

**SECTION 105****CONTROL OF THE WORK****105.02 PLANS AND WORKING DRAWINGS**

*The following shall be added to Paragraph A of this subsection:*

Contract Drawings applicable to the work to be performed under the contract have the title and drawing number as follows:

**PROJECT NAME AND L-NUMBER HERE.**

*Add the following subsections:*

**105.02.01 SUBMITTAL PROCEDURES**

The contractor shall purchase a web based documentation control service such as Submittal Exchange by Oracle or approved equal. The service shall be contracted and available for use by the Engineer and the Contractor within 10 days of receiving the Award letter. This service shall be incidental to the various elements of the work. Therefore no separate payment will be made for the purchase of this service by the Owner.

The Contractor shall use the service for electronically submitting, exchanging, reviewing, logging, tracking and archiving construction documents including, but not limited to, shop drawings, RFIs, test results, meeting minutes, correspondence, pay applications, quality control documents and other communications. The Contractor shall be responsible for submitting all correspondence at 600 dpi resolution.

1. Contractor shall log all submittals in Submittal Exchange, or approved equal.
2. Contractor shall prioritize all submittals and coordinate submittals of related items to expedite the Project.
3. For each submittal, the Contractor shall allow 15 calendar days for review (30 calendar days if NDOT or other third party approval is required).
4. Contractor shall identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
5. Contractor shall provide space for Contractor and Engineer review stamps.
6. For revised and resubmitted submittals, the Contractor shall identify all changes made since previous submission.
7. Contractor shall distribute copies of reviewed submittals as appropriate. Contractor shall instruct parties to promptly report any inability to comply with provisions.
8. Submittals not requested will not be recognized or processed.

**105.02.02 SHOP DRAWING SUBMITTALS**

1. Contractor shall submit a pdf of each shop drawing to the Engineer for review.
  - a. The term "shop drawing" shall be understood to include, but not be limited to, fabrication and installation drawings, lists, graphs, and operating instructions.
  - b. Unless otherwise required, shop drawings shall be submitted at a time sufficiently early to allow review by Engineer and to accommodate the rate of construction progress under the Contract.
  - c. Contractor shall not submit shop drawings to the Engineer until Contractor has reviewed them against requirements of the Contract Documents himself. Such reviews shall be indicated by a stamp placed on each submittal certifying that Contractor has reviewed the submittal.
  - d. Contractor shall not submit copies of Contract Drawings, Standard Drawings, and faxes to serve as shop drawings.
2. Within 15 calendar days (30 calendar days if NDOT or other third party approval is required) after receipt of submittals, Engineer will return submittals of each drawing to Contractor with comments noted.
3. Contractor shall make a complete and acceptable submittal to the Engineer by the second submission. Owner reserves the right to withhold monies due Contractor to cover additional costs of review beyond the second submission.
4. If submittals are returned to Contractor marked APPROVED or NO EXCEPTIONS TAKEN, a formal revision of the drawing will not be required.
5. If submittals are returned to Contractor marked APPROVED AS NOTED, ACCEPTED AS NOTED, or MAKE CORRECTIONS NOTED, a formal revision of the drawing will not be required.
6. If submittals are returned to Contractor marked REVISE/RESUBMIT, AMEND-RESUBMIT, or REJECTED-RESUBMIT, Contractor shall revise the drawing and shall resubmit the revised drawing to Engineer.
7. Fabrication of an item shall not be commenced before Engineer has reviewed the pertinent shop drawings and returned submittals to Contractor marked APPROVED or APPROVED AS NOTED. Revisions indicated on shop drawings shall be considered as changes necessary to meet requirements of Drawings and Specifications and shall not be taken as the basis of claims for extra work.
8. Contractor shall have no claim for damages or extension of time due to any delay resulting from Contractor's having to make the required revisions to shop drawings (unless review by Engineer of the drawings is delayed beyond a reasonable period of time and unless Contractor can establish that Engineer's delay in review actually resulted in delay in Contractor's construction schedule).
9. The review of drawings by Engineer will be limited to checking for general agreement with Specifications and Drawings, and shall in no way relieve Contractor of responsibility for errors or omissions contained therein, nor shall such review operate to waive or modify any provision contained in the Specifications or Drawings.
10. Engineer's review of shop drawing submittals shall not relieve Contractor of the entire responsibility for the correctness of details and dimensions.

11. Contractor shall assume all responsibility and risk for misfits due to errors in Contractor submittals. Contractor shall be responsible for the dimensions and the design of adequate connections and details. Fabricating dimensions, quantities of materials, applicable code requirements and other Contract requirements shall be Contractor's responsibility.
12. Engineer shall have the authority to reject any product upon completion of review of the suppliers' submittals in regard to proof of acceptability of the product.

#### **105.02.03 MIX DESIGN SUBMITTALS**

1. Contractor shall submit mix designs for each specific item of work as described in Section 501, "Portland Cement Concrete". Separate mix designs shall be submitted for each class and compressive strength of Portland cement concrete and for roller compacted concrete.
2. Engineer will require 15 calendar days (30 calendar days if NDOT or other third party approval is required) to review mix design submittals. Contractor shall submit the mix designs early enough to allow this review without impacting the construction schedule.
3. Rejection of a mix design shall not be grounds for extension of Contract time or incidental damages.
4. With the exception of specific design requirements (class and compressive strength), an IQAC mix design may be used. If an IQAC mix design is selected, the contractor shall submit to the Engineer the mix design cover page with P.E. stamp. No other back-up data is required with the submittal.
5. The mix designs shall be based upon existing stockpiles. Mix designs prepared for previous projects will be accepted only if accompanied by a cover letter from the engineer who originally prepared the mix design. The cover letter shall indicate that the stockpile materials have been retested and are substantially unchanged, and that the mix design is still valid and in compliance with the plans and specifications.
6. Documentation and certifications for all materials used in the mix shall be submitted with the mix design. These shall include, but are not limited to, Portland cement and admixtures.
7. Any variation from a mix design or changes in any component used shall be approved by Engineer, prior to incorporation of the altered material in the project. Engineer may require new mix designs representative of the change as a condition of approval.

#### **105.02.04 QUALITY CONTROL SUBMITTALS**

Contractor shall submit quality control information as specified in Section 106, "Control of Materials".

#### **105.02.05 CONTRACTOR'S REQUEST FOR INFORMATION (RFI):**

**General:** In the event that the Contractor determines that some portion of the Contract Documents requires additional information or interpretation, the Contractor shall submit a written statement via Submittal Exchange (or approved equal) to the County requesting clarification on the issue. The Contractor must provide such request to the County immediately upon discovery. Prior to the submittal of the RFI the Contractor shall carefully study and review the Contract Documents to ensure that the requested information is not contained therein. Submit only one issue to be clarified per form.

The Contractor must include in a properly written RFI the following information:

1. Bid number and title, RFI number (sequentially numbered), date, person requesting clarification and signature.
2. A clear and concise summary of the issue in question and why further clarification or information is required from the County.
3. The drawing number shall be identified and the location on the drawing sheet.
4. The specification section, page number, and paragraph shall be identified.
5. Where applicable, the Contractor shall include his own interpretation of the drawings or specifications and why he believes such an understanding is correct.
6. In cases requesting clarification of coordination issues, the Contractor shall include a suggested solution with necessary drawings or sketches with the RFI.
7. The amount of time, in calendar days (minimum 7 days), until the critical path of the project will begin to be affected. County may ask the Contractor to verify time through the construction schedule.

Only RFI's submitted by the Contractor will be accepted. Any clarifications required by the Subcontractors, Manufacturers, or Suppliers of the Contractor must be properly routed through the Contractor to the County on the appropriate form. All RFI's must be limited to clarifications of the Contract Documents. RFI's shall not be used for the purpose of notifying the County of the following:

1. To request approval of submittals.
2. To request approval of substitutions.
3. To request changes which entail additional cost or credit.
4. To request methods of performing work different than those shown or specified.

**Improper or Frivolous RFI's:** RFI's that are not properly prepared as detailed above, or request information that is clearly shown in the Contract Documents, will be returned to the Contractor labeled as either Improper or Frivolous with the reasons for such determination.

Any additional costs incurred by the County, as a result of unnecessary review by the Design Consultant or County may be deducted from money still due to the Contractor. The Design Consultant's standard hourly rate plus multiplier will apply. Prior to processing a Contract deduction, the Contractor will be notified.

**Response to RFI's:** After County's receipt of the RFI, the County will be allowed non-compensable days totaling the amount of time to the critical path called out in the RFI or a minimum of seven (7) non-compensable calendar days to review and respond to the issue. If the County requires additional time, the Contractor will be notified by email or via Submittal Exchange (or approved equal).

Responses by the Engineer shall not be interpreted as authorization to proceed with extra work. If the Contractor believes additional cost or time is involved from the clarification provided by the Engineer, the Contractor shall notify the Owner in writing that a construction change authorization or change order is required and state the reasons for the Contractor's belief that

this work constitutes a change in the Contractor's contractual requirements. At no point in time is the Contractor to proceed with extra work without the written consent of an authorized representative of the Owner. See Subsection 109.03, "Extra and Force Account Work," for additional clarification of procedures.

#### **105.04 COORDINATION OF PLANS, SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS, AND SPECIAL PROVISIONS:**

*This section is changed to read as follows:*

All information covered under this section shall be as described in the General Conditions of the Contract Documents.

#### **105.05 COOPERATION BY CONTRACTOR**

*Paragraph A is changed to read as follows:*

The Owner will furnish to the Contractor, without charge, 4 sets of Special Provisions including the Drawings. The Contractor shall keep one copy of the documents available on the work site at all times. Additional quantities of Special Provisions with Drawings will be furnished to the Contractor at the cost of reproduction upon request to the contracting agency.

*The following is added to Paragraph C:*

Prior to issuance of Notice to Proceed, the Contractor shall submit to the Engineer in writing the names of at least three (3) 24-hour emergency contact personnel who have personal knowledge of the work and can respond to emergency situations. At least one of those persons listed must be available locally at all times during the contract period. This submittal shall include, at a minimum, home, office, email address, and cellular telephone numbers for these personnel.

#### **105.06 COOPERATION WITH UTILITIES**

*Replace Paragraph R as follows:*

The Owner and Engineer do not guarantee that all existing utilities are shown on the contract drawings, or that the utilities are shown in their exact locations. The Owner has not indicated utility service connection laterals on the Contract Drawings.

*Replace Paragraph S as follows:*

During all time periods when any utility valve, manhole, vault, or pull box may be buried or otherwise rendered inaccessible, the Contractor shall have personnel and equipment on standby (respond within 1 hour) to uncover any valve, manhole, vault or pull box when requested by the Engineer or owning agency.

All utility valves, manholes, vaults, or pull boxes which are buried shall be conspicuously marked in a fashion acceptable to the owner and Engineer by the Contractor to allow their location to be determined by the Engineer or utility personnel under adverse conditions, (inclement weather or darkness).

All cost for providing standby personnel and equipment and for uncovering buried facilities shall not be paid for separately but shall be considered incidental to the items of work associated with the burial except for service connections, which may affect the work.

The relocation of utility service connections will be paid for in accordance with Subsection 105.09, "Construction Interferences".

The Contractor shall not be assessed liquidated damages for failure to complete the work on time to the extent that such delay was caused by failure of the owner or agency having jurisdiction over the utility or service connection to authorize or otherwise provide for its removal, relocation, protection, support, repair, maintenance, or replacement.

*Replace Paragraph T as follows:*

The Contractor shall pothole to determine the exact vertical and horizontal location of all existing utilities indicated on the Drawings, or marked/located in the field, crossing or in close proximity to any proposed underground improvement within 15 working days after Notice to Proceed, and at least fifteen (15) calendar days in advance of the construction of the proposed improvement unless otherwise approved by the Engineer.

Contractor shall provide to the Engineer on the form provided at the end of this section, all pothole information obtained including; owner of utility, depth from finished grade, actual elevation, size and type, material it is made of, location, description and whether there is a conflict with the proposed improvement within one working day following the potholing. The description must provide orientation of utility, if it is transverse or parallel to improvement and any other pertinent details. From this information, Engineer will determine additional utility conflicts, which may not be shown on the Drawings.

If any utility conflicts exist that are not shown on the Drawings, Contractor will take the necessary action in accordance with this subsection and Subsection 105.09 Construction Interferences.

Contractor shall flag or otherwise note discovered interferences on such submittal of pothole data. Specific interferences along with photos showing the specific interference shall be submitted separately as an RFI per Subsection 105.02.05, "Contractor's Request for Information (RFI)."

During the performance of contract work, the owner of any utility affected by the work shall have the right to enter, when necessary, upon any portion of the work for the purpose of maintaining service and of making changes in, or repairs to, said utility.

When the plans or specifications provide for the Contractor to alter, relocate, or reconstruct a utility, the bid prices shall include the cost of any temporary bypasses that may be required by the affected utility. It is the Contractor's responsibility under Section 102.05 "Examination of Plans, Specifications, Contract Documents, and Site of Work" to satisfy himself prior to bidding as to the requirements of each utility and utility modification.

The relocation of utility service connections will be paid for in accordance with Subsection 105.09, "Construction Interferences".

The Contractor shall not be assessed liquidated damages for failure to complete the work on time to the extent that such delay was caused by failure of the owner or agency having jurisdiction over the utility or service connection to authorize or otherwise provide for its removal, relocation, protection, support, repair, maintenance, or replacement.

The Contractor shall not shut off the water supply to a hydrant, nor in any way, prevent access to a fire hydrant until he has secured permission to do so from the proper authorities.

#### **105.08 CONSTRUCTION STAKES, LINES AND GRADES**

*Paragraph C is changed to read as follows:*

The Contractor shall preserve property line and corner survey monuments except where their destruction is determined by the Engineer to be unavoidable. Monuments that are disturbed or destroyed by the Contractor's operations will be replaced in accordance with all applicable Nevada Revised Statutes and Standard Drawings by a Nevada Professional Land Surveyor. The replacement for any disturbed monuments shall be performed by the Engineer and the cost for such replacement will be deducted from any money due, or which may become due, the Contractor under this contract.

*Paragraphs F and G of this subsection are deleted and the following is added:*

The Contractor shall allow a minimum of two (2) full working days' notice when submitting survey work requests. If multiple requests are submitted, prioritization of said requests will be provided by the Contractor in writing with consideration given to the length of time required to complete each ordered task.

The following construction stakes will be furnished by the Owner:

1. Stakes at 50-foot intervals along the back of all curb and gutter and at the ends and center of each curb return, or at offsets that may be requested by the Contractor.
2. Stakes at 50-foot intervals for construction of drainage and utility pipes along an offset line chosen by the Contractor.
3. Two (2) stakes, containing horizontal and vertical control for each manhole, and drop inlets.
4. Stakes at the corners of junction structures containing horizontal and vertical control.
5. One (1) stake for each streetlight pole and two (2) stakes for each traffic signal pole containing horizontal and vertical control.
6. Subgrade stakes will be placed at 100' intervals (plus grade breaks) and three (3) across the asphaltic pavement area (maximum). Type II stakes will be placed at a maximum three (3) stakes per 50' station plus grade breaks.
7. Stakes not delineated above which the Engineer may determine are necessary to insure the work will be properly constructed.

The Engineer will also mark existing pavement for sawcut lines at all intersection streets and driveway locations.

The Contractor shall notify the Engineer prior to placement of curb and gutters at drop inlets to verify the form work elevations.

The above constructed stakes shall constitute the field control by and in accordance with which the Contractor shall execute the work, and will be furnished at no expense to the Contractor.

The Engineer will set stakes in addition to these delineated above, if required by and requested by the Contractor; however, costs for setting said additional stakes shall be paid by the Contractor and will be deducted from any amounts due or to become due the Contractor.

After stakes and marks have been set it shall be the responsibility of the Contractor and his employees to protect the stakes and marks against vandalism and/or destruction.

Should any of the stakes or marks be destroyed or disturbed by the Contractor's operations or otherwise, the cost of replacing said stakes or marks shall be paid by the Contractor and will be deducted from any amounts due or to become due the Contractor.

*The following subsection shall be added:*

#### **105.09 CONSTRUCTION INTERFERENCES**

Construction interferences shall consist of any utility or service connection that is required to be disturbed, modified, relocated, or removed to permit the construction of a pipeline or other structure as specified in the contract.

Such disturbance or removal shall be done only with the approval of the project Engineer and following notification to the owner of the interfering utility or service connection. Any such utility or service connection removed or otherwise disturbed shall be reconstructed as promptly as possible in its original or other authorized location in a condition at least as good as prior to such removal or disturbance, subject to the inspection of the owner of same.

The Contractor's responsibility under this subsection to remove or replace shall apply even in the event such damage or destruction occurs after backfilling or is not discovered until after completion of backfilling. The owner of the utility or service connection shall be notified immediately after damage or destruction occurs or is discovered.

A Class 1 construction interference shall be defined as to include any utility or service connection within the limits of excavation or over-excavation, required by the Contract Drawings or as ordered by the Engineer that is not located within the pipe space.

A Class 2 construction interference shall be defined as to include any utility or service connection located within the pipe space.

Pipe space shall be defined as to be the outside diameter or dimension of the pipeline or structure, plus 6-inches.



All costs involved in removing, relocating, protecting, supporting, repairing, maintaining, or replacing a utility or service connection shall be borne by the Contractor per the following descriptions and as shown on the figure at the end of this section.

**Case I** An actual Class 1 interference which is shown as a Class 1 on the Contract Drawing however approximate the location may be.

**Case II** An actual Class 2 interference which is shown as a Class 2 interference on the Contract Drawings.

**Case III** An actual Class 1 interference which is not shown on the Contract Drawings.

**Case IV** A main line or service connection which is smaller than or equal to 4-inches nominal diameter which actually constitutes a Class 1 or 2 construction interference, whether or not said line or connection is shown on the Contract Drawings.

**Case V** An actual Class 1 interference which is shown as a Class 2 interference on the Contract Drawings.

All costs involved in removing, relocating, protecting, supporting, repairing, maintaining, or replacing a utility or service connection greater than 4-inches nominal diameter, shall be paid for by the Contracting Agency as additions to work in accordance with subsection 104.03, "Extra Work," in the following case:

**Case VI** An actual Class 2 interference which is shown as a Class 1 interference or not shown at all on the Contract Drawings.

When the Contractor encounters a construction interference that has been incorrectly shown or omitted from the Contract Drawings, the Contractor shall immediately notify the Engineer. The Engineer will determine a case number for the construction interference. The Engineer will notify the Contractor of the Engineer's determination within 24 hours after the interference has been encountered. The Engineer will determine the case number for multiple ducts with individual nominal diameters 4-inches, or smaller.

When the Engineer has determined that the construction interference is a Case I, II, III, IV, or V, the Contractor shall continue with the work, including the removing, relocating, protecting, supporting, repairing, maintaining, or replacing of the construction interference. The Contractor understands and agrees that this condition is not a cause for delay in completion of the contract work.

When the Engineer has determined that the construction interference is a Case VI, and there is no bid item in the contract covering this interference, the Contracting Agency and the Contractor will negotiate terms for a change order according to provisions of subsection 104.03, "Extra Work." During this negotiation period, the Contractor will continue work at another location within the scope of the project. A time extension for completion of contract work may be a part of the negotiation. The Contracting Agency will not pay standby expenses incurred by the Contractor or costs incurred by the Contractor in relocating equipment during the negotiating period or redesign of proposed improvements due to construction interferences.

The Contractor shall exercise extreme care so as not to damage new or existing buried utilities which do not physically constitute a construction interference and shall utilize equipment throughout his construction operations so that new and existing utilities are not damaged.

The Contractor shall be responsible for costs of removing, relocating, protecting, supporting, repairing, maintaining, or replacing new or existing facilities damaged by his operations as determined by the Engineer.

#### **105.14 MAINTENANCE DURING CONSTRUCTION**

*Paragraph D is changed to read as follows:*

The Contractor shall maintain a temporary AC patch over backfilled pipe trenches, subject to traffic, during the course of the project to the satisfaction of the Engineer. The temporary patch shall be permanently repaired or removed as soon as the Contractor's operations allow. Temporary asphalt patching will not be allowed to remain longer than 30 calendar days before permanent paving is placed.

Should areas of temporary pavement fail and become hazardous, the Contractor shall repair at the Engineer's direction and at the Contractor's expense.

Temporary asphaltic pavement shall be placed in accordance with Subsection 208.03.21, "Cutting and Restoring Street Surfacing."

#### **105.16 FINAL ACCEPTANCE**

*Replace Paragraph A as follows:*

Upon due notice from the Contractor of presumptive completion of the entire project, the Engineer will make an inspection. If all construction, final clean up, and Red-Lined As-Built Drawings provided for and contemplated by the contract are found completed to his satisfaction, the inspection shall constitute the final inspection and the Engineer will so advise the governing body or commission. The Contractor will then be notified in writing of the acceptance of the contract as of the date of the final inspection. Such notice will not be given to the board or commission until all work including required Red-lined As-Built Drawings has been completed to the satisfaction of the Engineer.

*The following subsections are added:*

#### **105.18 AUTHORIZED CHANGES**

All changes to the plans performed in the field shall be reviewed, approved and authorized by the Engineer prior to proceeding with the work. Any changes to the plans without authorization may result in removal of such item at the Contractor's expense or nonpayment for the work, at the discretion of the Engineer.

Verbal authorized changes to the plans in the field will not be considered for additional quantities or compensation, but can be and will be considered for any reduction in quantities or cost.

Any authorized changes to the plans which are approved by the Engineer for additional compensation shall be in written form indicating all items of work involved and the cost for each item, and will be submitted to the Engineer prior to proceeding with the work involved.

Any authorized changes for the convenience of the Contractor will not be considered for additional quantities or payment, unless the Engineer has approved such additional cost in writing to the Contractor.

### **105.19 CONTRACTOR QUALITY CONTROL PROGRAM**

The Contractor Quality Control Program was developed to ensure that materials and workmanship incorporated into the work meet the requirements of the Standard Specifications, Special Provisions, and all other contract documents. Quality Control (QC) is the sole responsibility of the Contractor. The QC Program encompasses QC, Quality Assurance (QA) and Independent Assurance (IA).

In order to ensure an understanding of the QC Program, there shall be a mandatory QC Program meeting prior to the start of construction. This meeting occurs subsequent to the pre-construction meeting. The contractor shall have in attendance at this QC Program meeting the Quality Control Manager (QCM), Quality Control Coordinator (QCC), inspectors and a licensed professional engineer in responsible charge of inspectors and testers at the meeting.

QC shall be performed in accordance with the Contract documents.

QC testing shall be performed by an accredited laboratory. If the testing was conducted by a non-accredited laboratory, the testing shall not be accepted and payment will not be made for the installed material.

The Contractor's QC Program consists of performing testing and inspections for each bid line item as well as administering the QC program. All portions of the QC Program are incidental to the work required for each bid line item paid in accordance with the Contract. The payment for the bid line items of work, subject to the terms of the Contract, includes compensation for performing all required quality control testing and inspection as set forth in the Contract, including, but not limited to, costs to develop and administer the quality control program, management of the quality control program, on-site testing, on-site inspection and oversight, off-site source/production inspection, off-site source/production testing, laboratory testing of field samples, preparation of the monthly reports, and submittal of results.

### **105.20 INDEPENDENT ASSURANCE SAMPLING**

CCPW administers the Independent Assurance (IA) split sample program and supervises the sampling, splitting, collection and distribution of the samples. IA observes the QA and QC testing and may conduct its own testing. IA receives written test results from both QA and QC, compares results, and generates a report of the IA findings.

Coordination meetings must take place each time the IA program is conducted. The following personnel must be present at each IA meeting:

1. Contractor QCM
2. Contractor QCC
3. Contractor QC testing personnel
4. CCPW QA testing personnel
5. CCPW QA Inspector (optional)
6. CCPW IA personnel

There are two scenarios for how IA is performed:

1. The IA is performed by the County.
2. The IA is performed by a consultant contracted by the County.

As a part of the regular IA sampling and testing program, samples are taken and split three ways by the QC personnel as directed by the IA personnel. One sample is tested by QC, one is tested by QA and one is tested by IA. The IA may observe the QA/QC testing process. The entire procedure is documented in the CM Manual on the Clark County Website <http://pwgate.co.clark.nv.us/IQAC/qagc.asp>

The Contractor shall expect that all materials listed below be required for IA split sampling throughout the duration of the Contract.

1. Select Borrow
2. Granular and Drain Backfill
3. Base Aggregates
4. Concrete Aggregates
5. Aggregates for Plantmix Bituminous Surface and Ultra-Thin Asphalt Concrete Surface (UTACS)
6. Concrete
7. Plantmix Bituminous Surface
8. UTACS
9. Any other materials as required by the Contract.

The IA representative shall retain custody of the samples from the time they are taken until they are delivered to the QC or QA laboratories for testing.

The QC/QA test results performed for the IA process are independent of project sampling frequency and cannot be counted as a part of the Contract acceptance data.

#### **105.21 ENGINEER AUDITS**

The Engineer will randomly audit the Contractor project QC records. These audits will be scheduled by the Engineer in coordination with the Contractor.

### 105.22 QUALITY CONTROL PERSONNEL REMOVAL

Section 113 of these Special Provisions requires that testing and inspection be conducted by certified personnel. If the testing is conducted by non-certified personnel, the quantity of the associated bid line item may be subject to non-payment or asset reduction. Additionally, the Contractor shall pay the Engineer for the Quality Assurance testing and inspection until such time the certified personnel are replaced.

The Contractor shall implement removal of personnel for the following:

1. A non-certified QC inspector or tester based on the Section 113 "Contractor Quality Control Organization and Qualification of Inspectors, Laboratories and Technicians" requirements.
2. Personnel falsifying contract documents of any kind. Testing technicians falsifying documents may be subject to a complaint filed with the NAQTC board for discipline, and if on a federal project, the FHWA will also be notified for subsequent Federal action.
3. A Professional Engineer violating NRS 625 and NAC 625 of the Nevada State Board of Professional Engineers and Land Surveyors.

Additionally, fraudulent or deceitful acts of the Contractor may be subject to disciplinary action by the Nevada State Contractor's Board or criminal liability, pursuant to Nevada Revised Statutes including NRS 624.750 and 624.3016.

### 105.23 QUALITY CONTROL ADMINISTRATIVE INCENTIVE

The Quality Control Administrative Incentive is an amount the Contractor can earn by thoroughly administering the Quality Control Program. The amount earned by the Contractor will be paid as a lump sum on the first pay estimate following substantial completion. The actual amount earned will be the amount indicated for Bid Item number 105.01 in the Bid Schedule less any reductions for documented non-compliant items and non-compliant incidents.

Reductions from the Quality Control Administrative Incentive for failure of the Contractor to comply with administrative items are as follows:

1. Engineer Audits per Subsection 105.21 will be subject to a **\$100.00** reduction in the Quality Control Administrative Incentive Bid Item for each non-compliant item identified in each audit.
2. Program non-compliance will result in **\$300.00** per day per incident being withheld from the QC Administrative Incentive line item. Non-compliant incidents include the following:

Item	Description
A	Non-compliance to any portion of Sections 105, 106, and 111 through 117
B	Non-resolution of non-compliant items discovered in Quality Control Administration audits (in addition to 105.23 Item 1 above.)
C	Lack of or late submission of submittals
D	No pre-activity meeting
E	No 24-hour notification or less than 24-hour notification to QA inspector
F	No documentation of inspection
G	Use of non-compliant and/or un-approved materials
H	Use of an incorrect test method or improper execution of test method
I	Non-inspection
J	Not testing per required test frequency
K	Not using or missing "Hold Points"
L	Non-resolution of deficiencies and non-compliances within 10 days
M	Improperly submitted testing, inspection or monthly report(s)
N	Late submittal of testing, inspection or monthly report(s)

3. Costs incurred by Engineer for equipment and labor time of the county employees required to resolve deficiencies will be billed at the base overtime rate, including fringe benefits, equipment costs, and administrative costs. If the invoice is not paid within 30 days, the amount will be deducted from the next pay application due.
4. Costs incurred by Engineer for all costs related to use of consultant(s) time required to resolve deficiencies.

#### 105.24 PAYMENT OF QUALITY CONTROL ADMINISTRATIVE INCENTIVE

\$ XX.XXX.00 has been entered into the bid schedule under bid item number 105.01, "Quality Control Administrative Incentive." The bidder shall include this amount in the total base bid amount. The Contractor shall earn the total amount of the line item provided that the QC program has been adhered to and administered according to the Contract documents. The amount of the incentive line item, less reductions for non-performance, shall be paid to the Contractor upon the completion of all work and at the time of Substantial Completion as outlined in Section 108.14 "Contract Close-out Procedure."

Payment will be made under:

Pay Item	Pay Unit
Quality Control Administrative Incentive.....	LS



DEPARTMENT OF PUBLIC WORKS  
CONSTRUCTION MANAGEMENT DIVISION

BID NUMBER: \_\_\_\_\_  
PROJECT NAME: \_\_\_\_\_

UTILITY POTHOLE DATA SHEET

Pothole Number	Utility / Entity	Depth	Actual Elev	Size / Type	Description	Location	Conflict Yes / No

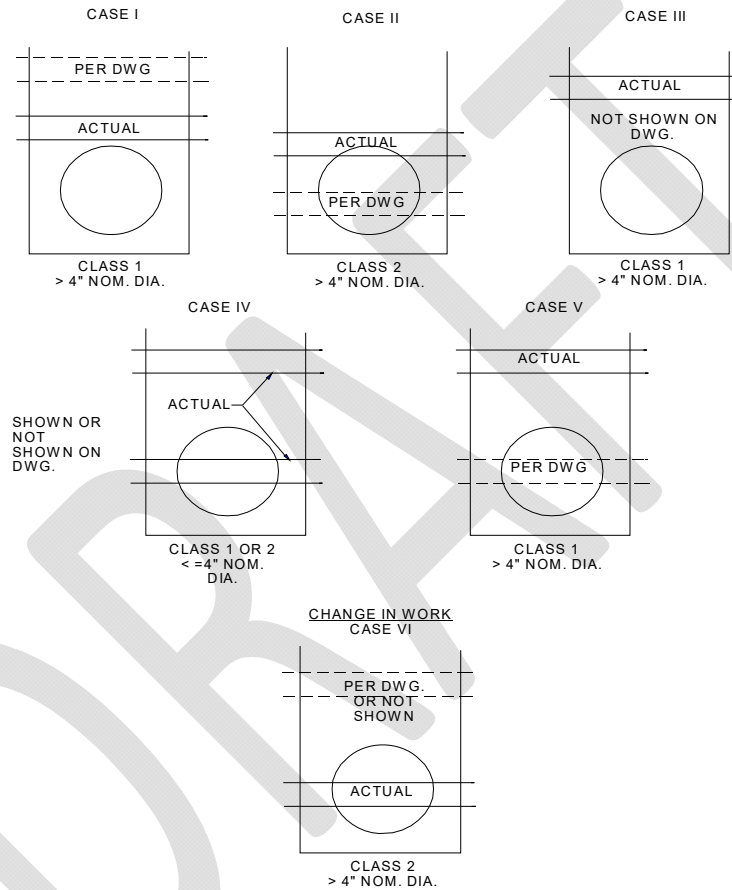
LEGEND

Entity	Utility Type
FAST	Com / FO = Communication
CCPW	W = Water
CCWRD	SS = Sanitary
CLV	SD = Storm Drain
CNLV	RW = Reclaimed Water
COH	Elec = Electrical
CBC	
LWWWD / NDOT	

PREPARED BY:

CONTRACTOR NAME: \_\_\_\_\_  
REPRESENTATIVE - PRINTED NAME \_\_\_\_\_  
REPRESENTATIVE - SIGNATURE \_\_\_\_\_  
DATE: \_\_\_\_\_

# CONSTRUCTION INTERFERENCES CONTRACTOR'S RESPONSIBILITY





**SECTION 106****CONTROL OF MATERIALS****106.01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS**

*Paragraph H is changed to read as follows:*

The Contractor shall furnish without charge such samples as may be required. Inspection and tests may be performed by the Engineer or his designated representative in accordance with subsection 105.20, but it is understood that such inspections and tests, if made at any point other than the point of incorporation in the work, in no way shall be considered as a guarantee of acceptance of such materials nor of continued acceptance of material presumed to be similar to that upon which inspections and tests have been made.

*The following subsections are added:*

**106.01.01 CONTENT OF SUBMITTED MATERIALS LIST**

Each individual material being submitted to the Engineer shall be submitted separately into Submittal Exchange using the appropriate contract document category accompanied by a Cover Sheet. The contents of the Cover Sheet shall include the following:

- Contractor's Name and Address, including Phone and Fax numbers
- Project Name
- Bid Number
- Package Number (Numbering shall be per Figure 1 below for listed items, all other items will use the bid item prefix as the Package Number.)
- Submittal Number (Sequential number inside of a particular Package)
- Revision Number (Sequential number for each re-submit)
- Intended Use (description of the specific use or uses of the material on the project)
- Indication of "Or Equal" or "Substitution" as appropriate
- Date
- Printed Name and Signature of Submitting individual

<b>Figure 1 Table of Submittal Package Number</b>		
<b>Section</b>	<b>Package Number</b>	<b>Description</b>
<b>100</b>		<b>General Items</b>
	100.01	SWPPP Permit
	100.02	NDPES Permit
	100.03	Air Quality Permit
	100.04	Rolling Stock Permit
	100.05	Emergency contact list
<b>103</b>		<b>Awards and Execution of Contract</b>
<b>105</b>		<b>Control of Work</b>
	105.01	QC Plan and Amendments
	105.02	QC Monthly reports
<b>107</b>		<b>Legal Relations and Responsibility to the Public</b>
	107.01	Property Owner Permission Letters
<b>108</b>		<b>Prosecution &amp; Progress</b>
	108.01	Schedules
<b>109</b>		<b>Measurement and Payment</b>
	109.01	Pay Estimates
	109.02	Force Account
<b>302</b>		<b>Aggregate Base Courses</b>
	302.01	Type II
<b>624</b>		<b>Accommodations for Public Traffic</b>
	624.01	Traffic Control Plans
<b>900</b>		<b>Project Closeout</b>
	900.01	QC File Turnover
	900.02	Punchlist Completion
	900.03	QC/QA Personnel Data Sheets
NOTE: All other items will use the bid item prefix as the Package Number.		

### 106.01.02 ACCURACY OF CONTENT

The Contractor shall attest that the content of the submitted materials has been reviewed against the Contract Documents, and that the materials are in compliance thereto. Back-up documentation for submitted materials that are to be evaluated as “Or Equal” or “Substitution” shall be reviewed for accuracy and sufficiency before the submittal is sent to the Engineer for evaluation.

**106.01.03 SUBMISSION OF MULTIPLE MATERIALS CONCURRENTLY**

A "Transmittal" or Cover Page shall accompany any group of two (2) or more submitted materials. The Transmittal shall include the following information:

- Contracting company name and address, including phone and fax numbers
- Project name
- Bid number
- Listing of submitted materials attached including package and submittal numbers
- Date
- Printed name and signature of responsible person in charge

**106.04 SAMPLES AND TESTS**

*Paragraph A of this subsection is changed to read as follows:*

Sampling for final acceptance of materials will be as required in the appropriate Uniform Standard Specifications sections, contract special provisions, and in general must comply with the AASHTO requirements, where applicable and with the following exception:

1. Aggregate for all plantmix bituminous mixtures (base or surface) will be sampled for acceptance at the plant.
2. Sampling of bituminous materials, intended for use in prime, tack or seal coats, surface treatments, shall be done after the bituminous material has arrived at job destination and before, or at the time of unloading the materials.
  - a) For binder used in mixes, two samples shall be taken from the plant mixer prior to introduction into the mixer by a NAQTC person of the Contractor or his designated representative under the observation of a NAQTC technician and per the requirements of AASHTO T 40. Where delivery is made in smaller hauling units than those cited above such as a distributor, or where the contents of a storage tank are sampled, the required two samples shall be taken to represent a maximum of ten thousand (10,000) gallons. The Contractor shall take the samples during the established job working hours, unless arrangements are made for a representative of the Contracting Agency to witness the taking of the samples at another time.
  - b) All sampling devices and sample containers shall be furnished by the Contractor of Material Source.
  - c) One of the two samples, taken from each load, shall be submitted to the Contractor's Material Source laboratory for testing as required per Section 703 and the other sample retained by the Engineer.
  - d) The Contractor shall furnish without charge such samples as may be required. Inspection and tests may be performed by the Engineer or his designated representative, but it is understood that such inspections and tests, if made at any point other than the point of incorporation in the work, in no way shall be considered as a guarantee of acceptance of such materials nor of continued acceptance of material presumed to be similar to that upon which inspections and tests have been made.

3. When the Engineer elects to take, or specifications require that samples be taken at a production plant, sampling of aggregates shall be by “belt cut” from a stopped conveyor or may be by mechanical sampling device built into the production plant. Any mechanical sampling device shall be approved by the Engineer prior to starting the respective phase of the project, or shall have been approved as part of a prior plant inspection by the Engineer or his representative. The sampling device shall be so constructed to provide for simultaneous “cutting” of the entire section of material being discharge or conveyed, and so constructed that small representative samples may be taken frequently and these samples combined to form the complete sample. The reference method for the procedure shall be a “belt cut” sample taken from a stopped conveyor belt.
4. Tests for the aforementioned materials produced under conditions other than contemplated herein shall be taken at the time and place deemed by the Engineer to be most appropriate.
5. Except as provided in Subsection 106.05, “Certificates of Compliance,” all materials will be inspected, tested, and accepted before incorporation in the work. Any work in which untested and unaccepted materials are used without approval or written permission of the Engineer shall be treated as provided in Subsection 105.12 “Removal of Unacceptable and Unauthorized Work.”
6. All field and laboratory testing technicians shall be Nevada Alliance for Quality Transportation Construction (NAQTC) certified, including ACI certification. Information regarding training, examinations and certification is available from the Nevada T2 Center/257, NAQTC, University of Nevada, Reno, 1664 N. Virginia Street, Reno, Nevada, 89557-0179.

*Add the following Section:*

## **SECTION 111**

### **CONTRACTOR QUALITY CONTROL ADMINISTRATION - GENERAL CONTRACTOR PROGRAM**

#### **111.01 GENERAL**

The Contractor Quality Control Program includes the following Sections:

- Section 111 Contractor Quality Control Administration –General Contractor Program
- Section 112 Contractor Quality Control Administration
- Section 113 Contractor Quality Control Organization and Qualification of Inspectors, Laboratories and Technicians
- Section 114 Contractor Quality Control Inspection Procedures
- Section 115 Contractor Quality Control Administration and Inspection Forms
- Section 117 Contractor Quality Control Testing

Program Documents: A written program does not have to be submitted if the Contractor performs the administration, testing, and inspection in accordance with this and other referenced sections. The only submittal required for approval for the quality control program itself is the personnel qualifications as listed in Section 113, "Contractor Quality Control Organization and Qualification of Inspectors, Laboratories, and Technicians."

Preparer's Note: The preparer shall contact the Construction Management Division for the type of project. For projects with minimal QC needs, use the following:

On this project, the QCM shall be allowed to provide testing and inspection; however the QCM shall not be involved in managing the project, or performing operations other than managing quality control. The QCM cannot be the superintendent.

This project is a size that does not require a Quality Control Coordinator (QCC) as described in Section 113, "Contractor Quality Control Organization and Qualification of Inspectors, Laboratories and Technicians," organization. However, the QCM shall coordinate the Quality Control functions as outlined in Section 113 for the QCC. The contractor shall submit for approval by the Engineer an organization chart indicating the position numbers and the persons responsible. The QCM must remain on the project full time.

The foreman shall not have quality control responsibilities and shall not be assigned as the Quality Control Inspector (QCI) inspector position.

Preparer's Note: The preparer shall contact the Construction Management Division for the type of project. For projects with significant QC needs, use the following:

On this project, the QCM shall not be allowed to provide testing, inspection, be involved in managing the project, or performing operations other than managing quality control. The QCM cannot be the superintendent.

The project is a size that requires a Quality Control Coordinator (QCC) separate from the QCM. The QCC and QCM shall be located on-site full-time. The descriptions of these positions are in Section 113.02. The contractor shall submit for approval by the Engineer an organization chart indicating the position numbers and the persons responsible.

The Quality Control Inspector (QCI) shall be a different person than the working foreman and shall be qualified in the discipline of construction being inspected. The certified inspector may also perform tests if they are certified with ACI or NAQTC. However, all work shall be continuously inspected. One inspector may be used at several locations if they are within a 5 minute walking distance. This will be identified and approved by the Engineer during the Pre-Activity Meeting for the specific activity.

## **111.02 SUBCONTRACTOR QUALITY CONTROL PROGRAMS**

In the event a Subcontractor has a Quality Control Program, the Subcontractor Quality Control Program shall provide, at a minimum, the requirements set forth in this specification, tailored to the Subcontractor's scope of work. The only point of contact for the Engineer is the Prime Contractor. Therefore, the QCM shall be on-site during any subcontractor work.

## **111.03 DEFINITIONS GENERAL**

The definitions given in this section shall be in conjunction with and/or in addition to the definitions given in the Uniform Standard Specifications. The definitions given herein shall not be construed to modify the definitions given in the *Uniform Standard Specifications* unless specifically stated within this section.

### **a. Authorized Manufacturer List:**

A list generated by the Engineer containing material sources that are "authorized" for production and thereby do not require Plant testing and inspection by the Contractor.

### **b. Control Measures:**

All actions taken to ensure that materials are in compliance with specifications, shall include but not be limited to submittal, testing, inspection, documentation, quantifying for testing and payment, vertical and horizontal control, as-built drawings and material tracking. The Contractor shall perform independent Control Measures from the Engineer's Quality Assurance to ensure that all elements of the project are within specifications.

### **c. Inspection:**

A control measure utilizing visual and manual methods shall be used to determine the quality of workmanship, material, or finished product. Inspections shall determine if all verifiable parts, practices, and products are in compliance with the Contract Documents.

All inspections shall be documented, and any deviations from Contract Documents shall be noted therein.

d. IQAC Materials List:

A qualified source list generated by the Interagency Quality Assurance Committee (IQAC) contains materials requiring an abbreviated submittal prior to incorporation into the work. Materials on the IQAC Materials List that are removed by IQAC before or during a project shall not be incorporated into the work. This does not eliminate the testing that is to be performed at the project site or of that for a non-authorized source.

e. Lot:

A Lot shall be one day's production, regardless of quantity produced. One day's production shall be considered as one continuous production run within one working day shift by the Source or Contractor from which the finished product was produced.

Examples of a Lot are as follows:

1. One "heat" or one continuous pouring from a caldron for reinforcing steel.
2. One day's production of a particular mix design of Asphalt Concrete regardless of tonnage quantity.
3. One "batch" of Portland Cement or Asphalt Cement (binder).
4. One day's production of a particular mix design of Portland Cement Concrete.

Lots may be composed of several sub-lots as provided by specification.

f. Qualified Source:

A Qualified Source is a source that has not been authorized and one that requires Plant testing and inspection.

g. Oversight:

The Contractor's supervisory personnel shall perform all daily inspection, supervisory oversight, and normal worker performance verification checks during production of the work. Oversight shall be documented.

h. Pre-Activity Meeting:

A meeting to coordinate the quality control, quality assurance, and work planning for a specific activity prior to its start. This formal meeting shall resolve all outstanding issues regarding submittals, inspection, testing requirements, elevation controls, safety, and work plan.

i. Quality Assurance (QA):

Quality Assurance shall be all Control measures taken by the Engineer to verify that the Contractor Quality Control measures, materials, and workmanship comply with Contract Documents.

j. Independent Assurance (IA):

Independent Assurance validates that Engineer's Quality Assurance and Contractor's Quality Control measures comply with the Clark County Public Works procedures and Contract Documents.

k. Quality Control (QC):

Quality Control shall be all measures taken by the Contractor to ensure that materials and workmanship are in compliance with the specification.

l. Testable Quantity:

The amount of work, material, or construction shall be quantified by the units used for the determination of testing frequency. Testing units and payment units may be different. For the purposes of this document all quantities shall be testable quantities.

m. Source:

Material manufacturing located outside of or on the project limits. Locations outside of the limits are named "Off-Site Sources," while on the project are named "On-Site Sources."

n. Submittal:

A submittal is a document that is transmitted to the Engineer in order to seek approval of a material or procedure, or as indicated in the Contract Documents.

#### **111.04 SCOPE**

These specifications listed in Subsection 111.01 are the specifications and references detailing the Quality Control Program and defining policies, elements, activities, and guidelines to ensure that the materials and workmanship in all construction projects conform reliably to the requirements for the approved plans and specifications. It has been developed in conformance with the criteria contained in Federal Regulation 23 CFR 637B, *Quality Assurance Procedures for Construction*.

CCPW's Quality Program represents the Department's recognition of its responsibility and commitment to ensure a high level of confidence in the materials, material sources, field and laboratory test results reported by Quality Control laboratories, and field testing personnel performing testing activities on CCPW projects. The Contractor is expected to be familiar with all aspects of inspection, testing, technician training and laboratory qualification program relating to their duties.



## 111.05 OVERVIEW

Federal Regulation 23 CFR 637B allows the traditional approach of CCPW performed Quality Assurance sampling and testing for acceptance and the option of using material source or Contractor Quality Control sampling and testing results for acceptance, provided adequate verification is in place. In conformance with these regulations the CCPW Quality Control Program was created implementing a schedule of activities to cover construction installation, laboratory operations, testing personnel competency, source production inspection, and material source authorization program with the goal of using the Contractor data for verified acceptance. The Quality Assurance program provides for four areas of assurance:

Area 1: Qualifying Laboratories and Testing Personnel.

This ensures that technical personnel are capable of performing the tests properly and that the applicable testing qualifications have been met. This level also ensures that testing laboratories are properly accredited.

Area 2: Independent Assurance Program (IA).

This level ensures that the QA and QC functions of the program conform to their respective Quality Special Provision sections and 23 CFR 637B. Additionally, the IA is responsible for the validation of the qualification/certification of inspection and testing personnel along with accreditation of laboratories used in the Quality Control/Quality Assurance Programs.

Area 3: Material Source Quality Program.

Option 1: Qualified Source - This level ensures the quality of the material through acceptance sampling, testing, and inspection performed by the Contractor.

Option 2: Authorized Source - This level ensures the quality of the material through inspection and verification of the material source QC Plan and its application and/or inspection of the source facility itself by the Engineer. The Contractor performs Quality Control inspection and testing of materials placed from the Authorized Source at the project location. For **federally funded** projects, there are no Authorized Material Sources. The Contractor is required to test and inspect the material source as per Table 1 on the Website link at [http://www.clarkcountynv.gov/Depts/public\\_works/construction\\_mgmt/Pages/Materials.aspx](http://www.clarkcountynv.gov/Depts/public_works/construction_mgmt/Pages/Materials.aspx) and/or according to other requirements in the contract documents.

Area 4: Construction Inspection and Testing Program.

This program ensures the workmanship of materials incorporated into the CCPW project contract through inspection and testing by Contractor QC with Quality Assurance by the Engineer.

The CCPW Quality Program requires QA verified QC test results as part of the acceptance decision. The program also allows for the use of test results obtained by non-CCPW agencies and laboratories in the acceptance decision provided they meet the following:

- (a) Qualified personnel through qualified laboratories have performed the sampling and testing.
- (b) The quality of the material has been validated by verification sampling and testing.
- (c) The appropriate Quality Assurance Auditing activities have been conducted in a satisfactory manner.

#### **111.06 QC RESPONSIBILITY**

The Contractor is responsible for the quality of all material properties and workmanship. This specification is intended to quantify the minimum requirements for acceptance of materials and establish a minimum standard for the control of quality within a project. The Contractor shall use this specification, as a minimum, for the basis of their Quality Control.

The Contractor's Quality Control shall provide evidence that all items have been submitted, tested, inspected, and accepted. Further, the Contractor shall track the usage of all materials on the project. The Contractor shall document each of these aspects independently as required herein, regardless of testing, inspection, Quality Control measures and/or Quality Assurance measures historically performed by any agency. Any testing, inspection, Quality Control measures, or Quality Assurance measures that are performed by an agency, will not be considered as part of the Organization's Quality Control. Compliance with the frequency of testing, inspection, and Quality Control measures required in this specification shall be independent of any compliance measures taken by any agency.

The Contractor is required to measure and reach agreement on "testable quantities" with the Engineer daily. "Partial" quantities and "completed" quantities for payment purposes only, shall be agreed upon by both parties, and shall not include in-part or in-whole any materials which will require subsequent testing prior to acceptance.

#### **111.07 ACCEPTANCE**

The Engineer will provide Quality Assurance for the verification of the Contractor Quality Control for the acceptance of the construction materials and installation.

The acceptance is also based upon the program compliance and is subject to the reductions listed in Section 105 Quality Control Administrative Incentive.

#### **111.08 CONTRACTOR CONTRACT ADMINISTRATION - GENERAL**

The Contractor may have internal administration of the Contract that is not contained in this section. This section only specifies those Contract Document processes that are submitted to the Engineer for Quality Control Purposes.

#### **111.09 ORGANIZATION - GENERAL**

The minimum organization staffing and qualifications are described in Section 113, "Contractor Quality Control Organization and Qualification of Inspectors, Laboratories and Technicians. The contractor shall submit for approval by the Engineer an organization chart indicating the position numbers and the persons responsible.

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## **SECTION 112**

### **CONTRACTOR QUALITY CONTROL ADMINISTRATION**

#### **112.01 GENERAL**

The administration of the Contractor Quality Control Program (QC) shall comply with the minimum requirements as established in this section. This section includes descriptions of all the control measures that are applicable to the QC documentation process. A written program does not have to be submitted if the Contractor performs the administration in accordance with this and other referenced sections. The only submittal required is the personnel qualifications as listed in Section 113 “Contractor Quality Control Organization and Qualification of Inspectors, Laboratories, and Technicians”. All documents that are required through the course of the work shall be submitted to the Engineer.

#### **112.02 ADMINISTRATIVE OUTLINE**

- 112.03 Organizational Processes
- 112.04 Documentation Process – General
- 112.05 File Maintenance
- 112.06 Project Filing System
- 112.07 Submittal Tracking
- 112.08 Deficiency Tracking and Resolution
- 112.09 Conflict Resolution Process
- 112.10 Certification and Material Delivery and Tracking Procedure
- 112.11 Activity Cards and Control Measures
- 112.12 Tracking Responsibility
- 112.13 Field Testing
- 112.14 Daily Reporting
- 112.15 Monthly Reporting
- 112.16 Final Reporting
- 112.17 QC Auditing Procedures
- 112.18 Sample Retention

#### **112.03 ORGANIZATIONAL PROCESSES**

The Contractor shall follow the organizational chart as indicated in Section 113 “Contractor Quality Control Organization and Qualification of Inspectors, Laboratories, and Technicians.” The descriptions of the positions are generalizations of requirements. Additional requirements for a given individual may be further defined in other Special Provisions to the Contract.

#### **112.04 DOCUMENTATION PROCESS - GENERAL**

The Contractor is responsible for the execution and maintenance of the project file system, which shall be maintained in Submittal Exchange or approved equal.

The Contractor has the responsibility for documenting the QC process. All documentation and records generated at the field level or laboratory shall be uploaded per the turn-around times listed in Table 2. The QCM shall review the documents for Contract compliance and notify the Engineer of any deficiencies within 24 hours of uploading the following:

1. Records generated by the Contractor laboratory or an outside laboratory.
2. Records generated by the Contractor Site Inspector.
3. Records generated by Material Sources.

#### **112.05 FILE MAINTENANCE**

The maintenance of the documentation shall comply with the following:

1. Be legible, identifiable, and retrievable.
2. Retain handwritten original documents until transmitted to the Engineer at substantial completion.

#### **112.06 PROJECT FILING SYSTEM**

The QCM or designee shall identify, with approval of the Engineer, the central location for filing and storage of all project documentation that is not contained in Submittal Exchange (or approved equal). Storage shall be throughout the duration of the project.

The project file system shall include the following:

1. Hotmix Placement Log.
2. Concrete Placement Log.
3. Contractor Internal Audits.

#### **112.07 SUBMITTAL TRACKING**

Submittal tracking shall be performed by the QCM. Submittals that are specification substitutions shall be so identified with written justification by the Project Manager.

##### **Submittal Process**

1. The QCM shall take the following steps:
  - a. Generate and attach a Submittal Cover Sheet.
  - b. Upload the submittal.
2. The Project Manager shall review and approve the QC Submittal content and verify against specifications.
3. The Project Manager shall release the submittal to the Engineer.

## Reviewing Returned Submittals

1. The QCM shall determine the status of the submittal and take appropriate action.
  - a. "No Exceptions Taken"
    - 1) Forward copies to appropriate vendors, subcontractors or suppliers.
  - b. "With Corrections Noted"
    - 1) Verify that the corrections are clear.
    - 2) Forward copies to appropriate vendors, subcontractors or suppliers.
  - c. "Amend and Resubmit"
    - 1) Notify the Project Manager who will obtain or create a revised submittal.
    - 2) The re-submittals shall use the same initial log ID number. The Revision number shall progress sequentially for each additional "Resubmit."
  - d. "Rejected"
    - 1) Notify the Project Manager who will obtain or create a new submittal.
    - 2) These submittals shall be given a new log ID number and treated as a new submittal.

## 112.08 DEFICIENCY TRACKING AND RESOLUTION

This subsection shall define the procedures required to accurately identify, track, and resolve project deficiencies.

### 1. Deficient Work (Deficiency)

Deficient work is defined as work that is not in accordance with Contract Documents as identified by QC personnel.

### 2. Non-Conforming Work (Non-Compliance)

Non-compliant work is defined as work that is not in accordance with Contract Documents as identified by QA personnel.

### 3. Informational Tests

In order to control failing QC inspections and/or testing, the Contractor may perform "informational testing."

The informational testing that is performed shall be in addition to the minimum testing required by the Contract Documents. Passing informational test(s) which represent the work being performed may be submitted as part of the minimum testing required by the Contract Documents and approved QC Program, only if the Engineer was given proper advance notification of the testing. Informational testing is not required to be submitted to the Engineer as part of the QC documentation but shall be made available for review at the Engineer's request.

#### 4. Tracking Responsibility

The QCM shall review all Activity Cards daily for New and Resolved Deficiencies.

- a. When New Deficiencies are found that were resolved on the same day, do not log them on the Deficiency Log. (No further action shall be required for these items.)
- b. When New Deficiencies are found that are not Resolved on the same day, log them on the Deficiency Log including the following information:
  - 1) Sequential Deficiency Log ID Number
  - 2) Reference QC Activity Card Number
  - 3) Date of Deficiency
  - 4) Material ID Number
  - 5) Written description of the deficiency

The QCM or designee is responsible for transferring deficiencies from the log to the applicable activity cards.

The QCM is responsible for deficiency resolution documentation. Following the resolution, the corrective action and resolution shall be documented on the deficiency log and the deficiency noted as corrected.

#### 5. Deficiency Reporting

The QCM shall review the Deficiency Tracking Log for outstanding Deficiencies and report them at the Weekly Progress Meeting.

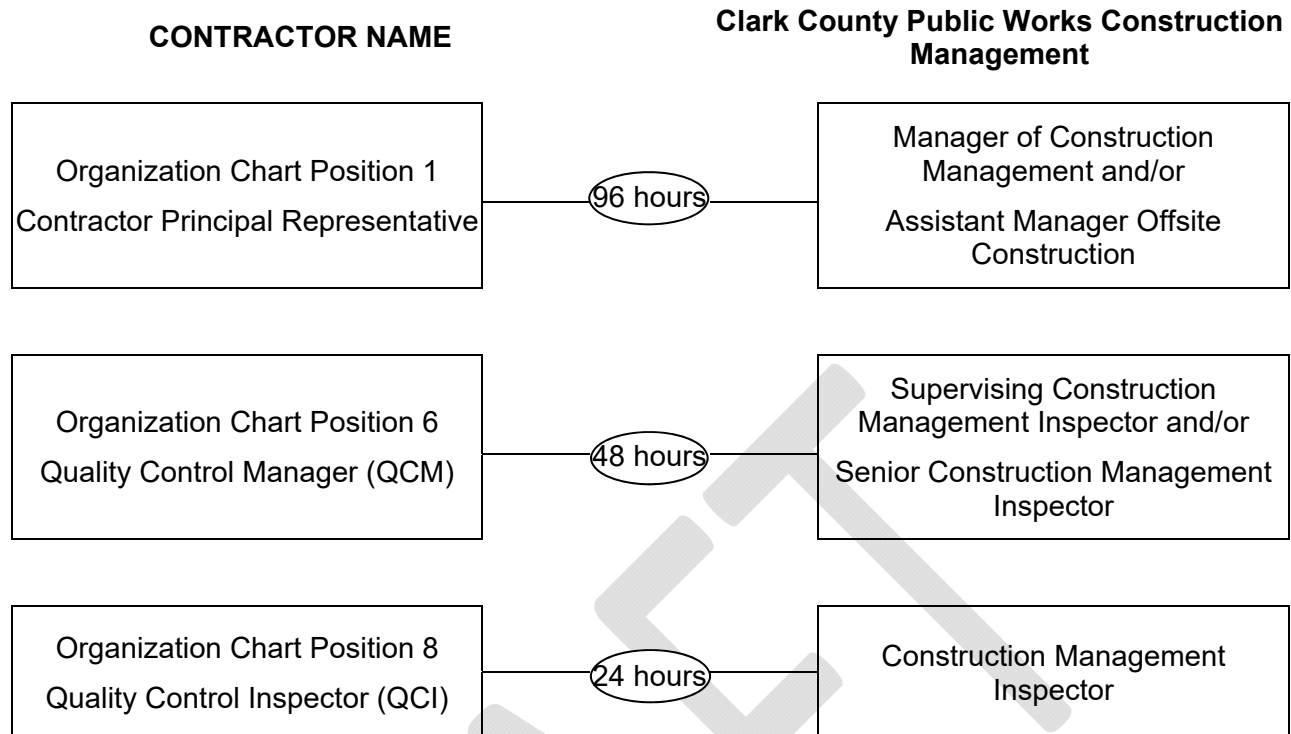
#### 6. Deficiency Resolution

The Engineer will review resolutions initiated by the Contractor and where engineering properties or design are involved, the Contractor shall have the resolution reviewed by a Nevada Professional Engineer at the Contractor's expense.

Resolutions may only be approved by the Engineer. The Engineer has the right to not approve the resolution.

### 112.09 CONFLICT RESOLUTION PROCESS

Conflict resolution shall be accomplished collaboratively in that there shall be levels of authority, time frames of resolution, and a correspondence between the Contractor and QA employees as outlined in the chart below. Every effort shall be made to resolve conflicts at the lowest possible level. The example chart depicts the resolution process for "deficient and non-compliant work."



The above chart is used as a process to follow whenever there is disagreement between Contractor Quality Control and Engineer Quality Assurance inspection and/or test results. Only the top tier has the authority to accept the resolution of deficient or non-compliant work. The bottom and middle tiers show the time allowed to escalate any conflict or disagreement regarding the resolution of deficient or non-compliant work.

Third party inspections and/or testing may be proposed under the following conditions:

1. The third party shall be a separate independent laboratory, meeting the minimum qualifications set forth for laboratories on the project and not performing any additional work for the Engineer, Contractor, Subcontractors, and/or Suppliers on or for the project.
2. The third party shall be agreed to by both the Contractor and the Engineer.
3. Costs for the third party testing shall be as follows:
  - a. Initial inspection or test for the disputed work in question shall be included as part of Contract Documents, paid for by the Contractor.
  - b. If the third party's inspection and/or test results reflect Engineer results, Contractor shall pay for any additional inspection(s) or testing performed by the third party after the initial inspection or test.
  - c. If the third party's inspection and/or test results reflect the Contractor results, the Engineer shall pay for any additional inspection(s) or testing performed by the third party after the initial inspection or test.



### **112.10 CERTIFICATION AND MATERIAL DELIVERY AND TRACKING PROCEDURE**

Logs shall be established for the purpose of tracking materials that are delivered to or generated from the project. The logs shall be maintained by the QCM within Submittal Exchange (or approved equal) and updated daily. The accompanying certifications shall be uploaded and numbered relative to the log.

The QCM shall be responsible for generating and completing delivery-tracking documentation.

The documentation of the lot, or other identifiable information, relative to the item and the date of installation documented by the QCM shall serve as evidence of the location of the delivered material upon incorporation into the project. For non-authorized sources, the tests per lot shall be attached to the certificate.

The QCM shall:

1. Complete the Materials Delivery documentation.
2. Track materials until incorporation into the work.
3. Ensure that all materials are noted on the Materials Tracking Log.
4. Resolve certification problems.

When a certification is not presented with the delivery, the QCM shall obtain the document prior to material installation.

The individual material tracking logs shall be completed and uploaded daily in Submittal Exchange (or approved equal). Copies of these tracking logs are available at the link shown below:

[http://www.clarkcountynv.gov/Depts/public\\_works/construction\\_mgmt/Pages/Materials.aspx](http://www.clarkcountynv.gov/Depts/public_works/construction_mgmt/Pages/Materials.aspx)

The sample log ID number shall be the Contract project sequential number, not an independent numbering system supplied by the laboratory. A separate column may be added for a cross-reference if a laboratory number is needed.

### **112.11 ACTIVITY CARDS AND CONTROL MEASURES**

The QCM shall ensure that the Advance Notification and Activity Cards are in conformance with the procedures in Section 114, "Quality Control Inspection Procedures," and shall establish the guidelines and processes utilized with respect to Advance Notification and QC Activity Cards. The QCM is responsible for verifying that all documentation on the QC Activity and Advance Notification Cards is in compliance with this program before being presented to the QA Representatives for "sign-off" and closeout of the activity.

The activity cards shall only be signed by the QCI and Quality Assurance Inspector (QAI) who was directly responsible for observing the activity.

### 112.12 TRACKING RESPONSIBILITY

The QCM shall be responsible for logging and tracking deficiencies on the QC Activity Card. Constant comparison against the deficiency log shall ensure no deficiency is left unresolved.

The QCM shall document deficiencies that are new or have been cleared for each item relative to each activity. Every effort shall be made to resolve deficiencies as soon as possible but no later than 10 days after occurrence. If deficiencies are resolved over 10 days after occurrence they are subject to a deduction per the Quality Control Administrative Incentive in Section 105. No work shall proceed that will negatively affect the resolution.

Section 2 of the QC Activity Card is used for documenting existing deficiencies associated with the activity listed in Section 1 of the QC Activity Card. If no deficiencies exist or occur for the activity, the QCM shall check-off and initial this section. If deficiencies do exist, the lower area of this section shall be completed. Each material number shall be verified against outstanding deficiencies.

### 112.13 FIELD TESTING

The QCM utilizing the QC testing frequencies as indicated in Table I located on the Webpage at [http://www.clarkcountynv.gov/Depts/public\\_works/construction\\_mgmt/Pages/Materials.aspx](http://www.clarkcountynv.gov/Depts/public_works/construction_mgmt/Pages/Materials.aspx) shall verify the test methods, frequency of the tests, and the planned number of tests to be taken for each material used in the respective activity as designated by the author of the Activity Card.

The tests are subject to a testing turn-around time as designated in Table 2 on the Webpage at [http://www.clarkcountynv.gov/Depts/public\\_works/construction\\_mgmt/Pages/Materials.aspx](http://www.clarkcountynv.gov/Depts/public_works/construction_mgmt/Pages/Materials.aspx).

Check the box on the table for which tests are performed either in-house or contracted. This form is to be submitted at the beginning of the project. When the test result is submitted after the durations shown in Table 2, a deduction per test method will be made to the contract per the Quality Control Administrative Incentive in Section 105.

The QC Inspector, in the appropriate space provided on the QC Activity Card, shall document the actual number of tests taken on each material. The activity card must indicate the quantity and frequency of the tests.

The quantity of material to be tested is the numerical amount of material actually available or “ready” for testing shown in units defined in Table 1 relative to the frequency of the material and based on the stationing information documented on the card.

The QCM shall verify all necessary calculations to ensure the number of tests performed meet the required number. All minimum test numbers calculated shall be rounded up.

In the event that multiple lifts of material are represented or given that the testable quantity shown on the QC Activity Card is not readily identifiable with documented stations and dimensions, appropriate documentation and/or calculations shall be provided on the QC Activity Card to facilitate easy verification of the testable quantity. This process allows the technician to show documentation for the entire amount of material represented without documenting repetitive entries.

The QC Activity Cards and testable quantities shall not be used for compilation of the monthly pay estimate or for bid item payment tracking.

The test numbering shall be sequential for the entire project. If a test number is missing, it needs to be accounted for by the QCM.

The testing for each day must be verified by Quality Assurance testing. Both data sets, including failing tests that have not been re-tested, will be statistically verified by QA.

If the data cannot be verified, the conflict resolution procedure must be implemented as outlined above which may include retesting.

#### **112.14 DAILY REPORTING**

The QC Activity cards with the inspection forms and daily reports attached plus any field tests shall be used to satisfy the requirements of this subsection. The QC Activity card, completed and signed off, shall serve as the daily summary of activities on the project for the relative item(s). This shall include the transfer of any deficiency items to the tracking log.

#### **112.15 MONTHLY REPORTING**

The QCM shall be responsible for uploading the monthly report by the 15<sup>th</sup> of each month to Submittal Exchange (or approved equal).

The monthly summary submitted by the QCM shall include the following:

1. A cover letter prepared by the QCM verifying that the summary has been reviewed. The letter shall note new deficiencies, cleared deficiencies and deficiencies that require action.
2. A cover letter for each laboratory stamped by the Nevada P.E. in responsible charge certifying that all field laboratory testing was performed correctly, and that the corresponding data is accurate as required by NAC 625.612. This certification shall be attached to the monthly submittal. Additional P.E. stamped letters shall accompany the monthly summary to indicate a P.E. level review and acceptance of the information provided by each laboratory.
3. Field Test Result Summary which shall indicate all field test procedures and results performed during the reporting period. Items and tests shall be summarized by type.
4. Field Density Test Result Summary indicating all pertinent information generated during all field density testing,
5. Laboratory Test Result Summary indicating all laboratory test procedures and results performed during the reporting period. Items and tests shall be summarized by type.
6. Laboratory Concrete Break Result Summary facilitating brief analysis of critical concrete strength data. Items shall be summarized by cylinder set numbers.
7. Laboratory Aggregate and Soils Result Summary indicating all gradation test procedures performed during the reporting period.
8. Deficiency log.
9. Testable Quantity Summary that shall indicate total month and to-date counts of tests performed relative to the testable quantities and to-date testable quantities.

10. The most current AASHTO Re:source (formerly AMRL) or CMEC accreditation status for the laboratories referenced in the report from the AASHTO Re:source (formerly AMRL) or CMEC website. <http://www.aashtoresource.org/> or <http://www.cmec.org/>.
11. A list of the certified technicians and inspectors that were working at the referenced laboratories or in the field for the project during that reporting period.

### **112.16 FINAL REPORTING**

A final summary report shall be generated in accordance with Subsection 112.15 "Monthly Reporting" and shall not be submitted until such time as all deficiencies have been resolved and a close-out audit has been performed.

### **112.17 QC AUDITING PROCEDURES**

The QCM is responsible for performing internal audits. Results shall be submitted to the Engineer on a monthly basis.

Specific items or topics of the program that will be evaluated include:

1. Advance Notification Cards Logs - 24-hour notice being given;
2. Pre-Activity Meetings Logs;
3. Activity Cards Logs - accurate, correct, and complete on a daily basis;
4. Materials Tracking Log;
5. Sampling and Testing completed with tracking information and results;
6. As-built drawings being updated monthly;
7. QC documentation and overall program is being implemented effectively;
8. Documentation for resolution of Deficiencies/Non-Conformances Logs correct and complete.

Items that are found to require corrective measures shall be noted in the remarks section of the audit form. The QCM shall ensure corrective measures are taken and comply with the program. A follow-up audit limited to items that need correcting shall occur within one week.

### **112.18 SAMPLE RETENTION**

All samples are to be retained until the project is complete. The sample size shall be such that the required testing could be performed. A sample shall also be submitted to the QA Section laboratory. The Contractor QCM shall be responsible for ensuring the sample is of the appropriate size and that it is stored properly at a location approved by the Engineer.

The materials to be retained are:

1. Asphalt cement, two quarts.
2. Materials with failing results.
3. Materials in dispute.

*The following Section is added:*

## **SECTION 113**

### **CONTRACTOR QUALITY CONTROL ORGANIZATION AND QUALIFICATION OF INSPECTORS, LABORATORIES AND TECHNICIANS**

#### **113.01 GENERAL**

This section describes the minimum Contractor Quality Control Organization indicating chain of command and position descriptions. Depending on the size of the project, all of the positions may not be required. The contractor must submit the QC Organization to the Engineer for approval prior to the beginning of the work.

The Qualifications, Scope of Work and Responsibilities, Communication, and Reporting for each position are related to the execution of the Project Quality Control Program only. Other roles, responsibilities, and reporting requirements may be required by the Engineer in the Contract specification; however, this Program does not address those roles or responsibilities, nor is it intended to diminish their intent.

#### **113.02 ORGANIZATION**

The minimum chain of command positions are titled as follows:

- Position 1 - Contractor Principal Representative
- Position 2 - Project Manager
- Position 3 - Superintendent
- Position 4 - Trades Foreman
- Position 5 - Quality Control Professional Engineer (PE)
- Position 6 - Quality Control Manager (QCM)
- Position 7 - Quality Control Coordinator (QCC), if required in Section 111
- Position 8 - Quality Control Inspector (QCI)
- Position 9 - Quality Control Field Testing Technician (QCFT)
- Position 10 - Quality Control Laboratory Testing Technician (QCLT)

Qualifications and experience requirements are provided for each QC position. The minimum experience requirements for selected positions are described in the following paragraphs.

The Contractor shall complete the organizational/communication chart (Chart 1) naming each individual assigned to each position. The same individual may not be named for multiple positions except that Positions 5 and 6 may be the same individual and Positions 8, 9 and 10 may be the same individual.

**Position 1:** The Contractor Principal Representative shall be a “qualified employee” as defined by the Nevada State Contractor’s Board.

**Position 2:** The Project Manager is in overall charge of the planning and execution of the project and may provide direction to the Superintendent(s).

Position 3: The Superintendent is as defined in Section 101.

Position 4: The Trades Foreman is in charge of a crew and/or a specific area of work.

Position 5: The QC Professional Engineer who is in responsible charge of the testing and/or inspection shall be a Nevada State licensed Civil Professional Engineer, with a minimum of five (5) years of experience in construction materials and inspection. All shall have the ability to speak and read English and read and understand construction Drawings and Specifications.

Position 6: The Quality Control Manager (QCM) shall be a quality control project manager having a minimum of five (5) years of experience in managing the type of construction implemented on the Contract. The QCM shall be a quality control person and not be a member of the Contractor construction production or related administration staff. All QC personnel shall report to the QCM. The QCM shall report to the QC Professional Engineer who is in responsible charge. The production staff shall have no influence or direction over QC positions. All QC personnel shall have the ability to speak and read English and read and understand construction Drawings and Specifications. The QCM shall have stop work authority.

Position 7: The Quality Control Coordinator (QCC), if required per Section 111, is a quality control administrator who ensures that the documents are coordinated in all levels of the project with either a minimum of two (2) years of experience in this type of work or with evidence in the resume showing the ability to coordinate documents. The QCC is not an alternate QCM and shall not act on behalf of the QCM in any capacity. The QCC shall have the ability to speak and read English and read and understand construction Drawings and Specifications.

Position 8: The Quality Control Inspectors (QCI) shall be certified and have a minimum of three (3) years of experience in the inspection of the particular type of construction work they are performing. The certification shall be from a nationally recognized association or when approved by the engineer, an interview by the Clark County Public Works construction division. The inspectors shall have the ability to speak and read English and read and understand construction Drawings and Specifications.

Position 9: The Quality Control Field Testing Technicians (QCFT) perform quality control field testing, as per Table 1. The QCFT provides reports to the PE, QCM and/or QCI.

Position 10: The Quality Control Laboratory Testing Technicians (QCLT) perform quality control laboratory testing, as per Table 1. The QCLT provides reports to the PE.

The Contractor quality control material sampling and testing shall be performed by a Nevada Alliance for Quality Transportation Construction (NAQTC) or Western Alliance for Quality Transportation Construction (WAQTC) certified technician. Concrete sampling and testing shall be performed by an American Concrete Institute (ACI) certified technician.

Resumes of all QCM, QCC, PE, inspection, and material testing personnel shall be submitted to the Engineer. The Contractor shall verify that qualifications of each employee match those required by the position that individual will hold and will be valid for the duration of the project. If the personnel are required to be recertified during the Contract duration, the Contractor shall indicate those personnel and the process for ensuring that the recertification is accomplished.

If during the progression of the contract the personnel are not performing their contract duties, they shall be removed from the project.

All QC personnel shall have demonstrated competence in their respective work area.

When multiple QC Inspectors are used, the individuals allowed to inspect a specific item within the work will be identified and be present during the Pre-Activity Meeting.

The acceptance of the work is by the Engineer using the Engineer's inspection and the QC information provided by the contractor.

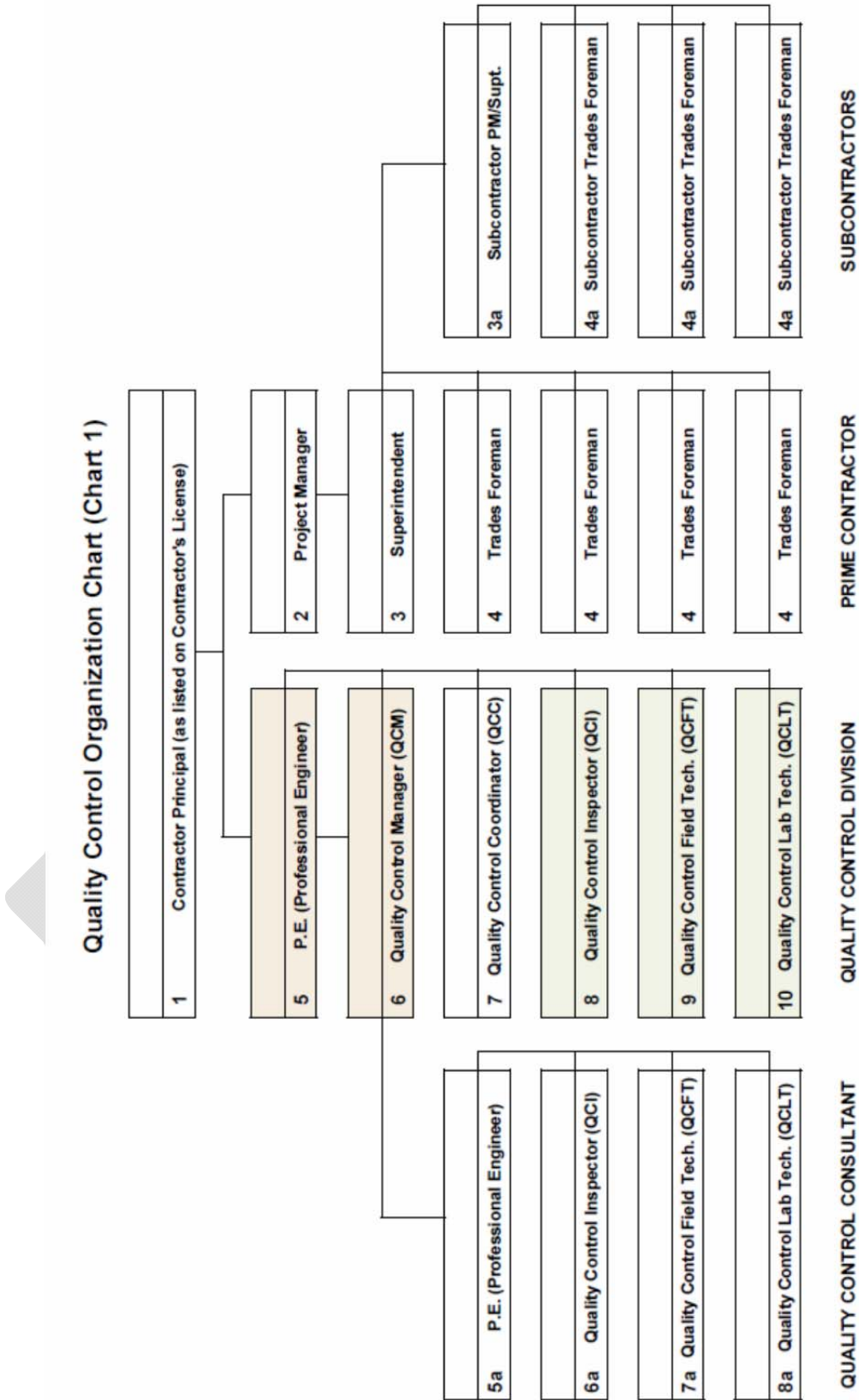
### **113.03 LABORATORIES**

All laboratories including both the field and lab, whether primary or subcontracted, shall be AASHTO R18 accredited. Additionally laboratories shall hold certification for ASTM D 3666 (Asphalt Concrete and Aggregates), D 3740, C1077 or any other certification as required by the contract. Accreditation shall be through AASHTO Re:source (formerly AMRL) or CMEC.

For laboratories with multiple facilities, the Contractor shall identify the location of the lab providing the service. This information is project specific for the actual work that will be performed.

Separate laboratories may be used in conjunction with the Primary QC Laboratory. Prior to their use, the Contractor shall provide a submittal for each QC Laboratory. The approved submittal will then be added to the QC program as an amendment.

With the exception of "chemical testing" (i.e. binder, cement), QC Laboratory reviewing personnel are required to be Professional Engineers (P.E.s) registered in the State of Nevada and in responsible charge of the work, regardless of whether the QC Laboratory utilized is primary or secondary.





*The following Section is added:*

## **SECTION 114**

### **CONTRACTOR QUALITY CONTROL INSPECTION PROCEDURES**

#### **114.01 GENERAL**

The Inspector shall be qualified as required in Section 113, "Contractor Quality Control Organization and Qualification of Inspectors, Laboratories and Technicians," or as stated in other Contract Documents.

These inspections and tests include, but are not limited to, qualification tests, factory fabrication and verification tests, material and pre-operational checks/tests, site construction, installation, and testing.

Inspection, process oversight, and testing of items under construction shall be performed for work activities as required in the Contract Documents and at the frequency referenced in the specifications.

A combination of inspection, testing and process oversight shall be performed in a systematic manner to ensure the specific requirements for control of the process and quality of the item are being achieved throughout the duration of the process.

Inspection, oversight, and test results shall be documented in accordance with the Quality Control (QC) Program requirements in Section 111 "Contractor Quality Control Administration – General Contractor Program". Inspection results shall be evaluated and the acceptance determined by the Engineer.

Modifications, repairs or replacement of items subsequent to final inspection shall be re-inspected and/or retested to verify acceptance.

#### **114.02 SECTION 114 OUTLINE**

The following are described in this section:

##### **114.03 Organization**

##### **114.04 Inspection Process**

- 114.04.01 Pre-Activity Meetings
- 114.04.02 Advance Notification Cards
- 114.04.03 Quality Control Activity Card Process
- 114.04.04 Sampling and Testing
- 114.04.05 Inspection(s) and Testing
- 114.04.06 Hold Point Processes
- 114.04.07 Material Inspection
- 114.04.08 Elevation References

##### **114.05 Field Problem Identification and Reporting Process**

##### **114.06 Deficiency Tracking Responsibility**

##### **114.07 Blank**

##### **114.08 Contractor's Daily Report**

### 114.03 ORGANIZATION

The organization is based on Section 111 which identifies the minimum levels for communication and delegation for the Quality Control (QC) program.

### 114.04 INSPECTION PROCESS

The Contractor's inspection program shall utilize an inspection plan outlined as follows:

#### 114.04.01 PRE-ACTIVITY MEETINGS

For the first start-up of any item of work or in the change of a crew for the same work, a meeting shall be conducted with all persons involved. The meetings shall be held to discuss all quality control and operational aspects of proposed activities. Meetings shall be held for all work activities regardless of size or scope and may be held under special requests made by the Engineer.

The information outlined herein shall be relayed during the daily course of the project and through any periodic progress meetings. However, formal Pre-Activity Meetings shall be held as activities begin for a period of unbroken time. The Pre-Activity Meeting is intended to be held at the actual location of the work. The Pre-Activity Meeting shall be held within one week of the first item of work on the shift that the actual work shall begin. The Contractor shall provide a minimum of two days' advance notice prior to the meeting being held. Longer notice shall be required for multi-jurisdictional projects.

The Quality Control Manager (QCM) shall facilitate the meetings at the project level.

Documentation of the meetings shall be provided in the form of voice recordings and/or written documentation. A copy of the documentation (written and/or recorded) shall be uploaded to Submittal Exchange (or approved equal) within one shift of the meeting. The meetings shall document the following items:

- Description of work to be performed
- Attendees
- List of materials
- Ensure that all submittals are approved
- Verify that no outstanding deficiencies exist for work that led up to this activity
- Review plans, specifications, and procedures that apply
- Review all change documents (CCAs, RFIs, etc.)
- List of control measures and responsible parties
- Discussion of acceptance criteria
- Hold points
- Particular items of interest to the Engineer
- Discussion of off-site and on-site QC responsibilities
- Itemize frequency of inspection and testing
- Traffic control and safety issues
- Quality Assurance (QA) expectations
- List any "extra care items" (i.e., manufacturers' specifications)
- Discuss "What do we do when something goes wrong?"
- Discuss "Ways to maintain proper notification."

The following individuals are required to attend the Pre-Activity Meeting for work that they perform:

- QCM
- QCC
- QC Inspector
- QA Inspector
- Superintendent
- Responsible activity foreman
- IA if required by the activity

#### **114.04.02 ADVANCE NOTIFICATION CARDS**

The Contractor shall utilize the Advance Notification Card in the example forms to schedule all activities.

Advance Notification Cards must be submitted/uploaded one full working day (a minimum of twenty-four (24) hours) in advance of beginning the activity. Any exception will result in a reduction from the Quality Control Administrative Incentive item.

The Contractor is required to specify the start times for each inspection or testing activity on the Advance Notification Card. This start time is when Quality Control begins their inspection/testing. QC must allow QA to witness all control measures in person. QA will inspect or test concurrently as access and availability allow.

#### **114.04.03 QUALITY CONTROL ACTIVITY CARD PROCESS**

QC Activity Cards, as exemplified in Section 115, will not be required when activities do not necessitate testing or inspection to be performed.

The QCM is responsible for verifying all documentation on the QC Activity and Advance Notification Cards is in compliance with this program before being presented to the QA Representatives for “sign-off” and closeout of the activity.

The QCM shall use the following guidelines for QC Activity Card identification and logging:

- QC Activity Cards shall be issued a sequential number to uniquely identify it with the activity and for only one activity much like a crew card.
- QC Activity Cards uploaded in the same sequence as numbered above to the QC Activity Card Log as described in Section 112.

The QC Activity Card with applicable test and inspection observation reports results shall be delivered to QCM prior to being uploaded.

##### **A. Activity Card Section 1 – Actual Work Performed**

Used to document the actual work performed for the activities listed. Locations shall be listed to correlate with the type of work performed.

#### B. Activity Card Section 2 – Deficiency Check

Used for documenting existing deficiencies associated with the activity listed in Activity Card Section 1 – Actual Work Performed. If no deficiencies exist or occur for the activity, the top section shall be checked-off and initialed. If deficiencies do exist, the lower area of this section shall be completed. Each material number shall be verified against outstanding deficiencies.

#### C. Activity Card Section 3 – Item/Material for Inspection

Used for documenting inspections associated with the activities listed in Section 1 and for documentation of QA verification inspections. Each material utilized during the activity shall be entered.

All items listed on QC Table 1 shall be inspected. Table 1 is found on the Website link at [http://www.clarkcountynv.gov/Depts/public\\_works/construction\\_mgmt/Pages/Materials.aspx](http://www.clarkcountynv.gov/Depts/public_works/construction_mgmt/Pages/Materials.aspx).

The next column “QA Initial/Date” shall be utilized for QA’s documentation of verification of the inspections listed within the section.

If Advance Notification was given and inspections cannot be performed by QA, subsequent activities may proceed provided no exceptions were taken during the QC inspection. A statement of no QA inspection shall be made on the QC Activity card.

All inspection observation reports shall be attached to the activity card.

#### D. Activity Card Section 4 – Testing and Sampling Requirements

Used for documenting field tests associated with the activities listed in Section 1.

The QCM shall indicate the description of the test performed. The “Actual” column shall also be completed by QCM and shall reflect the actual number of tests performed for each item listed.

The final column, “Testable Quantity,” shall be completed by the QCM and shall indicate the amount of material that was available for testing for the items listed within this section. The amount shall be followed by the appropriate unit (square feet, cubic yards, or linear feet). Calculations shall be shown to justify the number entered.

#### E. Activity Card Section 5 – Remarks

Used for documentation of miscellaneous information associated with the activities listed on the card. QA may also use this section for their remarks.

#### F. Activity Card Section 6 – Quality Assurance Sign-off

Used for documentation of the QA sign-off of the QC work performed associated with the activity listed.

**114.04.04 SAMPLING AND TESTING**

All sampling and testing shall be performed in accordance with the Contract Documents, other agency jurisdiction where applicable, and/or Table 1, found on the following website:

[http://www.clarkcountynv.gov/Depts/public\\_works/construction\\_mgmt/Pages/Materials.aspx](http://www.clarkcountynv.gov/Depts/public_works/construction_mgmt/Pages/Materials.aspx)

**114.04.05 INSPECTION(S) AND TESTING**

All items listed on QC Table 1 shall be inspected. Table 1 is found on the Website link at [http://www.clarkcountynv.gov/Depts/public\\_works/construction\\_mgmt/Pages/Materials.aspx](http://www.clarkcountynv.gov/Depts/public_works/construction_mgmt/Pages/Materials.aspx).

**114.04.06 HOLD POINT PROCESSES**

A hold point is the point in the construction installation where all activity must stop and a QA inspection must be performed prior to proceeding. Hold points are defined on the Website link (shown below) and may also be defined in the Contract Documents. A hold point not indicated in the Contract Documents may be defined by the Contractor and approved by the Engineer.

[http://www.clarkcountynv.gov/Depts/public\\_works/construction\\_mgmt/Pages/Materials.aspx](http://www.clarkcountynv.gov/Depts/public_works/construction_mgmt/Pages/Materials.aspx)

The Contractor shall not proceed past a hold point without specific approval of QA.

**114.04.07 MATERIAL INSPECTION**

All materials to be incorporated into the work, which are not to be subsequently tested, shall be jointly inspected upon delivery.

Source inspection of items fabricated or manufactured specifically for the Project shall be performed jointly as required by the Contract Documents and may not eliminate onsite inspection.

**114.04.08 ELEVATION REFERENCES**

The elevation references in the table below are used to aid in the overall coordination of testing and inspection locations.

Abbreviation	Grade Name	Description of Grade
FG	Finish Grade	Final elevation for the top of the completed work
FGAB	Finish Grade - Aggregate Base	Final elevation for the top of Aggregate Base
FGE	Finish Grade - Embankment	Final elevation for the top of Embankment Fills
FGS	Finish Grade - Subgrade	Final elevation for the top of Subgrade *Note 1

Note 1: The Finish Grade - Subgrade elevation shall only reference the top of the “scarified and recompacted,” “in-place” and “native” original ground material. This elevation shall not be used to reference any portion of embankment materials. In Trench Zone work, this elevation shall be the bottom of the trench excavation only; all other elevations shall be referenced to FGE, FGAB, or FG. In the event that the Aggregate Base Zone is placed directly on scarified original ground, the FGS elevation shall be used for the top of native Subgrade.

All elevations shall be “called out” as one of the Finish Grade elevations noted in the table above minus the number of feet below that grade.

#### **114.05 FIELD PROBLEM IDENTIFICATION AND REPORTING PROCESS**

Refer to conflict resolution procedures in Section 112.

#### **114.06 DEFICIENCY TRACKING RESPONSIBILITY**

Refer to deficiency tracking procedures in Section 112.

#### **114.07 BLANK**

#### **114.08 CONTRACTOR’S DAILY REPORT**

In addition to the standard forms, the Contractor shall keep a written or electronic Daily Report of activities. The report shall contain such information as weather conditions, important conversations, visitors on the site, verbal orders received, unusual incidents, equipment breakdowns, length of work stoppages, number of persons and types of equipment affected by work stoppages, and any changes in the appearances of the material. Any item of significance shall be recorded.

The Daily Report shall include as a minimum, where applicable, the following:

- a) Date including the year
- b) Weather conditions; cloudy, rainy, etc.
- c) Temperature – high and low
- d) Wind velocity and direction (approximate)
- e) Total calendar days
- f) Contractors and Subcontractor’s working hours
- g) Specific work activities performed on that day the work is in progress
- h) Note of any unusual situations encountered, such as accidents, damages to vehicles or to the project, unusual material (bentonite, etc.), or anything that should be brought to the attention of others
- i) Conversations
- j) Verbal discussions with Engineer relative to the work, including any instructions or suggestions from the Engineer
- k) Communication with property owners
- l) Official visitors and their recommendations (Official visitors may include FHWA, OSHA, etc.)
- m) General locations where equipment is working, not working, and/or idle for repairs

- n) Material rejected and reason
- o) Description of any delays and duration
- p) Progress of surveying and staking
- q) Deviations and corrective action taken
- r) Traffic Control
- s) Changes to Plans
- t) Manpower
- u) Equipment
- v) Photographs or video with references to specific activity cards
- w) Contractor representative signature and title

*Add the following Section:*

## **SECTION 115**

### **CONTRACTOR QUALITY CONTROL ADMINISTRATION AND INSPECTION FORMS**

#### **115.01 GENERAL**

Inspection and administration documents that shall be used by the Contractor for the Quality Control Program may be downloaded from the Website link at:

[http://www.clarkcountynv.gov/Depts/public\\_works/construction\\_mgmt/Pages/Materials.aspx](http://www.clarkcountynv.gov/Depts/public_works/construction_mgmt/Pages/Materials.aspx)

If the Contractor would like to revise these or use other documents in the quality control program, they may be submitted prior to use to the Engineer for approval.



*The following Section is added:*

## **SECTION 117**

### **CONTRACTOR QUALITY CONTROL TESTING**

#### **117.01 GENERAL**

The testing and frequency shall comply with Table 1, which can be located at the following website:

[http://www.clarkcountynv.gov/Depts/public\\_works/construction\\_mgmt/Pages/Materials.aspx](http://www.clarkcountynv.gov/Depts/public_works/construction_mgmt/Pages/Materials.aspx)

At the time the testing is performed, all density testing locations shall be clearly identified by paint marking on the grade. All trench walls or structure shall have backfill lift thicknesses marked in paint. This requirement will aid in the correlation testing by Quality Assurance.

#### **117.02 TESTING EXCEPTIONS**

##### **117.02.01 AASHTO TEST METHODS**

Add items 1 through 3 shown below to Section 9.4.15 of AASHTO T310 In-Place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1. If a test fails, it is acceptable to rotate the moisture-density gauge on axis of the probe to achieve a better seating of the gauge. This process can be performed numerous times.
2. The depth of probe shall equal the lift depth of compacted material.
3. Perform a new AASHTO T180 proctor according to the guidelines as follows:
  - a. The onset of each new construction process;
  - b. When compaction readings are over 101 percent;
  - c. When the source of material changes;
  - d. When required at the discretion of the Engineer.

##### **117.02.02 OTHER TEST METHODS**

1. NDOT Projects
  - a. NDOT does not have a list of QC test frequencies; thus use the CCPW sampling and testing frequencies shown in Table 1 at the following website:

[http://www.clarkcountynv.gov/Depts/public\\_works/construction\\_mgmt/Pages/Materials.aspx](http://www.clarkcountynv.gov/Depts/public_works/construction_mgmt/Pages/Materials.aspx)

## 2. Compaction

### a. Standardizing

- 1) At the start of each shift, standardize the moisture-density gauge to check equipment operation.
- 2) If the first check fails according to the manufacturer displayed results, repeat standardization.

### b. Record the density standard count (DS) and moisture standard count (MS) in the gauge log book on the appropriate form that also includes the following:

- 1) Manufacturer Name
- 2) Model Number
- 3) Gauge Serial Number

## 117.03 CONSTRUCTION

Bridge abutments: The zone for structural backfill for bridge abutments is within 50 feet of the structure. Walk behind equipment must be used at the face of the walls.

## 117.04 REINFORCMENT BAR TESTING

Tensile testing of reinforcing steel is required for all bars except for #3 bars.

## 117.05 TEMPORARY DETOURS

Items associated with temporary detours and sections will be tested at a rate of 25 percent (25%) of that which is specified in the respective QC Table(s) with the exception of those items listed below. The use of the APA equipment shall not be required for temporary sections both for production control and design of bituminous pavements.

For temporary paving sections, the following test procedures will not be required:

### CCPW Table I

- Absorption of Agg
- APA
- Atterburg Limits
- Fractured Face
- Lottman
- PBS Mixture Moisture Marshall Testing
- Plant Inspection
- Production Rate Report
- Stabilometer
- Straightedge and Profilograph

For temporary soil and aggregate sections, only field density testing and related “proctor” will be performed.

### 117.06 SOIL COMPACTION LIFTS

In order to reduce the possibility that testing frequencies are not being met, the following guideline is presented.

Figure 1 is an example for trenches and from Table 1, the frequency of testing is 1/100 Linear Feet (LF) / per Lift. The lighter colored lifts on the left hand side of the diagram were placed in the morning (AM). The darker colored lifts on the right hand side were placed in the afternoon (PM).

In the AM (lighter) the following testing would be required:

1. The 1<sup>st</sup> Lift would require one (1) test.
2. The 2<sup>nd</sup> Lift would require one (1) test.
3. The 3<sup>rd</sup> Lift would require one (1) test
4. The 4<sup>th</sup> Lift would require one (1) test.

In the PM (darker), the following testing would be required:

1. The 1<sup>st</sup> Lift would require one (1) test.
2. The 2<sup>nd</sup> Lift would require two (2) tests.
3. The 3<sup>rd</sup> Lift would require two (2) tests.
4. The 4<sup>th</sup> Lift would require two (2) tests.

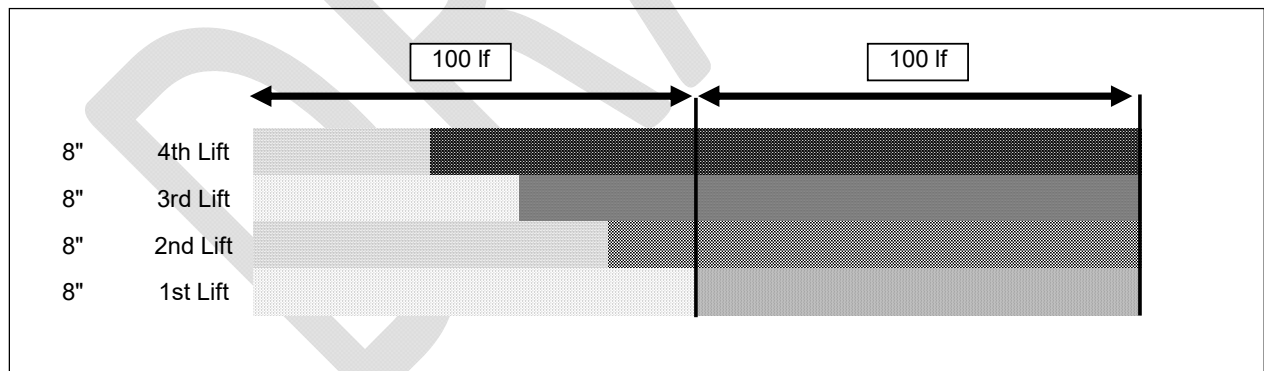
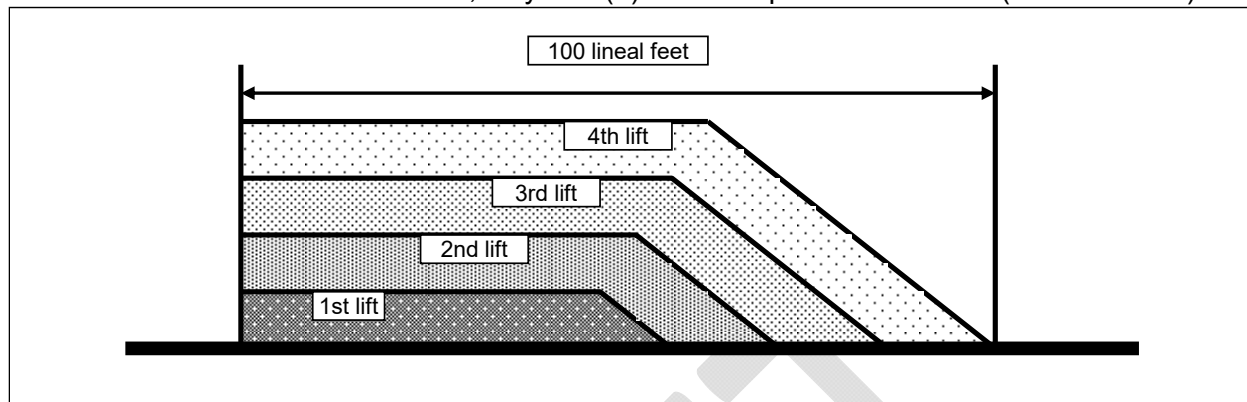


Figure 1- Trench Backfill

**Ramping:** In Figure 2 below, the contractor has elected to place the fill diagonally. Because each lift is within 100 LF continuous, only one (1) test is required for each lift (darkened line).



**Figure 2- Ramping**

The testing requirement is “per lift.” Therefore, testing at four locations on a single lift down the slope is not acceptable.

The most common method is rapidly dumping enough material to get the equipment into the trench. This method would only be acceptable when the Ramp is subsequently removed, replaced, compacted, and tested in lifts per specification.

A remark needs to be made on the Activity Card when a ramp is not tested. This remark will be a reminder that the ramp will be required to be reworked. If the work is covered or the activity moves out of the immediate area, a deficiency would then be noted on the Activity Card.

The best method for ramping is to build the ramp in lifts and test each lift as it is being constructed.