineer.

26

27 **8-01.3(2)E Tacking Agent and Soil Binders**

28 The following new paragraph is inserted at the beginning of this Section:

29

30 Tacking agent or soil binders applied using a hydroseeder shall have a mulch tracer
31 added to visibly aid uniform application. This tracer shall not be harmful to plant, aquatic
32 or animal life. If Short Term Mulch is used as a tracer, the application rate shall not
33 exceed 250-pounds per acre.

34

35 The third sentence in the first paragraph below "**Soil Binding Using Polyacrylamide**
36 **(PAM)**" is revised to read:

37

38 A minimum of 200-pounds per acre of Short Term Mulch shall be applied with the
39 dissolved PAM.

40

41 In the second paragraph below "**Soil Binding Using Polyacrylamide (PAM)**", "within" is
42 revised to read "after".

43

44 The paragraph "**Soil Binding Using Bonded Fiber Matrix (BFM)**" including title is revised
45 to read:

46

47 **Soil Binding Using Moderate Term Mulch**

48 The Moderate Term Mulch shall be hydraulically applied in accordance with the
49 manufacturer's installation instructions. The Moderate Term Mulch may require a 24 to
50 48 hour curing period to achieve maximum performance and shall not be applied when

1 precipitation is predicted within 24 to 48 hours, or on saturated soils, as determined by
2 the Engineer.

3
4 The last paragraph including titled is revised to read:

5
6 **Soil Binding Using Long Term Mulch**

7 The Long Term Mulch shall be hydraulically applied in accordance with the
8 manufacturer's installation instructions and recommendations.

9
10 **8-01.3(2)F Dates for Application of Final Seed, Fertilizer, and Mulch**

11 The first paragraph is revised to read:

12
13 Unless otherwise approved by the Engineer, the final application of seeding, fertilizing,
14 and mulching of slopes shall be performed during the following periods:

15
16 **Western Washington¹**

17 (West of the Cascade Mountain crest)

18 March 1 through May 15

19 September 1 through October 1

20
21 **Eastern Washington**

22 (East of the Cascade Mountain crest)

23 October 1 through November 15 only

24
25 ¹ Where Contract timing is appropriate, seeding, fertilizing, and mulching shall be
26 accomplished during the fall period listed above. Written permission to seed after
27 October 1 will only be given when Physical Completion of the project is imminent and
28 the environmental conditions are conducive to satisfactory growth.

29
30 **8-01.3(2)G Protection and Care of Seeded Areas**

31 The first paragraph is revised to read:

32
33 The Contractor shall be responsible to ensure a healthy stand of grass. The Contractor
34 shall restore eroded areas, clean up and properly dispose of eroded materials, and
35 reapply the seed, fertilizer, and mulch, at no additional cost to the Contracting Agency.

36
37 In the second paragraph, number 1. is revised to read:

38
39 1. At the Contractor's expense, seed, fertilizer and mulch shall be reapplied in areas
40 that have been damaged through any cause prior to final inspection, and reapplied
41 to areas that have failed to receive a uniform application at the specified rate.

42
43 **8-01.3(2)H Inspection**

44 The first sentence is revised to read:

45
46 Inspection of seeded areas will be made upon completion of seeding, temporary
47 seeding, fertilizing, and mulching.

48
49 The third sentence is revised to read:

50
51 Areas that have not received a uniform application of seed, fertilizer, or mulch at the
52 specified rate, as determined by the Engineer, shall be reseeded, refertilized, or
remulched at the Contractor's expense prior to payment.

53
54 **8-01.3(2)I Mowing**

55 In the first paragraph, the last sentence is revised to read:

1
2 Trimming around traffic facilities, Structures, planting areas, or other features extending
3 above ground shall be accomplished preceding or simultaneously with each mowing.
4

5 **8-01.3(3) Placing Erosion Control Blanket**

6 In the first sentence, "Standard" is deleted.

7
8 The second sentence is revised to read:

9
10 Temporary erosion control blankets, having an open area of 60-percent or greater, may
11 be installed prior to seeding.
12

13 **8-01.3(4) Placing Compost Blanket**

14 In the first paragraph, "before" is revised to read "prior to".

15
16 The last sentence is revised to read:

17
18 Compost shall be Coarse Compost.
19

20 **8-01.3(5) Placing Plastic Covering**

21 The first sentence is revised to read:

22
23 Plastic shall be placed with at least a 12-inch overlap of all seams.
24

25 **8-01.3(6)A Geotextile-Encased Check Dam**

26 The first paragraph is deleted.

27
28 **8-01.3(6)B Rock Check Dam**

29 This section including title is revised to read:

30
31 **8-01.3(6)B Quarry Spall Check Dam**

32 The rock used to construct rock check dams shall meet the requirements for quarry
33 spalls.
34

35 **8-01.3(6)D Wattle Check Dam**

36 This section is revised to read:

37
38 Wattle check dams shall be installed in accordance with the Plans.
39

40 **8-01.3(6)E Coir Log**

41 This section is revised to read:

42
43 Coir logs shall be installed in accordance with the Plans.
44

45 **8-01.3(9)A Silt Fence**

46 In the second paragraph, the second sentence is revised to read:

47
48 The strength of the wire or plastic mesh shall be equivalent to or greater than what is
49 required in Section 9-33.2(1), Table 6 for unsupported geotextile (i.e., 180 lbs. grab
50 tensile strength in the machine direction).
51

1 **8-01.3(9)B Gravel Filter, Wood Chip or Compost Berm**

2 In the second paragraph, the last sentence is deleted.

3

4 The third paragraph is revised to read:

5

6 The Compost Berm shall be constructed in accordance with the detail in the Plans.
7 Compost shall be Coarse Compost.

8

9 **8-01.3(9)C Straw Bale Barrier**

10 This section is revised to read:

11

12 Straw Bale Barriers shall be installed in accordance with the Plans.

13

14 **8-01.3(9)D Inlet Protection**

15 The first three paragraphs are revised to read:

16

17 Inlet protection shall be installed below or above, or as a prefabricated cover at each
18 inlet grate, as shown in the Plans. Inlet protection devices shall be installed prior to
19 beginning clearing, grubbing, or earthwork activities.

20

21 Geotextile fabric in all prefabricated inlet protection devices shall meet or exceed the
22 requirements of Section 9-33.2, Table 1 for Moderate Survivability, and the minimum
23 filtration properties of Table 2.

24

25 When the depth of accumulated sediment and debris reaches approximately $\frac{1}{2}$ the
26 height of an internal device or $\frac{1}{3}$ the height of the external device (or less when so
27 specified by the manufacturers) or as designated by the Engineer, the deposits shall be
28 removed and stabilized on site in accordance with Section 8-01.3(16).

29

30 **8-01.3(10) Wattles**

31 In the first paragraph, the third sentence is revised to read:

32

33 Excavated material shall be spread evenly along the uphill slope and be compacted
34 using hand tamping or other method approved by the Engineer.

35

36 This section is supplemented with the following new paragraph:

37

38 The Contractor shall exercise care when installing wattles to ensure that the method of
39 installation minimizes disturbance of waterways and prevents sediment or pollutant
40 discharge into waterbodies.

41

42 **8-01.3(12) Compost Sock**

43 In the first paragraph, "sock" is revised to read "socks" and "streambed" is revised to read
44 "waterbodies".

45

46 In the second paragraph "bank" is revised to read "slope".

47

48 In the third paragraph "and" is revised to read "or".

49

50 This section is supplemented with the following new paragraph:

51

52 Compost for Compost Socks shall be Coarse Compost.

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8-01.3(14) Temporary Pipe Slope Drain

The first paragraph is revised to read:

Temporary pipe slope drain shall be Corrugated Polyethylene Drain Pipe and shall be constructed in accordance with the Plans

The last paragraph is revised to read:

Placement of outflow of the pipe shall not pond water on road surface.

8-01.3(15) Maintenance

In the fourth paragraph, the last sentence is revised to read:

Clean sediments may be stabilized on site using approved BMPs as approved by the Engineer.

8-01.3(16) Removal

In the second paragraph, the last sentence is revised to read:

This may include, but is not limited to, ripping the soil, incorporating soil amendments, and seeding with the specified seed.

8-01.4 Measurement

The eighth paragraph is revised to read:

Silt fence, gravel filter, compost berms, and wood chip berms will be measured by the linear foot along the ground line of completed barrier.

8-01.5 Payment

The following bid items are relocated after the bid item "Check Dam":

"Inlet Protection", per each.

"Gravel Filter Berm", per linear foot.

The following new paragraph is inserted before the bid item "Stabilized Construction Entrance":

The unit Contract price per linear foot for "Check Dam" and "Gravel Filter Berm" and per each for "Inlet Protection" shall be full pay for all equipment, labor and materials to perform the Work as specified, including installation, removal and disposal at an approved disposal site.

The paragraph after the bid item "Temporary Curb" is revised to read:

The unit Contract price per linear foot for "Temporary Curb" shall include all costs to install, maintain, remove, and dispose of the temporary curb.

The following bid item is inserted after the bid item "Mulching with Pam":

"Mulching with Short Term Mulch", per acre.

1
2 The bid item "Mulching with BFM" is revised to read:
3
4 "Mulching with Moderate Term Mulch"

5
6 The bid item "Mulching with MBFM/FRM" is revised to read:
7
8 "Mulching with Long Term Mulch"

9
10 8-02.AP8

11 **SECTION 8-02, ROADSIDE RESTORATION**

12 **January 3, 2011**

13 **8-02.2 Materials**

14 In the first paragraph, the following item is inserted after the item "Fertilizer 9-14.3":

15
16 Mulch and Amendments 9-14.4

17 18 **8-02.3(2) Roadside Work Plan**

19 In the first paragraph, the second sentence is revised to read:

20
21 The roadside work plan shall define the Work necessary to provide all Contract
22 requirements, including: wetland excavation, soil preparation, habitat structure
23 placement, planting area preparation, seeding area preparation, bark mulch and
24 compost placement, seeding, planting, plant replacement, irrigation, and weed control in
25 narrative form.

26
27 The first sentence under "**Progress Schedule**" is revised to read:

28
29 A progress schedule shall be submitted in accordance with Section 1-08.3. The
30 Progress Schedule shall include the planned time periods for Work necessary to provide
31 all Contract requirements in accordance with Sections 8-01, 8-02, and 8-03.

32
33 The first sentence under "**Weed and Pest Control Plan**" is revised to read:

34
35 The Weed and Pest Control Plan shall be submitted and approved prior to starting any
36 Work defined in Sections 8-01, and 8-02.

37
38 In the third paragraph under "**Weed and Pest Control Plan**" the first and second sentences
39 are revised to read:

40
41 The plan shall be prepared and signed by a licensed Commercial Pest Control Operator
42 or Consultant when chemical pesticides are proposed. The plan shall include methods
43 of weed control; dates of weed control operations; and the name, application rate, and
44 Material Safety Data Sheets of all proposed herbicides.

45
46 The last paragraph under "**Plant Establishment Plan**" is deleted.

47 48 **8-02.3(2)A Chemical Pesticides**

49 This section is deleted.

50

1 **8-02.3(2)B Weed Control**

2 This section is deleted.

3

4 **8-02.3(3) Planting Area Weed Control**

5 This section including title is revised to read:

6

7 **8-02.3(3) Weed and Pest Control**

8 The Contractor shall control weed and pest species within the project area using
9 integrated pest management principles consisting of mechanical, biological and
10 chemical controls that are outlined in the Weed and Pest Control Plan or as designated
11 by the Engineer.

12

13 Those weeds specified as noxious by the Washington State Department of Agriculture,
14 the local Weed District, or the County Noxious Weed Control Board and other species
15 identified by the Contracting Agency shall be controlled on the project in accordance
16 with the weed and pest control plan.

17

18 The Contractor shall control weeds not otherwise covered in accordance with Section 8-
19 02.3(3)A, **Planting Area Weed Control** in all areas within the project limits, including
20 erosion control seeding area and vegetation preservation areas, as designated by the
21 Engineer.

22

23 This section is supplemented with the following new sub-sections:

24

25 **8-02.3(3)A Planting Area Weed Control**

26 All planting areas shall be prepared so that they are weed and debris free at the time of
27 planting and until completion of the project. The planting areas shall include the entire
28 ground surface, regardless of cover, all planting beds, areas around plants, and those
29 areas shown in the Plans.

30

31 All applications of post-emergent herbicides shall be made while green and growing
32 tissue is present. Should unwanted vegetation reach the seed stage, in violation of
33 these Specifications, the Contractor shall physically remove and bag the seed heads. All
34 physically removed vegetation and seed heads shall be disposed of off site at no cost to
35 the Contracting Agency.

36

37 Weed barrier mats shall be installed as shown in the Plans. Mats shall be 3-feet square
38 and shall be secured by a minimum of 5-staples per mat. Mats and staples shall be
39 installed according to the manufacturer's recommendations.

40

41 **8-02.3(3)B Chemical Pesticides**

42 Application of chemical pesticides shall be in accordance with the label
43 recommendations, the Washington State Department of Ecology, local sensitive area
44 ordinances, and Washington State Department of Agriculture laws and regulations. Only
45 those herbicides listed in the table *Herbicides Approved for Use on WSDOT Rights of*
46 *Way* at http://www.wsdot.wa.gov/Maintenance/Roadside/herbicide_use.htm may be
47 used.

48

49 The applicator shall be licensed by the State of Washington as a Commercial Applicator
50 or Commercial Operator with additional endorsements as required by the Special
51 Provisions or the proposed weed control plan. The Contractor shall furnish the Engineer
52 evidence that all operators are licensed with appropriate endorsements, and that the

1 pesticide used is registered for use by the Washington State Department of Agriculture.
2 All chemicals shall be delivered to the job site in the original containers. The licensed
3 applicator or operator shall complete a Commercial Pesticide Application Record (DOT
4 Form 540-509) each day the pesticide is applied, and furnish a copy to the Engineer by
5 the following business day.
6

7 The Contractor shall ensure confinement of the chemicals within the areas designated.
8 The use of spray chemical pesticides shall require the use of anti-drift and activating
9 agents, and a spray pattern indicator unless otherwise allowed by the Engineer.
10

11 The Contractor shall assume all responsibility for rendering any area unsatisfactory for
12 planting by reason of chemical application. Damage to adjacent areas, either on or off
13 the Highway Right of Way, shall be repaired to the satisfaction of the Engineer or the
14 property owner, and the cost of such repair shall be borne by the Contractor.
15

16 **8-02.3(5) Planting Area Preparation**

17 In the first paragraph, the second sentence is revised to read:

18
19 Material displaced by the Contractor's operations that interferes with drainage shall be
20 removed from the channel and disposed of as approved by the Engineer.
21

22 **8-02.3(7) Layout of Planting**

23 The second paragraph is deleted.
24

25 **8-02.3(8) Planting**

26 In the second paragraph, the first and second sentences are revised to read:
27

28 Under no circumstances will planting be permitted during unsuitable soil or weather
29 conditions as determined by the Engineer. Unsuitable conditions may include frozen
30 soil, freezing weather, saturated soil, standing water, high winds, heavy rains, and high
31 water levels.
32

33 The fourth paragraph is revised to read:

34
35 Plants shall not be placed below the finished grade.
36

37 The fifth paragraph is revised to read:

38
39 Planting hole sizes for plant material shall be in accordance with the details shown in
40 the Plans. Any glazed surface of the planting hole shall be roughened prior to planting.
41

42 The following new paragraph is inserted after the fifth paragraph:

43
44 All cuttings shall be planted immediately if buds begin to swell.
45

46 **8-02.3(9) Pruning, Staking, Guying, and Wrapping**

47 In the first paragraph, the last sentence is revised to read:
48

49 All other pruning shall be performed only after the plants have been in the ground at
50 least one year and when plants are dormant.
51

1 **8-02.3(13) Plant Establishment**
2 In the third paragraph, the first sentence is revised to read:
3
4 During the first-year plant establishment period, the Contractor shall perform all Work
5 necessary to ensure the resumption and continued growth of the transplanted material.
6
7 In the fourth paragraph, "propose" is revised to read "submit".
8

9 **8-02.3(15) Live Fascines**
10 In the first paragraph, the fourth sentence is revised to read:
11
12 Dead branches may be placed within the live fascine and on the side exposed to the air.
13
14 In the second paragraph, the third sentence is deleted.
15
16 In the second paragraph, the seventh sentence is revised to read:
17
18 The live stakes shall be driven through the live fascine vertically into the slope.
19

20 **8-02.3(16)A Lawn Installation**
21 In the third paragraph, the last two items "West of the summit of the Cascade Range - March
22 1 to October 1." and "East of the summit of the Cascade Range - April 15 to October 1." are
23 revised to read:
24

25	Western Washington	Eastern Washington
26	(West of the Cascade Mountain crest)	(East of the Cascade Mountain crest)
27	March through May 15	October 1 through November 15
28	September 1 through October 1	
29		

30 The fifth paragraph is revised to read:
31
32 Topsoil for seeded or sodded lawns shall be placed at the depth and locations as shown
33 in the Plans. The topsoil shall be cultivated to the specified depth, raked to a smooth
34 even grade without low areas that trap water and compacted, all as approved by the
35 Engineer.
36
37 In the sixth paragraph, the last sentence is revised to read:
38
39 Following placement, the sod shall be rolled with a smooth roller to establish contact
40 with the soil.
41

42 **8-02.4 Measurement**
43 The seventh paragraph is revised to read:
44
45 Fine compost, medium compost and coarse compost will be measured by the cubic
46 yard in the haul conveyance at the point of delivery.
47

48 **8-02.5 Payment**
49 The following new paragraph is inserted above the paragraph beginning with "Payment shall
50 be increased to 90-percent.....":
51

1 Plant establishment milestones are achieved when plants meet conditions described in
2 Section 8-02.3(13).
3
4 The following is inserted after the bid item "Fine Compost":
5
6 "Medium Compost", per cubic yard.
7
8 The paragraph for the bid item "Weed Control" is revised to read:
9
10 "Weed and Pest Control", will be paid in accordance with Section 1-09.6.
11
12 The following new paragraph is inserted after the bid item "Soil Amendment":
13
14 The unit Contract price per cubic yard for "Soil Amendment" shall be full pay for
15 furnishing and incorporating the soil amendment into the existing soil.
16
17 The following new paragraph is inserted after the bid item "Bark or Wood Chip Mulch":
18
19 The unit Contract price per cubic yard for "Bark or Wood Chip Mulch" shall be full pay
20 for furnishing and spreading the mulch onto the existing soil.
21

22 8-03.AP8

23 **SECTION 8-03, IRRIGATION SYSTEMS**

24 **January 4, 2010**

25 **8-03.1 Description**

26 In this section, "staked" is revised to read "approved by the Engineer."
27

28 **8-03.3 Construction Requirements**

29 The second paragraph is revised to read:
30

31 Potable water supplies shall be protected against cross connections in accordance with
32 applicable Washington State Department of Health rules and regulations and approval
33 by the local health authority.
34

35 **8-03.3(1) Layout of Irrigation System**

36 This section is revised to read:
37

38 The Contractor shall stake the irrigation system following the schematic design shown in
39 the Plans. Approval must be obtained from the Engineer. Alterations and changes in the
40 layout may be expected in order to conform to ground conditions and to obtain full and
41 adequate coverage of plant material with water. However, no changes in the system as
42 planned shall be made without prior authorization by the Engineer.
43

44 This section is supplemented with the following new sub-section:
45

46 **8-03.3(1)A Locating Irrigation Sleeves**

47 Existing underground irrigation sleeve ends shall be located by potholing. Irrigation
48 sleeves placed during general construction prior to installation of the irrigation system
49 shall be marked at both ends with a 2x4x24-inch wood stake extending 6-inches out of
50 the soil and painted blue on the exposed end.
51

1 **8-03.3(2) Excavation**

2 In the first paragraph, the fourth sentence is revised to read:

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Trenches through rock or other material unsuitable for trench bottoms and sides shall be excavated 6-inches below the required depth and shall be backfilled to the top of the pipe with sand or other suitable material free from rocks or stones. Backfill material shall not contain rocks 2-inches or greater in diameter or other materials that can damage pipe.

10 The second paragraph is revised to read:

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The Contractor shall exercise care when excavating pipe trenches near existing trees to minimize damage to tree roots. Where roots are 1-1/2-inches or greater in diameter, the trench shall be hand excavated and tunneled under the roots. When large roots are exposed, they shall be wrapped with heavy, moist material, such as burlap or canvas, for protection and to prevent excessive drying. The material must be kept moist until the trench is backfilled. Trenches dug by machines adjacent to trees having roots less than 1-1/2-inches in diameter shall have severed roots cleanly cut. Trenches having exposed tree roots shall be backfilled within 24-hours unless adequately protected by moist material as approved by the Engineer. All material and fastenings used to cover the roots shall be removed before backfilling.

23 The third paragraph is revised to read:

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29

Detectable marking tape shall be placed in all trenches 6-inches directly above, parallel to, and along the entire length of all nonmetallic water pipes, and all nonmetallic and aluminum sleeves, conduits and casing pipe. The width of the tape and installation depth shall be as recommended by the manufacturer for the depth of installation or as shown in the Plans.

30
31 **8-03.3(3) Piping**

32 This section is revised to read:

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All water lines shall be a minimum of 18-inches below finished grade measured from the top of the pipe or as shown in the Plans. All live water mains to be constructed under existing pavement shall be placed in steel casing jacked under pavement as shown in the Plans. All PVC or polyethylene pipe installed under areas to be paved shall be placed in irrigation sleeves. Irrigation sleeves shall extend a minimum of 2-feet beyond the limits of pavement. All jacking operations shall be performed in accordance with an approved jacking plan. Where possible; mains and laterals or section piping shall be placed in the same trench. All lines shall be placed a minimum of 3-feet from the edge of concrete sidewalks, curbs, guardrail, walls, fences, or traffic barriers. Pipe pulling will not be allowed for installation and placement of irrigation pipe.

45 Mainlines and lateral lines shall be defined as follows:

46
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48

Mainlines: All supply pipe and fittings between the water meter and the irrigation control valves.

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51

Lateral Lines: All supply pipe and fittings between the irrigation control valves and the connections to the irrigation heads. Swing joints, thick walled PVC or

1 polyethylene pipe, flexible risers, rigid pipe risers, and associated fittings are not
2 considered part of the lateral line but incidental components of the irrigation heads.
3

4 **8-03.3(4) Jointing**

5 In the second paragraph, the third sentence is revised to read:
6

7 Threaded galvanized steel joints shall be constructed using either a nonhardening,
8 nonseizing multipurpose sealant or Teflon tape or paste as recommended by the pipe
9 manufacturer, or as shown in the Plans.

10
11 In the last sentence of the second paragraph, "will" is revised to read "shall".
12

13 In the fourth sentence of the third paragraph, "will" is revised to read "shall" and "at" is
14 revised to read "of".
15

16 In the fifth paragraph, the first sentence is revised to read:
17

18 On PVC or polyethylene-to-metal connections, work the metal connection first.
19

20 In the fifth paragraph, the third sentence is revised to read:
21

22 Connections between metal and PVC or polyethylene are to be threaded utilizing
23 female threaded PVC adapters with threaded schedule 80-PVC nipple only.
24

25 In the sixth paragraph, the second sentence is revised to read:
26

27 The ends of the polyethylene pipe shall be cut square, reamed smooth inside and out,
28 and inserted to the full depth of the fitting.
29

30 **8-03.3(5) Installation**

31 The following new paragraph is inserted after the third paragraph:
32

33 All automatic control valves, flow control valves, and pressure reducing valves shall be
34 installed in appropriate sized valve boxes. Manual control valves shall be installed in an
35 appropriate sized valve box and where appropriate, upstream of the automatic control
36 valves. Manual and automatic valves installed together shall be in an appropriate sized
37 box with 3-inches of clearance on all sides.
38

39 The fourth paragraph is revised to read:
40

41 Final position of valve boxes, capped sleeves, and quick coupler valves shall be
42 between ½-inch and 1-inch above finished grade or mulch, or as shown in the Plans.
43

44 The following new paragraph is inserted after the fourth paragraph:
45

46 Quick coupler valves and hose bibs shall be installed in valve boxes, either separately
47 or within a control valve assembly box upstream of the control valves. Valves, quick
48 couplers, and hose bibs shall have 3-inches of clearance on all sides within the valve
49 box.
50

51 In the fifth paragraph "an" is revised to read "a minimum".
52

1 The following new paragraph is inserted after the fifth paragraph:

2

3 Automatic controller pedestals or container cabinets shall be installed on a concrete
4 base as shown in the Plans or in accordance with the manufacturer's recommendations.
5 Provide three 1-inch diameter galvanized metal or PVC electrical wire conduits through
6 the base and 3-inches minimum beyond the edge or side of the base both inside and
7 outside of the pedestal.

8

9 **8-03.3(6) Electrical Wire Installation**

10 This section is revised to read:

11

12 All electrical work shall conform to the National Electric Code, NEMA Specifications and
13 in accordance with Section 8-20. Electrical wiring between the automatic controller and
14 automatic valves shall be direct burial and may share a common neutral. Separate
15 control conductors shall be run from the automatic controller to each valve. When more
16 than one automatic controller is required, a separate common neutral shall be provided
17 for each controller and the automatic valves which it controls. Electrical wire shall be
18 installed in the trench adjacent to or above the irrigation pipe, but no less than 12-inches
19 deep. Plastic tape or nylon tie wraps shall be used to bundle wires together at 10-foot
20 intervals. If it is necessary to run electrical wire in a separate trench from the irrigation
21 pipe, the wire shall be placed at a minimum depth of 18-inches and be "snaked" from
22 side to side in the trench. Each circuit shall be identified at both ends and at all splices
23 with a permanent marker identifying zone and/or station.

24

25 Wiring placed under pavement and walls, or through walls, shall be placed in an
26 electrical conduit or within an irrigation sleeve. Electrical conduit shall not be less than
27 1-inch in diameter, and shall meet conduit specifications for PVC conduit as required in
28 Section 9-29.1.

29

30 Splices will be permitted only in approved electrical junction boxes, valve boxes, pole
31 bases, or within control equipment boxes or pedestals. A minimum of 18-inches of
32 excess conductor shall be left at all splices, terminals and control valves to facilitate
33 inspection and future splicing. The excess wire shall be neatly coiled to fit easily into the
34 boxes.

35

36 All 120-volt electrical conductors and conduit shall be installed by a certified electrician
37 including all wire splices and wire terminations.

38

39 All wiring shall be tested in accordance with Section 8-20.3(11).

40

41 Continuity ground and functionality testing shall be performed for all 24-volt direct burial
42 circuits. The Megger test, confirming insulation resistance of not less than 2 megohms
43 to ground in accordance with Section 8-20.3(11), is required.

44

45 **8-03.3(7) Flushing and Testing**

46 In the first paragraph "correct" is revised to read "as accurate" and "ordered" is revised to
47 read "required".

48

49 The third paragraph is revised to read:

50

1 **Main Line Flushing**

2 All main supply lines shall receive two fully open flushing's to remove debris that may
3 have entered the line during construction: The first before placement of valves and the
4 second after placement of valves and prior to testing.
5

6 The fourth paragraph is revised to read:
7

8 **Main Line Testing**

9 All main supply lines shall be purged of air and tested with a minimum static water
10 pressure of 150-psi for 60-minutes without introduction of additional service or pumping
11 pressure. Testing shall be done with one pressure gauge installed on the line, in the
12 location required by the Engineer. For systems using a pump, an additional pressure
13 gauge shall be installed at the pump when required by the Engineer. Lines that show
14 loss of pressure exceeding 5-psi at the ends of specified test periods will be rejected.
15

16 The fifth paragraph is deleted.
17

18 In the sixth paragraph, "any" is revised to read "all".
19

20 In the seventh paragraph, the second sentence is revised to read:
21

22 The operating line pressure shall be maintained for 30-minutes with valves closed and
23 without introduction of additional service or pumping pressure.
24

25 In the eighth paragraph, the fourth and fifth sentences are revised to read:
26

27 The Contractor shall then conduct a thorough inspection of all sprinkler heads, emitters,
28 etc., located downstream of the break or disruption of service, and make all needed
29 repairs to ensure that the entire irrigation system is operating properly.
30

31 **8-03.3(8) Adjusting System**

32 In the first paragraph, the last sentence is revised to read:
33

34 Unless otherwise specified, sprinkler spray patterns will not be permitted to apply water
35 to pavement, walks, or Structures.
36

37 **8-03.3(11) System Operation**

38 In the first paragraph, the last sentence is revised to read:
39

40 The final inspection of the irrigation system will coincide with the end of the Contract or
41 the end of first-year plant establishment, which ever is later.
42

43 In the second paragraph "ordered" is revised to read "required".
44

45 In the third paragraph, the last sentence is revised to read:
46

47 Potable water shall not flow through the cross-connection control device to any
48 downstream component until tested and approved for use by the local health authority
49 in accordance with Section 8-03.3(12).
50

51 The fourth paragraph is revised to read:
52

1 In the spring, when the drip irrigation system is in full operation, the Contractor shall
2 make a full inspection of all emitters, and irrigation heads. This shall involve visual
3 inspection of each emitter and irrigation head under operating conditions. All
4 adjustments, flushing, or replacements to the system shall be made at this time to
5 ensure the proper operation of all emitters and irrigation heads.
6

7 **8-03.3(12) Cross Connection Control Device Installation**

8 In the first sentence of the first paragraph "serving utility" is revised to read "local health
9 authority".
10

11 **8-03.3(13) Irrigation Water Service**

12 The first paragraph is revised to read:
13

14 All water meter(s) shall be installed by the serving utility. The Contracting Agency shall
15 arrange for a water meter installation(s) for the irrigation system at the locations and
16 sizes as shown in the Plans at no cost to the Contractor. It shall be the Contractor's
17 responsibility to contact the Engineer to schedule the water meter installation. The
18 Contractor shall provide a minimum of 60-calendar days notice to the Engineer prior to
19 the desired water meter installation date.
20

21 In the second paragraph, "will" is revised to read "shall".
22

23 **8-03.3(14) Irrigation Electrical Service**

24 The first paragraph is revised to read:
25

26 The Contracting Agency shall arrange for electrical service connection(s) for operation
27 of the automatic electrical controller(s) at the locations as shown in the Plans. The
28 Contractor shall splice and run conduit and wire from the electrical service
29 connection(s), or service cabinet to the automatic electrical controller and connect the
30 conductors to the circuit(s) per the controller manufacturer's diagrams or
31 recommendations.
32

33 In the second paragraph, "conduit" is revised to read "conduits".
34

35 8-08.AP8

36 **SECTION 8-08, RUMBLE STRIPS**

37 **April 5, 2010**

38 **8-08.3 Construction Requirements**

39 In the fourth paragraph, the first and second sentences are combined to read:
40

41 When shown in the Plans, the rumble strips shall be fog sealed in accordance with the
42 requirements of Section 5-02 following the completion of the shoulder rumble strip.
43

44 8-09.AP8

45 **SECTION 8-09, RAISED PAVEMENT MARKERS**

46 **April 4, 2011**

47 This division is deleted in its entirety and replaced with the following:
48

1 **8-09 RAISED PAVEMENT MARKERS**

2 **8-09.1 Description**

3 This Work shall consist of furnishing and installing pavement markers of the type specified in
4 the Plans, in accordance with these Specifications, and at the locations indicated in the
5 Plans or where designated by the Engineer. This Work also includes cleanup and disposal of
6 cuttings and other resultant debris. The color of pavement markers shall conform to the color
7 of the marking for which they supplement, substitute for, or serve as a positioning guide for.
8

9 **8-09.2 Materials**

10 Raised pavement marker (RPM) shall meet the requirements of the following sections:

11

12	RPM Type 1	9-21.1
13	RPM Type 2	9-21.2
14	RPM Type 3	9-21.3
15	Adhesive	9-02.1(8), 9-26.2

16

17 **8-09.3 Construction Requirements**

18 **8-09.3(1) Preliminary Spotting**

19 The Engineer will provide necessary control points at intervals agreed upon with the
20 Contractor to assist in preliminary spotting of the lines before marker placement begins.
21 The Contractor shall be responsible for preliminary spotting of the lines to be marked.
22 The color of the material used for spotting shall match the color of the raised pavement
23 markers. Approval by the Engineer is required before marking begins.
24

25 Markers shall not be placed over longitudinal or transverse joints in the pavement
26 surface.
27

28 **8-09.3(2) Surface Preparation**

29 All sand, dirt, and loose extraneous material shall be swept or blown away from the
30 marker location and the cleaned surface prepared by 1 of the following procedures:
31

32 When deemed necessary by the Engineer all surface dirt within areas to receive
33 markers shall be removed. Large areas of tar, grease, or foreign materials may
34 require sandblasting, steam cleaning, or power brooming to accomplish complete
35 removal.
36

37 When markers are placed on new cement concrete pavement, any curing
38 compound shall be removed in accordance with the requirements of this section. All
39 liquid membrane-forming compounds shall be removed from the Portland cement
40 concrete pavement to which Raised Pavement Markers are to be bonded, Curing
41 compound removal shall not be started until the pavement has attained sufficient
42 flexural strength for opening for traffic to be allowed on it. The Contractor shall
43 submit a proposed removal method to the Project Engineer and shall not begin the
44 removal process until the Project Engineer has approved the removal method.
45

46 The pavement shall be surface dry. When applying Epoxy Adhesives in cool
47 weather the pavement surface shall be heated by intense radiant heat (not direct
48 flame) for a sufficient length of time to warm the pavement areas of marker
49 application to a minimum of 70°F.
50

1 Application of markers shall not proceed until final authorization is received from
2 the Engineer.
3

4 **8-09.3(3) Marker Preparation**
5 Type 2 markers may be warmed prior to setting by heating to a maximum temperature
6 of 120°F for a maximum of 10-minutes.
7

8 **8-09.3(4) Adhesive Preparation**
9 Epoxy adhesive shall be maintained at a temperature of 60°F to 85°F before use and
10 during application.
11

12 Component A shall be added to component B just before use and mixed to a smooth
13 uniform blend. The unused mixed adhesive shall be discarded when polymerization has
14 caused stiffening and reduction of workability.
15

16 Bituminous pavement marker adhesive shall be indirectly heated in an applicator with
17 continuous agitation or recurring circulation. Adhesive temperature shall not exceed the
18 maximum safe heating temperature stated by the manufacturer. The Contractor shall
19 provide the Engineer with manufacturer's written instruction for application temperature
20 and maximum safe heating temperature.
21

22 **8-09.3(5) Application Procedure**
23 **8-09.3(5)A Epoxy Adhesives**
24 Epoxy adhesive shall conform to the requirements of Sections 9-26.2.
25

26 The marker shall be affixed to the prepared pavement area with sufficient adhesive
27 so as to squeeze out a small bead of adhesive around the entire periphery of the
28 marker. The sequence of operations shall be as rapid as possible. Adhesive shall
29 be in place and the marker seated in not more than 30-seconds after the removal of
30 the pavement preheat or warm air blast. The marker shall not have cooled more
31 than 1-minute before seating.
32

33 The lengths of the pavement preheat or warming shall be adjusted so as to ensure
34 bonding of the marker in not more than 15-minutes. Bonding will be considered
35 satisfactory when adhesive develops minimum bond strength in tension of not less
36 than 800-grams per square inch or a total tensile strength of 25-pounds.
37

38 On Roadway sections which are not open to public traffic, the preheating of the
39 markers by dry heating before setting will not be required provided the adhesive
40 develops the required bond strength of 800-grams per square inch in less than 3-
41 hours. If the Roadway section is carrying public traffic during the installation of the
42 markers, the 15-minute set-to-traffic provision will be enforced, and necessary
43 flagging and traffic control will be required.
44

45 **8-09.3(5)B Asphalt Adhesives**
46 The bituminous adhesive shall conform to the requirements of Section 9-02.1(8).
47

48 Bituminous adhesive shall be applied at temperatures recommended by the
49 manufacturer.
50

1 The marker shall be affixed to the prepared pavement area with sufficient adhesive
2 so as to squeeze out a small bead of adhesive around the entire periphery of the
3 marker. Markers shall be placed immediately after application of the adhesive.
4

5 **8-09.3(6) Recessed Pavement Marker**

6 The Contractor shall construct recesses for pavement markers by grinding the
7 pavement in accordance with the dimensions shown in the Standard Plans. The
8 Contractor shall prepare the surface in accordance with Section 8-09.3(2), and install
9 Type 2 markers in the recess in accordance with the Standard Plans and Section 8-
10 09.3(5).
11

12 Recessed pavement markers shall not be constructed on bridge decks or on bridge
13 approach slabs
14

15 **8-09.3(7) Tolerances for Pavement Markers**

16 Markers shall be spaced and aligned as shown in the Standard Plans and as specified
17 by the Engineer. A displacement of not more than ½-inch left or right of the established
18 guide line will be permitted. The Contractor shall remove and replace at no expense to
19 the Contracting Agency all improperly placed markers.
20

21 **8-09.4 Measurement**

22 Measurement of markers will be by units of 100 for each type of marker furnished and set in
23 place.
24

25 **8-09.5 Payment**

26 Payment will be made in accordance with Section 1-04.1, for each of the following Bid items
27 that are included in the Proposal:
28

- 29 "Raised Pavement Marker Type 1", per hundred.
 - 30 "Raised Pavement Marker Type 2", per hundred.
 - 31 "Raised Pavement Marker Type 3-_____ In.", per hundred.
 - 32 "Recessed Pavement Marker", per hundred.
- 33

34 The unit Contract price per hundred for "Raised Pavement Marker Type 1", "Raised
35 Pavement Marker Type 2", "Raised Pavement Marker Type 3_____ In.", and "Recessed
36 Pavement Marker" shall be full pay for furnishing and installing the markers in accordance
37 with these Specifications including all cost involved with traffic control except for
38 reimbursement for other traffic control labor, and for flaggers and spotters in accordance with
39 Section 1-10.5.
40

41 8-10.AP8

42 **SECTION 8-10, GUIDE POSTS**
43 **August 2, 2010**

44 **8-10.3 Construction Requirements**

45 The second paragraph is supplemented with the following:
46

47 When guide posts are placed on new cement concrete pavement, any curing compound
48 shall be removed. All liquid membrane-forming compounds shall be removed from the
49 Portland cement concrete pavement to which guide post are to be bonded, Curing
50 compound removal shall not be started until the pavement has attained sufficient

1 flexural strength for traffic to be allowed on it. The Contractor shall submit a proposed
2 removal method to the Project Engineer and shall not begin the removal process until
3 the Project Engineer has approved the removal method. The final guide post lengths will
4 be determined or verified by the Engineer at the request of the Contractor.

5
6 8-11.AP8

7 **SECTION 8-11, GUARDRAIL**

8 **August 2, 2010**

9 **8-11.3(1)A Erection of Posts**

10 The second paragraph is supplemented with the following sentence:

11

12 New installations of guardrail shall have steel posts or as otherwise shown in the Plans.

13

14 **8-11.3(1)D Terminal and Anchor Installation**

15 The fifth paragraph is supplemented with the following sentence:

16

17 For new terminal installations steel posts shall be used unless shown otherwise in the
18 Plans.

19

20 8-12.AP8

21 **SECTION 8-12, CHAIN LINK FENCE AND WIRE FENCE**

22 **April 4, 2011**

23 **8-12.5 Payment**

24 The following new paragraph is inserted after the bid item "Chain Link Fence Type ____":

25

26 The unit contract price per linear foot for "Chain Link Fence Type ____" shall be full
27 compensation for brace posts installation and all other requirements for Chain Link
28 Fence, of Section 8-12, unless covered in a separate bid item in this subsection.

29

30 8-14.AP8

31 **SECTION 8-14, CEMENT CONCRETE SIDEWALKS**

32 **April 4, 2011**

33 **8-14.2 Material**

34 This section is supplemented with the following new paragraph:

35

36 The Contractor shall use one of the detectable warning surface products listed in the
37 Qualified Products List or seek approval through the WSDOT Request for Approval of
38 Material process. The detectable warning surface shall have the truncated dome shape
39 shown in the Plans. The minimum 2-foot wide detectable warning surface area shall be
40 yellow and shall match Federal Standard 595, color number 33538. When painting a
41 detectable warning surface is required, such as on a steel detectable warning surface,
42 the yellow paint shall conform to Section 9-08.1(8), and shall match Federal Standard
43 595, color number 33538.

44

45 **8-14.3(3) Placing and Finishing Concrete.**

46 The fourth paragraph is revised to read:

47

1 Curb ramps shall be of the type specified in the Plans and shall include the detectable
2 warning surface.

3
4 The fifth and sixth paragraphs are deleted.

5
6 **8-14.3(5) Curb Ramp Detectable Warning Surface Retrofit**

7 This section including heading is revised to read:

8
9 **8-14.3(5) Detectable Warning Surface**

10 The detectable warning surface shall be located as shown in the Plans. Placement of
11 the detectable warning surface shall be in accordance with the manufacturer's
12 recommendation for placement in fresh concrete, before the concrete has reached initial
13 set, or on a hardened cement concrete surface, or asphalt pavement surface.

14
15 Vertical edges of the detectable warning surface shall be flush with the adjoining
16 surface to the extent possible (not be more than ¼ - inch above the surface of the
17 pavement) after installation.

18
19 Embossing or stamping the wet concrete to achieve the truncated dome pattern or
20 using a mold into which a catalyst hardened material is applied shall not be allowed.

21
22 **8-14.4 Measurement**

23 The second sentence in the first paragraph is revised to read:

24
25 Cement concrete curb ramp type _____ will be measured per each for the complete
26 curb ramp type installed and includes the installation of the detectable warning surface.

27
28 The second paragraph is revised to read:

29
30 Detectable warning surface will be measured by the square foot of detectable warning
31 surface material installed as shown in the Plans.

32
33 **8-14.5 Payment**

34 The pay item "Cement Conc. Curb Ramp Type _____" is supplemented with the following
35 new paragraph:

36
37 The unit Contract price per each for "Cement Concrete Curb Ramp Type _____", shall be
38 full pay for installing the curb ramp as specified including the "Detectable Warning
39 Surface".

40
41 The pay item "Curb Ramp Detectable Warning Surface Retrofit" is revised to read
42 "Detectable Warning Surface".

43
44 8-15.AP8

45 **SECTION 8-15, RIPRAP**

46 **January 4, 2010**

47 **8-15.2 Materials**

48 The referenced sections for the following items are revised to read:

49
50 Heavy Loose Riprap 9-13
51 Light Loose Riprap 9-13

1	Hand Placed Riprap	9-13
2	Sack Riprap	9-13
3	Quarry Spalls	9-13

4
5 8-17.AP8

6 **SECTION 8-17, IMPACT ATTENUATOR SYSTEMS**

7 **April 5, 2010**

8 **8-17.4 Measurement**

9 The first paragraph is supplemented with the following new sentence:

10

11 Only the maximum number of temporary impact attenuators installed at any one time
12 within the project limits will be measured for payment.

13

14 **8-17.5 Payment**

15 In the second paragraph following the bid item “Resetting Impact Attenuator”, the first
16 sentence is revised to read:

17

18 If an impact attenuator is damaged by a third party, repairs shall be made in accordance
19 with Section 1-07.13(4) under the Bid item “Reimbursement For Third Party Damage”.

20

21 8-20.AP8

22 **SECTION 8-20, ILLUMINATION, TRAFFIC SIGNAL SYSTEMS, AND**

23 **ELECTRICAL**

24 **January 3, 2011**

25 **8-20.1 Description**

26 In the first paragraph, item number 3 is revised to read:

27

28 3. Intelligent Transportation Systems (ITS)

29

30 **8-20.3(4) Foundations**

31 In the 12th paragraph, item number 2 is revised to read:

32

33 2. The top heavy-hex nuts for type ASTM F1554 grade 105 anchor bolts shall be
34 tightened by the Turn-Of-Nut Tightening Method to minimum rotation of ¼-turn (90
35 degrees) and a maximum rotation of ½-turn (120 degrees) past snug tight.
36 Permanent marks shall be set on the base plate and nuts to indicate nut rotation
37 past snug tight.

38

39 In the 12th paragraph, the following is inserted after item number 2:

40

41 3. The top hex nuts for type ASTM F1554 grade 55 anchor bolts shall be tightened by
42 the Turn-of-Nut Tightening Method to minimum rotation of 1/8-turn (45 degrees)
43 and a maximum rotation of 1/6-turn (60 degrees) past snug tight. Permanent
44 marks shall be set on the base plate and nuts to indicate nut rotation past snug
45 tight.

46

47 **8-20.3(5) Conduit**

48 In the fifth sentence of the fourth paragraph, “conforms” is revised to read “conforming”.

49

1 **8-20.3(6) Junction Boxes, Cable Vaults, and Pull boxes**

2 In the first paragraph, the first sentence is revised to read:

3

4 Standard Duty and Heavy Duty junction boxes, pull boxes and cable vaults shall be
5 installed at the locations show in the Plans.

6

7 In the second paragraph, the first sentence is revised to read:

8

9 Cable vaults and pull boxes shall be installed in accordance with the following:

10

11 In item number 2 of the second paragraph, “top course” is deleted and “per” is revised to
12 read “in accordance with”.

13

14 In the last paragraph, “1/2 inch” is revised to read “1/8 inch”.

15

16 This section is supplemented with the following:

17

18 Standard Duty pull boxes, cable vaults and concrete junction boxes installed in
19 sidewalks, walkways and shared use paths shall have slip resistant surfaces, be flush
20 with surface and match grade of the sidewalk, walkway and shared use path. The
21 boxes, vaults and junction boxes shall not be placed in curb ramps, curb ramp landings,
22 or the gutter areas associated with the curb ramps. Standard Duty non-concrete
23 junction boxes shall not be installed in sidewalks, walkways or shared use paths.

24

25 **8-20.3(8) Wiring**

26 The following new two paragraphs are inserted after the first table:

27

28 Splices and taps on underground circuits shall be made with solderless crimp
29 connectors meeting the requirements of Section 9-29.12.

30

31 Only one conductor or one multi conductor cable per wire entrance will be allowed in
32 any rigid mold splice.

33

34 In the eleventh paragraph item number 5 is revised to read:

35

36 5. Video detection camera lead-in cable - the numbers of the phases the camera
37 served.

38

39 In the eleventh paragraph the following is added after item number 5:

40

41 6. For ITS cameras – the number of the camera indicated in the Contract and the
42 number of the associated cabinet as indicated on the Plans.

43

44 7. Communication cable -- labeled as Comm.

45

46 This section is supplemented with the following new paragraph:

47

48 Installation of coaxial or coaxial/Siamese cable or data cables with a 600 VAC rating will
49 be allowed in the same raceway with 480 VAC illumination cable.

50

51 **8-20.4 Measurement**

52 The first sentence is revised to read:

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No specific unit of measurement will apply to the lump sum items for illumination system, intelligent transportation system (ITS), or traffic signal systems, but measurement will be for the sum total of all items for a complete system to be furnished and installed.

The second paragraph is revised to read:

Conduit of the kind and diameter specified will be measured, through the junction boxes, by the linear foot of conduit placed, unless the conduit is included in an illumination system, signal system, Intelligent Transportation (ITS) or other type of electrical system lump sum Bid item.

8-20.5 Payment

All references to “Intelligent Transportation System” are revised to read “ITS”.

The paragraph after the bid item, “Conduit Pipe ___ In. Diam.” per linear foot, is revised to read:

The unit Contract price per linear foot for “Conduit Pipe ___ In. Diam.” shall be full pay for furnishing all pipe, pipe connections, elbows, bends, caps, reducers, conduits, unions, junction boxes and fittings; for placing the pipe in accordance with the above provisions, including all excavation, jacking or drilling required, backfilling of any voids around casing, conduits, pits or the trenches, restoration of native vegetation disturbed by the operation, chipping of pavement, and bedding of the pipe; and all other Work necessary for the construction of the conduit, except that when conduit is included on any project as an integral part of an illumination, traffic signal, or ITS systems and the conduit is not shown as a pay item, it shall be included in the lump sum price for the system shown.

8-21.AP8
SECTION 8-21, PERMANENT SIGNING
August 1, 2011

8-21.3(4) Sign Removal

In the fourth paragraph, the following sentence is inserted after the second sentence:

Where signs are removed from existing overhead sign Structures, the existing vertical sign support braces shall also be removed.

In the fourth paragraph, the third sentence is revised to read:

Aluminum signs, wood signs, wood sign posts, wood structures, metal sign posts, wind beams, and other metal structural members, and all existing fastening hardware connecting such members being removed, shall become the property of the Contractor and shall be removed from the project.

8-21.3(9)F Foundations

In the ninth paragraph, the following new statement is inserted as number 1. Existing numbers 1 through 6 of the ninth paragraph shall be renumbered to 2 through 7.

1. Foundation excavations shall conform to the requirements of Section 2-09.3(3).

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In the tenth paragraph, item number 2 is revised to read:

2. Steel reinforcement, including spiral reinforcing, shall conform to Section 9-07.2.

In the tenth paragraph, item number 3 is revised to read:

3. Unless otherwise shown in the Plans, the concrete shall be commercial grade concrete.

8-21.3(9)G Identification Plates

This section including title is revised to read:

8-21.3(9)G Sign Structure Identification Information

Whenever existing bridge mounted sign brackets, cantilever sign structures, or sign bridge structures are removed from their anchorage, whether temporary or permanent, the Contractor shall provide the sign structure identification information, attached to the sign structures, to the Engineer. The identification information may be in the form of a riveted plate, sticker, or other means.

8-21.3(12) Steel Sign Posts

This section is supplemented with the following:

For roadside sign structures on SB-1, SB-2, or SB-3 slip bases, the Contractor shall use the following procedures and manufacturer's recommendations:

1. The Contractor shall assemble the perforated square steel post or solid square steel post to the upper slip plate with bolts, nuts, and washers as shown in the Plans.
2. The three bolts connecting the upper and lower slip plates shall be tightened using as a torque wrench to the torque, following the procedures in the Plans.

For roadside structures on ST-2 and ST-4 sign supports, the Contractor shall use the following procedures:

1. The Contractor shall assemble the perforated square steel post to the lower sign post support with bolts, nuts, and washers as shown in the Plans.

8-22.AP8

SECTION 8-22, PAVEMENT MARKING

August 1, 2011

8-22.1 Description

The last sentence in the second paragraph is revised to read:

Traffic letters used in word messages shall be sized as shown in the Plans.

8-22.4 Measurement

In the sixth paragraph "Painted Line" is revised to read "Paint Line".

The first sentence in the seventh paragraph is revised to read:

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Traffic arrows, traffic letters, access parking space symbols, HOV symbols, railroad crossing symbols, drainage markings, junction box markings, bicycle lane symbols, aerial surveillance full, and ½ markers, yield line symbols, yield ahead symbols, and speed bump symbols will be measured per each.

8-22.5 Payment

This section is supplemented with the following:

- “Painted Junction Box Marking”, per each
- “Plastic Junction Box Marking “per each

9-01.AP9

SECTION 9-01, PORTLAND CEMENT

April 5, 2010

9-01.2(1) Portland Cement

In the first paragraph, all the text after “shall not exceed 8-percent by weight” is deleted and the paragraph ends.

In the second paragraph, “per” is revised to read “in accordance with”.

9-02.AP9

SECTION 9-02, BITUMINOUS MATERIALS

January 3, 2011

9-02.1(8) Flexible Bituminous Pavement Marker Adhesive

This section is revised to read:

Flexible bituminous pavement marker adhesive is a hot melt thermoplastic bituminous material used for bonding raised pavement markers and recessed pavement markers to the pavement.

The adhesive material shall conform to the following requirements when prepared in accordance with the Materials Manual WSDOT Standard Operating Procedure (SOP) No. 318:

Property	Test Method	Requirement
Penetration, 77°F, 100g, 5 sec, dmm	AASHTO T 49	30 Max.
Softening Point, F	AASHTO T 53	200 Min.
Rotational Thermosel Viscosity, cP, #27 spindle, 20 RPM, 400°F	AASHTO T 316	5000 Max.
Ductility, 77°F, 5 cm/minute, cm	AASHTO T 51	15 Min.
Ductility, 39.2°F, 1 cm/minute, cm	ASTM D 51	5 Min.
Flexibility, 1", 20°F, 90 deg. Bend, 10 sec., 1/8" x 1" x 6" specimen	ASTM D 3111 NOTE 1	Pass

Bond Pull-Off Strength	WSDOT T-426	Greater than 50 psi
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Note 1: Flexibility test is modified by bending specimen through an arc of 90 degrees at a uniform rate in 10 seconds over a 1-inch diameter mandrel.

9-02.1(9) Coal Tar Pitch Emulsion, Cationic Asphalt Emulsion Blend Sealer

This section including title is revised to read:

9-02.1(9) Vacant

9-03.AP9

SECTION 9-03, AGGREGATES

August 1, 2011

In this Division, all references to "AASHTO TP 61" are revised to read "AASHTO T 335".

9-03.4(2) Grading and Quality

In the "Crush Screening Percent Passing" table, the sixth column titled "3/8 – No. 10" is deleted.

9-03.10 Aggregate for Gravel Borrow

The first paragraph is revised to read:

Gravel base shall consist of granular material, either naturally occurring or processed. It shall be essentially free from various types of wood waste or other extraneous or objectionable materials. It shall have such characteristics of size and shape that it will compact readily and the maximum particle size shall not exceed 2/3 of the depth of the layer being placed.

The second paragraph is deleted.

9-03.11(2) Streambed Cobbles

The first paragraph is revised to read:

Streambed cobbles shall be clean, naturally occurring water rounded gravel material. Streambed cobbles shall have a well graded distribution of cobble sizes and conform to one or more of the following gradings as shown in the Plans:

Approximate Size ^{Note 1}	Percent Passing				
	4" Cobbles	6" Cobbles	8" Cobbles	10" Cobbles	12" Cobbles
12"					100
10"				100	70-90
8"			100	70-90	
6"		100	70-90		
5"		70-90			30-60.

4"	100			30-60.	
3"	70-90		30-60.		
2"		30-60.			
1½"	20-50				
¾"	10 max.	10 max.	10 max.	10 max.	10 max.

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In the second paragraph, “determine” is revised to read “determined”.

9-03.12(1)B Class B

This section is revised to read:

Gravel backfill for foundations, Class B, shall conform to the requirements of Section 9-03.10.

9-03.20 Test Methods for Aggregates

The last row of the table is deleted.

9-03.21(1) General Requirements

This sections content is deleted and replaced with:

Hot Mix Asphalt, Concrete Rubble, Recycled Glass and Steel Furnace Slag may be used as, or blended uniformly with, naturally occurring materials for aggregates. The final blended product and the recycled material component included in a blended product shall meet the specification requirements for the specified type of aggregate. The Contracting Agency may collect verification samples at any time. Blending of more than one type of recycled material into the naturally occurring materials requires approval of the Engineer prior to use.

Recycled materials obtained from the Contracting Agency’s roadways will not require toxicity testing or certification for toxicity characteristics.

Recycled materials that are imported to the job site will require testing and certification for toxicity characteristics. The recycled material supplier shall keep all toxicity test results on file and provide copies to the Project Engineer upon request. The Contractor shall provide the following:

- Identification of the recycled materials proposed for use.
- Sampling documentation no older than 90 days from the date the recycled material is placed on the project. Documentation shall include a minimum of 5 samples tested for total lead content by EPA Method 6010. Total lead test results shall not exceed 250 ppm. For samples that exceed 100 ppm, that sample must then be prepared by EPA Method 1311, the Toxicity Characteristic Leaching Procedure (TCLP), where liquid extract is analyzed by EPA Method 6010B. The TCLP test must be below 5.0 ppm.
- Certification that the recycled materials are not Washington State Dangerous Wastes per the Dangerous Waste Regulations WAC 173-303.

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- Certification that the recycled materials are in conformance with the requirements of the Standard Specifications prior to delivery. The certification shall include the percent by weight of each recycled material.

This section is supplemented with the following new sub-section:

9-03.21(1)E Table on Maximum Allowable Percent (by weight) of Recycled Material

9-03.21(1)A Recycled Hot Mix Asphalt

This section is revised to read:

For recycled materials incorporating hot mix asphalt the product supplier shall certify that the blended material does not exceed the Maximum Allowable Percentage of hot mix asphalt shown in Table 9-03.21(1)E.

9-03.21(1)B Recycled Portland Cement Concrete Rubble

This section including title is revised to read:

9-03.21(1)B Vacant

9-03.21(1)C Recycled Glass Aggregates

This section including title is revised to read:

9-03.21(1)C Vacant

9-03.21(1)D Recycled Steel Furnace Slag

The last row of the table is revised to read:

Bank Run Gravel for Trench Backfill	9-03.19	20	100	100	20
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The table is moved from this sub-section to the new sub-section **9-03.21(1)E Table on Maximum Allowable Percent (by weight) of Recycled Material.**

9-04.AP9

**SECTION 9-04, JOINT AND CRACK SEALING MATERIALS
August 2, 2010**

9-04.2(1) Hot Poured Joint Sealants

This section is revised to read:

Hot poured joint sealants shall meet the requirements of AASHTO M 324 Type IV except for the following:

1. The Cone Penetration at 25°C shall be 130 maximum.
2. The extension for the bond, non immersed, shall be 100%.

1 3. The hot poured joint sealant shall have a minimum Cleveland Open Cup Flash
2 Point of 205°C in accordance with AASHTO T 48
3

4 Hot poured joint sealants shall be sampled in accordance with ASTM D 5167 and tested
5 in accordance with ASTM D 5329.
6

7 **9-04.11 Butyl Rubber**

8 This section including title is revised to read:
9

10 **9-04.11 Butyl Rubber and Nitrile Rubber**

11 Butyl rubber shall conform to ASTM D 2000, M1 BA 610. If the Engineer determines
12 that the area will be exposed to petroleum products Nitrile rubber shall be utilized and
13 conform to ASTM D 2000, M1 BG 610.
14

15 9-05.AP9

16 **SECTION 9-05, DRAINAGE STRUCTURES, CULVERTS, AND CONDUITS**

17 **August 1, 2011**

18 **9-05.2(8) Perforated Corrugated Polyethylene Underdrain Pipe (12-inch**
19 **through 60-inch)**

20 This section including title is revised to read:
21

22 **9-05.2(8) Perforated Corrugated Polyethylene Underdrain Pipe, Couplings**
23 **and Fittings (12-inch through 60-inch)**

24 Perforated corrugated polyethylene underdrain pipe, couplings and fittings, 12-inch
25 through 60-inch diameter maximum, shall meet the requirements of AASHTO M 294
26 Type CP or Type SP. Type CP shall be Type C pipe with Class 2 perforations and Type
27 SP shall be Type S pipe with either Class 1 or Class 2 perforations. Additionally, Class 2
28 perforations shall be uniformly spaced along the length and circumference of the pipe.
29

30 **9-05.12(1) Solid Wall PVC Culvert Pipe, Solid Wall PVC Storm Sewer Pipe, and**
31 **Solid Wall PVC Sanitary Sewer Pipe**

32 In this section, all references to "115 psi" are revised to read "46 psi".
33

34 **9-05.12(2) Profile Wall PVC Culvert Pipe, Profile Wall PVC Storm Sewer Pipe,**
35 **and Profile Wall PVC Sanitary Sewer Pipe**

36 In the fourth paragraph, the word "producer's" is revised to read "Manufacturer's".
37

38 **9-05.13 Ductile Iron Sewer Pipe**

39 The second and third paragraphs are revised to read:
40

41 Ductile iron pipe shall conform to ANSI A 21.51 or AWWA C151 and shall be cement
42 mortar lined and have a 1- mil seal coat per AWWA C104, or a Ceramic Filled Amine
43 cured Novalac Epoxy lining, as indicated on the Plans or in the Special Provisions. The
44 ductile iron pipe shall be Special Thickness Class 50, Minimum Pressure Class 350, or
45 the Class indicated on the Plans or in the Special Provisions.
46

47 Nonrestrained joints shall be either rubber gasket type, push on type, or mechanical
48 type meeting the requirements of AWWA C111.
49

1 **9-05.19 Corrugated Polyethylene Culvert Pipe**

2 This sections title is revised to read:

3

4 **9-05.19 Corrugated Polyethylene Culvert Pipe, Couplings, and Fittings**

5

6 The first paragraph is revised to read:

7

8 Corrugated polyethylene culvert pipe, couplings, and fittings, shall meet the
9 requirements of AASHTO M 294 Type S or D for pipe 12-inch to 60-inch diameter with
10 silt-tight joints.

11

12 **9-05.20 Corrugated Polyethylene Storm Sewer Pipe**

13 This sections title is revised to read:

14

15 **9-05.20 Corrugated Polyethylene Storm Sewer Pipe, Couplings, and**
16 **Fittings**

17

18 In the first paragraph, the first sentence is revised to read:

19

20 Corrugated polyethylene storm sewer pipe, couplings, and fittings shall meet the
21 requirements of AASHTO M 294 Type S or D.

22

23 Section 9-05 is supplemented with the following new sub-sections:

24

25 **9-05.21 Steel Rib Reinforced Polyethylene Culvert Pipe**

26 Steel rib reinforced polyethylene culvert pipe shall meet the requirements of ASTM
27 F2562 Class 1 for steel reinforced thermoplastic ribbed pipe and fittings for pipe 24-inch
28 to 60-inch diameter with silt-tight joints.

29

30 Silt-tight joints for steel reinforced polyethylene culvert pipe shall be made with a
31 bell/bell or bell and spigot coupling and incorporate the use of a gasket conforming to
32 the requirements of ASTM F 477. All gaskets shall be installed on the pipe by the
33 manufacturer.

34

35 Qualification for each manufacturer of steel reinforced polyethylene culvert pipe requires
36 an approved joint system and a formal quality control plan for each plant proposed for
37 consideration.

38

39 A Manufacturer's Certificate of Compliance shall be required and shall accompany the
40 materials delivered to the project. The certificate shall clearly identify production lots for
41 all materials represented. The Contracting Agency may conduct verification tests of pipe
42 stiffness or other properties as it deems appropriate.

43

44 **9-05.22 Steel Rib Reinforced Polyethylene Storm Sewer Pipe**

45 Steel rib reinforced polyethylene storm sewer pipe shall meet the requirements of ASTM
46 F2562 Class 1 for steel reinforced thermoplastic ribbed pipe and fittings. The maximum
47 diameter for steel reinforced polyethylene storm sewer pipe shall be the diameter for
48 which a manufacturer has submitted a qualified joint. Qualified manufacturers and
49 approved joints are listed in the Qualified Products Lists. Fittings shall be rotationally
50 molded, injection molded, or factory welded.

51

1 All joints for steel reinforced polyethylene storm sewer pipe shall be made with a bell
2 and spigot coupling and conform to ASTM D 3212 using elastomeric gaskets
3 conforming to ASTM F 477. All gaskets shall be installed on the pipe by the
4 manufacturer.
5
6 Qualification for each manufacturer of steel reinforced polyethylene storm sewer pipe
7 requires joint system conformance to ASTM D 3212 using elastomeric gaskets
8 conforming to ASTM F 477 and a formal quality control plan for each plant proposed for
9 consideration.
10
11 A Manufacturer's Certificate of Compliance shall be required and shall accompany the
12 materials delivered to the project. The certificate shall clearly identify production lots for
13 all materials represented. The Contracting Agency may conduct verification tests of pipe
14 stiffness or other properties as it deems appropriate.
15
16 **9-05.23 High Density Polyethylene (HDPE) Pipe**
17 HDPE pipe shall be manufactured from resins meeting the requirements of ASTM
18 D3350 with a cell classification of 345464C and a Plastic Pipe Institute (PPI)
19 designation of PE 3408.
20
21 The pipes shall have a minimum standard dimension ratio (SDR) of 32.5.
22
23 HDPE pipe shall be joined into a continuous length by an approved joining method.
24
25 The joints shall not create an increase in the outside diameter of the pipe. The joints
26 shall be fused, snap together or threaded. The joints shall be water tight, rubber
27 gasketed if applicable, and pressure testable to the requirements of ASTM D 3212.
28
29 Joints to be welded by butt fusion, shall meet the requirements of ASTM F 2620 and the
30 manufacturer's recommendations. Fusion equipment used in the joining procedure
31 shall be capable of meeting all conditions recommended by the pipe manufacturer,
32 including but not limited to fusion temperature, alignment, and fusion pressure. All field
33 welds shall be made with fusion equipment equipped with a Data Logger. Temperature,
34 fusion pressure and a graphic representation of the fusion cycle shall be part of the
35 Quality Control records. Electro fusion may be used for field closures as necessary.
36 Joint strength shall be equal or greater than the tensile strength of the pipe.
37
38 Fittings shall be manufactured from the same resins and Cell Classification as the pipe
39 unless specified otherwise in the Plans or Specifications. Butt fusion fittings and
40 Flanged or Mechanical joint adapters shall have a manufacturing standard of ASTM
41 D3261. Electro fusion fittings shall have a manufacturing standard of ASTM F1055.
42
43 HDPE pipe to be used as liner pipe shall meet the requirements of AASHTO M 326 and
44 this specification.
45
46 The supplier shall furnish a Manufacturer's Certification of Compliance stating the
47 materials meet the requirements of ASTM D 3350 with the correct cell classification with
48 the physical properties listed above. The supplier shall certify the dimensions meet the
49 requirements of ASTM F 714 or as indicated in this Specification or the Plans.
50
51 At the time of manufacture, each lot of pipe, liner, and fittings shall be inspected for
52 defects and tested for Elevated Temperature Sustain Pressure in accordance with

1 ASTM F 714. The Contractor shall not install any pipe that is more than 2 years old
2 from the date of manufacture.
3
4 At the time of delivery, the pipe shall be homogeneous throughout, uniform in color, free
5 of cracks, holes, foreign materials, blisters, or deleterious faults.
6
7 Pipe shall be marked at 5 foot intervals or less with a coded number which identifies the
8 manufacturer, SDR, size, material, machine, and date on which the pipe was
9 manufactured.

10
11 **9-05.24 Polypropylene Culvert Pipe, Polypropylene Storm Sewer Pipe,**
12 **and Polypropylene Sanitary Sewer Pipe**
13 Polypropylene Culvert Pipe, Polypropylene Storm Sewer Pipe and Polypropylene
14 Sanitary Sewer pipe shall conform to the following requirements:
15

- 16 1. For pipe sizes up to 30 inches: ASTM F2736.
- 17 2. For pipe sizes from 30 to 60 inches: ASTM F2764.
- 18 3. Fittings shall be factory welded, injection molded or PVC.
19

20 All joints for corrugated polypropylene pipe shall be made with a bell/bell or bell and
21 spigot coupling and shall conform to ASTM D3212 using elastomeric gaskets
22 conforming to ASTM F477. All gaskets shall be factory installed on the pipe in
23 accordance with the producer's recommendations.
24

25 Qualification for each producer of corrugated polypropylene storm sewer pipe requires
26 joint system conformance to ASTM D3212 using elastomeric gaskets conforming to
27 ASTM F477 and a formal quality control plan for each plant proposed for consideration.
28

29 A Manufacturer's Certificate of Compliance shall be required and shall accompany the
30 materials delivered to the project. The certificate shall clearly identify production lots for
31 all materials represented. The Contracting Agency may conduct verification tests of
32 pipe stiffness or other properties deems appropriate.
33

34 9-06.AP9
35 **SECTION 9-06, STRUCTURAL STEEL AND RELATED MATERIALS**
36 **August 1, 2011**

37 **9-06.5(3) High Strength Bolts**

38 The first paragraph is revised to read:
39
40 High-strength bolts for structural steel joints shall conform to either AASHTO M 164
41 Type 1 or 3 or AASHTO M 253 Type 1 or 3, as specified in the Plans or Special
42 Provisions. Tension control bolt assemblies, meeting all requirements of ASTM F 1852
43 may be substituted where AASHTO M 164 high strength bolts and associated hardware
44 are specified.
45

46 The second paragraph is revised to read:
47
48 When specified in the Plans or Special Provisions to be galvanized, tension control bolt
49 assemblies shall be galvanized after fabrication in accordance with ASTM B 695 Class
50 55 Type I.

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The third paragraph is revised to read:

Bolts conforming to AASHTO M 253 shall not be galvanized.

The fourth paragraph is revised to read:

Bolts for unpainted and nongalvanized structures shall conform to either AASHTO M 164 Type 3, AASHTO M 253 Type 3, or ASTM F 1852 Type 3, as specified in the Plans or Special Provisions.

The fifth paragraph is revised to read:

Nuts for high strength bolts shall meet the following requirements:

AASHTO M 164 Bolts

Type 1 (black)

AASHTO M 291 Grade C, C3, D, DH and DH3

Type 3 (black weathering)

AASHTO M 292 Grade 2H

Type 1 (hot-dip galvanized)

AASHTO M 291 Grade C3 and DH3

AASHTO M 291 Grade DH

AASHTO M 292 Grade 2H

AASHTO M 253 Bolts

Type 1 (black)

AASHTO M 291 Grade DH, DH3

Type 3 (black weathering)

AASHTO M 292 Grade 2H

AASHTO M 291 Grade DH3

The first sentence in the eighth paragraph is revised to read:

Washers for AASHTO M 164 and AASHTO M 253 bolts shall meet the requirements of AASHTO M 293 and may be circular, beveled, or extra thick as required.

The last sentence in the eleventh paragraph is revised to read:

Approval from the Engineer to use lock-pin and collar fasteners shall be received by the Contractor prior to use.

The number 2 foot note reference in the table is deleted.

The last row of the table is revised to read:

*Manufacturer's Certificate of Compliance — samples not required.
1 Nuts, washers, load indicator devices, and tension control bolt assemblies shall be sampled at the same frequency as the bolts.

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9-06.5(4) Anchor Bolts

The second paragraph is revised to read:

1 Nuts for ASTM F 1554 Grade 105 black anchor bolts shall conform to AASHTO M 291,
2 Grade D or DH. Nuts for ASTM F 1554 Grade 105 galvanized bolts shall conform to
3 either AASHTO M 291, Grade DH, or AASHTO M 292, Grade 2H, and shall conform to
4 the overtapping, lubrication, and rotational testing requirements in Section 9-06.5(3).
5 Nuts for ASTM F 1554 Grade 36 or 55 black or galvanized anchor bolts shall conform to
6 AASHTO M 291, Grade A. Washers shall conform to ASTM F 436.
7

8 **9-06.16 Roadside Sign Structures**

9 The first paragraph is revised to read:

10

11 All bolts, nuts, washers, cap screws, and coupling bolts shall conform to AASHTO M
12 164 and Section 9-06.5(3), except as noted otherwise. All connecting hardware shall be
13 galvanized after fabrication in accordance with AASHTO M 232.
14

15

16 The sixth paragraph is revised to read:

17

18 The heavy-duty anchor (lower sign post support) used for perforated square steel posts
19 (ST-4) shall meet the requirements of ASTM A 500 Grade B and shall be hot-dipped
20 galvanized.

21

22 The following two new paragraphs are inserted after the sixth paragraph:

23

24 The bolts for connecting square steel posts to the upper slip plate SB-1, SB-2, or SB-3
25 shall be either corner bolts and conform to ASTM F 568 Class 4.6, zinc coated, or
26 shoulder flange bolts and conform to ASTM A 29, zinc coated, or commercial bolts stock
27 and conform to ASTM A 307, zinc coated.

28

29 The bolts connecting perforated square steel posts to the lower sign post support (ST-2
30 or ST-4) shall conform to ASTM A 307, Grade A and galvanized. The bolts connecting
31 the lower slip plate (SB-1, SB-2, or SB-3) to the heavy duty anchor (lower sign post
32 support ST-4) shall conform to ASTM A 307 and galvanized. The bolt stop for ST-2 and
33 ST-4 shall conform to ASTM A 307, Grade A and galvanized.

34

35 9-07.AP9

36 **SECTION 9-07, REINFORCING STEEL**

37 **August 1, 2011**

38 **9-07.1(1)A Acceptance of Materials**

39 The following new paragraph is inserted before the first paragraph:

40

41 Reinforcing steel rebar manufacturers shall comply with the requirements of AASHTO R
42 53, "Qualification of Deformed and Plain Reinforcing Steel Bar, Welded Wire, and Wire
43 Producing Mills" and the National Transportation Product Evaluation Program (NTPEP)
44 Work Plan for Reinforcing Steel (rebar) Manufacturers. Reinforcing steel rebar
45 manufacturers shall participate in the NTPEP Audit Program for Reinforcing Steel
46 (rebar) Manufacturers and be listed on the NTPEP audit program website displaying
47 that they are NTPEP compliant.

48

49 **9-07.2 Deformed Steel Bars**

50 The first paragraph is revised to read:

1 Deformed steel bars for concrete reinforcement shall conform to either AASHTO M 31
2 Grade 60, or ASTM A 706, except as otherwise noted in this Section or as shown in the
3 Plans. Steel reinforcing bar for the cast-in-place components of bridge structures
4 (excluding sidewalks and barriers but including shafts and concrete piles), and for
5 precast substructure components of bridge structures, shall conform to ASTM A 706
6 Grade 60 only.
7

8 **9-07.5(1) Epoxy Coated Dowel Bars (For Cement Concrete Pavement)**

9 This section's title is revised to read:

10

11 **9-07.5(1) Epoxy Coated Dowel Bars (For Cement Concrete Pavement**
12 **Rehabilitation)**

13

14 The following is inserted after the third sentence of the first paragraph:

15

16 The Contractor shall furnish a written certification that properly identifies the material,
17 the number of each batch of coating material used, quantity represented, date of
18 manufacture, name and address of manufacturer, and a statement that the supplied
19 coating material meets the requirements of ASTM A 934.
20

21 9-08.AP9

22 **SECTION 9-08, PAINTS AND RELATED MATERIALS**

23 **January 4, 2010**

24 **9-08.1(2)C Inorganic Zinc Rich Primer**

25 In the first paragraph, the reference to "Type II" is revised to read "Type I".

26

27 **9-08.1(2)D Organic Zinc Rich Primer**

28 This section is revised to read:

29

30 Organic zinc rich primer shall be a high performance two-component epoxy conforming
31 to SSPC Paint 20 Type II.
32

33 9-13.AP9

34 **SECTION 9-13, RIPRAP, QUARRY SPALLS, SLOPE PROTECTION, AND ROCK**
35 **WALLS**

36 **April 4, 2011**

37 In all tables of this section, "Specific Gravity" is revised to read "Specific Gravity SSD".

38

39 This sections title is revised to read:

40

41 **RIPRAP, QUARRY SPALLS, SLOPE PROTECTION, ROCK FOR EROSION**
42 **AND SCOUR PROTECTION AND ROCK WALLS**

43

44 The first sentence in the first paragraph is revised to read:

45

46 Riprap shall consist of broken stone, or broken concrete rubble.
47

48 **9-13.3 Sack Riprap**

49 This section including title is revised to read:

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9-13.3 Vacant

9-13.4 Vacant

This section including title is revised to read:

9-13.4 Rock for Erosion and Scour Protection

Rock for Erosion and Scour Protection shall be hard, sound, and durable material, free from seams, cracks, and other defects tending to destroy its resistance to weather and consist of broken and/or process rock. Rock for Erosion and Scour Protection shall meet quality requirements in Section 9-13 and the grading requirements in Section 9-13.4(2). The use of recycled materials and concrete rubble is not permitted for this application as per Section 9-03.21.

This section is supplemented with the following new sub-sections:

9-13.4(1) Suitable Shape of Rock for Erosion and Scour Protection

The Suitable Shape of these rocks shall be "Angular" (having sharply defined edges) to "Subangular" (having a shape in between Rounded and Angular) for a higher degree of interlocking to provide stability to the protected area. The use of round, thin, flat, or long and needle like shapes are not allowed. Suitable Shape can be determined by the ratio of the Length/Thickness. Where the Length is the longest axis, Width is the second longest axis, and Thickness is the shortest. The Suitable Shape shall be the maximum of 3.0 using the following calculation:

$$\frac{\text{Length}}{\text{Thickness}} \leq 3.0 \text{ Suitable Shape}$$

9-13.4(2) Grading Requirements of Rock for Erosion and Scour Protection

Rock for Erosion and Scour Protection will be classified as Class A, Class B, and Class C, and shall have a "Well-Graded" structure that meets the requirements for Suitable Shape and conforms to one or more of the following gradings as shown in the Plans.

Class A

Approximate Size (in.) Note 1	Percent Passing (Smaller)
18"	100
16"	80 – 95
12"	50 – 80
8"	15 - 50
4"	15 max.

Class B

Approximate Size (in.) Note 1	Percent Passing (Smaller)
30"	100
28"	80 – 95
22"	50 – 80

16"	15 - 50
10"	15 max.

Class C

Approximate Size (in.) Note 1	Percent Passing (Smaller)
42"	100
36"	80 – 95
28"	50 – 80
22"	15 - 50
14"	15 max.

Note 1 Approximate Size can be determined by taking the average dimension of the three axes of the rock; Length, Width, and Thickness by use of the following calculation:

$$\frac{\text{Length} + \text{Width} + \text{Thickness}}{3} = \text{Approximate Size}$$

Rock for Erosion and Scour Protection shall be visually accepted by the Project Engineer. The Project Engineer shall determine the Suitable Shape, Approximate Size and Grading of the load before it is placed. If so ordered by the Project Engineer, the loads shall be dumped on a flat surface for sorting and measuring the individual rocks contained in the load.

9-14.AP9

**SECTION 9-14, EROSION CONTROL AND ROADSIDE PLANTING
April 4, 2011**

Section 9-14 is deleted in its entirety and replaced with the following:

9-14.1 Soil

9-14.1(1) Topsoil Type A

Topsoil Type A shall be as specified in the Special Provisions.

9-14.1(2) Topsoil Type B

Topsoil Type B shall be native topsoil taken from within the project limits either from the area where roadway excavation is to be performed or from strippings from borrow, pit, or quarry sites, or from other designated sources. The general limits of the material to be utilized for topsoil will be indicated in the Plans or in the Special Provisions. The Engineer will make the final determination of the areas where the most suitable material exists within these general limits. The Contractor shall reserve this material for the specified use. Material for Topsoil Type B shall not be taken from a depth greater than 1 foot from the existing ground unless otherwise designated by the Engineer.

In the production of Topsoil Type B, all vegetative matter less than 4 feet in height, shall become a part of the topsoil. Prior to topsoil removal, the Contractor shall reduce the native vegetation to a height not exceeding 1 foot. Noxious weeds, as designated by

1 authorized State and County officials, shall not be incorporated in the topsoil, and shall
2 be removed and disposed of as designated elsewhere or as approved by the Engineer.
3

4 **9-14.1(3) Topsoil Type C**

5 Topsoil Type C shall be native topsoil meeting the requirements of Topsoil Type B but
6 obtained from a source provided by the Contractor outside of the Contracting Agency
7 owned right of way.
8

9 **9-14.2 Seed**

10 Grasses, legumes, or cover crop seed of the type specified shall conform to the
11 standards for "Certified" grade seed or better as outlined by the State of Washington
12 Department of Agriculture "Rules for Seed Certification," latest edition. Seed shall be
13 furnished in standard containers on which shall be shown the following information:
14

- 15 1. Common and botanical names of seed
 - 16 2. Lot number
 - 17 3. Net weight
 - 18 4. Pure live seed
- 19

20 All seed vendors must have a business license issued by the Washington State
21 Department of Licensing with a "seed dealer" endorsement. Upon request, the
22 Contractor shall furnish the Engineer with copies of the applicable licenses and
23 endorsements.
24

25 Upon request, the Contractor shall furnish to the Engineer duplicate copies of a
26 statement signed by the vendor certifying that each lot of seed has been tested by a
27 recognized seed testing laboratory within six months before the date of delivery on the
28 project. Seed which has become wet, moldy, or otherwise damaged in transit or storage
29 will not be accepted.
30

31 **9-14.3 Fertilizer**

32 Fertilizer shall be a standard commercial grade of organic or inorganic fertilizer of the
33 kind and quality specified. It may be separate or in a mixture containing the percentage
34 of total nitrogen, available phosphoric acid, water-soluble potash, or sulfur in the
35 amounts specified. All fertilizers shall be furnished in standard unopened containers with
36 weight, name of plant nutrients, and manufacturer's guaranteed statement of analysis
37 clearly marked, all in accordance with State and Federal laws.
38

39 Fertilizer shall be supplied in one of the following forms:
40

- 41 1 A dry free-flowing granular fertilizer, suitable for application by agricultural
42 fertilizer spreader.
- 43
- 44 2 A soluble form that will permit complete suspension of insoluble particles in
45 water, suitable for application by power sprayer.
- 46
- 47 3 A homogeneous pellet, suitable for application through a ferti-blast gun.
- 48
- 49 4 A tablet or other form of controlled release with a minimum of a six month
50 release period.
- 51
- 52 5 A liquid suitable for application by a power sprayer or hydroseeder.

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9-14.4 Mulch and Amendments

All amendments shall be delivered to the site in the original, unopened containers bearing the manufacturer's guaranteed chemical analysis and name. In lieu of containers, amendments may be furnished in bulk. A manufacturer's certificate of compliance shall accompany each delivery. Compost and other organic amendments shall be accompanied with all applicable health certificates and permits.

9-14.4(1) Straw

Straw shall be in an air dried condition free of noxious weeds, seeds, and other materials detrimental to plant life. Hay is not acceptable.

All straw material shall be Certified Weed Free Straw using North American Weed Management Association (NAWMA) standards or the Washington Wilderness Hay and Mulch (WWHAM) program run by the Washington State Noxious Weed Control Board. Information can be found at <http://www.nwcb.wa.gov/http://www.nwcb.wa.gov/>

In lieu of Certified Weed Free Straw, the Contractor shall provide documentation that the material is steam or heat treated to kill seeds, or shall provide U.S., Washington, or other State's Department of Agriculture laboratory test reports, dated within 90 days prior to the date of application, showing there are no viable seeds in the straw.

Straw mulch shall be suitable for spreading with mulch blower equipment.

9-14.4(2) Hydraulically Applied Erosion Control Products (HECPs)

All HECPs shall be biodegradable and in a dry condition free of noxious weeds, seeds, chemical printing ink, germination inhibitors, herbicide residue, chlorine bleach, rock, metal, plastic, and other materials detrimental to plant life. Up to 5 percent by weight may be photodegradable material.

The HECP shall be suitable for spreading with a hydroseeder.

All HECPs shall be furnished premixed by the manufacturer with Type A or Type B Tackifier as specified in 9-14.4(7). Under no circumstances will field mixing of additives or components be acceptable.

The Contractor shall provide test results, dated within three years prior to the date of application, from an independent, accredited laboratory, as approved by the Engineer, showing the product meets the following requirements:

Properties	Test Method	Requirements
Acute Toxicity	EPA-821-R-02-012 Methods for Measuring Acute Toxicity of Effluents. Test leachate from recommended application rate receiving 2 inches of rainfall per hour using static test for No-Observed-Adverse- Effect-Concentration (NOEC)	Four replicates are required with No statistically significant reduction in survival in 100% leachate for a Daphnid at 48 hours and <i>Oncorhynchus mykiss</i> (rainbow trout) at 96 hours

Solvents	EPA 8260B	Benzene - < 0.03 mg/kg Methylene chloride – 0.02 mg/kg Naphthalene – < 5 mg/kg Tetrachloroethylene – < 0.05 mg/kg Toluene – < 7 mg/kg Trichloroethylene – < 0.03 mg/kg Xylenes – < 9 mg/kg		
Heavy Metals	EPA 6020A Total Metals	Antimony – < 4 mg/kg Arsenic – < 6 mg/kg Barium – < 80 mg/kg Boron – < 100 mg/kg Cadmium – < 2 mg/kg Chromium – < 2 mg/kg Copper – < 5 mg/kg Lead – < 5 mg/kg Mercury – < 2 mg/kg Nickel – < 2 mg/kg Selenium – < 10 mg/kg Strontium – < 30 mg/kg Zinc – < 5 mg/kg		
Water Holding Capacity	ASTM D 7367	900 percent minimum		
Organic Matter Content	ASTM D 586	90 percent minimum		
Moisture Content	ASTM D 644	15 percent maximum		
Seed Germination Enhancement	ASTM D 7322	Long Term	Moderate Term	Short Term
		420 percent minimum	400 percent minimum	200 percent minimum

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If the HECF contains cotton or straw, the Contractor shall provide documentation that the material has been steam or heat treated to kill seeds, or shall provide U.S., Washington, or other State’s Department of Agriculture laboratory test reports, dated within 90 days prior to the date of application, showing there are no viable seeds in the mulch.

The HECF shall be manufactured in such a manner that when agitated in slurry tanks with water, the fibers will become uniformly suspended, without clumping, to form a homogeneous slurry. When hydraulically applied, the material shall form a strong moisture-holding mat that allows the continuous absorption and infiltration of water.

The HECF shall contain a dye to facilitate placement and inspection of the material. Dye shall be non-toxic to plants, animals, and aquatic life and shall not stain concrete or painted surfaces.

The HECF shall be furnished with a Material Safety Data Sheet (MSDS) that demonstrates that the product is not harmful to plants, animals, and aquatic life.

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9-14.4(2)A Long Term Mulch

Long Term Mulch shall demonstrate the ability to adhere to the soil and create a blanket-like mass within two hours of application and shall bond with the soil surface to create a continuous, porous, absorbent, and flexible erosion resistant blanket that allows for seed germination and plant growth and conforms to the requirements in Table 1 Long Term Mulch Test Requirements.

The Contractor shall provide test results documenting the mulch meets the requirements in Table 1 Long Term Mulch Test Requirements.

Prior to January 1, 2012, the Contractor shall supply independent ASTM D 6459 test results from one of the following testing facilities:

- National Transportation Product Evaluation Program (NTPEP)
- Utah State University’s Utah Water Research Laboratory
- Texas Transportation Institute
- San Diego State University’s Soil Erosion Research Laboratory
- TRI Environmental, Inc

Effective January 1, 2012, the Contractor shall supply independent test results from the National Transportation Product Evaluation Program (NTPEP).

Table 1 Long Term Mulch Test Requirements

Properties	Test Method	Requirements
Performance in Protecting Slopes from Rainfall-Induced Erosion	ASTM D 6459 - 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)

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9-14.4(2)B Moderate Term Mulch

Within 48 hours of application, the Moderate Term Mulch shall bond with the soil surface to create a continuous, absorbent, flexible erosion resistant blanket that allows for seed germination and plant growth and conform to the requirements in Table 2 Moderate Term Mulch Test Requirements.

The Contractor shall provide test results documenting the mulch meets the requirements in Table 2 Moderate Term Mulch Test Requirements.

Prior to January 1, 2012, the Contractor shall supply independent ASTM D 6459 test results from one of the following testing facilities:

- National Transportation Product Evaluation Program (NTPEP)
- Utah State University’s Utah Water Research Laboratory
- Texas Transportation Institute
- San Diego State University’s Soil Erosion Research Laboratory
- TRI Environmental, Inc

Effective January 1, 2012, the Contractor shall supply independent test results from the National Transportation Product Evaluation Program (NTPEP).

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Table 2 Moderate Term Mulch Test Requirements

Properties	Test Method	Requirements
Performance in Protecting Slopes from Rainfall-Induced Erosion	ASTM D 6459 - Test in one soil type. Soil tested shall be sandy loam as defined by the NRCS Soil Texture Triangle	C Factor = 0.05 maximum using Revised Universal Soil Loss Equation (RUSLE)

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9-14.4(2)C Short Term Mulch

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The Contractor shall provide test results documenting the mulch meets the requirements in Table 3 Short Term Mulch Test Requirements.

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Prior to January 1, 2012, the Contractor shall supply independent ASTM D 6459 test results from one of the following testing facilities:

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- National Transportation Product Evaluation Program (NTPEP)
- Utah State University's Utah Water Research Laboratory
- Texas Transportation Institute
- San Diego State University's Soil Erosion Research Laboratory
- TRI Environmental, Inc

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Effective January 1, 2012, the Contractor shall supply independent test results from the National Transportation Product Evaluation Program (NTPEP).

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Table 3 Short Term Mulch Test Requirements

Properties	Test Method	Requirements
Performance in Protecting Slopes from Rainfall-Induced Erosion	ASTM D 6459 - Test in one soil type. Soil tested shall be sandy loam as defined by the National Resources Conservation Service (NRCS) Soil Texture Triangle	C Factor = 0.15 maximum using Revised Universal Soil Loss Equation (RUSLE)

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22

9-14.4(3) Bark or Wood Chips

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Bark or wood chip mulch shall be derived from Douglas fir, pine, or hemlock species. It shall not contain resin, tannin, or other compounds in quantities that would be detrimental to plant life. Sawdust shall not be used as mulch.

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27

Bark or wood chips, when tested, shall be according to WSDOT Test Method T 123 prior to placement and shall meet the following loose volume gradation:

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29

Sieve Size	Percent Passing	
	Minimum	Maximum
2"	95	100
No. 4	0	30

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31

9-14.4(4) Wood Strand Mulch

32

Wood strand mulch shall be a blend of angular, loose, long, thin wood pieces that are frayed, with a high length-to-width ratio and shall be derived from native conifer or

33

1 deciduous trees. A minimum of 95 percent of the wood strand shall have lengths
2 between 2 and 10 inches. At least 50 percent of the length of each strand shall have a
3 width and thickness between 1/16 and 1/2 inch. No single strand shall have a width or
4 thickness greater than 1/2 inch.

5
6 The mulch shall not contain salt, preservatives, glue, resin, tannin, or other compounds
7 in quantities that would be detrimental to plant life. Sawdust or wood chips or shavings
8 will not be acceptable. Products shall be tested according to WSDOT Test Method 125
9 prior to acceptance.

10
11 **9-14.4(5) Lime**
12 Agriculture lime shall be of standard manufacture, flour grade or in pelletized form,
13 meeting the requirements of ASTM C 602.

14
15 **9-14.4(6) Gypsum**
16 Gypsum shall consist of Calcium Sulfate (CaSO₄·2H₂O) in a pelletized or granular form.
17 100 percent shall pass through a No. 8 sieve.

18
19 **9-14.4(7) Tackifier**
20 Tackifiers are used as a tie-down for soil, compost, seed, and/or mulch. Tackifier shall
21 contain no growth or germination inhibiting materials, and shall not reduce infiltration
22 rates. Tackifier shall hydrate in water and readily blend with other slurry materials and
23 conform to the requirements in Table 4 Tackifier Test Requirements.

24
25 The Contractor shall provide test results documenting the tackifier meets the
26 requirements in Table 4 Tackifier Test Requirements.

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28
29 **Table 4 Tackifier Test Requirements**

Properties	Test Method	Requirements
Heavy Metals Solvents Acute Toxicity	See Table in Section 9-14.4(2). Test at manufacturer's recommended application rate	See Table in Section 9- 14.4(2)
Viscosity	ASTM D 2364. Testing shall be performed by an accredited, independent laboratory	4000 cPs minimum

30
31 **9-14.4(7)A Organic Tackifier**
32 Organic tackifier shall be derived from natural plant sources and shall have an MSDS
33 that demonstrates to the satisfaction of the Engineer that the product is not harmful to
34 plants, animals, and aquatic life.

35
36 **9-14.4(7)B Synthetic Tackifier**
37 Synthetic tackifier shall have an MSDS that demonstrates to the satisfaction of the
38 Engineer that the product is not harmful to plants, animals, and aquatic life.

39
40 **9-14.4(8) Compost**
41 Compost products shall be the result of the biological degradation and transformation of
42 organic materials under controlled conditions designed to promote aerobic
43 decomposition. Compost shall be stable with regard to oxygen consumption and
44 carbon dioxide generation. Compost shall be mature with regard to its suitability for

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1 serving as a soil amendment or an erosion control BMP as defined below. The compost shall have a moisture content that has no visible free water or dust produced when handling the material.

2 Compost production and quality shall comply with Chapter 173-350 WAC.

3 Compost products shall meet the following physical criteria:

- 4 1. Compost material shall be tested in accordance with U.S. Composting Council Testing Methods for the Examination of Compost and Composting (TMECC) 02.02-B, "Sample Sieving for Aggregate Size Classification".

5 Fine compost shall meet the following gradation:

Sieve Size	Percent Passing	
	Minimum	Maximum
2"	100	
1"	95	100
5/8"	90	100
1/4"	75	100

6 Maximum particle length of 6 inches.

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7 Medium compost shall meet the following gradation:

Sieve Size	Percent Passing	
	Minimum	Maximum
2"	100	
1"	95	100
5/8"	90	100
1/4"	70	85

8 Maximum particle length of 6 inches.

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9 Medium compost shall have a carbon to nitrogen ratio (C:N) between 18:1 and 30:1. The carbon to nitrogen ratio shall be calculated using the dry weight of "Organic Carbon" using TMECC 04.01A divided by the dry weight of "Total N" using TMECC 04.02D.

10 Coarse compost shall meet the following gradation:

Sieve Size	Percent Passing	
	Minimum	Maximum
3"	100	
1"	90	100
3/4"	70	100
1/4"	40	60

11 Maximum particle length of 6 inches.

12 Coarse Compost shall have a Carbon to Nitrogen ratio (C:N) between 25:1 and 35:1. The Carbon to Nitrogen ratio shall be calculated using the dry weight of "Organic Carbon" using TMECC 04.01A divided by the dry weight of "Total N" using TMECC 04.02D.

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- 1 2. The pH shall be between 6.0 and 8.5 when tested in accordance with U.S.
2 Composting Council TMECC 04.11-A, "1:5 Slurry pH".
3
- 4 3. Manufactured inert material (plastic, concrete, ceramics, metal, etc.) shall be less
5 than 1.0 percent by weight as determined by U.S. Composting Council TMECC
6 03.08-A "Classification of Inerts by Sieve Size".
7
- 8 4. Minimum organic matter shall be 40 percent by dry weight basis as determined by
9 U.S. Composting Council TMECC 05.07A "Loss-On-Ignition Organic Matter Method
10 (LOI)".
11
- 12 5. Soluble salt contents shall be less than 4.0 mmhos/cm when tested in accordance
13 with U.S. Composting Council TMECC 04.10 "Electrical Conductivity".
14
- 15 6. Maturity shall be greater than 80 percent in accordance with U.S. Composting
16 Council TMECC 05.05-A, "Germination and Root Elongation".
17
- 18 7. Stability shall be 7 mg CO₂-C/g OM/day or below in accordance with U.S.
19 Composting Council TMECC 05.08-B "Carbon Dioxide Evolution Rate".
20
- 21 8. The compost product shall originate from recycled plant waste as defined in WAC
22 173-350 as "Type 1 Feedstocks", "Type 2 Feedstocks," and/or "Type 3 Feedstocks".
23 The Contractor shall provide a list of feedstock sources by percentage in the final
24 compost product.
25
- 26 9. The Engineer may evaluate compost for maturity using U.S. Composting Council
27 TMECC 05.08-E "Solvita® Maturity Index". Fine compost shall score a number 6 or
28 above on the Solvita® Compost Maturity Test. Medium and Coarse compost shall
29 score a 5 or above on the Solvita® Compost Maturity Test.
30

31 **9-14.4(8)A Compost Submittal Requirements**

32 The Contractor shall submit the following information to the Engineer for approval:
33

- 34 1. The Qualified Products List printed page or a Request for Approval of
35 Material(DOT Form 350-071EF).
36
- 37 2. A copy of the Solid Waste Handling Permit issued to the manufacturer by the
38 Jurisdictional Health Department in accordance with WAC 173-350 (Minimum
39 Functional Standards for Solid Waste Handling).
40
- 41 3. The Contractor shall verify in writing, and provide lab analyses, that the
42 material complies with the processes, testing, and standards specified in WAC
43 173-350 and these Specifications. An independent Seal of Testing Assurance
44 (STA) Program certified laboratory shall perform the analysis.
45
- 46 4. A copy of the manufacturer's Seal of Testing Assurance (STA) certification as
47 issued by the U.S. Composting Council.
48

49 **9-14.4(8)B Compost Acceptance**

50 Fourteen days prior to application, the Contractor shall submit a sample of the compost
51 approved for use, and a STA test report dated within 90 calendar days of the

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application, and the list of feed stocks by volume for each compost type to the Engineer for review.

The Contractor shall use only compost that has been tested within 90 calendar days of application and meets the requirements in Section 9-14.4(8). Compost not conforming to the above requirements or taken from a source other than those tested and accepted shall not be used.

9-14.4(9) Vacant

9-14.4(10) Vacant

9-14.5 Erosion Control Devices

9-14.5(1) Polyacrylamide (PAM)

PAM is used as a tie-down for soil, compost, or seed, and is also used as a flocculent. Polyacrylamide (PAM) products shall meet ANSI/NSF Standard 60 for drinking water treatment with an AMD content not to exceed 0.05 percent. PAM shall be anionic, linear, and not cross-linked. The minimum average molecular weight shall be greater than 5 mg/mole and minimum 30 percent charge density. The product shall contain at least 80 percent active ingredients and have a moisture content not exceeding 10 percent by weight. PAM shall be delivered in a dry granular or powder form.

9-14.5(2) Erosion Control Blanket

Temporary erosion control blanket shall be made of natural plant fibers. The Contractor shall supply independent test results from the National Transportation Product Evaluation Program (NTPEP) meeting the requirements in the following table:

Properties	ASTM Test Method	Requirements
Protecting Slopes from Rainfall-Induced Erosion	D 6459 - Test in one soil type. Soil tested shall be sandy loam as defined by the NRCS Soil Texture Triangle	Maximum C factor of 0.15 using Revised Universal Soil Loss Equation (RUSLE)
Dry Weight per Unit Area	D 6475	0.36 lb/sq. yd. minimum
Performance in Protecting Earthen Channels from Stormwater-Induced Erosion	D 6460 Test in one soil type. Soil tested shall be loam as defined by the NRCS Soil Texture Triangle	1.0 lb/sq. ft. minimum
Seed Germination Enhancement	D 7322	200 percent minimum

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Netting, if present, shall be biodegradable with a life span not to exceed two years.

Permanent erosion control blanket/turf reinforcement mats shall meet the following requirements:

Properties	ASTM Test Method	Requirements
UV Stability	D 4355	Minimum 80 percent

		strength retained after 500 hours in a xenon arc device
Protecting Slopes from Rainfall-Induced Erosion	D 6459 with 0.12 inch average raindrop size.* Test in one soil type. Soil tested shall be loam as defined by the NRCS Soil Texture Triangle **	Maximum C factor of 0.15 using Revised Universal Soil Loss Equation (RUSLE)
Dry Weight per Unit Area	D 6566	0.50 lb/sq. yd. minimum
Performance in Protecting Earthen Channels from Stormwater-Induced Erosion	D 6460 Test in one soil type. Soil tested shall be loam as defined by the NRCS Soil Texture Triangle**	2.0 lb/sq. ft. minimum
Seed Germination Enhancement	D 7322	200 percent minimum

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9-14.5(2)A Erosion Control Blanket Approval

The Contractor shall select erosion control blanket products that bear the Quality and Data Oversight and Review (QDOR) seal from the Erosion Control and Technology Council (ECTC). All materials selected shall be currently listed on the QDOR products list available at www.ectc.org/qdor

9-14.5(3) Clear Plastic Covering

Clear plastic covering shall meet the requirements of ASTM D 4397 for polyethylene sheeting having a minimum thickness of 6 mils.

9-14.5(4) Geotextile-Encased Check Dam

The geotextile-encased check dam shall be a urethane foam core encased in geotextile material. The minimum length of the unit shall be 7 feet.

The foam core shall be a minimum of 8 inches in height, and have a minimum base width of 16 inches. The geotextile material shall overhang the foam by at least 6 inches at each end, and shall have apron type flaps that extend a minimum of 24 inches on each side of the check dam. The geotextile material shall meet the requirements in Section 9-33.

9-14.5(5) Wattles

Wattles shall consist of cylinders of biodegradable plant material such as weed-free straw, coir, compost, wood chips, excelsior, or wood fiber or shavings encased within biodegradable netting. Wattles shall be a minimum of 5 inches in diameter. Netting material shall be clean, evenly woven, and free of encrusted concrete or other contaminating materials such as preservatives. Netting material shall be free from cuts, tears, or weak places and shall have a minimum lifespan of 6 months and a maximum lifespan of not more than 24 months.

Compost filler shall be coarse compost and shall meet the material requirements as specified in Section 9-14.4(8). If wood chips are used they shall meet the material

1 requirements as specified in Section 9-14.4(3). If wood shavings are used, 80 percent
2 of the fibers shall have a minimum length of 6 inches between 0.030 and 0.50 inches
3 wide, and between 0.017 and 0.13 inches thick.
4

5 Wood stakes for wattles shall be made from untreated Douglas fir, hemlock, or pine
6 species. Wood stakes shall be 2 inch by 2 inch nominal dimension and 36 inches in
7 length.
8

9 **9-14.5(6) Compost Socks**

10 Compost socks shall consist of extra heavy weight biodegradable fabric, with a
11 minimum strand thickness of 5 mils. The fabric shall be filled with Coarse Compost.
12 Compost socks shall be at least 8 inches in diameter. The fabric shall be clean, evenly
13 woven, and free of encrusted concrete or other contaminating materials and shall be
14 free from cuts, tears, broken or missing yarns, and be free of thin, open, or weak areas
15 and shall be free of any type of preservative. Netting material shall have a minimum
16 lifespan of 6 months and a maximum lifespan of not more than 24 months.
17

18 Coarse compost filler shall meet the material requirements as specified in Section 9-
19 14.4(8).
20

21 Wood stakes for compost socks shall be made from untreated Douglas fir, hemlock, or
22 pine species. Wood stakes shall be 2 inch by 2 inch nominal dimension and 36 inches in
23 length,
24

25 **9-14.5(7) Coir Log**

26 Coir logs shall be made of 100 percent durable coconut (coir) fiber uniformly compacted
27 within woven netting made of bristle coir twine with minimum strength of 80 lbs tensile
28 strength. The netting shall have nominal 2 inch by 2 inch openings. Log segments shall
29 have a maximum length of 20 feet, with a minimum diameter as shown in the Plans.
30 Logs shall have a minimum density of 7 lbs/cf.
31

32 Stakes shall be untreated Douglas fir, hemlock, or pine species. Wood stakes shall have
33 a notch to secure the rope ties. Rope ties shall be of 1/4 inch diameter commercially
34 available hemp rope.
35

36 **9-14.5(8) High Visibility Fencing**

37 High visibility fence shall be UV stabilized, orange, high-density polyethylene or
38 polypropylene mesh, and shall be at least 4-feet in height.
39

40 Support posts shall be wood or steel in accordance with Standard Plan I-10.10-00. The
41 posts shall have sufficient strength and durability to support the fence through the life of
42 the project.
43

44 **9-14.6 Plant Materials**

45 **9-14.6(1) Description**

46 Bareroot plants are grown in the ground and harvested without soil or growing medium
47 around their roots.
48

49 Container plants are grown in pots or flats that prevent root growth beyond the sides
50 and bottom of the container.
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1 Balled and burlapped plants are grown in the ground and harvested with soil around a
2 core of undisturbed roots. This rootball is wrapped in burlap and tied or placed in a wire
3 basket or other supportive structure.
4

5 Cuttings are live plant material without a previously developed root system. Source
6 plants for cuttings shall be dormant when cuttings are taken and all cuts shall be made
7 with a sharp instrument. Cuttings may be collected. If cuttings are collected, the
8 requirement to be nursery grown or held in nursery conditions does not apply. Written
9 permission shall be obtained from property owners and provided to the Engineer before
10 cuttings are collected. The Contractor shall collect cuttings in accordance with
11 applicable sensitive area ordinances. Cuttings shall meet the following requirements:
12

- 13 A. Live branch cuttings shall have flexible top growth with terminal buds and may
14 have side branches. The rooting end shall be cut at an approximate 45 degree
15 angle.
16
- 17 B. Live stake cuttings shall have a straight top cut immediately above a bud. The
18 lower, rooting end shall be cut at an approximate 45 degree angle. Live stakes
19 are cut from one to two year old wood. Live stake cuttings shall be cut and
20 installed with the bark intact with no branches or stems attached, and be ½ to
21 1½ inch in diameter.
22
- 23 C. Live pole cuttings shall have a minimum 2 inch diameter and no more than
24 three branches which shall be pruned back to the first bud from the main stem.
25

26 Rhizomes shall be a prostrate or subterranean stem, usually rooting at the nodes and
27 becoming erect at the apex. Rhizomes shall have a minimum of two growth points.
28 Tubers shall be a thickened and short subterranean branch having numerous buds or
29 eyes.
30

31 **9-14.6(2) Quality**

32 At the time of delivery all plant material furnished shall meet the grades established by
33 the latest edition of the American Standard for Nursery Stock, (ASNS) ANSI Z60.1 and
34 shall conform to the size and acceptable conditions as listed in the Contract, and shall
35 be free of all foreign plant material.
36

37 All plant material shall comply with State and Federal laws with respect to inspection for
38 plant diseases and insect infestation.
39

40 All plant material shall be purchased from a nursery licensed to sell plants in
41 Washington State.
42

43 Live woody or herbaceous plant material, except cuttings, rhizomes, and tubers, shall
44 be vigorous, well formed, with well developed fibrous root systems, free from dead
45 branches, and from damage caused by an absence or an excess of heat or moisture,
46 insects, disease, mechanical or other causes detrimental to good plant development.
47 Evergreen plants shall be well foliated and of good color. Deciduous trees that have
48 solitary leaders shall have only the lateral branches thinned by pruning. All conifer trees
49 shall have only one leader (growing apex) and one terminal bud, and shall not be
50 sheared or shaped. Trees having a damaged or missing leader, multiple leaders, or Y-
51 crotches shall be rejected.
52

1 Root balls of plant materials shall be solidly held together by a fibrous root system and
2 shall be composed only of the soil in which the plant has been actually growing. Balled
3 and burlapped rootballs shall be securely wrapped with jute burlap or other packing
4 material not injurious to the plant life. Root balls shall be free of weed or foreign plant
5 growth.
6
7 Plant materials shall be nursery grown stock. Plant material, with the exception of
8 cuttings, gathered from native stands shall be held under nursery conditions for a
9 minimum of one full growing season, shall be free of all foreign plant material, and meet
10 all of the requirements of these Specifications, the Plans, and the Special Provisions.
11
12 Container grown plants shall be plants transplanted into a container and grown in that
13 container sufficiently long for new fibrous roots to have developed so that the root mass
14 will retain its shape and hold together when removed from the container, without having
15 roots that circle the pot. Plant material which is root bound, as determined by the
16 Engineer, shall be rejected. Container plants shall be free of weed or foreign plant
17 growth.
18
19 Container sizes for plant material of a larger grade than provided for in the container
20 grown Specifications of the ASNS shall be determined by the volume of the root ball
21 specified in the ASNS for the same size plant material.
22
23 All bare root plant materials shall have a heavy fibrous root system and be dormant at
24 the time of planting.
25
26 Average height to spread proportions and branching shall be in accordance with the
27 applicable sections, illustrations, and accompanying notes of the ASNS.
28
29 Plants specified or identified as "Street Tree Grade" shall be trees with straight trunks,
30 full and symmetrical branching, central leader, and be developed, grown, and
31 propagated with a full branching crown. A "Street Tree Grade" designation requires the
32 highest grade of nursery shade or ornamental tree production which shall be supplied.
33
34 Street trees with improperly pruned, broken, or damaged branches, trunk, or root
35 structure shall be rejected. In all cases, whether supplied balled and burlapped or in a
36 container, the root crown (top of root structure) of the tree shall be at the top of the finish
37 soil level. Trees supplied and delivered in a nursery fabric bag will not be accepted.
38
39 Plants which have been determined by the Engineer to have suffered damage for the
40 following reasons will be rejected:
41
42 1. Girdling of the roots, stem, or a major branch.
43
44 2. Deformities of the stem or major branches.
45
46 3. Lack of symmetry.
47
48 4. Dead or defoliated tops or branches.
49
50 5. Defects, injury, and condition which renders the plant unsuitable for its
51 intended use.
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Plants that are grafted shall have roots of the same genus as the specified plant.

9-14.6(3) Handling and Shipping

Handling and shipping shall be done in a manner that is not detrimental to the plants. The nursery shall furnish a notice of shipment in triplicate at the time of shipment of each truck load or other lot of plant material. The original copy shall be delivered to the Project Engineer, the duplicate to the consignee and the triplicate shall accompany the shipment to be furnished to the Inspector at the job site. The notice shall contain the following information:

1. Name of shipper.
2. Date of shipment.
3. Name of commodity. (Including all names as specified in the Contract.)
4. Consignee and delivery point.
5. State Contract number.
6. Point from which shipped.
7. Quantity contained.
8. Size. (Height, runner length, caliper, etc. as required.)
9. Signature of shipper by authorized representative.

To acclimate plant materials to Northwest conditions, all plant materials used on a project shall be grown continuously outdoors north of the 42nd Latitude (Oregon-California border) from not later than August 1 of the year prior to the time of planting.

All container grown plants shall be handled by the container.

All balled and burlapped plants shall be handled by the ball.

Plant material shall be packed for shipment in accordance with prevailing practice for the type of plant being shipped, and shall be protected at all times against drying, sun, wind, heat, freezing, and similar detrimental conditions both during shipment and during related handling. Where necessary, plant material shall be temporarily heeled in. When transported in closed vehicles, plants shall receive adequate ventilation to prevent sweating. When transported in open vehicles, plants shall be protected by tarpaulins or other suitable cover material.

9-14.6(4) Tagging

Plants delivered as a single unit of 25 or less of the same size, species, and variety, shall be clearly marked and tagged. Plants delivered in large quantities of more than 25 shall be segregated as to variety, grade, and size; and one plant in each 25, or fraction thereof, of each variety, grade, and size shall be tagged.

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9-14.6(5) Inspection

The Contracting Agency will make an inspection of plant material at the source when requested by the Engineer. However, such preliminary approval shall not be considered as final acceptance for payment. Final inspection and approval (or rejection) will only occur when the plant material has been delivered to the Project site. The Contractor shall notify the Engineer, not less than 48 hours in advance, of plant material delivery to the project.

9-14.6(6) Substitution of Plants

No substitution of plant material, species or variety, will be permitted unless evidence is submitted in writing to the Engineer that a specified plant cannot be obtained and has been unobtainable since the Award of the Contract. If substitution is permitted, it can be made only with written approval by the Engineer. The nearest variety, size, and grade, as approved by the Engineer, shall then be furnished.

Container or balled and burlapped plant material may be substituted for bare root plant material. Container grown plant material may be substituted for balled and burlapped plant materials. When substitution is allowed, use current ASNS standards to determine the correct rootball volume (container or balled and burlapped) of the substituted material that corresponds to that of the specified material. These substitutions shall be approved by the Engineer and be at no cost to the Contracting Agency.

9-14.6(7) Temporary Storage

Plants stored under temporary conditions prior to installation shall be the responsibility of the Contractor.

Plants stored on the project shall be protected at all times from extreme weather conditions by insulating the roots, root balls, or containers with sawdust, soil, compost, bark or wood chips, or other approved material and shall be kept moist at all times prior to planting.

Cuttings shall continually be shaded and protected from wind. Cuttings shall be protected from drying at all times and shall be heeled into moist soil or other insulating material or placed in water if not installed within eight hours of cutting. Cuttings to be stored for later installation shall be bundled, laid horizontally, and completely buried under 6 inches of water, moist soil or placed in cold storage at a temperature of 34°F and 90 percent humidity. Cuttings that are not planted within 24 hours of cutting shall be soaked in water for 24 hours prior to planting. Cuttings taken when the temperature is higher than 50°F shall not be stored for later use. Cuttings that already have developed roots shall not be used.

9-14.6(8) Sod

The available grass mixtures on the current market shall be submitted to the Engineer for selection and approval.

The sod shall be field grown one calendar year or older, have a well developed root structure, and be free of all weeds, disease, and insect damage.

Prior to cutting, the sod shall be green, in an active and vigorous state of growth, and mowed to a height not exceeding 1 inch.

The sod shall be cut with a minimum of 1inch of soil adhering.

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9-14.7 Stakes, Guys, and Wrapping

Stakes shall be installed as shown in the Plans.

Commercial plant ties may be used in lieu of hose and wire guying upon approval of the Engineer. The minimum size of wire used for guying shall be 12 gauge, soft drawn.

Hose for guying shall be nylon, rubber, or reinforced plastic and shall have an inside diameter of at least 1 inch.

Tree wrap shall be a crinkled waterproof paper weighing not less than 4.0 pounds per 100 square feet and shall be made up of two sheets cemented together with asphalt.

9-15.AP9

SECTION 9-15, IRRIGATION SYSTEM

January 4, 2010

The first paragraph is supplemented with the following:

When the water supply for the irrigation system is from a non-potable source, irrigation components shall have lavender indicators supplied by the equipment manufacturer.

9-15.3 Automatic Controllers

This section is revised to read:

The automatic controller shall be an electronic timing device for automatically opening and closing control valves for predetermined periods of time. The automatic controller shall be enclosed in a weatherproof, painted, metal housing fabricated from 16 gauge sheet aluminum alloy 6061-T6 or 16 gauge sheet steel or unpainted, non-rusting industrial grade stainless steel. The pedestal shall have a completely removable locking faceplate to allow easy access to wiring.

The automatic controller housing shall have hasp and lock or locking device. All locks or locking devices shall be master keyed and three sets of keys provided to the Engineer. The controller shall be compatible with and capable of operating the irrigation system as designed and constructed and shall include the following operating features:

1. Each controller station shall be adjustable for setting to remain open for any desired period of time, from five minutes or less to at least 99 minutes.
2. Adjustments shall be provided whereby any number of days may be omitted and whereby any one or more positions on the controller can be skipped. When adjustments are made, they shall continue automatically within a 14-day cycle until the operator desires to make new adjustments.
3. Controls shall allow any position to be operated manually, both on or off, whenever desired, without disrupting the 14 day cycle.
4. Controls shall provide for resetting the start of the irrigation cycle at any time and advancing from one position to another.
5. Controllers shall contain a power on-off switch and fuse assembly.
6. Output shall be 24 volt AC with battery back up for memory retention of the 14 day cycle.
7. Both normally-open or normally-closed rain sensor compatibility.

1 **9-15.4 Irrigation Heads**
2 This section is supplemented with the following new paragraph:
3
4 All instructions, special wrenches, clamps, tools, and equipment supplied by the
5 manufacturer necessary for the installation and maintenance of the irrigation heads
6 shall be turned over to the Engineer upon completion and acceptance of the project.
7

8 **9-15.5 Valve Boxes and Protective Sleeves**
9 This section including title is revised to read:
10
11 **9-15.5 Valve Boxes**
12 Valve boxes shall conform to the Plans and be extendible to obtain the depth required.
13 All manual drain valves and manual control valves shall be installed in valve box with a
14 vandal resistant lid as shown in the Plans.
15

16 **9-15.7(1) Manual Control Valves**
17 The third and fourth sentences are revised to read:
18
19 The Contractor shall furnish three suitable operating keys. Valves shall have removable
20 bonnet and stem assemblies with adjustable packing glands and shall house long acme
21 threaded stems to ensure full opening and closing.
22

23 **9-15.7(2) Automatic Control Valves**
24 In the second paragraph, the first and second sentences are revised to read:
25
26 Valves shall be of a normally closed design and shall be operated by an electronic
27 solenoid having a maximum rating of 6.5 watts utilizing 24 volt AC power. Electronic
28 solenoids shall have a stainless steel plunger and be directly attached to the valve
29 bonnets or body with all control parts fully encapsulated.
30

31 In the fifth sentence of the second paragraph, "electric" is revised to read "electrical".
32

33 **9-15.7(3) Automatic Control Valves With Pressure Regulator**
34 This section is revised to read:
35
36 Automatic control valves with pressure regulators shall be similar to automatic
37 control valves described in Section 9-15.7(2) and shall reduce the inlet pressure to
38 a constant pressure regardless of supply fluctuations. The regulator must be fully
39 adjustable.
40

41 **9-15.8 Quick Coupling Equipment**
42 In the first paragraph, the first and second sentences are revised to read:
43
44 Quick coupler valves shall have a service rating of not less than 125-psi for non-shock
45 cold water. The body of the valves shall be of cast Copper Alloy No. C84400 Leaded
46 Semi-Red Brass conforming to ASTM B 584.
47

48 In the fifth sentence of the first paragraph, "will" is revised to read "shall".
49

50 **9-15.9 Drain Valves**
51 This section is revised to read:

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Drain valves may be a 1/2-inch or 3/4-inch PVC or metal gate valve manufactured for irrigation systems. Valves shall be designed for underground installation with suitable cross wheel for operation with a standard key, and shall have a service rating of not less than 150-psi non-shock cold water. The Contractor shall furnish three standard operating keys per Contract. Drain valves shall be installed in a valve box with a vandal resistant lid as shown in the Plans.

Drain valves on potable water systems shall only be allowed on the downstream side of approved cross connection control devices.

9-15.10 Hose Bibs

The first sentence is revised to read:

Hose bibs shall be angle type, constructed of bronze or brass, threaded to accommodate a 3/4-inch hose connection, and shall be key operated.

9-15.11 Cross Connection Control Devices

This section is revised to read:

Atmospheric vacuum breaker assemblies (AVBAs), pressure vacuum breaker assemblies (PVBAs), double check valve assemblies (DCVAs), and reduced pressure backflow devices (RPBDs), shall be of a manufacturer and product model approved for use by the Washington State Department of Health, Olympia, Washington or a Department of Health certified agency.

9-15.12 Check Valves

The last sentence is revised to read:

Valves shall have angled seats, Buna-N seals and threaded connections, and shall be installed in 8-inch round plastic valve boxes with vandal resistant lids.

9-15.14 Three-Way Valves

The last sentence is revised to read:

When handles are included as an integral part of the valves, the Contractor shall remove the handles and give them to the Engineer for ultimate distribution to the Maintenance Division.

9-15.15 Flow Control Valves

The third sentence is revised to read:

Valves shall be factory set to the flows as shown in the Plans.

9-15.17 Electrical Wire and Splices

This section is revised to read:

Electrical wire used between the automatic controller and automatic control valves shall be solid or stranded copper, minimum size AWG 14. Insulation shall be Type USE Chemically Cross Linked Polyethylene or Type UF, and shall be listed by a National recognized Testing Laboratory. Each conductor shall be color coded and marked at each end and at all splices with zone or station number identification.

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Low voltage splices shall be made with a direct bury splice kit using a twist-on wire connector and inserted in a waterproof polypropylene tube filled with a silicone electrical insulating gel, or heat shrinkable insulating tubing. Heat shrinking insulating tubing shall consist of a mastic lined heavy wall polyolefin cable sleeve.

9-15.18 Detectable Marking Tape

The first paragraph is revised to read:

Detectable marking tape shall consist of inert polyethylene plastic that is impervious to all known alkalis, acids, chemical reagents, and solvents likely to be encountered in the soil, with a metallic foil core to provide for the most positive detection and pipeline location.

In the second paragraph, the first and second sentences are revised to read:

The tape shall be color coded and shall be imprinted continuously over its entire length in permanent black ink indicating the type of line buried below and shall also have the word "Caution" prominently shown.

The last paragraph is revised to read:

The width of the tape shall be as recommended by the manufacturer based on depth of installation.

9-16.AP9

**SECTION 9-16, FENCE AND GUARDRAIL
August 2, 2010**

9-16.3(2) Posts and Blocks

This section in its entirety is revised to read:

Posts and blocks may be of creosote, pentachlorophenol, waterborne chromate copper arsenate (CCA), ammoniacal copper arsenate (ACA), or ammoniacal copper zinc arsenate (ACZA), treated timber or galvanized steel (galvanized steel posts only –no blocks). Blocks made from alternate materials that meet the NCHRP Report 350 or MASH criteria may be used in accordance with the manufacturer’s recommendations. Wood posts and blocks may be surface four sides (S4S) or rough sawn.

Posts and blocks shall be of the size, length and type as shown in the Plans and meet the requirements of the below Specifications.

Timber posts and blocks shall conform to the grade specified in Section 9-09.2. Timber posts and blocks shall be fabricated as specified in the Plans before being treated. Timber posts and blocks shall be treated by the empty cell process to provide a minimum retention, depending on the treatment used, according to the following:

Creosote oil	10.0	lbs.	pcf
Pentachlorophenol	0.50	lbs.	pcf
ACA	0.50	lbs.	pcf
ACZA	0.50	lbs.	pcf
CCA	0.50	lbs	pcf

1 Treatment shall be in accordance with Section 9-09.3.

2

3 Galvanized steel posts, and base plates, where used, shall conform to either ASTM A36
4 or ASTM A992, and shall be galvanized in accordance with AASHTO M 111. Welding
5 shall conform to Section 6-03.3(25). All fabrication shall be completed prior to
6 galvanizing.

7

8 Steel posts for weathering steel beam guardrail shall be in accordance with one of the
9 following two methods:

10

11 1 Galvanized Powder Coated Steel Posts: These posts shall conform to ASTM
12 A36 or ASTM A992 and galvanized in accordance with AASHTO M 111.
13 Powder Coating Galvanized Surfaces done in accordance with Sections: 6-
14 07.3(11)B, 9-08.2. and 9-08.1(8). Only the top thirty inches on any post length
15 shall be powder coated.

16

17 2. Galvanized Weathering Steel Posts: These posts shall conform to ASTM
18 A588 steel and be galvanized in accordance with AASHTO M 111. Thirty
19 inches, on any post length, shall not be galvanized for exposure above ground.

20

21 9-17.AP9

22 **SECTION 9-17, FLEXIBLE GUIDE POSTS**

23 **January 3, 2011**

24 **9-17.4 Pre-approval**

25 Item number 3 in the first paragraph is revised to read:

26

27 3. In lieu of State Materials Laboratory testing, the Lab will accept the results of pre-
28 approved testing performed by the National Transportation Product Evaluation
29 Program (NTPEP), the manufacturer or other agencies under the following
30 conditions:

31

32 a. The State Materials Laboratory is informed of the pre-approval testing
33 sufficiently in advance in order to attend and observe. Attendance will be at
34 the discretion of the Materials Laboratory.

35

36 b. The results of the testing shall be reported in sufficient detail to enable the
37 State Materials Laboratory to evaluate compliance with these Specifications.

38

39 9-22.AP9

40 **SECTION 9-22, MONUMENT CASES**

41 **January 4, 2010**

42 **9-22.1 Monument Cases, Covers, and Risers**

43 In the first sentence, "Class 30B" is revised to read "Class 35B".

44

1 9-23.AP9
2 **SECTION 9-23, CONCRETE CURING MATERIALS AND ADMIXTURES**
3 **August 1, 2011**

4 **9-23.1 Sheet Materials for Curing Concrete**

5 In the first paragraph, "AASHTO M 171" is revised to read "ASTM C 171".
6

7 **9-23.2 Liquid Membrane Forming Concrete Curing Compounds**

8 The first paragraph is revised to read:
9

10 Liquid membrane-forming compounds for curing concrete shall conform to the
11 requirements of ASTM C 309 Type 1 or 2, Class A or B, except that the water retention
12 when tested in accordance with WSDOT Test Method 814 shall be 2.50 grams for all
13 applications.
14

15 Section 9-23 is supplemented with the following new sub-sections:
16

17 **9-23.12 Metakaolin**

18 Metakaolin shall conform to the requirements of AASHTO M 295 Class N including
19 optional chemical requirements as set forth in Table 2 and with a further limitation that
20 the loss on ignition shall be a maximum of 1.5 percent.
21

22 **9-23.13 Blended Supplementary Cementitious Material**

23 Blended Supplementary Cementitious Material (SCM) shall meet the requirements of
24 ASTM C1697. Blended SCMs shall be limited to binary or ternary blends of fly ash,
25 ground granulated blast furnace slag, microsilica fume, and metakaolin. Fly ash shall
26 meet the requirements of Section 9-23.9. Ground granulated blast furnace slag shall
27 meet the requirements of Section 9-23.10. Microsilica fume shall meet the requirements
28 of Section 9-23.11. Metakaolin shall meet the requirements of Section 9-23.12. The
29 individual SCMs composing the blended SCM shall be individually listed on the WSDOT
30 QPL.
31

32 **9-23.9 Fly Ash**

33 This section is supplemented with the following new sub-section:
34

35 **9-23.9(1) Tests and Acceptance**

36 Fly ash may be accepted by the Engineer based on the Manufacture's Mill Test Report
37 number indicating full conformance to the Specifications. All shipments of the fly ash to
38 the Contractor or concrete supplier shall identify the applicable Mill Test Report Number.
39 The concrete supplier or Contractor shall provide mill test identification on all concrete
40 deliveries.
41

42 Fly ash producers, importers/distributors, and suppliers that certify fly ash shall
43 participate in the fly ash acceptance program as described in WSDOT Standard
44 Practice QC 4.
45

46 Each mixing facility or plant utilizing fly ash shall be equipped with a suitable means or
47 device for obtaining a representative sample of the fly ash. The device shall enable the
48 sample to be readily taken in proximity to the fly ash weigh hopper and from a container
49 or conveyor holding only fly ash.
50

1 Fly ash may be tested using samples taken at the job site by the Engineer for
2 submission to the State Material's Laboratory for testing.

3
4 **9-23.10 Ground Granulated Blast Furnace Slag**

5 This section is supplemented with the following new sub-section:
6

7 **9-23.10(1) Tests and Acceptance**

8 Ground granulated blast furnace slag may be accepted by the Engineer based on the
9 Manufacture's Mill Test Report number indicating full conformance to the Specifications.
10 All shipments of the ground granulated blast furnace slag to the Contractor or concrete
11 supplier shall identify the applicable Mill Test Report Number. The concrete supplier or
12 Contractor shall provide mill test identification on all concrete deliveries.
13

14 Ground granulated blast furnace slag producers, importers/distributors, and suppliers
15 that certify ground granulated blast furnace slag shall participate in the ground
16 granulated blast furnace slag acceptance program as described in WSDOT Standard
17 Practice QC 5.
18

19 Each mixing facility or plant utilizing ground granulated blast furnace slag shall be
20 equipped with a suitable means or device for obtaining a representative sample of the
21 ground granulated blast furnace slag. The device shall enable the sample to be readily
22 taken in proximity to the ground granulated blast furnace slag weigh hopper and from a
23 container or conveyor holding only ground granulated blast furnace slag.
24

25 Ground granulated blast furnace slag may be tested using samples taken at the job site
26 by the Engineer for submission to the State Material's Laboratory for testing.
27

28 9-29.AP9

29 **SECTION 9-29, ILLUMINATION, SIGNAL, ELECTRICAL**

30 **August 1, 2011**

31 In this division, all references to "hot-dipped" are revised to read "hot-dip".
32

33 In this division, Section "9-29.1(4)B" is revised to read "9-29.1(4)C".
34

35 **9-29.1(4) Non-Metallic Conduit**

36 This section is supplemented with the following new sub-section:
37

38 **9-29.1(4)B Expansion Fittings**

39 Expansion fittings for use with PVC shall allow for 4-inches of movement minimum (2-
40 inches in each direction). Expansion fittings for PVC conduit shall be PVC and have
41 threaded terminal adaptor or coupling end and shall meet the requirements listed in
42 Section 9-29.1(4)A.
43

44 **9-29.1(4)A Rigid PVC Conduit**

45 The first sentence in the first paragraph is revised to read:
46

47 Rigid PVC conduit shall conform to NEMA TC 2 and UL 651.
48

49 **9-29.1(4)C HDPE Conduit**

50 The first paragraph is revised to read:

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HDPE conduit shall be listed by a Nationally Recognized Testing Laboratory recognized by the United States Department of Labor, Occupational Safety & Health Administration Nationally Recognized Testing Laboratories (NRTLs) program. Couplings for HDPE shall be mechanical and listed for use with HDPE.

9-29.2(1)A Standard Duty Junction Boxes

The first paragraph below the title “Concrete Junction Boxes” is supplemented with the following:

All Standard Duty Concrete Junction Boxes placed in sidewalks, walkways and shared use paths shall have slip resistant surfaces. Non-slip lids and frames shall be hot-dip galvanized.

The second sentence in the second paragraph below the title “Concrete Junction Boxes” is revised to read:

The frame shall be anchored to the box by welding headed studs 3/8 inch × 3 inches long, as specified in Section 9-06.15, to the frame.

The first sentence in the second paragraph below the title “Non-Concrete Junction Boxes” is revised to read:

Type 1, 2, and 8 non-concrete junction boxes shall have a Design Load of 22,500 lbs. and shall be tested in accordance with 9-29.2(1)C.

In the second paragraph below the title “Non-Concrete Junction Boxes”, “hex-head” is revised to read “penta-head”.

9-29.2(2)A Standard Duty Cable Vaults and Pull Boxes

The second sentence in the second paragraph is revised to read:

The frame shall be anchored to the vault/box by welding headed studs 3/8 inch X 3 inches long, as specified in Section 9-06.15, to the frame.

This section is supplemented with the following new paragraph:

All Standard Duty Cable Vaults and Pull Boxes placed in sidewalks, walkways and shared use paths shall have slip resistant surfaces. The Standard Duty Cable Vaults and Pull Boxes steel frame, lid support and lid shall be hot-dip galvanized.

9-29.3(2)B Multi-Conductor Cable

This section is revised to read:

Two-conductor through 10-conductor unshielded signal control cable shall have stranded copper conductor and shall conform to International Municipal Signal Association (IMSA) signal cable Specification 20-1.

9-29.3(2)E Two-Conductor Shielded

This section is revised to read:

1 Two conductor shielded (2CS) cable shall have stranded 14 AWG (minimum)
2 conductors and shall conform to IMSA Specification No. 50-2.
3

4 **9-29.3(2)F Detector Loop Wire**

5 This section is revised to read:
6

7 Detector loop wire shall be 12 or 14 AWG stranded copper wire, IMSA 51-3.
8

9 **9-29.3(2)G Four-Conductor Shielded Cable**

10 The first sentence is revised to read:
11

12 Four-conductor shielded cable (4CS) shall consist of a cable with four stranded 18 AWG
13 conductors with polypropylene insulation, an aluminized polyester shield, water-blocking
14 material in the cable interstices, and a 26-mil minimum outer jacket of polyethylene.
15

16 **9-29.4 Messenger Cable, Fittings**

17 This section is supplemented with the following:
18

19 Messenger cable shall be $\frac{3}{8}$ -inch, 7-wire strand messenger cables conforming to ASTM
20 A 475, extra-high-strength grade, 15,400 pounds minimum breaking strength, Class A
21 galvanized.
22

23 Strain insulators shall be wet process, porcelain, conforming to EEI-NEMA Class 54-2
24 standards for 12,000 pound ultimate strength.
25

26 Down guy assembly shall consist of an eight-way steel expanding anchor, having a
27 minimum area of 300 square inches, made of pressed steel, coated with asphalt or
28 similar preservative, and fitted with a $\frac{3}{4}$ -inch minimum guy eye anchor rod 8-feet long.
29 As an alternate to expanding anchors, screw type anchors with two 8-inch helix, $3\frac{1}{2}$ -
30 inch-pitch, 1-inch by 7 foot guy anchor rod, and rated for 7,000 pound maximum torque
31 may be installed.
32

33 All pole hardware, bolts, plate rods, hangers, clips, wire guards, and pole bands shall be
34 hot-dipped galvanized in conformance with the requirements of AASHTO M 232.
35

36 **9-29.6(5) Foundation Hardware**

37 The first paragraph is revised to read:
38

39 Anchor bolts for Type PPB, PS, I, FB, and RM signal standards shall conform to the
40 requirements of ASTM F1554, grade 55. Nuts shall meet the requirements of AASHTO
41 M 291, grade A. Washers shall meet the requirements of ASTM F 844 or ASTM F 436.
42

43 **9-29.7 Luminaire Fusing and Electrical Connections at Light Standard Bases, 44 Cantilever Bases and Sign Bridge Bases**

45 The content of this section is revised and moved to the following new sub-sections:
46

47 **9-29.7(1) Unfused Quick-Disconnect**

48 Unfused quick-disconnect connector kits shall conform to the following requirements:
49

- 50 1. The copper pin and copper receptacle shall be a crimped type of connection or
51 a stainless steel set screw and lug connection to the cable. The receptacle
52 shall establish contact pressure with the pin through the use of a tinned copper

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or copper beryllium sleeve spring and shall be equipped with a disposable mounting pin. The receptacle shall be fully annealed. Both the copper pin and receptacle shall have a centrally located recessed locking area adapted to be complementarily filled and retained by the rubber housing.

- 2. The plug and receptacle housing shall be made of water resistant synthetic rubber which is capable of burial in the ground or installation in sunlight. Each housing shall provide a section to form a water-seal around the cable, have an interior arrangement to suitably and complementarily receive and retain the copper pin or receptacle, and a section to provide a water-seal between the two housings at the point of disconnection.
- 3. The kit shall provide waterproof in-line connector protection with three cutoff sections on both the line and load side to accommodate various wire sizes. All connections shall be as described in item "1" above. Upon disconnect, the connector shall remain in the load side of the kit.

9-29.7(2) Fused Quick-Disconnect

Fused quick-disconnect kits shall provide waterproof in-line fuse protection. The kit shall provide three cutoff sections on both lines and load side to accommodate various wire sizes. All connections shall be as described in item "1" above. Upon disconnect, the fuse shall remain in the load side of the kit.

Fuses furnished for all lighting circuits shall be capable of handling the operating voltage of the circuit involved and shall have the following characteristics:

- 1. Fuses shall be capable of indefinitely supporting 110 percent of the rated load.
- 2. Fuses shall be capable of supporting 135 percent of the rated load for approximately 1 hour.
- 3. A load of 200 percent of rated load shall effectively cause instantaneous blowing of the fuse.
- 4. Fuses shall be rated as listed below and shall be sized to fit the fuse containers furnished on this project, according to the manufacturer's recommendations therefore.
- 5. Fuses shall be listed by a nationally recognized testing laboratory.

Luminaire Size	Service Voltage		
	480V	240V	120V
1,000W	10A	15A	30A
750W	5A	10A	20A
700W	5A	10A	20A
400W	5A	10A	15A
310W	5A	5A	10A
250W	5A	5A	10A
200W	4A	5A	10A
175W	4A	5A	10A
150W	3A	4A	5A

100W	2A	3A	4A
70W	2A	2A	2A
50W	2A	2A	2A

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9-29.9 Ballast, Transformers

This sections content is deleted and replaced with:

Heat-generating components shall be mounted to use the portion of the luminaire upon which they are mounted as a heat sink. Capacitors shall be located as far as practicable from heat-generating components or shall be thermally shielded to limit the fixture temperature to 160°F.

Transformers and inductors shall be resin-impregnated for protection against moisture. Capacitors, except those in starting aids, shall be metal cased and hermetically sealed.

No capacitor, transformer, or other device shall employ the class of compounds identified as polychlorinated biphenyls (PCB) as dielectric, coolants, or for any other purpose.

This section is supplemented with the following new sub-sections:

9-29.9(1) Ballast

Each ballast shall have a name plate attached permanently to the case listing all electrical data.

A Manufacturer's Certificate of Compliance in accordance with Section 1-06.3 meeting the manufacturers and these Specification requirements, shall be submitted by the Contractor with each type of luminaire ballast.

Ballasts shall be designed for continuous operation at ambient air temperatures from 20°F without reduction in ballast life. Ballasts shall have a design life of not less than 100,000 hours. Ballasts shall be designed to operate for at least 180 cycles of 12 hours on and 12 hours off, with the lamp circuit in an open or short-circuited condition and without measurable reduction in the operating requirements. All ballasts shall be high power factor (90%).

Ballasts shall be tested in accordance with the requirements of current ANSI C 82.6, Methods of Measurement of High-Intensity-Discharge Lamp Ballasts. Starting aids for ballasts of a given lamp wattage shall be interchangeable between ballasts of the same wattage and manufacturer without adjustment.

Ballast assemblies shall consist of separate components, each of which shall be capable of being easily replaced. A starting aid will be considered as a single component. Each component shall be provided with screw terminals, NEMA tab connectors or a single multi-circuit connector. All conductor terminals shall be identified as to the component terminal to which they connect.

Ballasts for high-pressure sodium lamps shall have a ballast characteristic curve which will intersect both of the lamp-voltage limit lines between the wattage limit lines and remain between the wattage limit lines throughout the full range of lamp voltage. This requirement shall be met not only at the rated input voltage of the ballast, but also the

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lowest and highest input voltage for which the ballast is rated. Throughout the lifetime of the lamp, the ballast curve shall fall within the specified limits of lamp voltage and wattage.

All luminaires ballasts shall be located within the luminaire housing. The only exception shall be ballasts to be mounted on lowering assemblies and shall be external to, and attached to the fixture assembly.

Ballast Characteristics for High Pressure Sodium (HPS) and Metal Halide (MH) Sources shall be:

Source	Line Volt.	Lamp Wattage	Ballast Type	Input Voltage Variation	Lamp Wattage Variation
HPS	any	70 400	Mag. Reg. Lag	10%	18%
HPS	any	750 1000	Auto Reg. Lead CWA	10%	30%
MH	any	175 400	Mag. Reg. Lag	10%	18%
MH	any	1000	Auto Reg. Lead CWA	10%	30%

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9-29.9(2) Transformers

The transformers to be furnished shall be indoor/outdoor dry type transformers rated as shown in the Plans. The transformer coils, buss bar, and all connections shall be copper. Transformers, 7.5 KVA and larger shall be supplied with two full capacity taps, one at 5% and one at 10% below the normal full capacity.

9-29.10 Luminaires

This section is revised to read:

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All luminaires shall have their components secured to the luminaire frame with ANSI, 300 series chrome-nickel grade stainless steel, zinc dichromate coated steel or ceramic coated steel hardware. The luminaire slip-fitter bolts shall be either stainless steel, hot-dip galvanized steel, zinc dichromate coated steel, or ceramic coated steel. All internal luminaire assemblies shall be assembled on or fabricated from either stainless steel or galvanized steel. The housing, complete with integral ballast, shall be weathertight.

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The temperature rating of all wiring internal to the luminaire housing, excluding the pole and bracket cable, shall equal or exceed 200°F .

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All luminaires shall be provided with markers for positive identification of light source type and wattage. Markers shall be 3-inches square with Gothic bold, black 2-inch legend on colored background. Background color shall be gold for high pressure sodium, and red for metal halide light sources. Legends shall be sealed with transparent film resistant to dust, weather, and ultraviolet exposure.

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Legends shall correspond to the following code:

Lamp	Wattage Legend
70	7
100	10
150	15
175	17
200	20
250	25
310	31
400	40
700	70
750	75
1,000	XI

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9-29.10(1) Cobra Head Luminaires

This sections content including title is revised to read:

9-29.10(1) Conventional Roadway Luminaires

- A. Conventional highway luminaires shall be IES Type III medium distribution cut off cobra head configuration with horizontal lamp, rated at 24,000 hours minimum.
- B. The ballast shall be mounted on a separate exterior door, which shall be hinged to the luminaire and secured in the closed position to the luminaire housing by means of an automatic type of latch (a combination hex/slot stainless steel screw fastener may supplement the automatic type latch).
- C. The reflector of all luminaires shall be of a snap-in design or be secured with screws. The reflector shall be manufactured of polished aluminum or molded from prismaticly formed borosilicate glass. The refractor or lens shall be mounted in a doorframe assembly which shall be hinged to the luminaire and secured in the closed position to the luminaire by means of automatic latch. The refractor or lens and doorframe assembly, when closed, shall exert pressure against a gasket seat. The refractor lens shall not allow any light output above 90 degrees nadir. Gaskets shall be composed of material capable of withstanding temperatures involved and shall be securely held in place.
- D. Each housing shall be provided with a four bolt slipfitter capable of mounting on a 2-inch pipe tenon and capable of being adjusted within 5 degrees from the axis of the tenon. The clamping bracket(s) and the cap screws of the slipfitter shall not bottom out on the housing bosses when adjusted within the ± 5 degree range.

No part of the slipfitter mounting brackets on the luminaires shall develop a permanent set in excess of 0.2-inch when the cap screws used for mounting are tightened to a torque of 32 pounds feet.
- E. Refractors shall be formed from heat resistant, high impact, molded borosilicate glass. Flat lens shall be formed from heat resistant, high impact borosilicate or tempered glass.
- F. High pressure sodium conventional roadway luminaires shall be capable of accepting a 150, 200, 250, 310, or 400 watt lamp complete with ballast.

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- G. Housings shall be fabricated from aluminum. Painted housings shall be painted flat gray, Federal Standard 595 color chip No. 26280. Housings that are painted shall withstand a 1,000-hour salt spray test as specified in ASTM B 117.
- H. All luminaires to be mounted on horizontal mast arms shall be capable of withstanding cyclic loading in:
 - 1. A vertical plane at a minimum peak acceleration level of 3.0 g's peak-to-peak sinusoidal loading (same as 1.5 g's peak) with the internal ballast removed, for a minimum of 2 million cycles without failure of any luminaire parts, and;
 - 2. A horizontal plane perpendicular to the direction of the mast arm at a minimum peak acceleration level of 1.5 g's peak to peak sinusoidal loading (same as 0.75 g's peak) with the internal ballast installed, for a minimum of 2 million cycles without failure of any luminaire parts.
- I. All luminaires shall have leveling reference points for both transverse and longitudinal adjustment. Luminaires shall have slip-fitters capable of adjusting through a 5-degree axis for the required leveling procedure.

9-29.10(2) Decorative Luminaires

In the first paragraph, "150 - 400" is revised to read "50 - 400".

In the second paragraph, "box shaped" is deleted.

In the third paragraph, the first sentence is deleted. The second sentence is revised to read:

The ballast housing shall be adequately constructed to contain ballasts for 50 - 400 watt alternate high intensity discharge sources.

The fourth paragraph is revised to read:

Each housing shall consist of an integral reflector, containing a mogul based high intensity discharge lamp, and a one piece heat and shock resistant, clear tempered lens mounted in a gasketed, hinged frame. The reflector shall be a snap-in design or secured with screws. The reflector assembly shall have a lamp vibration damper. The reflector shall be manufactured of polished aluminum or molded from prismatic formed borosilicate glass. The housing shall have a heat resistant finish. The lens frame shall be secured to the housing with ANSI, 300 series chrome-nickel grade stainless steel, zinc dichromate coated steel or ceramic coated steel hardware.

The last sentence in the fifth paragraph is deleted.

The sixth paragraph is deleted.

The seventh paragraph is revised to read:

The finish shall meet the requirements of ASTM B 117 with the exception that the finish shall be salt spray resistant after 300 hours exposure.

The first sentence in the eighth paragraph is deleted.

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9-29.10(3) High Mast Luminaires and Post Top Luminaires

This sections content including title is deleted and replaced with:

9-29.10(3) Vacant

9-29.10(5) Sign Lighting Luminaires

This section is revised to read:

Sign lighting luminaires shall be the Induction Bulb type.

9-29.10(5)A Sign Lighting Luminaires - Mercury Vapor

This section including title is revised to read:

9-29.10(5)A Sign Lighting Luminaires – Isolation Switch

The isolation switch shall be installed in a terminal cabinet in accordance with Section 9-29.25 with the exception that the cabinet shall be NEMA 3R and stainless steel. The terminal cabinet shall be installed in accordance to the Standard Plans. The switch shall be either single pole, single throw, or double pole single throw as necessary to open all conductors to the luminaires other than neutral and ground conductors. The switch shall contain 600 volt alternating current (VAC) terminal strips on the load side with solderless lugs as required for each load carrying conductor plus four spare lugs per strip.

9-29.10(5)B Sign Lighting Fixtures - Induction

The first sentence is revised to read:

Sign lighting luminaires shall have a cast aluminum housing and door assembly with a polyester paint finish.

In the second sentence of the sixth paragraph, "87" is revised to read "85".

In the last sentence of the sixth paragraph, "Class a" is revised to read "Class A".

The first sentence of the last paragraph is revised to read:

A Manufacturer's Certificate of Compliance, conforming to Section 1-06.3 "Manufacturer's Certificates of Compliance" and a copy of the high frequency generator test methods and results shall be submitted by the manufacturer with each lot of sign lighting fixtures.

9-29.12 Electrical Splice Materials

This section is revised to read:

Circuit splicing materials shall meet the following specifications.

9-29.12(1) Illumination Circuit Splices

This section is revised to read:

Illumination circuit splices shall be split bolt vice type connectors or solderless crimped connections to securely join the wires both mechanically and electrically as defined in Section 8-20.3(8).

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This section is supplemented with the following new sub-sections:

9-29.12(1)A Heat Shrink Splice Enclosure

Heat shrink insulating materials shall be the moisture blocking mastic type meeting Mil Spec I 230053

9-29.12(1)B Molded Splice Enclosure

Epoxy resin cast type insulation shall employ a clear rigid plastic mold or a clear mylar sheet bonded to butyrate webbing forming a flexible mold. The material used shall be compatible with the insulation material of the insulated conductor or cable. The component materials of the resin insulation shall be packaged ready for convenient mixing without removing from the package.

9-29.12(2) Traffic Signal Splice Material

This section is revised to read:

Induction loop splices and magnetometer splices shall include an uninsulated barrel type crimped connector capable of being soldered. The insulating material shall be a heat shrink type meeting requirements of Section 9-29.12(1)A, an epoxy resin cast type with clear rigid plastic mold meeting the requirements of Section 9-29.12(1)B, or a re-enterable type with silicone type filling compound that remains flexible and enclosed in a re-enterable rigid mold that snaps together.

9-29.15 Flashing Beacon Control

In the first paragraph, the first word “Flashers” is revised to read “Line voltage flashers”.

9-29.16 Vehicular Signal Heads

This sections title is revised to read:

9-29.16 Vehicular Signal Heads, Displays and Housing

The first sentence is revised to read:

Each signal head shall be of the adjustable, vertical type with the number and type of displays detailed in the Contract; shall provide an indication in one direction only; shall be adjustable through 360 degrees about a vertical axis; and shall be mounted at the location and in the manner shown in the Plans.

This following new paragraph is inserted after the first paragraph:

Back plates shall be constructed of 5-inch wide .050-inch thick corrosion resistant flat black finish, louvered aluminum or polycarbonate attached with stainless steel hardware. A 1-inch wide strip of yellow retro reflective, type IV prismatic sheeting, in accordance with Section 9-28.12, shall be applied around the perimeter of each backplate.

9-29.16(1) Optically Programmed, Adjustable Face, 12-inch Traffic Signal

This section including title is revised to read:

1 **9-29.16(1) Optically Programmed Adjustable Face, and Programmable,**
2 **Array 12-inch Traffic Signal**

3 The signal shall permit the visibility zone of the indication to be determined optically and
4 require no hoods or louvers. The projected indication may be selectively visible or veiled
5 anywhere within the optical axis. No indication shall result from external illumination, nor
6 shall one light unit illuminate a second. The display shall operate from 85 VAC to 130
7 VAC.
8

9 **9-29.16(1)A Optical Systems**

10 The following new title is inserted above the first paragraph:

11

12 **9-29.16(1)A1 Conventional Optical System**

13

14 This section is supplemented with the following new sub-section:

15

16 **9-29.16(1)A2 LED Programmable Array**

17 1. LED array with programmable visibility from a portable hand held device from
18 ground level,

19

20 2. Lens shall be clear, unless color lenses specified.

21

22 The LED array shall be 22 watt maximum and shall operate directly from 120 volt AC.

23

24 The LED array shall provide an accessible imaging surface at focus on the optical axis
25 for objects 900 to 1,200-feet distant, and permit an effective veiling mask to be variously
26 applied as determined by the desired visibility zone.

27

28 The optical system shall accommodate projection of diverse, selected indicia to
29 separate portions of the roadway such that only one indication will be simultaneously
30 apparent to any viewer after optically limiting procedures have been accomplished. The
31 projected indication shall conform to ITE transmittance and chromaticity standards.

32

33 **9-29.16(1)B Construction**

34 The title for this section is revised to read:

35

36 **9-29.16(1)B Housing Construction**

37

38 The fourth paragraph is deleted.

39

40 **9-29.16(1)D Electrical**

41 The title for this section is revised to read:

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43 **9-29.16(1)D Housing Electrical**

44

45 The following new title is inserted above the first paragraph:

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47 **9-29.16(1)D1 Electrical Conventional**

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49 This section is supplemented with the following new sub-section:

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9-29.16(1)D2 Electrical LED

The LED array shall be accessible from the front of the housing. Each multi section assembly shall include a terminal block for clip or screw attachment of lead wires.

9-29.16(1)E Photo Controls

The following new title is inserted above the first paragraph:

9-29.16(1)E1 Conventional Photo Controls

This section is supplemented with the following new sub-section:

9-29.16(1)E2 LED Photo Controls

Each signal section shall include integral means for automatically regulating the display intensity for day and night operation.

9-29.16(2)A Optical Units

This section is revised to read as follows:

Light Emitting Diode (LED) light sources are required for all displays. The Contractor shall provide test results from a Nationally Recognized Testing Laboratory documenting that the LED display conforms to the current ITE Specification for; Vehicle Traffic Control Signal Heads, Light Emitting Diode Circular Signal Supplement VTCSH ST-052 or Vehicle Traffic Signal Heads, Light Emitting Diode Vehicle Arrow Traffic Signal Supplement ITE VTSCS ST-054, and the following requirements:

1. The LED traffic signal module shall be operationally compatible with controllers and conflict monitors on this project and the LED lamp unit shall contain a disconnect that will show an open switch to the conflict monitor when less than 60% of the LEDs in the unit are operational.
2. LED shall have a 50 degree min. viewing angle.
3. Wattage (Maximum): 12-inch red, yellow and green ball displays - 25 W 12-inch red, yellow and green arrow displays - 15W 8-inch red, yellow and green ball displays - 15W
4. Voltage: The operation voltages shall be between 85 VAC and 130VAC.
5. The LED display shall be a module type and shall replace the lens, socket, bail, reflector and be directly connected to the terminal strip in the signal head.
6. Label: Each optical unit shall be listed by and bear the label of a nationally recognized testing laboratory. In addition, the manufacturer's name, trademark, serial number and other necessary identification shall be permanently marked on the backside of the LED signal module and the installation date shall be indicated on a separate label with an indelible ink marker.

9-29.16(2)B Signal Housing

The first sentence in the first paragraph is revised to read:

1 The signal head housing, or case, shall consist of an assembly of separate sections,
2 expandable type for vertical mounting, substantially secured together in a weather tight
3 manner.
4

5 In the third paragraph “may” is revised to read “shall”.
6

7 **9-29.16(2)D Back Plates**

8 This section’s content including title is deleted and replaced with:
9

10 **9-29.16(2)D Vacant**

11
12 **9-29.16(2)E Painting Signal Heads**

13 In the first sentence “Federal Standard 595B” is revised to read “Federal Standard 595-
14 14056”.
15

16 **9-29.16(3) Polycarbonate Traffic Signal Heads**

17 This section is supplemented with the following paragraph:
18

19 Polycarbonate employed in traffic signal fabrication shall tolerate an elongation prior to
20 break in excess of 90 percent. The green color shall be molded throughout the head
21 assembly. The optical system shall be Light Emitting Diodes as defined in 9-29.16(2)A.
22 The entire optical system shall be sealed by a single neoprene gasket. The signal head
23 shall be formed to be used with standard signal head mounting accessories as shown in
24 9-29.17. All hinge pins, latch assemblies and reflector assemblies shall conform to 9-
25 29.16(2)B.
26

27 **9-29.16(3)A 8-inch Polycarbonate Traffic Signal Heads**

28 This section and title are deleted.
29

30 **9-29.16(3)B 12-inch Polycarbonate Traffic Signal Heads**

31 This section and title are deleted.
32

33 Section 9-29.16 is supplemented with the following new sub-section:
34

35 **9-29.16(4) Traffic Signal Cover**

36 The covers shall be manufactured from a durable fabric material, black in color with a
37 mesh front and designed to fit the signal head configuration properly. The covers shall
38 have an attachment method that will hold the cover securely to the signal in heavy wind.
39 The covers shall be provided with a drain to expel any accumulated water.
40

41 **9-29.18 Vehicle Detector**

42 The first paragraph is revised to read:
43

44 Induction loop detectors and magnetometer detectors shall comply with current NEMA
45 Specifications when installed with NEMA control assemblies and shall comply with the
46 current California Department of Transportation document entitled “Transportation
47 Electrical Equipment Specifications,” specified in Section 9-29.13(7) when installed with
48 Type 170, Type 2070 or NEMA control assemblies.
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50 **9-29.19 Pedestrian Push Buttons**

51 This section is revised to read:

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Where noted in the Contract, pedestrian push buttons of tamper-resistant construction shall be furnished and installed. They shall consist of a 2-inch nominal diameter plunger. The switch shall be a three bladed beryllium copper spring rated at 10 amperes, 125 volts.

The pedestrian push-button assembly shall be constructed and mounted as detailed in the Contract.

9-29.25 Amplifier, Transformer, and Terminal Cabinets

The first sentence in the first paragraph is revised to read:

Amplifier and terminal cabinets shall conform to NEMA 4 requirements. Transformer cabinets shall be NEMA 3R.

Item number 3 in the first paragraph is revised to read:

- 3. Cabinet doors shall have a stainless steel piano hinge or shall meet the requirements for the alternate hinge detailed for type B modified service cabinets. Doors less than 3 feet in height shall have two hinges. Doors from 3 feet to 4 feet 8 inches in height shall have 3 hinges. Spacing of hinges for doors greater than 4 feet 8 inches in height shall not exceed 14 inches center to center. The door shall also be provided with a three point latch and a spring loaded construction core lock capable of accepting a Best six pin CX series core. The locking mechanism shall provide a tapered bolt. The Contractor shall supply construction cores with two master keys. The keys shall be delivered to the Engineer. Three point latches are not required for terminal cabinets.

9-30.AP9

**SECTION 9-30, WATER DISTRIBUTION MATERIALS
January 4, 2010**

9-30.1(1) Ductile Iron Pipe

In the first paragraph, number 1. and 2. are revised to read:

- 1. Ductile iron pipe shall meet the requirements of AWWA C151. Ductile iron pipe shall have a cement mortar lining, and a 1 mil thick seal coat meeting the requirements of AWWA C104. Ductile iron pipe to be joined using bolted flanged joints shall be Special Thickness Class 53. All other ductile iron pipe shall be Special Thickness Class 50, minimum Pressure Class 350, or the class indicated on the Plans or in the Special Provisions.
- 2. Nonrestrained joints shall be either rubber gasket type, push on type, or mechanical type meeting the requirements of AWWA C111.

9-30.1(2) Polyethylene Encasement

This section is revised to read:

Polyethylene encasement shall be tube-form, high density cross-laminated polyethylene film, or linear low density polyethylene film, meeting the requirements of ANSI/AWWA C105. Color shall be natural or black.

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9-31.AP9

SECTION 9-31, ELASTOMERIC BEARING PADS

January 3, 2011

9-31.1 Requirements

This section is revised to read:

Elastomeric bearing pads shall conform to the requirements of AASHTO M 251, unless otherwise specified in the Plans or Special Provisions. The elastomer shall be low temperature Grade 3 and not contain any form of wax. Unless otherwise specified in the Plans or Special Provisions, the elastomer shall have a shear modulus of elasticity of 165 psi at 73F.

All bearing pads with steel laminates shall be cast as units in separate molds and bonded and vulcanized under heat and pressure. Corners and edges of molded pads may be rounded at the option of the Contractor. Radius at corners shall not exceed 3/8-inch, and radius of edges shall not exceed 1/8-inch. Bearing pads shall be fabricated to meet the tolerances specified in either AASHTO M 251 or the Special Provisions, as applicable.

Shims contained in laminated bearing pads shall be mill rolled steel sheets not less than 20 gage in thickness with a minimum cover of elastomer on all edges of:

1/4-inch for pads less than or equal to 5-inches thick, and

1/2-inch for pads greater than 5-inches thick.

Steel shims shall conform to ASTM A 1011, Grade 36, unless otherwise noted. All shim edges shall be ground or otherwise treated so that no sharp edges remain.

9-32.AP9

SECTION 9-32, MAILBOX SUPPORT

April 4, 2011

9-32.2 Bracket, Platform, and Anti-Twist Plate

This section is revised to read:

The bracket, platform, and anti-twist plate shall be 16 gage sheet steel, conforming to ASTM A1011 or ASTM A1008.

9-33.AP9

SECTION 9-33, CONSTRUCTION GEOSYNTHETIC

August 1, 2011

9-33.4(1) Geosynthetic Material Approval

The first paragraph is revised to read:

If the geosynthetic source material has not been previously evaluated, or is not listed in the current WSDOT Qualified Products List (QPL), a sample of each proposed geosynthetic shall be submitted to the State Materials Laboratory in Tumwater for

1 evaluation. Geosynthetic material approval will be based on conformance to the
2 applicable properties from the Tables in Section 9-33.2 or in the Standard Plans or
3 Special Provisions. Approval information will be provided within 30 calendar days after
4 the sample and required information for each geosynthetic type have been received at
5 the State Materials Laboratory in Tumwater. Source approval shall not be the basis of
6 acceptance of specific lots of material delivered to the Contractor unless the roll
7 numbers of the lot sampled can be clearly identified as the rolls tested and approved in
8 the geosynthetic approval process.
9

10 The second paragraph is deleted.

11
12 The third paragraph is supplemented with the following:

13
14 Geosynthetic roll number(s)
15 Geosynthetic lot number(s)
16

17 This section is supplemented with the following:

18
19 Only geogrid and geotextile products that are listed on the QPL may be used in
20 permanent geosynthetic retaining wall and reinforced slopes. Minimum requirements for
21 inclusion in the QPL include evaluation by and compliance with the National
22 Transportation Product Evaluation Program (NTPEP) in accordance with WSDOT
23 Standard Practice T 925 or AASHTO Standard Practice PP 66, Standard Practice for
24 Determination of Long-Term Strength for Geosynthetic Reinforcement.
25

26 **9-33.4(3) Acceptance Samples**

27 The first paragraph is revised to read:

28
29 A satisfactory test report is required when the quantities of geosynthetic materials
30 proposed for use in the following geosynthetic applications are greater than the
31 following amounts:
32

Application	Geosynthetic Quantity
Underground Drainage	100 sq. yd.
Permanent Geosynthetic Reinforced Slopes and Retaining Walls	All quantities

33

34

35 The third paragraph is revised to read:

36

37 Samples from the geosynthetic roll will be taken to confirm the material meets the
38 property values specified. Samples will be randomly taken at the job site by the
39 Contractor in accordance with WSDOT T 914 in the presence of the Project Engineer.
40

41 The fourth paragraph is revised to read:

42

43 Acceptance will be based on testing of samples from each lot. A "lot" shall be defined for
44 the purposes of this Specification as all geosynthetic rolls within the consignment (i.e.,
45 all rolls sent to the project site) that were produced by the same manufacturer during a

1 continuous period of production at the same manufacturing plant and have the same
2 product name.

3
4 The following paragraph is inserted after the fourth paragraph:

5
6 Acceptance testing information will be provided within 30 calendar days after the
7 sample and required information for each geosynthetic type have been received at the
8 State Materials laboratory in Tumwater.

9
10 The first sentence in the last paragraph is revised to read:

11
12 For each geosynthetic roll that is tested and fails the Project Engineer will select two
13 additional rolls from the same lot for sampling and retesting. The Contractor shall
14 sample the rolls in accordance with WSDOT T 914 in the presence of the Project
15 Engineer.

16
17 **9-33.4(4) Acceptance by Certificate of Compliance**

18 The second row in the table is revised to read:

19

Underground Drainage	100 sq. yd.
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20

21 The fifth row in the table is deleted.

22

23 9-34.AP9

24 **SECTION 9-34, PAVEMENT MARKING MATERIAL**

25 **January 3, 2011**

26

27 **9-34.1 General**

28 The item 'High VOC Solvent Based Paint' is deleted.

29

30 **9-34.2 Paint**

31 In the first paragraph, the first sentence is revised to read:

32

33 White and yellow paint shall comply with the Specifications for low VOC solvent based
34 paint or low VOC waterborne paint.

35

36 **9-34.2(1) High VOC Solvent Based Paint**

37 This section including title is revised to read:

38

39 **9-34.2(1) Vacant**

40

41 9-35.AP9

42 **SECTION 9-35, TEMPORARY TRAFFIC CONTROL MATERIALS**

43 **January 4, 2010**

44

45 **9-35.0 General Requirements**

46 In the first paragraph, the item "Truck Mounted Attenuator" is revised to read "Transportable
47 Attenuator".

47

48 In the second paragraph, the third sentence is revised to read:

49

1 Unless otherwise noted, Requests for Approval of Material (RAM) and Qualified
2 Products List (QPL) submittals are not required.

3
4 **9-35.12 Truck-Mounted Attenuator**

5 This section including title is revised to read:
6

7 **9-35.12 Transportable Attenuator**

8 Transportable attenuators are Truck-Mounted Attenuators (TMA) or Trailer-Mounted
9 Attenuators (TMA-trailer). The transportable attenuator shall be mounted on, or
10 attached to a host vehicle with a minimum weight of 15,000 pounds and a maximum
11 weight in accordance with the manufacturer's recommendations. Ballast used to obtain
12 the minimum weight requirement, or any other object that is placed on the vehicle shall
13 be securely anchored such that it will be retained on the vehicle during an impact. The
14 Contractor shall provide certification that the transportable attenuator complies with
15 NCHRP 350 Test level 3 requirements. Lighter host vehicles proposed by the Contractor
16 are subject to the approval of the Engineer. The Contractor shall provide the Engineer
17 with roll-ahead distance calculations and crash test reports illustrating that the proposed
18 host vehicle is appropriate for the attenuator and the site conditions.
19

20 The transportable attenuator shall have a chevron pattern on the rear of the unit. The
21 standard chevron pattern shall consist of 4-inch yellow stripes, alternating non-reflective
22 black and retro-reflective yellow sheeting, slanted at 45 degrees in an inverted "V" with
23 the "V" at the center of the unit.
24

25 This section is supplemented with the following new sub-sections:
26

27 **9-35.12(1) Truck-Mounted Attenuator**

28 The TMA may be selected from the approved units listed on the QPL or submitted using
29 a RAM.
30

31 The TMA shall have an adjustable height so that it can be placed at the correct elevation
32 during usage and to a safe height for transporting. If needed, the Contractor shall install
33 additional lights to provide fully visible brake lights at all times.
34

35 **9-35.12(2) Trailer-Mounted Attenuator**

36 The TMA-trailer may be selected from the approved units listed on the QPL or submitted
37 using a RAM.
38

39 If needed, the Contractor shall install additional lights to provide fully visible brake lights
40 at all times.
41

42 **9-35.12(3) Submittal Requirements**

43 For transportable attenuators listed on the QPL, the Contractor shall submit the QPL
44 printed page or a QPL Acceptance Code entered on the RAM (WSDOT Form 350-
45 071EF) for the product proposed for use to the Engineer for approval. The Contractor
46 shall submit a RAM for transportable attenuators not listed on the QPL.
47
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