INSERT YOUR COMPANY’S LOGO HERE

Quality

Management

Plan

|  |  |  |
| --- | --- | --- |
| **QUALITY MANAGEMENT PLAN ENDORSEMENTS** | | |
| **Name** | **Title** | **Signature** |
|  | Project Manager |  |
|  | Project Quality Manager |  |
|  | Design Manager |  |
|  | Construction Manager |  |
|  | Design Quality Assurance Manager |  |
|  | Construction Quality Assurance Manager |  |
|  | Quality Testing Supervisor |  |
|  | QA Laboratory Manager |  |
|  | Materials Approval Engineer |  |

In accordance with RFP Section 2.28.1.9, the QMP is approved.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*\*\*Insert name and title of the Design-Builder’s Executive Manager here\*\*\*

\*\*\*Insert Design-Builder firm name here\*\*\*

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# 2.28 QUALITY MANAGEMENT PLAN

# 1 GENERAL

\*\*\*Insert Design-Builder’s name here\*\*\*’s Quality Assurance (QA) team is responsible for obtaining all documentation necessary for approval and acceptance of materials; obtaining materials certifications as required; ensuring that all required materials testing is completed; and ensuring that all test results meet the Contract requirements. \*\*\*Insert Design-Builder’s name here\*\*\*’s QA team shall inspect all Work and ensure that sufficient QA staff is present to determine whether the Work complies with Contract requirements, in accordance with the process required in the Contract Documents and the approved QMP.

\*\*\*Insert Design-Builder’s name here\*\*\*’s Quality Assurance (QA) team shall be responsible for all materials acceptance testing on this Project except for the materials listed in RFP Section 2.25, Control of Materials. \*\*\*Insert Design-Builder’s name here\*\*\*’s QA team is responsible for performing all materials acceptance testing referenced in the Standard Specifications, the WSDOT *Construction Manual*, or any other Contract Document.

\*\*\*Insert Design-Builder’s name here\*\*\* shall comply with the applicable environmental requirements and the WSDOT and AASHTO publications listed in the RFP.

## 1.1 Partnering and Dispute Resolution

\*\*\*Describe here how you plan to comply with all of the requirements of RFP Section 2.28.1.1\*\*\*

## 1.2 Pre-Activity Meetings

\*\*\*Insert Design-Builder’s name here\*\*\* shall hold pre-activity meetings to ensure that all Project personnel have a thorough understanding of the Work to be accomplished prior to beginning construction on a Work activity. If the scope of a Work activity changes or if different Subcontractors are used to perform a Work activity, additional pre-activity meetings shall be held. Work activities include design, survey, fabrication, and construction activities that generally correspond to the sections of the Standard Specifications, such as clearing and grubbing, earthwork, aggregate base, and Hot Mix Asphalt (HMA), or a definable feature of Work, such as pre-paving conference and pre-pour conferences for bridge decks.

The pre-activity meetings shall include discussions relating to what type of Work shall be accomplished, by whom it will be performed, tools and resources required, and where, when, and how the Work will be done. The pre-activity meetings are to ensure that all parties have the same understanding of the design intent; have the appropriate Plans, specifications, environmental requirements, and any special details; and are aware of safety regulations and procedures that need to be followed. The QA inspection checklist for each activity shall be reviewed in the meeting.

Pre-activity meetings shall be scheduled a minimum of 3 Calendar Days, but not more than 10 Calendar Days, or as mutually agreed upon by \*\*\*Insert Design-Builder’s name here\*\*\* and the WSDOT Engineer, prior to the start of each Work activity. \*\*\*Insert Design-Builder’s name here\*\*\*’s Design QA Manager (DQAM) or Construction QA Manager (CQAM) shall plan, conduct, and take minutes at the pre-activity meetings. \*\*\*Insert Design-Builder’s name here\*\*\* shall document any clarifications and understandings related to the Work activity that are not documented elsewhere in the minutes of the meeting. \*\*\*Insert Design-Builder’s name here\*\*\* shall distribute the minutes to attendees and other QA, QC, and Quality Verification (QV) staff who require the information. Pre-activity meetings are classified as Hold Points, and are identified elsewhere in this QMP.

## 1.3 Quality Assurance Task Force

\*\*\*Insert Design-Builder’s name here\*\*\* QA and the WSDOT Engineer will jointly form a QA task force team. The task force meetings will address and rectify issues relating to inspection, substandard material quality, inadequate QA and Quality Control (QC) processes that need to be adjusted, test results that are out of tolerance, disparity between QA and QV test data, future quality concerns, disputes regarding correction of Nonconformance Reports (NCR) and Nonconforming Issues (NCI), and any issues that the WSDOT Engineer and \*\*\*Insert Design-Builder’s name here\*\*\* may have regarding quality of the Project.

Either the PQM, the DQAM, or the CQAM shall schedule meetings, develop agendas, document the meeting minutes, and distribute minutes to attendees. At the start of the design and construction phases, meetings shall be held weekly to discuss quality issues. The meeting frequency may decrease as quality issues decrease. In the event that Contract performance becomes substandard, the WSDOT Engineer will require that the QA Team meet more frequently.

\*\*\*Insert Design-Builder’s name here\*\*\* shall review all of the current and unresolved NCRs and NCIs during the QA task force meetings. For each NCR and NCI, \*\*\*Insert Design-Builder’s name here\*\*\* shall address the following items at the QA task force meetings:

* Action taken by QC – How will QC or production ensure the NCR/NCI will not be repeated? How has this action been addressed in the QMP?
* Action taken by QA – How will QA ensure the NCR/NCI will not be repeated? How has this action been addressed in the QMP?
* Resolution of the initial issue that caused the NCR/NCI – How was it corrected?
* How to prevent the issue from becoming a recurring error?

Topics for a weekly QA Task Force Meeting shall include the following:

* Safety
* Schedule
* Review of previous action items from prior weeks
* Current and upcoming activities
* QA/QC inspections and testing
* Materials documentation status
* Review of statistical materials evaluation
* Open NCRs/NCIs
* New issues

For each item, \*\*\*Insert Design-Builder’s name here\*\*\* shall record clear action items, due dates, and responsibilities in the meeting minutes.

## 1.4 Nonconforming Work

\*\*\*Insert Design-Builder’s name here\*\*\*’s QA staff shall identify and document all elements of Work that have not, or are believed to have not, been performed in accordance with the approved drawings and specifications, the Contract Documents, and the reason for nonconformance in an NCR. The NCR shall be submitted to the WSDOT Engineer in writing within 24 hours of identification, and a copy sent to the Design Manager.

## 1.5 Nonconformance Report Remediation

For every instance of Nonconforming Work that is cited by \*\*\*Insert Design-Builder’s name here\*\*\* or by the WSDOT Engineer, \*\*\*Insert Design-Builder’s name here\*\*\* shall perform remediation to bring the Work into compliance with the Contract Documents. The method of remediation shall be chosen by \*\*\*Insert Design-Builder’s name here\*\*\*’s Construction Manager and the Engineer of Record (EOR).

Remediation may involve additional Work in the field and shall always involve documentation. The remediation chosen by \*\*\*Insert Design-Builder’s name here\*\*\* shall be contractually compliant. When \*\*\*Insert Design-Builder’s name here\*\*\* chooses to repair the Work or to let the Work remain in its As Built condition, the EOR shall evaluate the effect the Nonconforming Work and its remediation has on the performance, safety, durability, long-term maintenance, and the life of the item of Work. This evaluation shall be in the form of a memorandum, sealed and signed by the EOR in accordance with Title 18 RCW and submitted to the WSDOT Engineer for acceptance. For certain circumstances (i.e. temporary Work), \*\*\*Insert Design-Builder’s name here\*\*\* may propose a written letter submitted to WSDOT explaining why an evaluation is not needed, the merits of which will be judged by WSDOT in its sole discretion.

The documentation of the EOR’s evaluation Submittal shall be included in every NCR or NCI file and submitted to the WSDOT Engineer as part of a Nonconformance Closure Report prepared by \*\*\*Insert Design-Builder’s name here\*\*\* for the WSDOT Engineer. \*\*\*Insert Design-Builder’s name here\*\*\* shall submit copies of the chosen remediation to the WSDOT Engineer for Review and Comment within 7 Calendar Days of completing the Nonconforming Work remediation. If the remediation involves Work in the field, \*\*\*Insert Design-Builder’s name here\*\*\* shall submit an advance copy of the sealed and signed Remediation Plan to the WSDOT Engineer for Review and Comment 24 hours prior to starting the remediation. The CQAM shall also sign the NCR/NCI file stating the remedial actions implemented have undergone inspection and testing as required by the Contract Documents. Any new sealed and signed Design Documents that are prepared by \*\*\*Insert Design-Builder’s name here\*\*\* as result of remediation shall be subject to the complete QA and QC process as provided for elsewhere in this QMP.

## 1.6 Work with Nonconformance Reports

When the WSDOT Engineer does not agree with the remedial actions set forth in the NCR, the WSDOT Engineer has the authority to call for removal of the Nonconforming Work, or to stop Work within that area until the corrective action plan has been approved by the WSDOT Engineer.

## 1.7 Nonconformance Reports Reporting

The CQAM shall maintain a log of all NCRs and Corrective Action Plans, and present them at the QA Team meetings. The CQAM shall number each NCR and Corrective Action Plan sequentially, and shall maintain an active summary log that provides a brief description and status of the Nonconforming Work. The CQAM shall not grant acceptance for any portion of Work that has an outstanding NCR.

## 1.8 WSDOT Nonconforming Issues and Audit Findings

WSDOT retains the right to write its own NCIs and audit findings based on its observance of Work. NCIs and Audit Findings generated by the WSDOT Engineer will be entered into CATS and will require the same review and ultimate closure as NCRs generated by the CQAM.

## 1.9 Executive Management Review

\*\*\*Insert Design-Builder’s name here\*\*\*’s executive management (Person or group with overall Project management responsibilities) shall approve the QMP and conduct a review or an internal audit of the QMP at least quarterly, and more frequently if repetitive QA issues and Corrective Action Reports have been issued. This review or internal audit shall ensure the QMP’s ongoing suitability and effectiveness in satisfying the requirements of the Contract and \*\*\*Insert Design-Builder’s name here\*\*\*’s stated quality policy and objectives.

The WSDOT Engineer is invited to participate in the Executive Management Reviews.

At a minimum, the Executive Management Review or internal audit shall evaluate the results of the review, WSDOT audit results, Corrective Action Reports, and Plans implemented as a result of the NCRs and NCIs. \*\*\*Insert Design-Builder’s name here\*\*\* shall respond within 20 Calendar Days to requests for the implementation of Corrective Action Plans that result from Executive Management Reviews. \*\*\*Insert Design-Builder’s name here\*\*\* shall incorporate the updated Corrective Action Plan into the QMP in a timely manner. Any changes to the QMP shall be approved by the WSDOT Engineer.

## 1.10 Quality System

## 1.10.1 General

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*.

## 1.10.2 Vacant

## 1.10.3 Other Project Documents

\*\*\*XXXXXXXXXXXXXXXXXXXXXX\*\*\*.

## 1.11 Pre-Approved Corrective Action Plan

The WSDOT Engineer’s approval of this QMP shall constitute approval of the pre-approved corrective action plans listed below. \*\*\*Insert Design-Builder’s name here\*\*\* will develop, and submit for WSDOT Engineer approval, additional corrective action plans when specific issues arise.

### 1.11.1 Soil

* **Use of improper or incorrect density standards**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Lack of compaction**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Subgrade too wet**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Subgrade too soft**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Slope failure.**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Materials out of specification**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Soil too wet**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

### 1.11.2 Hot Mix Asphalt

* **Materials out of specification**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Low density**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

### 1.11.3 Rebar

* **Poor or incorrect locations**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Insufficient clearance or lack of support**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Damaged epoxy coating on reinforcing steel, including damage due to field cutting or bending**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Broken ties or displaced bars**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Out-of-specification, post-tension tendon elongations**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Post-tensioning ducts that fail air pressure testing**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

### 1.11.4 Concrete

* **Slump out of specification**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Improper cold weather curing**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Rock pockets, small and large**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Repair of Cracked Concrete**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Temperature out of specification**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Air content out of specification (too low)**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Air content out of specification (too high)**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Inadequate counter reporting**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Improper certification of compliance**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Exceeding maximum allowed time between concrete lifts**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Over time limit**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Incorrect mix design**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

* **Non-functioning concrete sample cure box**

\*\*\*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX\*\*\*

\*\*\*Insert Design-Builder’s name here\*\*\* shall add re-testing, re-work, and repair procedures to the QMP as repetitive nonconformances are identified.

# 2 \*\*\*Insert Design-Builder’s name here\*\*\* QUALITY ASSURANCE AND QUALITY CONTROL STAFF

INSERT A TABLE OF ORGANIZATION (ORG CHART) THAT SHOWS ALL OF THE QA AND QC STAFF, INCLUDING THEIR REPORTING STRUCTURE AND LINES OF COMMUNICATION

## 2.1 Project Quality Manager

\*\*\*Use this section to identify the PQM and describe how their responsibilities, duties, and qualifications meet the RFP requirements for this position.\*\*\*

## 2.2 Design Quality Assurance Manager

\*\*\*Use this section to identify the DQAM and describe how their responsibilities, duties, and qualifications meet the RFP requirements for this position.\*\*\*

## 2.3 Construction Quality Assurance Manager

\*\*\*Use this section to identify the CQAM and describe how their responsibilities, duties, and qualifications meet the RFP requirements for this position.\*\*\*

## 2.4 Materials Approval Engineer

\*\*\*Use this section to identify the MAE and describe how their responsibilities, duties, and qualifications meet the RFP requirements for this position.\*\*\*

## 2.5 Quality Testing Supervisor

\*\*\*Use this section to identify the QTS and describe how their responsibilities, duties, and qualifications meet the RFP requirements for this position.\*\*\*

## 2.6 Electrical/Intelligent Transportation Systems Field Inspector

\*\*\*Use this section to identify the Electrical/Intelligent Transportation Systems (ITS) Field Inspector and describe how their responsibilities, duties, and qualifications meet the RFP requirements for this position.\*\*\*

\*\*\*Insert Design-Builder’s name here\*\*\*’s Electrical/ITS Field Inspector shall attend the WSDOT Advanced Electrical Inspection Class at the first available opportunity.

## 2.7 Quality Assurance Testing Technicians and Quality Assurance Inspection Technicians

### 2.7.1 Quality Assurance Testing Technicians

The QA Testing Technicians performing the field and laboratory QA sampling and testing shall be employed by \*\*\*Insert Design-Builder’s name here\*\*\* or an agent’s laboratory. The QA Testing Technicians shall not be affiliated with or employed by any materials supplier or subsidiaries or the QC organization. The QA Testing Technicians shall not perform QC testing and shall be a separate role from the QA inspector. The QA Testing Technicians shall report to the CQAM or the QTS.

**Minimum Qualifications**

The QA Testing Technicians shall have the following qualifications for all tests they perform:

* Qualified/certified in accordance with WAQTC Aggregates module, Asphalt Level II module, In–Place Density module and AASHTO R-18, using the procedural checklist in the WSDOT Materials Manual (Appendix D). All acceptance testing in the laboratory or in the field that is part of a WAQTC module shall be performed by a WAQTC certified testing technician. The qualifications of the laboratory technicians employed by an AASHTO accredited laboratory will be accepted for performing AASHTO test methods only when confirmed by the laboratory’s training and evaluation records. Copies of the qualification/certification records and the procedural checklists for each tester shall be provided to the WSDOT Engineer for review 3 Calendar Days prior to the tester performing any QA testing.
* Qualified in concrete testing by the American Concrete Institute (Level I)
* A minimum of 4 years of experience in WSDOT roadway or highway structures construction inspection.

The competency of each QA Testing Technician shall be re-evaluated annually in all tests they perform, in accordance with the laboratory’s *Laboratory Quality Systems Manual* approved by the WSDOT Engineer.

### 2.7.2 Quality Assurance Inspection Technicians

The QA Inspection Technicians shall be on-site during all Work activities and shall inspect, verify materials, and document all construction activities for compliance to the Contract. The QA Inspection Technicians shall not be affiliated with or employed by any materials suppliers or subsidiaries or the QC organization. The QA Inspection Technicians shall not perform QC inspection and shall be a separate role from the QA tester. The QA Inspection Technicians shall report to the CQAM.

**Minimum Qualifications**

The QA Inspection Technicians shall have the following qualifications:

* A minimum of 4 years of experience in WSDOT roadway or highway structures construction inspection.

### 2.7.3 Quality Assurance Staff Training

\*\*\*Insert Design-Builder’s name here\*\*\* shall provide training to the QA staff in the applicable procedures for inspection of Work and material sampling and testing. The professional training and experience of the QA staff (including biologists, hydrologists, and geotechnical engineers) shall be commensurate with the scope, complexity, and nature of the activity to be inspected, monitored, or tested.

The QA Testing Technicians and construction Inspectors may attend the instructional courses WSDOT provides its personnel on a space-available basis, at no cost to \*\*\*Insert Design-Builder’s name here\*\*\*. These classes may be offered only once a year. The following classes will be available:

|  |  |
| --- | --- |
| Course | Hours |
| Asphalt Paving Street Inspection | 4 |
| Drainage Inspection | 4 |
| Bridge Substructure Inspection | 4 |
| Bridge Superstructure Inspection | 4 |
| Drilled Shafts | 4 |
| Mechanically Stabilized Earth Walls | 4 |
| Project Documentation | 4 |
| Excavation and Embankment Inspection | 4 |
| Nuclear Gauge, Embankment/Surfacing/Pavement Applications | 4 |
| Portland Cement Concrete Pavement Production, Placement, and Field Testing Procedures | 4 |
| Electrical – Illumination and Signals | 4 |

### 2.7.4 Quality Assurance Staffing Levels

\*\*\*Insert Design-Builder’s name here\*\*\* shall provide CQAM, DQAM, ECM, Staff Inspectors, and sampling and testing staff to meet the Project schedule. The size of the QA staff shall reflect the complexity, needs, shifts, and composition of the construction activities consistent with the construction schedule, relative locations of the Work to be covered, and specific nature of the Work.

The staffing levels indicated below are based on a preliminary construction schedule and represent an approximate number of personnel needed per month. The staffing levels will be adjusted on a monthly and weekly basis, depending on the Work being accomplished on each day, so that all Work will be inspected and tested according to this QMP. Revision to the Staffing Plan or organizational chart will not require revision to the QMP unless it is a position identified in the Proposal. If an update is required due to Staffing Plan or organizational chart changes, this may occur as part of the next update to the QMP. The WSDOT Engineer will Review and Comment on proposed staffing levels to ensure the Project requirements are adequately met. Construction shall not take place when QA staffing levels are inadequate to provide the inspection and testing required by the Contract. At a minimum, there shall be at least one QA Inspector on the Project Site at all times when permanent Work is being incorporated into the Project. \*\*\*Insert Design-Builder’s name here\*\*\* shall identify and provide adequate QA staff to fulfill all inspection and testing requirements, particularly during concurrent Work activities.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Position | # Staff | Exp. (YRS) | HRS/ MO/Staff | 2019 | | | | 2020 | | | | 2021 | | | |
| Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| PQM: Bugs Bunny, PE | 1 | 45 | 160/40\* |  |  |  |  |  |  |  |  |  |  |  |  |
| CQAM: Daffy Duck, PE | 1 | 47 | 160 |  |  |  |  |  |  |  |  |  |  |  |  |
| DQAM: Mickey Mouse, PE | 1 | 49 | 160/40\* |  |  |  |  |  |  |  |  |  |  |  |  |
| MAE: Elmer Fudd, PE | 1 | 44 | 80 |  |  |  |  |  |  |  |  |  |  |  |  |
| QTS: Foghorn Leghorn | 1 | 48 | 160 |  |  |  |  |  |  |  |  |  |  |  |  |
| Electrical/ITS Field Inspector: Porkey Pig | 1 | 46 | 80 |  |  |  |  |  |  |  |  |  |  |  |  |
| QA Testing Technicians: DB Staff | 5 | >2 | 160 |  |  |  |  |  |  |  |  |  |  |  |  |
| QA Inspection Technicians: DB Staff | 5 | >4 | 160 |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | Color Legend: | |  | Active at full stated hours/mo | | | | | | | | |  |  |
|  |  |  |  |  | Active at \*reduced hours/mo | | | | | | | |  |  |  |
|  |  |  |  |  | Inactive | | |  |  |  |  |  |  |  |  |

\*\*\*Insert Design-Builder’s name here\*\*\* will provide any affected Utility Owner’s inspection staff a monthly look-ahead schedule and \*\*\*XXXXXXXXXXXXXXXXX\*\*\* notice as to when their Work will be constructed, to allow them time to schedule their inspections accordingly.

### 2.7.5 Rights to Remove Quality Assurance Staff

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

* A QA Testing Technician who does not perform the QA tests in accordance with the test methods
* A QA Testing Technician who does not report test results accurately
* A QA Inspecting Technician, geotechnical monitor, environmental monitor who, in the opinion of the WSDOT Engineer, does not exercise good judgment in the performance of their duty
* A QA Testing Technician who is not certified in accordance with the Contract requirements

## 2.8 Quality Control Testers and Personnel

\*\*\*Insert Design-Builder’s name here\*\*\* shall perform, control, and ensure that operational techniques and activities provide acceptable quality, and are in compliance with the Contract. The QC personnel shall be a separate organization within \*\*\*Insert Design-Builder’s name here\*\*\*’s organization; \*\*\*Insert Design-Builder’s name here\*\*\*’s front line supervisors; the supplier, producer, or manufacturer; but in no case shall be associated with the QO. The QC personnel shall be trained and provided the necessary tools, testing procedures, and inspection checklists to ensure the Work product meets the Contract requirements. The QC Testers and Inspectors shall report to the Construction Manager or designee. The designee shall not be the CQAM.

# 3 DESIGN QUALITY ASSURANCE AND QUALITY CONTROL REQUIREMENTS OF THE QUALITY MANAGEMENT PLAN

## 3.1 General

\*\*\*Describe here (generally) how you plan to comply with all of the requirements of RFP Section 2.28.3 and all of its subsections\*\*\*

## 3.2 WSDOT Design Review

\*\*\*Describe here how you plan to comply with all of the requirements of RFP Section 2.28.3.2\*\*\*

## 3.3 Design Task Forces and Over-The-Shoulder Reviews

\*\*\*Describe here how you plan to comply with all of the requirements of RFP Section 2.28.3.3\*\*\*

## 3.4 Released for Construction Document Review

\*\*\*Describe here how you plan to comply with all of the requirements of RFP Section 2.28.3.4 and all of its subsections\*\*\*

## 3.5 Quality Assurance and Quality Control of Design Changes

\*\*\*Describe here how you plan to comply with all of the requirements of RFP Section 2.28.3.5\*\*\*

## 3.6 Working Drawings

\*\*\*Describe here how you plan to comply with all of the requirements of RFP Section 2.28.3.6\*\*\*

## 3.7 As Built Documentation

\*\*\*Describe here how you plan to comply with all of the requirements of RFP Section 2.28.3.7\*\*\*

## 3.8 Document and Data Control

\*\*\*Describe here how you plan to comply with all of the requirements of RFP Section 2.28.3.8 and all of its subsections\*\*\*

## 3.9 Design Validation

\*\*\*Describe here how you plan to comply with all of the requirements of RFP Section 2.28.3.9\*\*\*

# 4 MATERIALS QUALITY ASSURANCE AND QUALITY CONTROL PLAN REQUIREMENTS

## 4.1 General

\*\*\*Describe here (generally) how you plan to comply with all of the requirements of RFP Section 2.28.4 and all of its subsections\*\*\*

## 4.2 Design-Builder Responsibilities

\*\*\*Insert Design-Builder’s name here\*\*\* shall be responsible for the quality of construction and materials incorporated into the Project. \*\*\*Insert Design-Builder’s name here\*\*\*’s QC measures are intended to ensure that operational techniques and activities provide material of acceptable quality.

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

## 4.3 Materials Testing Quality Program

\*\*\*Insert Design-Builder’s name here\*\*\* Quality Control (QC) shall monitor and measure the characteristics of all Work activities to verify that all Project requirements have been met. This monitoring and measurement shall be carried out at appropriate stages of construction in accordance with the planned Work and minimum frequencies for sampling and testing as described in the table in Section 2.25.

The \*\*\*Insert Design-Builder’s name here\*\*\*’s QA test data shall be used for acceptance, provided it can be statistically verified by the WSDOT Engineer’s QV test data, except as noted in the Contract Documents. In the event of discrepancies between the WSDOT Engineer’s and \*\*\*Insert Design-Builder’s name here\*\*\*’s test data; the QA Team will attempt to resolve them through the QA task force. If a resolution cannot be reached, then WSDOT’s QV test results shall be used for acceptance.

The levels of quality management provided by \*\*\*Insert Design-Builder’s name here\*\*\* and the WSDOT Engineer where testing is being used for acceptance are:

**Quality Control (QC)** – \*\*\*Insert Design-Builder’s name here\*\*\* shall be responsible for QC, which is defined as activities performed by the Design-Builder, the producer, or the manufacturer to ensure that a product is of uniform quality, meeting the Contract requirements. Components of QC may include inspecting and obtaining material certifications, materials handling, construction procedures, calibration and maintenance of equipment, production process controls, and any sampling, testing, or re-testing conducted for these purposes.

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

**Quality Verification** – The WSDOT Engineer or its agent will perform an independent materials QV to validate \*\*\*Insert Design-Builder’s name here\*\*\*’s sampling and testing QA program. All verification sampling and testing will be performed by a statistically valid, random sampling method using testing methods defined in the WSDOT *Construction Manual,* the WSDOT *Materials Manual,* and the Contract.

**WSDOT Acceptance Testing** – WSDOT will perform Inspection and Acceptance Testing in accordance with RFP Section 2.25 Control of Materials.

**Independent Assurance (IA)** – The IA is an independent verification performed by the WSDOT Engineer, which includes an observation of sampling and testing procedures, a review of the qualifications of the tester, and a verification of the testing equipment used to perform acceptance testing activities. The IA will validate both \*\*\*Insert Design-Builder’s name here\*\*\*’s QA processes and WSDOT’s QV processes. The IA may include auditing of acceptance testing records, observing the tests being performed by \*\*\*Insert Design-Builder’s name here\*\*\*’s technicians, or taking split samples with \*\*\*Insert Design-Builder’s name here\*\*\* on a random basis for verifying \*\*\*Insert Design-Builder’s name here\*\*\*’s testing equipment. WSDOT will enter findings of all IA observations into the CATS. Any deficiency will result in an NCI. \*\*\*Insert Design-Builder’s name here\*\*\* shall take corrective action immediately for any noted deficiencies.

**Quality Assessment** – WSDOT will perform nonscheduled quality assessments of \*\*\*Insert Design-Builder’s name here\*\*\*’s Work, including sampling, testing, and documentation reviews.

## 4.4 Materials Testing Laboratory

All QA testing that will be used for acceptance of materials shall be performed by a laboratory approved by the WSDOT Engineer. The QA Laboratory Manager shall report directly to the QTS. \*\*\*Insert Design-Builder’s name here\*\*\* or a Subcontractor shall employ the laboratory personnel. The materials testing laboratory that is used for QA testing shall not perform QC testing, and shall not be owned, operated, equipped, or staffed by material suppliers. The laboratory shall meet the requirements of AASHTO R 18 for WAQTC certified/qualified testers and calibrated/verified equipment, and be able to accomplish the testing according to the test procedure they are performing.

All equipment used, whether at an established laboratory or satellite (field) laboratory, must be calibrated/verified. The laboratories have uniform policies and procedures per AASHTO R‑18 to ensure that they are providing testing services in compliance with applicable test methods. The policies and procedures address inspection and calibration of testing equipment, as well as a correlation testing program between the laboratory and portable or satellite facilities.

All laboratories used by \*\*\*Insert Design-Builder’s name here\*\*\* QA shall develop and maintain a *Laboratory Quality Systems Manual*. The Manual shall include the following:

* Staff qualifications, position descriptions, and the qualification process
* Listing of test procedures approved for performance throughout the Project
* Equipment including verification, calibration, recall procedures, and inventory
* Test reports, worksheet, summary logs, and forms
* Sample management procedures
* Diagnostic and Corrective Action Reports
* Quality systems review

\*\*\*Insert Design-Builder’s name here\*\*\* shall request an on-site WSDOT evaluation of the facility, in accordance with WSDOT QC 3, Quality Systems Laboratory Review in the WSDOT *Materials Manual* a minimum of 14 Calendar Days prior to the start of testing. Together with the request, \*\*\*Insert Design-Builder’s name here\*\*\* shall submit the following:

1. Copy of the *Laboratory Quality Systems Manual.*
2. List of the testing procedures that the laboratory shall perform throughout the Project.

The laboratory shall be properly equipped, staffed, and fully operational at the time of WSDOT’s inspection and for the duration of its use on the Project.

WSDOT will advise \*\*\*Insert Design-Builder’s name here\*\*\* in writing of any deficiencies noted during the inspection, and \*\*\*Insert Design-Builder’s name here\*\*\* shall take immediate action to correct them. Work requiring laboratory acceptance will not proceed until the laboratory and its staff has received written approval from the WSDOT Engineer.

If a laboratory is disapproved, it shall not perform any tests for the Project.

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

* WAQTC FOP for AASHTO T 310 In-place Densities by Nuclear Method (Troxler 3430, or 3440 Series Moisture/Density Gauge)

## 4.5 Materials Testing Frequencies and Random Sampling

\*\*\*Insert Design-Builder’s name here\*\*\* shall perform field and laboratory sampling and testing as specified in the Standard Specifications and the WSDOT *Materials Manual* to control these processes. \*\*\*Insert Design-Builder’s name here\*\*\* shall provide a minimum of 3 Calendar Days notification to the WSDOT Engineer prior to sampling and testing. Sampling and testing shall be performed by qualified testing personnel described in this Section. Representative samples shall be randomly obtained by \*\*\*Insert Design-Builder’s name here\*\*\* at specified frequencies as shown in Section 2.25, *Control of Materials*. \*\*\*Insert Design-Builder’s name here\*\*\* shall furnish copies of all test results to the WSDOT Engineer within 24 hours of completion of the test or the next business day. For concrete cylinders, the test results shall be furnished within 24 hours after cylinder break.

The WSDOT Engineer or its agent will perform nondestructive shaft tests on at least one and up to 10 percent of the drilled shafts constructed for bridges. \*\*\*Insert Design-Builder’s name here\*\*\* shall make the shafts accessible to WSDOT Inspectors for nondestructive shaft testing and shall notify the WSDOT Engineer when drilled shaft concrete is placed in each shaft so the WSDOT Engineer can schedule nondestructive shaft testing. The WSDOT Engineer will inform \*\*\*Insert Design-Builder’s name here\*\*\* if a shaft will be nondestructive shaft tested within 2 business days of receiving \*\*\*Insert Design-Builder’s name here\*\*\*’s notification that shaft concrete has been placed.

The WSDOT Engineer or its agent will perform independent materials QV sampling and testing to validate \*\*\*Insert Design-Builder’s name here\*\*\*’s sampling and testing QA program. Typically, the testing rate will be one verification test to every five of \*\*\*Insert Design-Builder’s name here\*\*\*’s acceptance tests. During production startup, the QV testing will be performed at the same frequency as \*\*\*Insert Design-Builder’s name here\*\*\*’s QA program for the first five samples, to establish a statistical base for verification and acceptance. If at any time the QA and QV statistical base is not statistically validated, the QV testing may increase until the F and t variances are considered under control. When QV testing reaches 25 samples, and the QA and QV testing can be statistically validated, the frequency of the QV tests may be reduced to one in 20. If at any time the QA and QV testing results have wide variances or cannot be validated, the QV testing frequency shall be increased to one in five until 25 samples are reached again with satisfactory statistical validation.

If \*\*\*Insert Design-Builder’s name here\*\*\* elects to take extra samples, the QV sampling frequency shall continue to be based on the frequency described in Section 2.25, *Control of Materials.*

For HMA, \*\*\*Insert Design-Builder’s name here\*\*\* shall conduct the acceptance testing for asphalt treated base and HMA aggregate, mixture, in-place density, and cyclic density at the frequency described in Section 2.25, *Control of Materials*.

Materials that require less than five tests for acceptance, or that have less than five sub lots, will require the WSDOT Engineer and the QA personnel to test at the same frequency. Refer to Chapter 9 of the WSDOT *Construction Manual* for testing requirements. For all materials that are not addressed by WSDOT standards, the material testing specifications, testing procedures, and frequencies will be determined by the QA Team with the EOR’s concurrence.

Small quantities of materials can be accepted without sampling and testing when the quantity of materials proposed for use by \*\*\*Insert Design-Builder’s name here\*\*\* are less than the minimum sampling and testing frequencies. Structural concrete shall not be considered as a small quantity. The CQAM shall follow the procedure for acceptance of small quantities described in this Section.

## 4.6 Testing Plan

\*\*\*Describe here how you plan to comply with all of the requirements of RFP Section 2.28.4.6\*\*\*

## 4.7 Materials Quality Analysis Program

\*\*\*Insert Design-Builder’s name here\*\*\*’s QA sampling and testing results shall be used for acceptance, provided that, they are validated by WSDOT’s QV sampling and testing.

Both the \*\*\*Insert Design-Builder’s name here\*\*\*’s QA and WSDOT’s QV test results shall be recorded in the statistical analysis of materials software that will be provided by the WSDOT Engineer. This software shall be used to statistically evaluate the QA test data against the QV test data to determine the acceptability of the QA test data. This evaluation shall be performed by using the F and t Test analysis tool. This evaluation will be performed on all test results for the total quantity of material placed for a single material type such as gravel backfill for walls, Crushed Surfacing Base Course, or gravel borrow. There needs to be at least three QA and three QV test results to perform the F and t analysis.

The CQAM shall be responsible for performing this evaluation. Any test data that is found to be outside the normal F and t distribution shall be reviewed by the QA Team, and a determination shall be made as to why the test data is outside the normal distribution.

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

* A check of test data, calculations, and results
* An observation of the sampling and testing by the IA Inspector
* A check of test equipment by the IA Inspector

The investigation and resolution of the discrepancy shall be documented by the QA Team in the QA task force meeting minutes within 14 Calendar Days of the noted discrepancy, unless IA investigation is delayed due to scheduling. If the QA Team fails to identify the cause of discrepancies in the test results, then WSDOT’s QV test results shall be used for acceptance.

## 4.8 Materials Documentation Review

\*\*\*Insert Design-Builder’s name here\*\*\* shall schedule regular documentation reviews to ensure that all materials documentation and certifications are complete prior to the material being installed on the Project.

WSDOT will perform periodic formal materials documentation reviews at approximately 25 and 75 percent Completion of construction. Items to be reviewed will be randomly selected by the WSDOT Engineer. These reviews are intended to ensure \*\*\*Insert Design-Builder’s name here\*\*\* is maintaining all necessary materials documentation and records. A final review will be performed at the Completion of the Project to ensure that all materials documentation is correct. A separate materials review may be performed by the State Materials Laboratory.

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

# 5 CONSTRUCTION QUALITY ASSURANCE AND QUALITY CONTROL PLAN REQUIREMENTS

## 5.1 General

\*\*\*Describe here (generally) how you plan to comply with all of the requirements of RFP Section 2.28.5 and all of its subsections\*\*\*

## 5.2 Weekly Scheduling Notice to WSDOT

\*\*\*Insert Design-Builder’s name here\*\*\* shall notify the WSDOT Engineer in writing before the close of business on Thursday of each week of planned construction activities, including fabrication, and shall describe the anticipated construction activities for the following week (Sunday through Saturday) to allow the WSDOT Engineer to schedule its resources. For activities occurring further than 60 miles from the Project, \*\*\*Insert Design-Builder’s name here\*\*\* shall give the WSDOT Engineer notification at least 14 Calendar Days prior to the planned Work.

## 5.3 Coordination and Notification

The CQAM shall designate a primary point of contact for notifications of inspections at Hold Points. An alternate contact may be designated to function in the primary contact’s absence. The WSDOT Engineer will designate one Person to handle responses to \*\*\*Insert Design-Builder’s name here\*\*\* for written reports or releases for Hold Points.

\*\*\*Specify the time necessary to respond to the notification for inspection at Hold Points after achieving mutual agreement with the WSDOT Engineer\*\*\*

## 5.4 Hold Points

\*\*\*Describe here how you plan to comply with all of the requirements of RFP Section 2.28.5.4\*\*\*

## 5.5 Traffic Electrical Inspection

\*\*\*Insert Design-Builder’s name here\*\*\* shall inspect all electrical and ITS systems. In addition, WSDOT will inspect all electrical and ITS systems for code compliance, functionality, and acceptance as required by WAC 296-46B-010.

## 5.6 Performance Verification of Project Geotechnical Elements/Features

\*\*\*Insert your GSIP here\*\*\*

## 5.7 WSDOT Oversight

WSDOT will periodically audit the field performance of \*\*\*Insert Design-Builder’s name here\*\*\*’s QA staff, testing frequencies, and acceptance testing results. The WSDOT Engineer will conduct oversight inspection audits to verify the adequacy of \*\*\*Insert Design-Builder’s name here\*\*\*’s inspection activities and testing procedures.

## 5.8 Quality Assurance Inspection

\*\*\*Describe here how you plan to comply with all of the requirements of RFP Section 2.28.5.8\*\*\*

## 5.9 Inspection Guidelines

\*\*\*Describe here how you plan to comply with all of the requirements of RFP Section 2.28.5.9\*\*\*

## 5.10 Inspection Documentation

\*\*\*Describe here how you plan to comply with all of the requirements of RFP Section 2.28.5.10\*\*\*

## 5.11 Construction Inspection Forms and Checklists

Construction inspection forms and checklists have been developed for all anticipated construction operations and processes. The forms and checklists are found in Appendix C of this QMP.

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 the WSDOT Engineer, prior to the start of the Work activity, and shall include photographs of specific activities after which it would be difficult to assess the Work. The checklist for each Work activity shall include the construction requirements described in the Standard Specifications or the Contract for that Work activity.

## 5.12 Right to Stop Work

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

In addition, WSDOT retains authority to stop Work without liability wholly or in part, if \*\*\*Insert Design-Builder’s name here\*\*\* fails to perform the following:

* Correct conditions that are unsafe for Project personnel or the general public
* Correct unacceptable construction practices

# 6 SUBMITTALS

## 6.1 Quality Management Plan

\*\*\*Describe here how you plan to comply with all of the requirements of RFP Section 2.28.6.1\*\*\*

## 6.2 Executive Management Reviews and Internal Audits

\*\*\*Insert Design-Builder’s name here\*\*\* shall provide a hard copy of its Executive Management Reviews to the WSDOT Engineer within 20 Calendar Days of completion of the reviews.

\*\*\*Insert Design-Builder’s name here\*\*\* shall provide a hard copy of its internal audits of the QMP to the WSDOT Engineer within 20 Calendar Days of completion of the audit.

## 6.3 Review Documents

\*\*\*Describe here how you plan to comply with all of the requirements of RFP Section 2.28.6.3\*\*\*

## 6.4 Quality Assurance/Quality Control Documentation

\*\*\*Insert Design-Builder’s name here\*\*\* shall include documentation with each Submittal showing that the QA and QC processes have been completed by the DQAM. The WSDOT Engineer will not accept Submittals without documentation that the QA and QC processes have been completed. Acceptable documentation for Design Submittals will include a marked set and a corrected clean set of Plans and specifications, including annotations by the Originator, checker, back-checker, corrector, and verifier, as described in this Section and in accordance with industry standards.

Submittal documentation shall demonstrate review and approval of Submittal content from the various design team disciplines responsible for coordinating temporary and permanent Project elements

## 6.5 Miscellaneous Submittals

At the request of the WSDOT Engineer, \*\*\*Insert Design-Builder’s name here\*\*\* shall deliver to the WSDOT Engineer Work-related Submittals that do not fit in the previous categories, but are prepared in accordance with this Section.

INSERT YOUR COMPANY’S LOGO HERE

**Quality Management Plan**

# Appendix A Forms – Design

INSERT YOUR COMPANY’S LOGO HERE

**Quality Management Plan**

# Appendix B Forms – Materials

INSERT YOUR COMPANY’S LOGO HERE

**Quality Management Plan**

# Appendix C Forms – Construction

INSERT YOUR COMPANY’S LOGO HERE

**Quality Management Plan**

# Appendix D Quality Procedures – Design

INSERT YOUR COMPANY’S LOGO HERE

**Quality Management Plan**

# Appendix E Quality Procedures – Materials

INSERT YOUR COMPANY’S LOGO HERE

**Quality Management Plan**

# Appendix F Quality Procedures – Construction

INSERT YOUR COMPANY’S LOGO HERE

**Quality Management Plan**

# Appendix G Quality Personnel Résumés

INSERT YOUR COMPANY’S LOGO HERE

**Quality Management Plan**

# Appendix H Working Drawings Table

|  |  |
| --- | --- |
| **Submittal** | **Working Drawing Type** |
| Rebar Shop Drawings |  |
| Fabricated Steel Element Shop Drawings- Handrail, expansion joints, bridge drains, column silos etc. |  |
| Fabricated Steel Element Shop Drawings- Column Jackets, luminaires, camera pole, traffic signals etc. |  |
| Fabricated Steel Element Shop Drawings- Toll Related Items: Gantry/ Sign Structures, Toll Cabinets etc. |  |
| Bridge Bearing Pad Shop Drawings |  |
| Precast Girder Shop Drawings |  |
| Noise Wall Panel Shop Drawings |  |
| MSE Panel Shop Drawings |  |
| Precast Drainage Structures/ Vaults/ Misc. Elements Shop Drawings |  |
| Falsework Drawings- Not in proximity to impact public |  |
| Falsework Drawings- Over Live Traffic or in Proximity to Impact Public |  |
| Formwork Drawings- Over 4ft Not in Proximity to Impact Public |  |
| Formwork Drawings- 4ft or Under in Height |  |
| Formwork Drawings- In Proximity of the Public |  |
| Formwork Drawings- Steel Manufactured Proprietary Systems |  |
| Bracing Drawings- All |  |
| Shoring Drawings- All |  |
| Excavation Drawings- Inside Influence Zone of adjacent structures, property or Over 20ft in height |  |
| Excavation Drawings- Away from Traffic or Property and under 20ft in Height |  |
| Crane Pick Plans- Critical Picks (over 70% chart or tandem pick), Noise Wall Panels, Bridge Girders |  |
| Crane Pick Plans- Non Critical Picks (under 70% chart, single pick) |  |
| Welding Plans for Field Welds |  |
| Welding Plans for Shop Welds |  |
| Drilled Shaft Installation Plan- Sign Structures, signal standards, luminaires |  |
| Drilled Shaft Installation Plan- Noise Walls, soldier pile walls |  |
| Tieback Anchor Installation Plan |  |
| Soil Nail Installation Plan |  |
| Shotcrete Installation Plan |  |
| Pile Driving Installation Plan |  |
| Jack and Bore Plans |  |
| Column Jacket Installation Plan |  |
| Bridge Demo Plan |  |
| Wall Demo Plan |  |
| Painting Plan |  |
| Form Liner Submittal |  |
| Powder Coating Plan |  |