

1 **2.31 DESIGN-BUILD QUALITY MANAGEMENT PLAN (QMP)**
2 **REQUIREMENTS**

3 **2.31.1 GENERAL**

4 The Quality Management Plan (QMP) shall be consistent with the summary information
5 submitted with the Design-Builder's proposal, and shall be approved in writing by
6 WSDOT. A draft QMP shall be submitted to WSDOT within 30 Calendar Days after
7 Phase 1 NTP. WSDOT will not accept any Preliminary Design submittals until the
8 Design-Builder's Final QMP for design has been approved in writing by WSDOT. No
9 construction Work activities that require Quality Assurance (QA)/Quality Control (QC)
10 inspection and testing shall commence until the Design-Builder's Final QMP for
11 construction has been approved in writing by WSDOT. The QMP shall be in effect until
12 all requirements of the Contract have been fulfilled and the Project is accepted.

13 WSDOT has developed a non-project-specific Quality Management Plan Outline (QMP
14 Outline) that is available at the following Website:

15 <http://www.wsdot.wa.gov/Projects/delivery/designbuild/>

16 In developing its own QMP, the Design-Builder is encouraged to follow the organization
17 and format of the QMP Outline. The Design-Builder may elect to use all or part of the
18 QMP Outline. When using the QMP Outline, the Design-Builder shall make changes to
19 section headings and text as needed to meet project-specific requirements and the
20 Design-Builder's own quality approach. The QMP Outline is provided for informational
21 purposes only. WSDOT accepts no responsibility for the content of the QMP Outline, nor
22 does WSDOT warrant that use of the QMP Outline will result in Contract compliance.

23 The QA organization is responsible for obtaining all documentation necessary for
24 approval and acceptance of materials; obtaining materials certifications as required; and
25 ensuring that all required materials testing is completed, all meeting the Contract
26 requirements, prior to the materials being incorporated into the Project. The QA
27 organization shall ensure that sufficient inspection is conducted in order to determine
28 that the Work complies with the processes outlined in Chapters 2 through 9 of the
29 WSDOT *Construction Manual* (M 41-01) (Appendix D2) and other relevant Reference
30 Documents and Mandatory Standards.

31 The QMP shall detail how the Design-Builder shall provide QA and QC for design and
32 construction of the Project, and verify that all environmental and permit commitments
33 are met to ensure the Work conforms to the Contract requirements. The Design-Builder
34 shall consult the applicable environmental requirements and WSDOT and AASHTO
35 publications listed in this RFP to prepare the QMP. The Design-Builder shall revise its
36 QMP and its implementation when repetitive or recurring quality issues arise.

37 The Design-Builder's QMP shall include an organizational chart of the QA and QC
38 personnel, listing the number of full-time equivalent employees, specific responsibilities
39 for each employee, and the lines of authority and reporting responsibilities. The QA and
40 QC organizations and personnel shall be completely independent of each other, with
41 separate reporting authorities. The personnel and organizations performing QA
42 functions shall have sufficient authority and organizational autonomy to identify quality
43 issues, and to be able to initiate, recommend, and verify implementation of Corrective
44 Action Plans. Personnel performing QA functions shall be at an organizational level that
45 ensures they will not be influenced by the impact of the QA measures on the Project

1 schedule, performance, or cost. The QMP shall list by discipline the name, qualifications,
2 applicable certifications, duties, responsibilities, and authority for all personnel
3 proposed to be responsible for QA and QC. All key personnel performing QA functions
4 shall be exclusively designated to those functions, and shall not be assigned to perform
5 conflicting duties.

6 **2.31.1.1 PARTNERING AND DISPUTE RESOLUTION**

7 Partnering shall be considered an integral part of the QMP. A partnering agreement is
8 recommended for handling disputes. During the initial partnering session, a separate
9 procedure for conflict resolution shall be developed and agreed to by the partners. The
10 procedure shall include, but is not limited to, the following elements:

- 11 • Before the Project begins, a time frame for resolving disputes at each level of
12 authority shall be established and a list of typical disputes that could occur on the
13 Project shall be developed.
- 14 • Disputes shall be delegated to the lowest appropriate level of authority on the
15 Project team to resolve within the specified time frame.
- 16 • If the dispute is not resolved to the satisfaction of both parties within the
17 specified time frame, the dispute shall be automatically elevated to the next level
18 of authority on the Project team. The elevation process shall be developed by and
19 agreed to by both WSDOT and the Design-Builder at the conclusion of the initial
20 partnering session.
- 21 • If still unresolved, the dispute shall then be directed to the highest level of
22 authority where a final resolution shall be arbitrated by an unbiased third party,
23 whose selection has been agreed upon in advance as part of the QMP.
- 24 • A written report prepared by the Design-Builder and signed by both WSDOT and
25 the Design-Builder, describing the dispute, all subsequent actions, and final
26 disposition of the dispute, shall be submitted to the Project records.
- 27 • If subsequent disputes arise on the same issue, the written report shall be
28 included as a resource during the resolution process.

29 Disputes not resolved informally through the partnering process may be brought to the
30 Disputes Review Board in accordance with Section 1-04.5 of the General Provisions.

31 **2.31.1.2 PRE-ACTIVITY MEETINGS**

32 Prior to the start of any Work activity, the Design-Builder shall hold pre-activity
33 meetings to ensure that all Project personnel have a thorough understanding of the Work
34 to be accomplished. Work activities include design, survey, fabrication, and construction
35 activities that generally correspond to the sections of the Standard Specifications (M 41-
36 10) (Appendix D18), such as clearing and grubbing, earthwork, aggregate base, hot mix
37 asphalt (HMA) and concrete structures, or a definable feature of Work such as pre-
38 paving conference, and pre-pour conferences for bridge decks, pontoons and casting
39 facility.

40 The pre-activity meetings should include discussions relating to what will be
41 accomplished and where, when, how, and by whom the Work will be done. The pre-
42 activity meetings are to ensure that all parties have the same understanding of the design
43 intent; have the appropriate plans, specifications, and any special details; and are aware

1 of safety regulations and procedures that need to be followed. The QA Inspection
2 Checklist for each activity should be reviewed.

3 Pre-activity meetings shall be scheduled a minimum of seven Calendar Days in advance
4 of the start of any Work activity to allow for additional preparation, if necessary. The
5 Design-Builder's Design QA Manager and/or Construction QA Manager shall plan,
6 conduct, and take minutes at the pre-activity meetings. The Design-Builder shall
7 document any clarifications and understandings related to the Work activity that are not
8 documented elsewhere in the minutes of the meeting. The Design-Builder shall
9 distribute the minutes to attendees and other QA, QC, and Quality Verification (QV) staff
10 who require the information. Pre-activity meetings are classified as hold points, and shall
11 be identified in the QMP.

12 Example topics for a pre-activity meeting:

- 13 • Scope (design criteria and intent, constraints);
- 14 • Environmental commitments;
- 15 • BMPs to be installed prior to Work;
- 16 • Notification, monitoring, and reporting requirements;
- 17 • Applicable documents;
- 18 • Work activity outline and schedule (what, where, who, when, and how);
- 19 • Staking plan;
- 20 • Geometry control plan;
- 21 • Safety regulations and procedures;
- 22 • Maintenance of Traffic (MOT) Plan;
- 23 • Work area ingress/egress;
- 24 • Coordination and utilities;
- 25 • Inspection Plan/QA procedures;
- 26 • Status of submittals;
- 27 • Status of material approvals and acceptance requirements;
- 28 • Acceptance criteria, including hold and witness points;
- 29 • Frequency of materials testing;
- 30 • Examination of the Work area;
- 31 • Examination of stored material; and
- 32 • Open discussion.

33 **2.31.1.3 QUALITY ASSURANCE TEAM**

34 WSDOT and the Design-Builder will jointly form a Quality Assurance Team. The team
35 meetings will address and rectify issues relating to inspection, substandard material
36 quality, inadequate QA and QC processes that need to be adjusted, test results that are
37 out of tolerance, disparity between QA and QV test data, future quality concerns, and any
38 issues that WSDOT and the Design-Builder may have regarding quality of the Project.

1 At a minimum, the Design-Builder shall assign the personnel in charge of QA and QC
2 activities, superintendents, and any other personnel the Design-Builder acknowledges as
3 having quality-related concerns from the Design-Build team to the Quality Assurance
4 Team. WSDOT may assign similar personnel related to the Project or others having
5 quality concerns on the Project to the Quality Assurance Team.

6 The Project Quality Manager (described below) or the Construction QA Manager shall be
7 responsible for setting the meeting schedule and agenda, and documenting the meeting
8 minutes and distribution to attendees. At the start of the design and construction phases,
9 meetings shall be held weekly to discuss quality issues. The meeting frequency may
10 decrease as quality issues decrease. In the event that Contract performance becomes
11 substandard, WSDOT will require that the Quality Assurance Team meet more
12 frequently.

13 The Design-Builder shall review all of the current and unresolved Nonconformance
14 Reports (NCRs) and Nonconforming Issues (NCI) during the Quality Assurance Team
15 meetings. For each NCR and NCI, the Design-Builder shall address the following items at
16 the Quality Assurance Team meetings:

- 17 • Action taken by QC – How will QC or production ensure the NCR/NCI will not be
18 repeated? How has this action been addressed in the QMP?
- 19 • Action taken by QA – How will QA ensure the NCR/NCI will not be repeated?
20 How has this action been addressed in the QMP?
- 21 • Resolution of the initial issue that caused the NCR/NCI – How was it corrected?
- 22 • How will the issue be prevented from becoming a recurring error?

23 Example topics for a weekly Quality Assurance Team meeting:

- 24 • Safety;
- 25 • Schedule;
- 26 • Review of previous action items from prior weeks;
- 27 • Current and upcoming activities;
- 28 • QA/QC inspections and testing;
- 29 • Materials documentation status;
- 30 • Review of statistical materials evaluation;
- 31 • Open NCRs/NCIs; and
- 32 • New issues.

33 Note: For each item, the Design-Builder shall record clear action items, due dates, and
34 responsibilities in the meeting minutes.

35 **2.31.1.4 MANAGEMENT REPRESENTATIVE**

36 The Design-Builder shall designate a Project Quality Manager who shall be responsible
37 for developing and updating the QMP, and scheduling and facilitating the Executive
38 Management Review.

1 **2.31.1.5 EXECUTIVE MANAGEMENT REVIEW**

2 The Design-Builder's executive management shall approve the QMP, and conduct a
3 review or an internal audit of the QMP at least quarterly, and more frequently if
4 repetitive QA issues and Corrective Action Reports have been issued. This review or
5 internal audit shall ensure the QMP's ongoing suitability and effectiveness in satisfying
6 the requirements of the Contract and the Design-Builder's stated quality policy and
7 objectives.

8 The Design-Builder shall invite WSDOT to participate in the Executive Management
9 Reviews.

10 At a minimum, the Executive Management Review or internal audit shall evaluate the
11 results of the review, WSDOT audit results, Corrective Action Reports, and plans
12 implemented as a result of the NCRs and NCIs. The Design-Builder shall respond within
13 20 Calendar Days to requests for the implementation of Corrective Action Plans that
14 result from Executive Management Reviews. The Design-Builder shall incorporate the
15 updated Corrective Action Plan into the QMP in a timely manner. Any changes to the
16 QMP shall be approved by WSDOT.

17 **2.31.1.6 QUALITY SYSTEM**

18 **2.31.1.6.1 General**

19 The Design-Builder shall prepare a QMP that includes a quality system which meets the
20 Contract requirements.

21 The precedence of the documents describing the quality system shall be:

- 22 • Quality policy (for the entire system);
- 23 • Quality objectives;
- 24 • Resources (for each section of the QMP);
- 25 • Procedures; and
- 26 • Work instructions.

27 The QMP shall include a flow chart or other graphical representation showing the
28 processes and their relationships to each other, the inspection and test controls, and a
29 narrative for each process.

30 The QMP shall include written procedures that describe the purpose, overview,
31 responsibilities, and steps of the Quality System process, and records resulting from the
32 process.

33 **2.31.1.6.2 Quality Planning**

34 The QMP shall include an Inspection and Test Plan describing all of the proposed QA
35 inspections and tests to be performed throughout the construction process. Activity-
36 specific Inspection and Test Plans shall be prepared during the preparatory phase for
37 each definable feature of Work. The Inspection and Test Plans shall be updated when
38 new subcontractor or supplier contracts are implemented. The Construction QA
39 Manager shall review and approve all Inspection and Test Plans prior to submittal to
40 WSDOT for review at least 14 Calendar Days prior to the start of the Work activity.

41 Inspection and Test Plans shall:

- 1 • Identify hold and witness points when Work shall be accepted by QA personnel
- 2 prior to proceeding to the next stage of the Work.
- 3 • Define the activity to be tested/inspected, the agency/laboratory to perform the
- 4 test/inspection, the frequency of the test/inspection, the test/inspection
- 5 procedure or reference standard, the specified requirement reference, and the
- 6 record that documents the results.
- 7 • Develop the Test Plans for materials that will be statistically accepted, for
- 8 materials that will be non-statistically accepted, and for materials that will be
- 9 accepted by small quantities according to this RFP.

10 In addition, the QMP shall:

- 11 • Describe all of the material receiving, in-process, and final inspections and tests
- 12 to be undertaken.
- 13 • Show what products or services are to be subcontracted.
- 14 • Describe verification of compliance by suppliers and subcontractors with
- 15 requirements.
- 16 • Identify who within the Construction QA organization has stop work authority.

17 **2.31.1.6.3 Other Project Documents**

18 The QMP shall describe how it is applied to all submittals required by the Contract. The
19 following is a list of plans and documents that are required in addition to the design and
20 construction documents specifically addressed in this Section. This is not a
21 comprehensive list; other documents may be required to complete the Work.

- 22 • Safety Management Plan, including Accident Prevention Program, and Site
- 23 Safety Plan;
- 24 • Public Information Plan;
- 25 • Environmental permit application materials;
- 26 • Environmental Compliance Plan;
- 27 • Environmental Commitment Close-Out Report;
- 28 • Project progress schedule;
- 29 • Submittal schedule;
- 30 • Design schedule, acknowledging documents, and/or packages that will be
- 31 submitted for review;
- 32 • Utility Management Plan;
- 33 • Roadside Work Plan;
- 34 • Traffic Management Plan;
- 35 • Traffic Incident Management Plan;
- 36 • Document Control Work Plan; and
- 37 • Construction documentation including, but not limited to:
- 38 ○ Inspector's Daily Reports;

- 1 ○ Non-Conformance Reports;
- 2 ○ QA and QC Inspection Checklists;
- 3 ○ Materials Testing Reports; and
- 4 ○ Traffic Control Supervisor's Daily Report.

5 **2.31.1.7 PRE-APPROVED CORRECTIVE ACTION PLAN**

6 The Design-Builder shall develop a Pre-Approved Corrective Action Plan that shall be
7 incorporated into the QMP. The Pre-Approved Corrective Action Plan shall be approved
8 by WSDOT.

9 The Pre-Approved Corrective Action Plan shall address Work that does not meet
10 specifications, out-of-specification material, and pre-approved rework or repair
11 procedures.

12 The following is a sample list of areas where pre-approved retesting and/or rework or
13 repair procedures are commonly needed. Anticipated failures may include, but are not
14 limited to, the following:

- 15 • Soil
 - 16 ○ Use of improper or incorrect density standards;
 - 17 ○ Lack of compaction;
 - 18 ○ Subgrade too wet;
 - 19 ○ Materials out of specification; and
 - 20 ○ Soil too wet.
- 21 • Hot mix asphalt (HMA)
 - 22 ○ Materials out of specification; and
 - 23 ○ Low density.
- 24 • Reinforcing steel
 - 25 ○ Placement not meeting Contract requirements;
 - 26 ○ Insufficient clearance or lack of support;
 - 27 ○ Damaged epoxy coating on reinforcing steel, including damage due to field
28 cutting or bending;
 - 29 ○ Broken ties or displaced bars.
 - 30 ○ Out-of-specification post-tension tendon elongations;
 - 31 ○ Post tensioning ducts that fail air pressure testing.
- 32 • Concrete
 - 33 ○ Slump or slump flow out of specification;
 - 34 ○ Improper cold weather curing;
 - 35 ○ Rock pockets, small and large;
 - 36 ○ Repair of cracked concrete;

- 1 ○ Exceeding maximum allowed time between concrete lifts;
- 2 ○ Temperature out of specification;
- 3 ○ Air content out of specification (too low or too high);
- 4 ○ Inadequate counter reporting;
- 5 ○ Improper certification of compliance;
- 6 ○ Over time limit; and
- 7 ○ Incorrect mix design.

8 The Design-Builder shall add retesting and/or rework and repair procedures to the QMP
9 as repetitive nonconformances are identified.

10 **2.31.2 DESIGN-BUILDER QUALITY ASSURANCE AND QUALITY** 11 **CONTROL STAFF**

12 At a minimum, the Design-Builder's QA and QC staff shall include the personnel
13 described in this Section.

14 **2.31.2.1 DESIGN QUALITY ASSURANCE MANAGER**

15 The Design QA Manager shall have overall responsibility for the design portion of the
16 QMP. Through audits, the Design QA Manager shall be responsible for verifying and
17 validating that the QA and QC procedures required by the QMP are administered and
18 being followed. The Design QA Manager shall report to the Design Manager or the
19 Project Manager.

20 In accordance with this Section and the QMP, the Design QA Manager shall certify that
21 all Design Documents have been subjected to all required QC checking procedures; all
22 documentation has been completed and filed in an acceptable manner; and all design
23 packages have been subjected to a QA audit prior to submittal to WSDOT or prior to
24 release.

25 The Design QA Manager must have at least ten years of recent experience in the design
26 or quality management of heavy civil engineering projects including two years
27 experience with concrete structures.

28 **2.31.2.2 CONSTRUCTION QUALITY ASSURANCE MANAGER**

29 The Construction QA Manager shall have overall responsibility for implementation of the
30 construction portion of the QMP. The Construction QA Manager shall be responsible for
31 implementing, monitoring, and adjusting the processes to assure acceptable quality. The
32 Construction QA Manager shall report directly to the person or group with overall
33 Project management responsibilities. It is the responsibility of the Construction QA
34 Manager to implement quality planning; oversee the QA testing and inspection; and
35 coordinate with WSDOT's verification testing, inspection, and Independent Assurance
36 (IA) requirements. All duties listed for the Project Engineer in Sections 9-1.5C, E, and H
37 of the WSDOT *Construction Manual* shall be the responsibility of the Construction QA
38 Manager or designee. The Construction QA Manager shall not be assigned any other
39 duties or responsibilities on the Project. The Construction QA Manager shall have the
40 authority to stop any Work that does not meet the standards, specifications, or criteria
41 established for the Project.

1 The Construction QA Manager or a designated Assistant Construction QA Manager shall
2 be available so that they can be on the Project Site within two hours of being notified of a
3 problem regarding the QA of any Work being performed by the Design-Builder, or any of
4 its subcontractors or agents.

5 The Construction QA Manager must have at least six years, ten years preferred, of recent
6 experience overseeing inspection and materials testing on heavy civil construction
7 projects and on concrete structures. Of the six years minimum, the Construction QA
8 Manager shall have a minimum of three years experience in construction materials
9 acceptance administration, including statistical acceptance of materials, and a minimum
10 of three years experience in construction inspection administration. The experience of an
11 assistant to the Construction QA Manager may be used to meet the experience
12 requirement of up to three years of either construction inspection or construction
13 materials administration.

14 **2.31.2.3 MATERIALS APPROVAL ENGINEER**

15 The Materials Approval Engineer shall have authority for the approval of materials in
16 accordance with Section 9-1.5B of the WSDOT *Construction Manual*.

17 The Materials Approval Engineer shall be a Professional Engineer licensed in the State of
18 Washington under Title 18 RCW, and shall be an employee of the firm that leads the
19 design for the Design-Builder.

20 **2.31.2.4 ENVIRONMENTAL COMPLIANCE MANAGER**

21 Refer to Section 2.8 (Environmental).

22 **2.31.2.5 QUALITY TESTING SUPERVISOR**

23 The Quality Testing Supervisor (QTS) may be an employee of the Design-Builder's QA
24 testing laboratory or of the testing laboratory hired by the Design-Builder to perform the
25 QA testing. The QTS or their representative shall be at the Site where the testing is being
26 performed. The QTS shall schedule, review, and verify for compliance all test reports
27 performed by the QA testing laboratory. The QTS shall report to the Construction QA
28 Manager.

29 The QTS shall meet one of the following qualifications:

- 30 • Professional Engineer license; an Engineer-In-Training; or a Bachelor of Science
31 Degree in Civil Engineering, Civil Engineering Technology, Construction, or
32 related experience; and at least four years of highway materials testing
33 experience; or
- 34 • Certification by the National Institute for Certification in Engineering
35 Technologies in the Construction Materials Testing field as an Engineering
36 Technician (Level III) or higher, with at least four years of experience in the
37 appropriate subfield in which sampling and testing is being performed; or
- 38 • Eight years of highway materials testing and construction experience.

39 **2.31.2.6 ELECTRICAL INSPECTOR**

40 The Design-Builder's Electrical Inspector shall have the following minimum
41 qualifications:

- 1 • Administrator and Master Electrician certificate (AD-01) issued by the
2 Department of Labor and Industries, and four years of experience supervising the
3 installation of electrical systems; or
- 4 • Eight years of experience in engineering electrical systems including illumination
5 and/or traffic signal systems, and four years of full-time experience as an
6 electrical inspector on construction projects.

7 WSDOT will inspect all electrical and ITS systems for code compliance, functionality,
8 and acceptance as required by WAC 296-46B-010(15) and RCW 19.28.141.

9 **2.31.2.7 QA TESTING TECHNICIANS AND QA INSPECTION TECHNICIANS**

10 The QA Testing Technicians and QA Inspection Technicians shall perform the required
11 QA inspections and tests. The QA Testing Technicians and QA Inspection Technicians
12 shall have the following qualifications:

13 **QA Testing Technicians** - Acceptance testing shall be performed by QA Testing
14 Technicians qualified in accordance with AASHTO R-18, using the procedural checklist
15 in the WSDOT *Materials Manual* (M 46-01) (Appendix D10). The qualifications of the
16 laboratory technicians employed by an AASHTO accredited laboratory will be accepted
17 for performing AASHTO test methods only when confirmed by the laboratory's training
18 and evaluation records. The competency of each QA Testing Technician shall be re-
19 evaluated annually in all tests they perform, in accordance with the laboratory's
20 Laboratory Quality Systems Manual approved by WSDOT.

21 A testing technician currently qualified in concrete testing by the American Concrete
22 Institute (Level I) will be considered qualified to perform concrete tests.

23 The QA Testing Technicians performing the field and laboratory QA sampling and
24 testing shall be employed by the Design-Builder or an agent's laboratory, and supervised
25 by the QTS. The QA Testing Technicians shall not be affiliated with or employed by any
26 materials supplier or the QC organization. The QA Testing Technicians shall not perform
27 QC testing.

28 **QA Inspection Technicians** -The QA Inspection Technicians shall inspect, verify
29 materials, and document all construction activities for compliance to the Contract. The
30 QA Inspection Technicians shall report to the Construction QA Manager. The QA
31 Inspection Technicians shall not be affiliated with or employed by any materials
32 suppliers or subsidiaries. The QA Inspection Technicians shall not perform QC
33 inspection. The QA Inspection Technicians shall have a minimum of four years of
34 qualifying experience in heavy civil construction including concrete structure inspection.

35 **2.31.2.7.1 Quality Assurance Staff Training**

36 QA staff shall be trained in the applicable procedures for inspection of Work,
37 geotechnical and environmental monitoring, and material sampling and testing. The
38 professional training and experience of the QA staff (including biologists, hydrologists,
39 and geotechnical engineers) shall be commensurate with the scope, complexity, and
40 nature of the activity to be inspected, monitored, or tested.

41 The QA Testing Technicians and construction inspectors may attend the instructional
42 courses WSDOT provides its personnel on a space-available basis, at no cost to the
43 Design-Builder. These classes may be offered only once a year. The following classes will
44 be available:

Course	Hours
Asphalt Paving Street Inspection	4
Drainage Inspection	4
Bridge Substructure Inspection	4
Bridge Superstructure Inspection	4
Drilled Shafts	4
MSE Walls	4
Project Documentation	4
Excavation and Embankment Inspection	4
Nuclear Gauge, Embankment/Surfacing/Pavement Applications	4
PCC Pavement Production, Placement, and Field Testing Procedures	4
Electrical – Illumination and Signals	4

1 **2.31.2.7.2 Quality Assurance Staffing Levels**

2 QA staffing levels shall be identified in the QMP and updated as necessary during the
 3 course of the Project to reflect the actual construction schedule. The size of the QA staff
 4 shall reflect the complexity, needs, shifts, and composition of the construction activities
 5 consistent with the construction schedule, relative locations of the Work to be covered,
 6 geotechnical considerations, environmentally sensitive areas, and specific nature of the
 7 Work. WSDOT will review and comment on proposed staffing levels to ensure the
 8 Project requirements are adequately met. Construction shall not take place when QA
 9 staffing levels are inadequate to provide the inspection and testing required by the
 10 Contract. At a minimum, there shall be at least one QA Inspector at each Project Site at
 11 all times when permanent Work is being incorporated into the Project.

12 **2.31.2.7.3 Restrictions on Quality Assurance Staff**

13 The restrictions for QA staff are listed in Appendix V1.

14 **2.31.2.7.4 Rights to Remove Quality Assurance Staff**

15 By written notice, WSDOT reserves the right to permanently remove any of the following
 16 personnel from the Project:

- 17 • A QA Testing Technician who does not perform the QA tests in accordance with
 18 the test methods.
- 19 • A QA Testing Technician who does not report test results accurately.

- 1 • A QA Inspecting Technician or geotechnical or environmental monitor who, in
2 the opinion of WSDOT, does not exercise good judgment in the performance of
3 their duty.
- 4 • A QA Testing Technician who is not certified in accordance with the Contract
5 requirements.

6 **2.31.2.8 QUALITY CONTROL TESTERS AND PERSONNEL**

7 The Design-Builder shall perform QC measures to ensure operational techniques and
8 activities provide acceptable quality, and are in compliance with the Contract. QC may be
9 performed by personnel from a separate organization within the Design-Builder's
10 organization, by the Design-Builder's front line supervisors, or by the supplier, producer,
11 or manufacturer, but in no case by personnel associated with the QA organization. The
12 QC personnel shall be trained and provided with the necessary tools, testing procedures,
13 and inspection checklists to ensure the Work product meets the Contract requirements.
14 The QC Testers and Inspectors shall report to the Construction Manager or designee.
15 The designee shall not be the Construction QA Manager.

16 **2.31.3 DESIGN QUALITY ASSURANCE AND QUALITY CONTROL** 17 **REQUIREMENTS OF THE QUALITY MANAGEMENT PLAN**

18 **2.31.3.1 GENERAL**

19 The QMP shall specify all aspects of the QA and QC for design. The QA and QC
20 procedures for each type of Design Document and Released for Construction (RFC)
21 Document shall be organized by engineering discipline. The Design-Builder shall include
22 measures and objective evidence to ensure that appropriate quality standards are
23 specified and included in the Design Documents and RFC Documents, and to control
24 deviations from the standards. The Design-Builder shall not deviate from the standards
25 unless the deviation has been approved by WSDOT.

26 The QMP shall include the following:

- 27 • QA and QC procedures for preparing, submitting, and checking all plans,
28 calculations, drawings, and other items to ensure that they are independently
29 checked and back-checked by experienced architects and engineers, in
30 accordance with generally accepted architectural and engineering practices. The
31 originator, checker, and back-checker shall be clearly identified on the face of all
32 submittals.
- 33 • Specific procedures for validating computer programs used on the Project.
- 34 • QA and QC procedures for verifying that all submittals meet the requirements of
35 the Contract.
- 36 • Assurance that all materials, equipment, and elements of Work have been
37 provided for and designed to perform satisfactorily for the purpose intended.
- 38 • A defined process for stamping, signing, and dating plans, reports, and other
39 documents by the responsible Professional Engineer licensed in the State of
40 Washington under Title 18 RCW, where required by the Contract.
- 41 • The level, frequency, and methods of review for the adequacy of the design of the
42 Project.

- 1 • The method by which drawing changes are incorporated into a revision change.
- 2 • The procedures for coordinating Work performed by different personnel in the
- 3 same area, in adjacent areas, or on related tasks to ensure that conflicts,
- 4 omissions, or misalignments do not occur between the drawings or between the
- 5 drawings and the specifications; and to coordinate the review, approval, release,
- 6 distribution, and revision of documents involving such personnel.
- 7 • Identification of those elements of the Contract, Design Documents, or RFC
- 8 Documents requiring special QA and/or QC attention or emphasis, including
- 9 applicable standards of quality or practice to be met, and level of completeness
- 10 and/or extent of detailing required.
- 11 • Identification by discipline of the name, qualifications, duties, responsibilities,
- 12 and authorities for all persons responsible for QA and QC.
- 13 • Description of the name, qualifications, duties, responsibilities, and authorities of
- 14 external technical experts necessary to ensure the quality of the design of the
- 15 Project. Information regarding the anticipated timing, use, anticipated
- 16 availability, and any coordination required with respect to any experts.
- 17 • Procedures for assuring that the documents fully provide for constructability and
- 18 compatibility of materials.
- 19 • Identification of the inspection guidelines for each item of Work to determine
- 20 what significant characteristics of each item need to be monitored during the
- 21 construction phase to ensure that the completed Project will function in
- 22 accordance with the design intent over its expected lifetime. The inspection
- 23 guidelines shall include the appropriate criteria, tests, and inspection
- 24 requirements described in this Section.
- 25 • Descriptions of the required design QA and QC functions, including scheduled
- 26 activities for design QA and QC identifying the Design Documents and RFC
- 27 Documents to be delivered to WSDOT for its review at each stage of the design or
- 28 construction phase of the Project. The QMP shall specify written certifications by
- 29 the Design QA Manager for each submittal document showing that all QMP
- 30 requirements have been completed satisfactorily.
- 31 • Development and maintenance of an accessible Document Control System (DCS)
- 32 by the Design-Builder to provide all relevant design inputs, including a list of
- 33 references to design inputs that should be used by design personnel in the design.
- 34 • Verification by the Design-Builder that the design inputs are communicated to,
- 35 and accessible by, the relevant designers responsible for incorporating design
- 36 inputs into the design.
- 37 • Specification of QA procedures to verify the construction surveying, property
- 38 surveying, establishment of Right of Way markers, as-built plans, re-established
- 39 county and subdivision monuments, and Record of Survey Map.
- 40 • A defined process for tracking the design drawings through the Final Design
- 41 Documents and including the RFC Documents.

42 The QMP shall describe procedures to require that a written certification is signed by the
43 Design QA Manager verifying that all quality procedures have been completed in
44 accordance with the QMP.

1 **2.31.3.2 WSDOT DESIGN REVIEW**

2 The QMP shall define the timing, content, and format of all design reviews. The Design-
3 Builder shall provide a 14 Calendar Day review period for WSDOT review and comment
4 on all design submittals. WSDOT reserves the right to extend the review time by up to
5 seven Calendar Days for submittals that are received between November 15th and
6 January 1st, and for submittals with overlapping review periods.

7 The Design-Builder shall address all comments made by WSDOT in each submittal, and
8 shall include comment resolutions in subsequent submittals.

9 The Design-Builder shall schedule and maintain minutes of all resolution meetings with
10 the appropriate WSDOT staff to document and resolve the Design-Builder's responses to
11 the comments. It is intended that all comments will be resolved at these meetings. If
12 agreement is not reached on any specific comment, it shall be resolved as described in
13 the QMP.

14 **2.31.3.3 DESIGN TASK FORCES AND OVER-THE-SHOULDER REVIEWS**

15 The QMP shall also include processes and procedures for how regular (weekly)
16 scheduled coordination meetings between WSDOT and the Design-Builder will be used
17 to support quality goals. These meetings, combined with over-the-shoulder reviews, shall
18 be an integral part of the process to discuss and resolve design issues outside of the
19 formal review process.

20 The QMP shall define how over-the-shoulder reviews with WSDOT during the course of
21 the development of each design package will be included. The over-the-shoulder reviews
22 are not hold points that restrict the progress of design. They are reviews of the design as
23 it progresses, and opportunities for WSDOT to provide comments and feedback on the
24 design.

25 **2.31.3.4 RELEASED FOR CONSTRUCTION DOCUMENT REVIEW**

26 At a minimum, the Design-Builder shall provide a preliminary and a final submittal of all
27 plans and Technical Specifications and resolve all comments prior to being Released for
28 Construction.

29 **2.31.3.4.1 Technical Specifications**

30 The Standard Specifications are supplemented and modified by the Amendments to the
31 Standard Specifications and these Technical Requirements. The Design-Builder shall
32 develop any additional Technical Specifications that are required to address Work not
33 covered by these documents.

34 **2.31.3.4.2 Preliminary Design Submittal**

35 The Preliminary Design Submittal provides a formal opportunity for WSDOT, the
36 Design-Builder, various design team disciplines, and other approved Project
37 stakeholders to review the construction documents. The intent of this review is to ensure
38 that the design is progressing appropriately and proceeding in the right direction; the
39 plans reflect Design-Builder requirements for construction; design features are
40 coordinated; and there are no fatal flaws within a given discipline or between disciplines.
41 The contents of the Preliminary Design Submittal for each discipline shall be as specified
42 in these Technical Requirements and as mutually agreed upon by members of the

1 applicable task force, or by agreement between WSDOT and the Design-Builder if no
2 specific task force applies.

3 **2.31.3.4.3 Final Design Submittal**

4 The Final Design Submittal shall be prepared when the design for a given element or
5 area is 100 percent complete. The Final Design Submittal may include plan sheets,
6 specifications, technical memos, reports, calculations, and other pertinent data, as
7 applicable. As a result of the on-going discussion and resolution of design and
8 construction issues through the regularly-scheduled task force meetings and over-the-
9 shoulder reviews, it is anticipated that there will be very few revisions or changes at this
10 stage.

11 The Final Design Submittal shall include all specifications, necessary to construct the
12 Work represented in the submittal, including but not limited to all Amendments to the
13 Standard Specifications, Technical Requirements, and Technical Specifications,.
14 Following resolution of all comments, the Final Design Submittal may proceed through
15 the written certification process described below in preparation for being Released for
16 Construction.

17 **2.31.3.4.4 Released for Construction Documents**

18 The QMP shall describe how the Design-Builder will ensure that the RFC Documents
19 reflect all QA, QC, and design reviews required by the QMP and the Contract. The QMP
20 shall also describe the written certification process to be used to verify to WSDOT that all
21 QA procedures have been completed to ensure that all review comments have been
22 incorporated as agreed to during the comment resolution process among WSDOT, the
23 City of Aberdeen, and the Design-Builder, and that the documents are ready to be
24 Released for Construction.

25 Each sheet of the plan set and the cover of each set of Technical Specifications in the RFC
26 Documents shall carry the Professional Engineer's stamp and shall be stamped
27 "Released For Construction" by the Design QA Manager.

28 Once plans and Technical Specifications have been Released for Construction, the
29 Design-Builder shall provide WSDOT with six hard copies and electronic files (in both
30 Microstation or AutoCAD and PDF format), on CDROM of all RFC Documents. The
31 electronic drawing files shall include copies of all sheet and reference files used in the
32 RFC Documents.

33 Prior to submittal, electronic files for all RFC Documents except the MOT Plans shall be
34 checked by the Design-Builder to ensure that they conform to the WSDOT *Plans*
35 *Preparation Manual* file naming and drawing symbology (e.g., level contents and line
36 and text symbology). The drawing symbology and file naming for each electronic
37 drawing file shall meet or exceed a minimum conformance level of 90 percent, and the
38 average conformance level for all drawing files shall be 95 percent or greater. MOT Plans
39 are not required to meet the conformance level criteria. The Design-Builder shall provide
40 WSDOT with a Microsoft Excel spreadsheet for each RFC Submittal containing the file
41 name and the corresponding conformance level for every file that is part of the submittal.
42 WSDOT will provide a template that shall be used for this task. Certain files provided to
43 the Design-Builder by WSDOT, such as base mapping or vicinity maps, may be excluded
44 from the conformance level requirement. The Design-Builder shall obtain written
45 confirmation from WSDOT as to which files are exempt from compliance with the
46 WSDOT *Plans Preparation Manual*.

1 Construction shall not proceed on any element of Work until the relevant submittal is
2 stamped “Released for Construction” and signed by the Design QA Manager, and all
3 required government and private approvals have been obtained by the Design-Builder.

4 **2.31.3.5 QUALITY ASSURANCE AND QUALITY CONTROL OF DESIGN** 5 **CHANGES**

6 The QMP shall describe the process for implementing design changes, including field
7 changes, shown on the Design Documents and RFC Documents. The design changes
8 shall be subject to QA and QC measures and procedures, commensurate with those
9 applied to the original design or that portion of the Project under consideration for
10 change.

11 The QMP shall also address and clearly define the number of changes to a drawing that
12 will result in a drawing revision, and the time frame for the release of the updated
13 drawing. Each drawing revision shall be assigned a number. The revision number shall
14 be assigned sequentially, with each change in a document or plan sheet identified by the
15 revision number. The assigned number shall be located both at the location of the change
16 on the sheet and in the revision block of the document, together with an explanation of
17 the change.

18 **2.31.3.6 WORKING DRAWINGS**

19 The QMP shall describe the personnel assigned to Working Drawings review and
20 approval, including falsework drawings, forms, temporary structures, and construction
21 processes and other critical structure shop drawings; the procedures for documenting
22 reviews and obtaining approvals; the process for implementing corrective actions; the
23 procedures for auditing and checking compliance to the requirements of the Contract
24 and the distribution to WSDOT.

25 The Design-Builder shall submit all Working Drawings required by the Contract to
26 WSDOT for review and comment. The submittal shall include one hard copy and one
27 electronic copy. If the WSDOT Engineer elects to offer any comments, they will be
28 submitted to the Design-Builder within 14 Calendar Days.

29 The Design-Builder shall submit shop drawings for all steel elements, precast concrete
30 elements, and post-tensioning reinforcement to WSDOT prior to implementation. The
31 submittal shall include one hard copy and one electronic copy of shop drawings.

32 Prior to submittal to WSDOT, the Design-Builder shall mark the shop drawings in the
33 lower right corner with one of the two following indicators:

- 34 • APP'D (approved, no corrections required); and
- 35 • AAN (approved as noted, minor corrections only. The Design-Builder shall not
36 place written questions on Approved-As-Noted sheets, but shall clearly note the
37 corrections).

38 **2.31.3.7 AS-BUILT DOCUMENTATION**

39 The QMP shall describe how the Design-Builder will ensure that the As-Built Documents
40 meet the requirements of the Contract and accurately represent the as-constructed
41 conditions in the field, and how the As-Built Documents are updated continuously and
42 made available for periodic reviews conducted by WSDOT or their designees.

1 **2.31.3.8 DOCUMENT AND DATA CONTROL**

2 The QMP shall describe the procedures to be used in managing and documenting all
3 Project files. The Design-Builder shall establish and maintain its own DCS to store and
4 record hard copies and electronic records including, but not limited to, all
5 correspondence, meeting minutes, design inputs, drawings, progress reports, technical
6 reports, specifications, Contract documents, submittals, calculations, test results,
7 inspection reports, non-conformance reports (NCRs), administrative documents, and
8 other documents generated under the Contract. The Design-Builder shall ensure that its
9 DCS is compatible with the DCS used by WSDOT.

10 The QMP shall describe the methods by which all documents issued and received by the
11 Design-Builder will contain a unique serialization, date issued or received, Project name,
12 Contract name, Contract number, specific subject or content of the correspondence,
13 name of the sender or recipient, and reference information to which the correspondence
14 relates to, such as prior correspondence. The Design-Builder shall maintain separate
15 incoming and outgoing correspondence logs.

16 All documents shall be maintained, organized, and indexed by the Design-Builder for the
17 duration of the Contract. Documents shall be delivered to WSDOT upon Final
18 Acceptance unless the Contract requires earlier delivery, or within seven Calendar Days
19 of receipt of request from WSDOT, even if the documents are incomplete.

20 **2.31.3.8.1 Document and Data Approval and Issuance**

21 The QMP shall require that all deliverables include a signed and dated certification by
22 the originator of the deliverable, and that deliverables must be complete and meet the
23 Contract requirements.

24 **2.31.3.8.2 Document and Data Changes**

25 The QMP shall require that any document changes are provided to WSDOT in a format
26 that shows the changes clearly, and is easily tracked (e.g., documents use the
27 redline/strikeout method).

28 **2.31.3.9 DESIGN VALIDATION**

29 The QMP shall describe all verification, validation, monitoring, inspection, and activities
30 to be carried out for the purposes of demonstrating that the Work is acceptable.

31 **2.31.4 MATERIALS QUALITY ASSURANCE AND QUALITY**
32 **CONTROL PLAN REQUIREMENTS**

33 **2.31.4.1 GENERAL**

34 The QMP shall specify all aspects of the Materials QA and QC Plan. At a minimum, the
35 Materials QA and QC Plan shall include the items described in this Section to verify that
36 all materials conform to the Contract requirements. The Materials QA and QC shall be
37 separate functions performed by separate personnel who have no affiliation to each other
38 or to the same organization.

1 **2.31.4.2 DESIGN-BUILDER RESPONSIBILITIES**

2 The Design-Builder shall be responsible for the quality of construction and materials
3 incorporated into the Project. The Design-Builder's QC measures are intended to ensure
4 that operational techniques and activities provide material of acceptable quality.

5 The Materials QA organization shall be responsible for the acceptance of all materials
6 and workmanship incorporated into the Project. The Materials QA organization shall
7 also perform sampling and testing, determine acceptance/rejection of the materials, and
8 implement a tracking system to monitor nonconforming materials and disposition of
9 nonconforming materials, according to the Contract.

10 **2.31.4.3 MATERIALS TESTING QUALITY PROGRAM**

11 The Design-Builder shall monitor and measure the characteristics of all Work activities
12 to verify that all Project requirements have been met. This monitoring and measurement
13 shall be carried out at appropriate stages of construction in accordance with the planned
14 Work and minimum frequencies for sampling and testing as described in Section 1-06 in
15 the General Provisions.

16 The Design-Builder's QA test data shall be used for acceptance, provided it can be
17 statistically verified by WSDOT's QV test data, except as noted in Section 2.28 (Control
18 of Materials). The Quality Assurance Team will attempt to resolve any discrepancies in
19 test data between WSDOT and the Design-Builder. If a resolution cannot be reached,
20 then WSDOT's QV test results will be used for acceptance.

21 The five levels of quality management provided by the Design-Builder and WSDOT
22 where testing is being used for acceptance are:

23 **Quality Assurance:** The Construction QA Manager shall be responsible for the
24 materials sampling, testing, and processes for QA. Testing for QA includes all planned
25 (e.g., audits and assessments) and systematic actions necessary to ensure that all
26 materials incorporated into the Work meet the Contract requirements for the material
27 being used, and will perform satisfactorily for the purposes intended. All materials
28 sampling and testing for QA will be performed by a statistically valid random sampling
29 method using testing methods and minimum frequencies defined in Section 1-06, the
30 WSDOT *Construction Manual*, the WSDOT *Materials Manual*, and the Contract.

31 **Quality Control:** The Design-Builder shall be responsible for QC, which is defined as
32 activities performed by the Design-Builder, the producer, or the manufacturer to ensure
33 that a product is of uniform quality meeting the Contract requirements. Components of
34 QC may include inspecting and obtaining material certifications, materials handling,
35 construction procedures, calibration and maintenance of equipment, production process
36 controls, and any sampling, testing, or re-testing conducted for these purposes.

37 **Quality Verification:** WSDOT or its agent will perform an independent material QV to
38 validate the Design-Builder's sampling and testing QA program. All verification sampling
39 and testing will be performed by a statistically valid random sampling method using
40 testing methods defined in the WSDOT *Construction Manual*, the WSDOT *Materials*
41 *Manual*, and the Contract.

42 **Independent Assurance (IA):** The IA is an independent verification performed by
43 WSDOT that includes an observation of sampling and testing procedures, a review of the
44 qualifications of the tester, and a verification of the testing equipment used to perform
45 acceptance testing activities. The IA will validate both the Design-Builder's QA processes
46 and WSDOT's QV processes. The IA may include auditing of acceptance testing records,

1 observing the tests being performed by the Design-Builder’s technicians, or taking split
2 samples with the Design-Builder on a random basis for verifying the Design-Builder’s
3 testing equipment. WSDOT will enter findings of all IA observations into the
4 Construction Audit Tracking Systems (CATS). Any deficiency will result in an NCI. The
5 Design-Builder shall take corrective action immediately for any noted deficiencies.

6 **Quality Assessment:** WSDOT will perform non-scheduled Quality Assessments of the
7 Design-Builder’s Work, including sampling, testing, and documentation reviews for the
8 benefit of the owner.

9 **2.31.4.4 MATERIALS TESTING LABORATORY**

10 All QA testing that will be used for acceptance of materials shall be performed by a
11 laboratory approved by WSDOT. The laboratory shall report directly to the Construction
12 QA Manager. The Design-Builder or a subcontractor shall employ the laboratory
13 personnel. The materials testing laboratory that is used for QA testing shall not perform
14 QC testing, and shall not be owned, operated, equipped, or staffed by material suppliers.
15 The laboratory shall meet the requirements of AASHTO R-18 for qualified testers and
16 calibrated/verified equipment, and be able to accomplish the testing according to the test
17 procedure they are performing.

18 The Design-Builder’s laboratory shall develop and maintain a Laboratory Quality
19 Systems Manual. The Manual shall include:

- 20 • Staff qualifications, position description, and qualification process;
- 21 • Listing of test procedures approved for performance throughout the Project;
- 22 • Equipment, including verification, calibration, recall procedures, and inventory;
- 23 • Test reports, worksheet, summary logs, and forms;
- 24 • Sample management;
- 25 • Diagnostic and Corrective Action Reports; and
- 26 • Quality Systems review.

27 WSDOT will perform an onsite evaluation of the facility, in accordance with the WSDOT
28 *Materials Manual*, to ensure all Work is being performed according to the Contract. The
29 evaluation will include audit and inspection functions; review of training, equipment
30 calibration, and verification of records; and observance of testers as they perform the test
31 procedures. For laboratories located outside of Washington State, or laboratories
32 performing only minor testing, WSDOT may use the AASHTO Accreditation program or
33 another state’s Department of Transportation to inspect the laboratory.

34 The Design-Builder shall request the WSDOT inspection a minimum of 14 Calendar Days
35 prior to the start of construction. Together with the request, the Design-Builder shall
36 submit a copy of the Laboratory Quality Systems Manual and a list of the testing
37 procedures that the laboratory shall perform throughout the Project. The laboratory shall
38 be properly equipped, staffed, and fully operational at the time of WSDOT’s inspection
39 and for the duration of its use on the Project.

40 WSDOT will advise the Design-Builder in writing of any deficiencies noted during the
41 inspection, and the Design-Builder shall take immediate action to correct them. Work
42 requiring laboratory acceptance will not proceed until the laboratory and staff have been
43 inspected and have received written approval from the WSDOT Engineer.

1 The test equipment for the following test procedure shall be as shown below and in the
2 Field Operation Procedure in accordance with the WSDOT *Materials Manual* so that
3 proper correlation between the QA and QV test results may be established.

- 4 • WSDOT Field Operation Procedure for AASHTO T-310 In-place Densities by
5 Nuclear Method (Troxler 3430, or 3440 Series Moisture/Density Gauge).

6 Materials listed in Section 2.28 shall be delivered to the State Materials Laboratory in
7 Tumwater, Washington.

8 **2.31.4.5 MATERIALS TESTING FREQUENCIES AND RANDOM SAMPLING**

9 The Design-Builder shall perform field and laboratory sampling and testing as specified
10 in the Standard Specifications and the WSDOT *Materials Manual* to control these
11 processes. Sampling and testing shall be performed by qualified testing personnel
12 described in this Section. Representative samples shall be randomly obtained by the
13 Design-Builder at specified frequencies as shown in Section 1-06. The Design-Builder
14 shall furnish copies of all test results to WSDOT within 24 hours of completion of the test
15 or the next business day. For concrete cylinders, the test results shall be furnished within
16 24 hours after cylinder break.

17 WSDOT or its agent will perform independent materials QV sampling and testing to
18 validate the Design-Builder's sampling and testing QA program. Typically, the testing
19 rate will be one verification test to every five of the Design-Builder's acceptance tests.
20 During production startup, the QV testing will be performed at the same frequency as the
21 Design-Builder's QA program for the first five samples, to establish a statistical base for
22 verification and acceptance. After that, the QV testing will be performed on a more
23 frequent basis as needed until the process is established and considered to be under
24 control. When QV testing reaches 25 samples, and the QA and QV testing can be
25 statistically validated, the frequency of the QV tests may be reduced to one in 20. If at
26 any time the QA and QV testing has wide variances or cannot be validated, the QV
27 testing frequency shall be increased to one in 5 until 25 samples are reached again with
28 satisfactory statistical validation.

29 If the Design-Builder elects to take extra samples, the QV sampling frequency will
30 continue to be based on the frequency described in Section 1-06.

31 For HMA, WSDOT will conduct the acceptance testing for Asphalt Treated Base and
32 HMA aggregate, mixture, in-place density, cyclic density, and longitudinal joint density
33 at the frequency described in Section 1-06.

34 Materials that require less than five tests for acceptance, or that have less than five
35 sublots, will require WSDOT and the QA personnel to test at the same frequency. Refer
36 to Chapter 9 of the WSDOT *Construction Manual* for testing requirements. For all
37 materials that are not addressed by WSDOT standards, the material testing
38 specifications, testing procedures, and frequencies will be determined by the Quality
39 Assurance Team with the Engineer of Record's concurrence.

40 Small quantities of materials can be accepted without sampling and testing when the
41 quantity of materials proposed for use by the Design-Builder is less than the minimum
42 sampling and testing frequencies. Structural concrete will not be considered as a small
43 quantity. The Construction QA Manager shall follow the procedure for acceptance of
44 small quantities described in Section 2.28.

1 **2.31.4.6 TESTING PLAN**

2 All acceptance and verification sampling and testing shall be randomly obtained, at the
3 location and frequency stated in the Contract. The Design-Builder shall provide WSDOT
4 with a Testing Plan for each material. The Testing Plan shall identify the frequency,
5 location for testing, test procedures, attributes to test, material acceptance requirements,
6 Sampling Plan developed using WSDOT Test Method T 716 Method of Random
7 Sampling or other random number generator, and the estimated Project quantity. The
8 Testing Plan shall be submitted prior to the beginning of production or placement of the
9 material. The QMP shall include a method for notifying the QA organization of the
10 quantity of material produced, placed, or delivered to the Project, so that the testing
11 effort can be current.

12 **2.31.4.7 MATERIALS QUALITY ANALYSIS PROGRAM**

13 The Design-Builder's QA sampling and testing results shall be used for acceptance,
14 provided that they are validated by WSDOT's QV sampling and testing.

15 Both the Design-Builder's QA and WSDOT's QV test results shall be recorded in the
16 Statistical Analysis of Materials software that will be provided by WSDOT. This software
17 shall be used to statistically evaluate the QA test data against the QV test data to
18 determine the acceptability of the QA test data. This evaluation will be performed by
19 using the F and t Test analysis tool. This evaluation will be performed on all test results
20 for the total quantity of material placed for a single material type, i.e., gravel backfill for
21 walls, CSBC or gravel borrow. There needs to be at least three QA and three QV test
22 results to perform the F and t analysis.

23 The Construction QA Manager shall be responsible for performing this evaluation. Any
24 test data that is found to be outside the normal F and t distribution shall be reviewed by
25 the Quality Assurance Team, and a determination shall be made as to why the test data is
26 outside the normal distribution.

27 The Quality Assurance Team shall identify the cause of discrepancies in the test results
28 and generate a report defining the problems, the cause of the problems, and the
29 solutions to prevent a recurrence. At a minimum, the review shall include the following
30 actions:

- 31 • A check of test data, calculations, and results;
- 32 • An observation of the sampling and testing by the IA Inspector; and
- 33 • A check of test equipment by the IA Inspector.

34 If the Quality Assurance Team fails to identify the cause of discrepancies in the test
35 results, then WSDOT's QV test results will be used for acceptance.

36 **2.31.4.8 MATERIALS DOCUMENTATION REVIEW**

37 The Design-Builder shall schedule regular documentation reviews to ensure that all
38 materials documentation and certifications are complete prior to the material being
39 installed on the Project.

1 WSDOT will perform periodic formal materials documentation reviews as follows:

- 2 • Grays Harbor Site Pontoon Casting Facility: At 15, 50 and 75 percent
3 construction completion.
- 4 • Pontoon Construction: At 15, 50 and 75 percent construction completion.

5 Items to be reviewed will be randomly selected by WSDOT. These reviews are intended
6 to ensure the Design-Builder is maintaining all necessary materials documentation and
7 records. A final review will be performed at the completion of the Project to review all
8 materials documentation.

9 In addition to the formal reviews, WSDOT onsite personnel will perform periodic
10 materials documentation checks. Examples of these checks include materials approval,
11 materials acceptance, and field verification that the approved material was placed.

12 **2.31.5 CONSTRUCTION QUALITY ASSURANCE AND QUALITY** 13 **CONTROL PLAN REQUIREMENTS**

14 **2.31.5.1 GENERAL**

15 The QMP shall include a program for construction inspections, examinations,
16 measurements, and tests of materials or elements for each Work operation, where
17 appropriate, to verify quality. The requirement for these inspections is not limited to
18 those required for quality testing purposes.

19 The QMP shall specify all aspects of QA and QC for construction. At a minimum, the
20 QMP shall include the following items to verify that all construction activities conform to
21 the Contract requirements:

- 22 • Project progress schedule
- 23 • Structural elements and embed items have been integrated during the design
24 process and as a result approved Working Drawings reflect all
25 changes/modifications
- 26 • Inspection requirements;
- 27 • Pontoon cure and thermal control;
- 28 • Pontoon crack and defect inspection;
- 29 • Post-tensioning stressing and grouting operations;
- 30 • Pontoon pre-launch inspection;
- 31 • Pontoon leak inspection;
- 32 • Pontoon post-launch inspection underwater video;
- 33 • Pontoon moorage inspection;
- 34 • Cold weather protection of concrete;
- 35 • Instrumentation and survey monitoring for verification of the performance of the
36 Project geotechnical features;
- 37 • Survey monitoring for verification of pontoon geometry for all specified
38 dimensions and tolerances;

- 1 • Specific documentation for QA and QC activities, including control charts; and
2 • WSDOT requirements for corrective action and Corrective Action Plans when QC
3 and/or acceptance QA criteria are not met.

4 **2.31.5.2 WEEKLY SCHEDULING NOTICE TO WSDOT**

5 The Design-Builder shall notify WSDOT in writing by noon on Friday of each week of
6 planned construction activities, including fabrication, and shall describe the anticipated
7 construction activities for the following week (Monday through Sunday) to allow
8 WSDOT to schedule its resources. For activities occurring beyond 60 miles of the Site,
9 the Design-Builder shall give WSDOT notification at least 14 Calendar Days prior to the
10 planned Work.

11 **2.31.5.3 COORDINATION AND NOTIFICATION**

12 The Construction QA Manager shall designate a primary point of contact for
13 notifications of inspections at hold points. An alternate contact may be designated to
14 function in the primary contact's absence. WSDOT will designate one person to handle
15 responses to the Design-Builder for written reports or releases for hold points.

16 The time necessary to respond to the notification for inspection at hold points shall be
17 included in the QMP, and mutually agreed on by the Design-Builder and WSDOT.

18 **2.31.5.4 HOLD POINTS AND WITNESS POINTS**

19 Hold points shall be identified in the construction process where critical characteristics
20 are to be measured and maintained, and at points where it is impractical to determine
21 the adequacy of either materials or workmanship once Work proceeds past this point.
22 Pre-activity meetings shall be included in the Design-Builder's QMP as hold points. Hold
23 points shall be established where required QA inspection is mandatory. The Design-
24 Builder shall provide WSDOT with three Calendar Days notice of each hold point so that
25 WSDOT, at its discretion, can observe or visually examine a specific Work operation or
26 test. Work shall not proceed until inspection is performed and a written release is
27 granted by the Design-Builder's QA organization.

28 Witness points shall be identified as QC inspections in the construction process intended
29 to facilitate early identification of non-conforming materials or workmanship where it
30 would be impractical to remove, rework, or repair once the Work proceeds past this
31 point. Witness points shall be established where QC inspection is mandatory and
32 included in the Design-Builder's QMP. The Design-Builder's QMP shall define the
33 process for QC inspection and work proceeding beyond the witness points. Witness
34 points shall be identified at pre-activity meetings for coordination with QA and WSDOT
35 staff for participation at their discretion.

36 The RFC Documents shall indicate specific hold points.

37 At a minimum, the Construction QA Manager shall establish hold points and witness
38 points at the stages listed below. The QMP shall identify any additional hold points and
39 witness points necessary to certify compliance. The following hold points and witness
40 points are not intended to limit or diminish the Design-Builder's responsibility to inspect
41 all construction Work. The listed points are Hold Points unless otherwise noted as
42 Witness Points.

1

2 **Temporary erosion and sediment control**

- 3 • Prior to the installation of high visibility fencing to ensure the plans are
4 consistent with the permitted impacts.
- 5 • After installation of high visibility fencing around environmentally sensitive
6 areas, clearing limits, travel corridors, and stockpile sites.
- 7 • After placement of temporary erosion and sediment control (TESC) devices is
8 completed, and prior to any construction operations.

9 **Utility relocations**

- 10 • Prior to any relocation of existing utilities.
- 11 • Prior to backfill of utility relocations and as required by Utility Owner's permit.

12 **Railroad**

- 13 • Prior to any work within Puget Sound and Pacific Railroad Right-of-Way.

14 **Embankments**

- 15 • After completion of drainage embankment and utility installations, and before
16 backfill.
- 17 • At intervals of embankment construction every 5 vertical feet.

18 **Structures (bridge, retaining walls, noise walls, curtain, and end walls)**

- 19 • At completion of bridge embankment or excavation, and before the start of
20 structure foundation.
- 21 • Before saw-cutting or grinding of concrete.
- 22 • Before pile driving or drilled shaft operations.
- 23 • After completion of the first piling driven at each structure support, and at the
24 completion of each pile group, for each structure support.
- 25 • After completion of each drilled shaft along with crosshole sonic logging (CSL)
26 testing, and at the completion of each drilled shaft group, for each structure
27 support.
- 28 • Before concrete placement of any subsurface element including concrete for cast-
29 in-place piles and drilled shafts.
- 30 • Prior to grouting pads and anchor bolts into concrete.
- 31 • Prior to setting bearing or girders.
- 32 • After girder and diaphragm placement.
- 33 • Before concrete placement of bridge deck, approach slabs, diaphragms, traffic
34 barrier, and parapet walls (with formwork, inserts, and reinforcement in place).
- 35 • After completion of excavation and prior to box culvert construction.
- 36 • Before concrete placement for cast-in-place box culverts with formwork, inserts,
37 and reinforcement in place.
- 38 • Prior to installation of post tensioning strands or bars.

- 1 • Prior to jacking operations for post tensioning with hydraulic jack on the Site.
- 2 • After completion of bridge deck grinding and deck repair.

3 **Casting basin**

- 4 • Prior to the start of excavation to discuss protocols for archaeological monitoring.
- 5 • Before installation of soil improvements and subgrade stabilization at the bottom
- 6 of the excavation.
- 7 • After completion of soil improvements, subgrade stabilization, and subgrade
- 8 preparation under structural elements.
- 9 • After completion of under-slab utilities and dewatering and drainage systems,
- 10 and prior to backfilling.
- 11 • Before pile driving or drilled shaft operations.
- 12 • After completion of the first piling driven at each independent structure element,
- 13 and at the completion of each pile group, for each independent structure element.
- 14 • After completion of each drilled shaft along with CSL testing, and at the
- 15 completion of each drilled shaft group, for each independent structure element.
- 16 • Before concrete placement of any subsurface element including concrete for cast-
- 17 in-place piles and drilled shafts.
- 18 • Before concrete placement of slabs, beams, footings, and pile caps (with
- 19 formwork, inserts, and reinforcement in place).
- 20 • Before concrete placement of walls (with formwork, inserts, and reinforcement in
- 21 place).
- 22 • After preparation of construction joints prior to subsequent concrete pours.
- 23 • Before backfill of wall anchorage, tieback, or deadman systems.
- 24 • After completion of the casting basin floor, before start of pontoon construction.
- 25 • Prior to installation of post tensioning strands or bars.
- 26 • Prior to jacking operations for post tensioning with hydraulic jack on the Site.
- 27 • Before saw-cutting or grinding of concrete.
- 28 • After completion of the casting basin gate prior to flooding the launch channel.

29 **Launch channel**

- 30 • Before excavation/initial dredging of the launch channel.

31 **Pontoons**

- 32 • Layout
- 33 ○ Witness points:
 - 34 • After the pontoon walls and work lines have been laid out on the bond
 - 35 breaker and before the wall form installation begins.
 - 36 • After the exterior wall forms have been laid out for block outs, inserts and
 - 37 post tensioning and before the rebar installation begins on the wall.

- 1 • After the exterior walls have been installed and before rebar installation
2 begins.
- 3 • Rebar/forms/concrete
- 4 ○ A comprehensive pre-pour checklist must be completed, approved and signed
5 by the QC and QA Inspection Technicians prior to starting the placement of
6 concrete for each concrete pour.
- 7 ○ Hold points:
- 8 • After the pre-tied wall rebar mats, columns, cages and all other pre-tied
9 rebar elements are tied, and before they are placed in the forms.
- 10 • After the top mat of rebar for the base slab is installed and before starting
11 the interior fillet form installation.
- 12 • After the interior forms and all other items located in the base slab
13 concrete pour area are installed and before starting the concrete
14 placement in the base slab.
- 15 • After the exterior wall rebar, post tensioning ducts, inserts, and all cast-in
16 items are installed and before the interior form panel is installed.
- 17 • After the precast interior walls are placed and the interior intersection
18 rebar installed and before the intersection wall forms are placed.
- 19 • After all concrete (including concrete for concrete repairs) has obtained
20 the required compressive strength and crack repair has been completed,
21 and before the post-tensioning prestressing steel tendons are installed.
- 22 • After all top slab rebar, post-tensioning ducts, inserts, column rebar, and
23 cast-in items are installed and before concrete placement begins.
- 24 ○ Witness points:
- 25 • After the bottom mat of rebar for the base slab is installed and before the
26 fillet or top mat installation of rebar for the base slab begins.
- 27 • After the top slab soffit forms are placed and before rebar and hatch
28 installation begins.
- 29 • After top slab bottom mat of rebar and fillet rebar installation and before
30 the top mat of top slab rebar placement begins.
- 31 • Prior to pouring or placing concrete, review the pour sequence: pump
32 trucks, tremies, vibrators (internal and external), access ports, pumping
33 ports, emergency bulkheads.
- 34 • Precast walls
- 35 ○ After rebar, hatch frames and hardware are installed and before the concrete
36 placement begins. A comprehensive pre-pour checklist must be completed,
37 approved, and signed by the QA and QC inspectors prior to starting the
38 placement of concrete for each concrete pour.
- 39 ○ Witness points:
- 40 • After form panels are placed and before rebar installation begins.

- 1 • After concrete cure is complete and before the precast wall is installed in
2 the pontoon.
- 3 • Structural repairs and structural crack repair - Epoxy injection
- 4 ○ After concrete has been cured but before post-tensioning and concrete
5 finishing operations begin.
- 6 ○ Rock pockets
- 7 ○ Cold joints
- 8 ○ Deficient strength concrete prior to repair.
- 9 • Non-structural crack repair
- 10 ○ After concrete has been cured but before post-tensioning and concrete
11 finishing operations begin.
- 12 ○ After prepping of construction joints and prior to subsequent pours.
- 13 • Post-tensioning
- 14 ○ After post-tensioning prestressing steel tendons have been installed and
15 before tensioning of the tendons.
- 16 ○ After post-tensioning prestressing steel tendons have been tensioned and
17 before grouting operations begin.
- 18 ○ After grouting of the prestressing steel tendons, cutting of the tendons,
19 installing the blockout rebar, and applying the epoxy bonding agent and
20 before pouring the concrete in the blockouts.
- 21 • Pontoon prelaunch
- 22 ○ After pontoon completion and before flooding the casting facility.
- 23 • Pontoon post launch
- 24 ○ After pontoons are moored
- 25 ○ Hull inspection
- 26 ○ Mooring/monitoring/damage control plan.

27 **Retaining wall**

- 28 • After completion of soil foundation and before the placement of the leveling pad
29 of a structural earth wall or the foundation of any other type of retaining wall.
- 30 • Panel tolerances after completion of placement of panels for each structural earth
31 wall prior to beginning of coping placement.
- 32 • Before concrete placement for cast-in-place retaining walls with formwork,
33 inserts, and reinforcement in place.

34 **Noise wall**

- 35 • After completion of soil foundation and before the placement of footing
36 formwork.
- 37 • For pre-cast panels, after the placement of ten panels.

1 **Drainage**

- 2 • After placement of pipe or box culvert and prior to backfilling.
- 3 • After placement of culverts and before backfilling.
- 4 • After installation and placement of bands or gaskets and prior to backfilling.
- 5 • After placement of catch basins and manholes and prior to backfilling.
- 6 • After completion of drainage systems behind walls, and before backfill of walls.

7 **Sanitary sewer service**

- 8 • After excavation and prior to connection with existing City main.
- 9 • After placement of pipe and prior to backfilling.
- 10 • After placement of manholes and prior to backfilling.

11 **Domestic water service/fire suppression system**

- 12 • After excavation and prior to connection with existing City water main.
- 13 • After installation of pipe and prior to testing and backfilling.

14 **In-water work**

- 15 • Before conducting any in-water construction activities and prior to operating any
16 equipment below the ordinary high water mark. This includes Work in wetlands,
17 streams, intertidal areas and Grays Harbor.
- 18 • Prior to culvert replacement, removal, and extensions.
- 19 • Prior to capturing and removing fish from the job site at any area that includes
20 water bypass, in-water coffer dam, or any water area likely to be disturbed.
- 21 • Prior to installing riprap or other bank stabilization.

22 **Subgrade, surfacing, and pavement**

- 23 • At completion of subgrade and prior to surfacing placement.
- 24 • At completion of surfacing placement and prior to asphalt treated base, HMA,
25 and reinforcement for approach slab placement.

26 **Local jurisdiction roadways**

- 27 • Prior to any roadway work within local jurisdiction ROW.

28 **Electrical**

- 29 • Prior to installation of electrical and traffic management systems for which
30 inspection will be performed by WSDOT as required by WAC 296-46B-010(15)
31 and RCW 19.28.141.
- 32 • Prior to removal of existing illumination, and new or temporary illumination in
33 place or operational, in accordance with Section 2.25 (Maintenance of Traffic).

34 **Landscaping and aesthetics**

- 35 • After planting area preparation and prior to planting any plant material.

1 **2.31.5.5 ELECTRICAL INSPECTION**

2 The Design-Builder shall inspect all electrical systems. In addition, WSDOT will inspect
3 all electrical systems for code compliance, functionality, and acceptance as required by
4 WAC 296-46B-010(15) and RCW 19.28.141, except for the Grays Harbor Site, which will
5 be inspected by the City of Aberdeen or the Department of Labor and Industries. Refer to
6 Sections 2.19 (Electrical and Controls) and 2.20 (Traffic Signals).

7 **2.31.5.6 PERFORMANCE VERIFICATION OF PROJECT GEOTECHNICAL**
8 **ELEMENTS/FEATURES**

9 The QMP shall include inspection and verification tests to determine the integrity of
10 foundation structures and elements, and to verify that their performance is as
11 anticipated from the design.

12 Walls shall be designed for anticipated total and differential settlements based on Site
13 geotechnical analyses. The QMP shall include inspection, wall face tolerance and
14 deflection measurements, and verification and proof tests for anchors and soil nails, to
15 determine the integrity of foundation structures and wall elements, and to verify that the
16 wall performance is as anticipated from the design.

17 The Design-Builder shall use geotechnical instrumentation in accordance with the
18 Geotechnical Report described in Section 2.6 (Geotechnical Design) to verify the
19 performance of areas with significant cuts or fills to determine deformation and stability,
20 in particular where soft or otherwise unstable ground is present, or to control filling or
21 cutting rates to maintain stability.

22 If soil densification or other foundation soil stabilization techniques are used, the
23 Design-Builder's QMP shall address how the integrity and success of the soil
24 densification technique will be investigated, monitored, and compared to the intended
25 design.

26 **2.31.5.7 WSDOT OVERSIGHT**

27 WSDOT will periodically audit the field performance of the Design-Builder's QA staff,
28 testing frequencies, and acceptance testing results. WSDOT will conduct oversight
29 inspection audits to verify the adequacy of the Design-Builder's inspection activities and
30 testing procedures.

31 If WSDOT observes nonconforming Work, an NCI report will be generated in the CATS
32 program.

33 **2.31.5.8 QUALITY ASSURANCE INSPECTION**

34 The QMP shall contain inspection plans for each construction Work item included in the
35 Project, whether performed by the Design-Builder, a subcontractor, or a vendor. Work
36 items may be definable features or items of Work defined by the Standard Specifications.

37 **2.31.5.9 INSPECTION GUIDELINES**

38 During the design of the Project, the Design-Builder shall review each item of Work to
39 determine which significant characteristics of the items need to be monitored during the
40 construction phase, to ensure that the completed Project will function in accordance with
41 the design intent over its expected lifetime. The inspection guidelines shall include the
42 appropriate criteria, tests, and inspection requirements identified in the Standard

1 Specifications, the WSDOT *Construction Manual*, and the WSDOT *Materials Manual*.
2 The Inspection Plan shall address the following elements within each item of Work:

- 3 • Identification - Work items included in the Inspection Plan.
- 4 • Characteristics - What characteristics of the item will be inspected?
- 5 • Acceptance Criteria - Directly or by reference, the Design-Builder shall provide
6 sufficient information for the inspector to use to determine if the item or activity
7 is conforming or nonconforming. Maximum use of checklists shall be made for
8 this purpose.

9 Inspections shall be performed during all phases of the Project from start to completion
10 in order to ensure that the Work meets and is being performed in accordance with the
11 Contract, RFC Documents, approved submittals, and any requirements of local
12 jurisdictions.

13 The Design-Builder shall conduct an examination of the quality of workmanship to
14 confirm that all Work is being performed in accordance with the RFC Documents, and
15 any understandings reached at the pre-activity meeting for that item of Work.

16 The Design-Builder shall conduct appropriate follow-up inspections, and sampling and
17 testing of materials as each item of Work progresses, to assure consistency in
18 workmanship; compliance with Contract requirements, Design Documents, and RFC
19 Documents; and satisfactory performance of the Work in service.

20 **2.31.5.10 INSPECTION DOCUMENTATION**

21 QA Inspectors shall summarize their daily inspections, tests, and material sampling
22 activities in daily reports. The QA Inspectors shall use WSDOT's Inspectors Daily Report
23 or a similar form to maintain a written record of inspection results, and shall provide
24 copies of the daily reports to WSDOT the next business day. The Inspector's Daily
25 Reports shall include the following key points of record:

- 26 • Work performed by the Design-Builder, subcontractor, or material supplier;
- 27 • Weather conditions;
- 28 • Inspections performed and their results, including any corrective actions taken;
- 29 • Materials used, the manufacturer or source, product identity, and quantities;
- 30 • Communications;
- 31 • Type, location, and results of all tests performed;
- 32 • Delays encountered;
- 33 • Type of traffic control setup and any inspection and corrective action taken by the
34 Design-Builder;
- 35 • Any safety-related problems and corrective action taken;
- 36 • All nonconforming Work and the corrective action taken;
- 37 • A copy of any checklist used for the inspection; and
- 38 • The Inspector's signature.

2.31.5.11 CONSTRUCTION INSPECTION FORMS AND CHECKLISTS

The Design-Builder’s QMP shall include construction inspection forms and checklists for all anticipated construction operations and processes. These forms shall be used by the Design-Builder’s QA inspection personnel and other personnel responsible for QC, such as foreman and individual workers.

Construction inspection forms shall be used to document all construction Work activities required in the QMP. For each critical construction Work activity, construction inspection forms shall include activity specific checklists approved by WSDOT, prior to the start of the Work activity. The checklist for each Work activity shall include the construction requirements described in the Standard Specifications or the Contract for that Work activity. At a minimum, each checklist shall address the following:

Date	
Time	
Location	<ul style="list-style-type: none"> > Pier or structure component > Drainage code # > Compaction Report (referenced to centerline station and subgrade elevation, etc.)
Type of Inspection	Completion of drainage code, final check, pre-pour check, etc.
Specification Requirement	List of applicable specifications for this item
Frequency	Indicated test or inspection frequency if any (see Section 1-06 of General Provisions for material test requirements)
Items Inspected	List elements or items inspected (e.g., rebar, chair placement or pipe size and type, grate box, pipe bedding, etc.)
Conformation to Specifications	Verify Work and materials meet the appropriate specifications
Deficiencies Noted	Note any deficiencies to specifications
Individual Notified	Individual notified for corrective action (WSDOT notified)
Corrective Action Noted	What corrective action is required to ensure products conform to specifications

12

1 **2.31.5.12 NONCONFORMING WORK**

2 The construction QA staff shall identify and document all elements of Work that have
3 not, or are believed to have not, been constructed in accordance with the approved
4 drawings and specifications, and the reason for nonconformance in an NCR. The NCR
5 shall be submitted to WSDOT in writing within 24 hours of identification, and a copy
6 sent to the Design Manager or designated Engineers.

7 **2.31.5.13 NONCONFORMANCE REPORT REMEDIATION**

8 The Design Manager or a designated Engineer shall evaluate and determine whether a
9 nonconformance exists; and the effect of the nonconformance on performance, safety,
10 durability, long-term maintenance, and the life of the item of Work.

11 If required, documented remedial actions shall be stamped by a Professional Engineer
12 licensed in the State of Washington under Title 18 RCW. The Design-Builder shall
13 submit copies to WSDOT for review within 24 hours, and prior to performing the
14 remedial action. The Construction QA Manager shall also sign the NCR stating that the
15 remedial actions to be implemented have undergone the same level of inspection and
16 testing as required by the original design.

17 If the nonconforming condition is repetitive and recurring, the Design-Builder shall
18 develop and implement a Corrective Action Plan to eliminate the nonconforming
19 conditions.

20 **2.31.5.14 WORK WITH NONCONFORMANCE REPORTS**

21 When WSDOT does not agree with the remedial actions set forth in the NCR, WSDOT
22 has the authority to call for removal of the nonconforming Work, or to stop Work within
23 that area until the Corrective Action Plan has been approved by WSDOT.

24 **2.31.5.15 NONCONFORMANCE REPORTING**

25 The Construction QA Manager shall maintain a log of all NCRs and Corrective Action
26 Plans, and present them at the Quality Assurance Team Meetings. The Construction QA
27 Manager shall number each NCR and Corrective Action Plan sequentially, and maintain
28 an active summary log that provides a brief description and status of the nonconforming
29 Work. The Construction QA Manager shall not grant acceptance for any portion of Work
30 that has an outstanding NCR.

31 **2.31.5.16 WSDOT NONCONFORMING ISSUES AND AUDIT FINDINGS**

32 WSDOT shall retain the right to write its own NCIs and audit findings based on its
33 observance of Work. NCIs and audit findings generated by WSDOT will be entered into
34 the CATS program, and will require the same review and ultimate closure as NCRs
35 generated by the Construction QA Manager.

36 **2.31.5.17 RIGHT TO STOP WORK**

37 If there is evidence that QMP procedures are not adequate, or if a problem is
38 encountered during the oversight inspections or becomes evident during construction,
39 WSDOT may, at its sole discretion, stop Work until appropriate quality procedures have
40 been established and implemented.

1 In addition, WSDOT retains authority to stop Work without liability wholly or in part, if
2 the Design-Builder fails to perform the following:

- 3 • Correct conditions that are unsafe for Project personnel or the general public; or
- 4 • Correct unacceptable construction practices.

5 **2.31.6 SUBMITTALS**

6 **2.31.6.1 QUALITY MANAGEMENT PLAN (QMP)**

7 The Design-Builder shall submit six hardcopies and one electronic copy on CDROM of
8 the Draft QMP for evaluation. WSDOT will provide comments to the Design-Builder on
9 the Draft QMP. Following resolution of the comments, and receipt of written approval
10 from WSDOT, the Design-Builder shall submit six hard copies and six electronic copies
11 on CDROM of the Final QMP.

12 Modifications to the Final QMP shall be approved in writing by WSDOT. When the
13 modifications are approved, the Design-Builder shall correct the six hard copies of the
14 Final QMP, and submit six electronic copies of the revised QMP on CDROM. Each
15 hardcopy or CDROM shall be clearly marked with which revision has been included in
16 that copy.

17 **2.31.6.2 EXECUTIVE MANAGEMENT REVIEWS AND INTERNAL AUDITS**

18 The Design-Builder shall provide a hard copy of its Executive Management Review to
19 WSDOT within 20 Calendar Days of completion of the review.

20 The Design-Builder shall provide a hard copy of its internal audit of the QMP to WSDOT
21 within 20 Calendar Days of completion of the audit.

22 **2.31.6.3 REVIEW DOCUMENTS**

23 Prior to every design review, the Design-Builder shall provide WSDOT with six hard
24 copies and a complete set of electronic files on CDROM of each design submittal to be
25 reviewed, unless specified otherwise in this RFP.

26 **2.31.6.4 QUALITY ASSURANCE/QUALITY CONTROL DOCUMENTATION**

27 The Design-Builder shall include documentation with each submittal showing that the
28 QA and QC processes have been completed. WSDOT will not accept submittals without
29 documentation that the QA and QC processes have been completed.

30 End of Section