



# SALINE COURTHOUSE Trail Alignment

## PROJECT MANUAL

ISSUE 1 - 1.3.17  
ADDENDUM 01 - 2.17.17

OWNER



CHEROKEE NATION BUSINESSES LLC  
777 W. CHEROKEE STREET  
CATOOSA, OKLAHOMA 74015

ARCHITECT



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PH.918.764.9996

LANDSCAPE ARCHITECT

**LAUD STUDIO**  
landscape architecture + urban design

LAUD STUDIO LLC  
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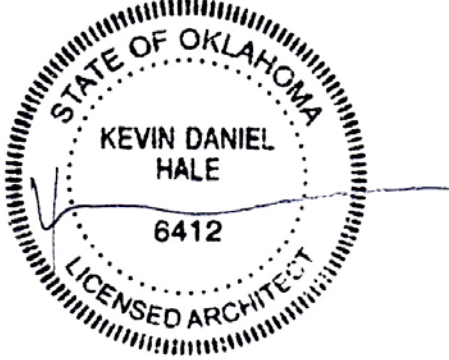

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<p>Architect</p> 	<p>Landscape Architect</p> 

END OF SECTION

**SECTION 01 1000 – SUMMARY**

**PART 1 - GENERAL**

1.1 PROJECT

- A. Project Name: Saline Courthouse Trail Alignment, Rose, OK 74364.
- B. Owner's Name: Cherokee Nation Businesses, 777 West Cherokee St. Catoosa, OK 74015.
- C. Architect's Name: 1Architecture LLC. 1319 E. 6th Street Tulsa, Oklahoma 74120.
- D. Summary Description: New trail system.

1.2 OWNER OCCUPANCY

- A. Owner intends to occupy the Project by the date stated in the Agreement as the contract completion date.

1.3 CONTRACTOR USE OF SITE AND PREMISES

- A. Provide access to and from site as required by law and by Owner:
  - 1. General: Contractor shall have unlimited use of the project site for construction during construction period.
  - 2. Use of Site: Limit use of Project site to area within the Contract limits indicated. Do not disturb portions of the site beyond areas in which the work is indicated.

**END OF SECTION**

## SECTION 01 1000 – PRICE AND PAYMENT PROCEDURES

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Procedures for preparation and submittal of applications for progress payments.
- B. Documentation of changes in Contract Sum and Contract Time.
- C. Changes procedures.
- D. Correlation of Contractor submittals based on changes.
- E. Procedures for preparation and submittal of application for final payment.

#### 1.2 SCHEDULE OF VALUES

- A. Submit to Architect a Schedule of Values allocated to the various portions of the Work within ten days after award of Contract. Upon Architect's request, support the values with data, which will substantiate their correctness. Any subsequent modification to the schedule of values must be approved by the Owner and indicated to the Architect.
  - 1. Schedule shall list the installed value of the component parts of the Work in sufficient detail to serve as a basis for computing values for progress payments during construction.
  - 2. For the various portions of the Work, each item shall include a directly proportional amount of the Contractor's profit and overhead. For items that are stored materials (at the site), break down the value into:
    - a. The cost of the materials, delivered and unloaded, with taxes paid when applicable.
    - b. The total installed value.
- B. Include in each line item. Where appropriate the amount of Allowances specified in this section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.
- C. Include separately from each line item for work by subcontractors, a direct proportional amount of Contractor's General Conditions and fee.
- D. Revise schedule to list approved Change Orders, with each Application For Payment.
- E. The sum of the values listed in the schedule shall equal the total contract Sum.

#### 1.3 APPLICATIONS FOR PAYMENTS

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and Contractor and paid for by Owner.
  - 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: Progress payments shall be submitted to Architect at the times stipulated in the Agreement. The period covered by each Application for Payment is one month, ending on the final date of the current month.
- C. Submittal: Submit three signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. All shall include waivers of lien and similar attachments if required.
- D. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
  - 1. List of subcontractors.
  - 2. Schedule of values.
  - 3. Contractor's construction schedule (preliminary if not final).

4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts.
  5. Products list (preliminary if not final).
  6. Submittal schedule (preliminary if not final).
  7. List of Contractor's staff assignments.
  8. Copies of building permits (where applicable).
  9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  10. Initial progress report.
  11. Report of preconstruction meeting.
- E. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
  2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- F. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited to, the following:
1. Evidence of completion of Project closeout requirements.
  2. Insurance certificates for products and completed operations where required, and proof that taxes, fees, and similar obligations were paid as applicable.
  3. Updated final statement, accounting for final changes to the Contract Sum.
  4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims".
  5. AIA Document G706A, "Contractor's Affidavit of Release of Liens".
  6. AIA Document G707, "Consent of Surety to Final Payment".
  7. Evidence that claims have been settled.
  8. If applicable, final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
  9. Final liquidated damages settlement statement.

#### 1.4 CONTRACT MODIFICATION PROCEDURES

- A. Submit in writing to the Architect within ten day of notice to proceed the name of the individual authorized to receive change documents and who will be responsible for informing other in Contractor's employ or subcontractors of changes to the Contract Documents.
- B. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue an ASI directly to Contractor.
- C. Proposal Request:
1. Owner to Architect may initiate changes by submitting a Proposal Request (PR) to Contractor. Request will include:
    - a. Detailed description of the Change, Products, and location of the change in the Project as applicable.
    - b. Supplementary or revised Drawings and Specifications as applicable.
    - c. The projected time span for making the change and a specific statement as to whether overtime work is, or is not, authorized as applicable.
    - d. Such request is for information only, and is not an instruction to execute the changes or to stop work in progress.

2. Contractor may initiate changes by submitting a written Proposed Change Request (PCR) to Architect containing:
    - a. Description of the proposed changes.
    - b. Reason for making the changes
    - c. Effect on the Contract Sum and the Contract Time.
    - d. Effect on the work of separate contractors.
    - e. Documentation supporting any changes in Contract Sum or Contract Time, as appropriate.
    - f. This does not constitute authorization to proceed with the proposal or to stop work in progress until approved and signed by Owner and Architect.
  3. Documentation supporting any change in Contract Sum shall be prepared in accordance with the General Conditions, AIA Document A201-2007, Article 7.
- D. Preparation of Change Orders:
1. Architect will prepare each Change Order.
  2. Change Order Form: AIA Document G701 or similar form approved by Architect.
  3. Change Order will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.
  4. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.
- E. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
- F. Substantiation of Costs: Provide full information required for evaluation.
1. On request, provide following data:
    - a. Quantities of products, labor, and equipment.
    - b. Taxes, insurance, and bonds.
    - c. Overhead and profit.
    - d. Justification for any change in Contract Time.
    - e. Credit for deletions from Contract, similarly documented.
  2. Support each claim for additional costs with additional information:
    - a. Origin and date of claim.
    - b. Dates and times work was performed, and by whom.
    - c. Time records and wage rates paid.
    - d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
  3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
- G. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.
- H. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.
- I. Promptly revise progress schedules to reflect any change in Contract Time, revise sub schedules to adjust times for other items of work affected by the change, and resubmit.
- J. Promptly enter changes in Project Record Documents.

**PART 2 PRODUCTS – NOT USED**

**PART 3 EXECUTION – NOT USED**

**END OF SECTION**



**SECTION 01 2200 - UNIT PRICES**

**PART 1 - GENERAL**

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.
- B. Related Requirements:
  - 1. Division 01 Section "General Requirements" for procedures for submitting and handling Change Orders.
  - 2. Division 01 Section "Quality Requirements" for general testing and inspecting requirements.

1.03 DEFINITIONS

- A. Unit price is a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.04 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- C. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION**

3.01 SCHEDULE OF UNIT PRICES

Unit prices may be used by the Owner with Contractor consent during construction to modify the Contract Amount if determined that the Contract Documents deviate significantly from the on-site layout as currently staked, cleared and grubbed. The Contract Amount may be reduced or added to as applicable based on the scope of work required to be modified during construction.

- A. Unit Price No. 1: Primary Trail Surface
  - 1. Unit: Per Linear Foot of 7'-0" wide (7 square feet) Primary Decomposed Granite Trail Section detail 1/L5.0.
  - 2. Description: All work, materials and labor associated with the construction of the Unit listed for the Primary Decomposed Granite Trail Section detail 1/L5.0.
- B. Unit Price No. 2: Secondary Trail Surface
  - 1. Unit: Per Linear Foot of 5'-0" wide (5 square feet) Secondary Wood Mulch Trail Section detail 1/L5.0.

2. Description: All work, materials and labor associated with the construction of the Unit listed for the Secondary Wood Mulch Trail Section detail 1/L5.0.
- C. Unit Price No. 3: Primitive Trail Surface
1. Unit: Per Linear Foot of 3'-0" wide (3 square feet) Primitive Trail Section detail 1/L5.0.
  2. Description: All work, materials and labor associated with the construction of the Unit listed for the Primitive Trail Section detail 1/L5.0.
- D. Unit Price No. 4: Select Fill
1. Unit: Per Cubic Yard
  2. Description: All work, materials and labor associated with the excavation and installation of select fill materials of the Unit specified in section 31 2333 Excavation, Backfilling and Compaction.
  3. Use: This Unit Price may be used by the Owner in the instance that unsuitable soils are encountered at locations of portions of the work. Reference specification section 31 2333 3.03 E for Select Fill requirements.

**END OF SECTION**

## **SECTION 01 2300 - ALTERNATES**

### **PART 1 - GENERAL**

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

#### 1.03 DEFINITIONS

- A. Alternate: An amount proposed by the general contractor that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
  - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
  - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate the alternate into the Work. No other adjustments are made to the Contract Sum.

#### 1.04 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation or removal whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

### **PART 2 - PRODUCTS (Not Used)**

### **PART 3 - EXECUTION**

#### 3.01 SCHEDULE OF ADDITIVE ALTERNATES

- A. Alternate No. 1: Remove Barb Wire Fencing
  - 1. Base Bid: None.
  - 2. Alternate: Remove barb wire fence and associated posts along entire length of eastern and southern property division, approximately 1,351 linear feet of fencing per property survey. All work, materials and labor associated with the removal of the existing barb wire fencing is to be included in proposed alternate pricing per the Bid Schedule.
- B. Alternate No. 2: Secondary Trail Surface

1. Base Bid: Provide Secondary Construction per Secondary Wood Mulch Trail Section detail 1/L5.0.
2. Alternate: Provide Secondary Trail Construction as Decomposed Granite same as Primary Trails per Primary Trail Decomposed Granite Trail Section detail 1/L5.0. Trail width to remain 5'-0". All work, materials and labor associated is to be included in the proposed alternate pricing per the Bid Schedule.

3.02 SCHEDULE OF DEDUCTIVE ALTERNATES

- A. Alternate No. 3: Primary Trail Surface Material
1. Base Bid: Decomposed Granite top Layers per Primary Trail Section detail 1/L5.0.
  2. Alternate: Limestone Chat and crushed top Layers per Alternate Primary Trail Section detail 1/L5.0. All work, materials and labor associated is to be included in the proposed alternate pricing per the Bid Schedule.

**END OF SECTION**

## **SECTION 01 2500 - SUBSTITUTION PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for
  1. Proposed Product List
  2. Substitutions
- B. Related Sections:
  1. Divisions 02 through 34: Sections for specific requirements and limitations for Substitutions.

#### **1.3 DEFINITIONS**

- A. Substitutions: Changes, proposed by the Contractor in products, materials, equipment, or Contract requirements, from those required by the Contract Documents.

#### **1.4 SUBMITTALS (BIDDING)**

- A. **THE PROPOSED PRODUCTS LIST AND SUBSTITUTION REQUESTS**
  1. The intent of the Proposed Products List once updated and approved is:
    - a. To fully identify, prior to beginning the Work, the products the Contractor intends to provide, and substitutions that have been requested and approved.
    - b. To facilitate timely workflow and submittal processing by avoiding rejection of unacceptable products and unspecified products later during construction.
  2. Proposed Products List
    - a. Within 14 working days after date of receipt of notice to proceed and before submitting any Product Submittals, submit for approval the updated Proposed Products List of the products proposed for installation. If specified, verify the name of the manufacturer for each product and, where applicable, indicate the name of Subcontractor. If a Substitution Request has been submitted and approved, indicate appropriately on the Proposed Products List.
    - b. The list shall be provided by the Architect with original specified information and shall be tabulated by and be updated by the Contractor as necessary for each Specification Section.
    - c. For each product listed, clearly indicate: a) As Specified/Basis of Design, or b) Approved Substitution. For each product designated Not Basis of Design, clearly indicate: c) The Approved Substituted Item and d) the associated Sub-contractor. Products specified solely by reference standard or performance requirements do not require naming.
    - d. Provide 1 printed copy and 1 digital copy of the list, in an editable format for comments by the Architect, unless another quantity has been agreed to.
- B. A Substitution Request forwarded by the Contractor means that the Contractor:
  1. Has investigated the proposed substitution for accuracy and completeness.
  2. Has determined that the substitution is equal to or superior in quality and serviceability (performance) to the product specified in the Contract Documents, and if necessary, approved by the Owner.

3. Will provide the same guarantee for the substitution that is required for the product specified in the Contract Documents.
  4. Waives all claims for additional costs that subsequently become apparent as a result of the substitution.
  5. Accepts all additional costs that subsequently become apparent as a result of the substitution, including any re-design work by the Architect.
  6. Will coordinate the installation of the accepted substitution into the Work (including As-Built Documents) without requiring revisions to the Drawings, and will make such changes in the Work of the various trades as may be required to provide a completed condition. If requested substitution involves more than one Sub-contractor, the Contractor will coordinate the requested substitution with other portions of the Work, verify that it is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- C. A request for a substitution will not be considered if:
1. The substitution is merely indicated or implied on the Shop Drawing or Product Data submittal without the specified formal request and documented proof of conformance. Submittal approvals for items not meeting specifications are not valid. Completed construction related to such items is subject to automatic rejection.
  2. Implementation requires a major revision of the Contract Documents in order to accommodate the substitution.
  3. The substitution request is substantially incomplete.
- D. Architect's Review of Substitution Requests
1. The Architect will review a properly submitted, complete Substitution Requests on the specified form corresponding with the timing of submittal.
  2. The Architect will evaluate each Substitution Request and inform the Contractor in writing whether the proposed substitution is approved, approve as noted, or not approved.
    - a. Substitution requests that do not conform to requirements, including submittal timing, are subject to automatic rejection.
    - b. A substitution will not be considered accepted by the Owner until it has been documented by Change Order.
  3. The Architect's decision as to conformance and acceptability will be consistent with the intent of the Contract Documents.
  4. In the absence of written acceptance of a Substitution Request, proposed substitutions shall be understood as not accepted.
  5. The Architect will endeavor to evaluate the substitution request in a reasonable period of time. With the request, the Contractor shall inform the Architect of the deadline for final decision on the request (minimum of 7 working days from submittal of request in writing). In the absence of Architect's decision within the critical time, the Contractor shall proceed with the specified product.
- E. Architect's Review of the updated Proposed Products List
1. The Architect will review the completed, updated Proposed Products List submitted by the Contractor.
  2. The Architect will evaluate the Proposed Products List and inform the Contractor in writing whether the proposed, updated Proposed Products List is approved, approve as noted, or not approved.
  3. The Architect will endeavor to evaluate the updated Proposed Products List in a reasonable period of time. With the submission, the Contractor shall inform the Architect of the deadline for final decision on the list (minimum of 7 working days from submittal of request in writing). In the absence of Architect's decision within the critical time, the Contractor shall proceed with only specified products.

1.5 SUBSTITUTION REQUESTS AFTER THE UPDATED, PROPOSED PRODUCTS LIST IS APPROVED

- A. Use no product in the Work that is not named in the Contract Documents, or not listed in the approved, updated, Proposed Products List, or not approved as a Substitution. Products specified solely by reference standard or performance requirements do not require naming.
- B. During construction of the Work, products not listed on the approved Proposed Products List shall not be used without receipt of an approved Substitution Request. A Substitution Request will be considered under one of the following conditions:
  - 1. The product listed on the approved Proposed Product List becomes unavailable. Include with the substitution request a letter from the listed manufacturer, on the manufacturer's letterhead, verifying that the product is no longer available.
  - 2. Conditions uncovered at the Site render the listed product inappropriate, or an undesirable choice for the conditions uncovered. Include with the substitution request a full description of the uncovered conditions and why the requested substitution is preferable to the listed product.
  - 3. If approved in writing by the Owner, the Architect will consider a Contractor's Substitution Request after the approval of the updated Proposed Products List when the following conditions are documented and submitted to the Architect. If the following conditions are not satisfied, the Architect will return requests without action, except to record noncompliance with these requirements:
    - a. Requested substitution offers Owner a substantial, quantified advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
    - b. Requested substitution does not require extensive revisions to the Contract Documents.
    - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    - d. Substitution request is fully documented and properly submitted.
    - e. Requested substitution will not adversely affect Contractor's construction schedule, or if the schedule is affected, no additional costs will be incurred by the Owner.
    - f. Requested substitution provides an equal or greater warranty than the specified warranty.
    - g. All other requirements of Specification Section 01 2500 related to requirements of a Substitution Request.
- C. Make each Substitution Request on the appropriate, specified Substitution Request form based upon the timing of its submittal. Fully execute the form and provide all the information required by the form and this Specification.

1.6 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agency to perform compatibility tests recommended by manufacturers.

1.7 PROCEDURES

- A. Coordination: Modify or adjust affected work as necessary to integrate work of the approved substitutions.

- B. Notify the Architect of any changes to items outside of the identified product, so any future project revisions or requests for information may be evaluated appropriately.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

**END OF SECTION**



# 1 Architecture

# SUBSTITUTION REQUEST FORM - BIDDING

This substitution request form may be used for Substitution Requests as specified in Division 01 2500 Section - "Substitution Procedures" only during the bidding phase and as indicated below.

TO: \_\_\_\_\_ PROJECT: \_\_\_\_\_

SPECIFICATION ITEM: \_\_\_\_\_

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Substitution approval is an acceptance of only the manufacturer and product for general conformance with the design intent reflected in the Contract Documents. The A/E has made no attempt to verify specific performance data, or to check the details of the proposed substitution regarding special features, capacities, physical dimensions, or code and/or regulatory compliance. All of which remain the responsibility of the Contractor.

1. **Substitution information required to be submitted (verify that all items below are provided to avoid automatic rejection):**

- An itemized comparison of the proposed substitution with the product features specified in the Contract Documents.
- Product Data highlighted to show applicability to proposed substitution and project conditions
- Performance and test data as required for comparison
- Warranty information as required for comparison
- References and samples where applicable

The undersigned requests consideration of the following:

PROPOSED SUBSTITUTION: \_\_\_\_\_

Data included (check above in item #1 as applicable and included):

The undersigned certifies that the following, unless modified by attachments, are correct:

1. The proposed substitution conforms to required dimensions set by the specified product.
3. The proposed substitution will have no adverse affect on other trades, the construction schedule, or specified Contractor warranty requirements.
4. Maintenance and service parts will be **locally** available for the proposed substitution.

The undersigned further certifies that the function, appearance, and quality of the proposed substitution are *equivalent or superior* to the specified and/or basis of design item.

The undersigned agrees to absorb *any and all* additional costs resulting from acceptance of the proposed substitution including both known and subsequently discovered revisions to other construction needed in order to accommodate the proposed substitution, as well as any other expected and unforeseen costs, such as delays, code approval-related expenses, changes to the building or engineering design, additional architectural services, detailing, and construction costs.

The undersigned agrees that, if this page is reproduced, the terms and conditions for substitutions found in the specifications of the Bidding Documents apply to this request.

SUBMITTED BY (Sub-contractor if applicable):

\_\_\_\_\_  
Name

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Date:

For use by the Architect/Engineer:

- Approved  Approved as noted
- Not Approved

A/E Signature: \_\_\_\_\_ Date: \_\_\_\_\_

General Contractor (Signature) – signature of the Substitution Request form confirms that Contractor has verified all requirements of **Section 01 2500 – 1.4 – C**.

# 1 Architecture

# SUBSTITUTION REQUEST FORM - CONSTRUCTION

This substitution request form may be used for Substitution Requests as specified in Division 01 2500 Section - "Substitution Procedures" only during the construction phase (after approval of an updated Proposed Products List) and as indicated below.

TO: \_\_\_\_\_ PROJECT: \_\_\_\_\_

SPECIFICATION ITEM: \_\_\_\_\_

Section	Page	Paragraph	Description
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Substitution approval is an acceptance of only the manufacturer and product for general conformance with the design intent reflected in the Contract Documents. The A/E has made no attempt to verify specific performance data, or to check the details of the proposed substitution regarding special features, capacities, physical dimensions, or code and/or regulatory compliance. All of which remain the responsibility of the Contractor.

1. **Required conditions for a substitution being submitted after a complete, updated Proposed Products List has been reviewed and accepted by the Architect (select one to avoid rejection):**

- The product listed on the Proposed Products List has become unavailable. A letter from the listed manufacturer, on the manufacturer's letterhead has been included herewith verifying that the product is no longer available. If the specified manufacturer is no longer in business, submit written proof other than the statement of the Contractor, Sub-contractor or proposed substituting product manufacturer.
- Conditions uncovered at the Site render the listed product inappropriate, or an undesirable choice for the conditions uncovered. A full description of the uncovered conditions and why the requested substitution is a desirable product is included herewith.

2. **Minimum substitution information required to be submitted (verify that all applicable items below are provided in order to avoid automatic rejection):**

- An itemized comparison of the proposed substitution with the product features specified in the Contract Documents.
- Product Data highlighted to show applicability to proposed substitution and project conditions
- Performance and test data as required for comparison
- Warranty information as required for comparison
- References and samples where applicable

The undersigned requests consideration of the following:

PROPOSED SUBSTITUTION: \_\_\_\_\_

Data included (check above in item #2 as applicable and included):

The undersigned certifies that the following, unless modified by attachments, are correct:

1. The proposed substitution conforms to required dimensions set by the specified product.
3. The proposed substitution will have no adverse affect on other trades, the construction schedule, or specified Contractor warranty requirements.
4. Maintenance and service parts will be **locally** available for the proposed substitution.

The undersigned further certifies that the function, appearance, and quality of the proposed substitution are *equivalent or superior* to the specified and/or basis of design item.

The undersigned agrees to absorb *any and all* additional costs resulting from acceptance of the proposed substitution including both known and subsequently discovered revisions to other construction needed in order to accommodate the proposed substitution, as well as any other expected and unforeseen costs, such as delays, code approval-related expenses, changes to the building or engineering design, additional architectural services, detailing, and construction costs.

The undersigned agrees that, if this page is reproduced, the terms and conditions for substitutions found in the Bidding Documents apply to this request.

SUBMITTED BY:

\_\_\_\_\_  
Name (Sub-contractor if applicable)

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Date: \_\_\_\_\_

General Contractor (Signature) – signature of the Substitution request form confirms that Contractor has verified all requirements of **Section 01 2500 – 1.4 – C**.

For use by the Architect/Engineer:

Approved  Approved as noted

Not Approved

A/E Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## SECTION 01 2600 - CONTRACT MODIFICATION PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
  - 1. Division 01 Section "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

#### 1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

#### 1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
  - 2. Within time specified in Prime Contract, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include costs of labor and supervision directly attributable to the change.
    - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
  - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
  - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, General Contractor will issue a Change Order following procedures outlined in Prime Contract.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
  1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

## **SECTION 01 3000 - ADMINISTRATIVE REQUIREMENTS**

### **PART 1 GENERAL**

#### 1.1 SECTION INCLUDES

- A. Submittals for review, information, and project closeout.
- B. Submittal procedures.

#### 1.2 RELATED REQUIREMENTS

- A. Section 01 7800 - Closeout Submittals: Project record documents.

### **PART 2 PRODUCTS - NOT USED**

### **PART 3 EXECUTION**

#### 3.1 SUBMITTALS FOR REVIEW

- A. When the following are specified in individual sections, submit them for review:
  - 1. Product data.
    - a. Preparation: Clearly mark each copy to identify pertinent products or models. Show performance characteristics and capacities, dimensions and clearances, piping diagrams, and wiring diagrams and controls. Do not scale Drawings to obtain dimensions.
    - b. Modify Manufacturer's standard drawings, diagrams and literature to delete information not applicable to work, and supplement information specifically applicable to the work.
    - c. Clearly identify where required information is located on submitted material.
  - 2. Shop drawings.
    - a. Present in clear and thorough manner, with details referenced to sheet, detail, and schedule or room numbers shown on Contract Drawings.
  - 3. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed. All color and finish samples and charts will be compiled until all are received. Once all are received, selections will be made and relayed to the contractor in writing.
    - a. Office Samples: Provide in quantity and size directed, complete with integrally related parts and attachment devices, and illustrating functional characteristics of product and full range of color, texture and pattern.
    - b. Field Samples/Mock-Ups: Erect at project site at location acceptable to Architect in size or area specified in other specification sections. Fabricate to be complete and finished. If required remove at conclusion of work, or when directed.
    - c. Transmit Samples that contain components such as accessories together in one submittal package.
    - d. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    - e. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

- f. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Full-size samples reflecting colors, textures, and patterns selected, shall include, but be limited to the following (which may be incorporated into the Work, if acceptable).
- B. Submittal Schedule: Submit a schedule of submittals within 15 days after contract execution, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
- C. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- D. Samples will be reviewed only for aesthetic, color selection, or finish selection.
- E. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - CLOSEOUT SUBMITTALS.

### 3.2 SUBMITTALS FOR INFORMATION

- A. When the following are specified in individual sections, submit them for information:
  - 1. Design data.
  - 2. Certificates.
  - 3. Test reports.
  - 4. Inspection reports.
  - 5. Manufacturer's instructions.
  - 6. Manufacturer's field reports.
  - 7. Other types indicated.
- B. Submit for Architect's knowledge as contract administrator and for Owner. No action will be taken.

### 3.3 SUBMITTALS FOR PROJECT CLOSEOUT

- A. When the following are specified in individual sections, submit them at project closeout:
  - 1. Project record documents.
  - 2. Operation and maintenance data.
  - 3. Warranties.
  - 4. Bonds.
  - 5. Other types as indicated.
- B. Submit for Owner's benefit during and after project completion.

### 3.4 SUBMITTAL PROCEDURES

- A. Electronic Submittals are acceptable. However, the Architect reserves the right to request hard copy submittals at Contractor's expense. Deliver hard copy submittals to Architect, 1Architecture, LLC.; 1319 East 6<sup>th</sup> Street; Tulsa, Oklahoma 74120.
- B. Transmit each item under Architect's Form or Contractor's Standard Letter of Transmittal.
- C. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.
- D. With the exception of Mechanical, Electrical, Plumbing, and Fire Protection, provide submittals for each specification section individually. Do not provide multiple divisions in one submittal.
- E. Provide all submittals required by specification section at the same time in whole where possible. Do not provide partial submittals.
- F. Options: Identify options requiring selection by the Architect.
- G. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
  1. No modification of Contract Sum or Contract Time shall be authorized by approval of submittals that deviate from the Contract Documents.
- H. Contractor certification of submittal review, to include product verification, field measurements, quantities, coordination with adjacent equipment, structural members, or architectural features, and coordination of information within submittal with requirements of work and Contract Documents. Certification shall be by stamp of approval containing a statement to the effect that they have been reviewed. Uncertified submittals will be rejected.
- I. Material Safety Data Sheets (MSDS): Submit information directly to Owner.
  1. Architect will not review MSDS.
- J. Contractor's Review: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- K. Architect's Review:
  1. Architect Duties:
    - a. Review submittals as specified.
    - b. Return submittals to Contractor for distribution, or for resubmission.
  2. Review by the Architect. Review shall not relieve the Contractor from responsibility for errors, which may exist.
  3. Authority to Proceed: The notations "Reviewed", "Furnish as Corrected", "Revise and Resubmit", "Rejected", or "Submit Specific Items" authorizes the Contractor to proceed with fabrication, purchase, or both, of the items so noted, subject to the revisions, required by the Architect's review comments.
  4. Revisions: Make only those revisions directed or approved by the Architect.
  5. Revisions after Approval: When a submittal has been reviewed by the Architect, resubmittal for substitution of materials or equipment will not be considered unless accompanied by an acceptable explanation as to why the substitution is necessary.
- L. Use for Construction: Use only final submittals that are marked with approval notation from Architect's and Contractor's action stamp.

**END OF SECTION**

## **SECTION 01 3100 - PROJECT MANAGEMENT AND COORDINATION**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative provisions for coordinating construction operations within scope of Contractor's work, including, but not limited to, the following:
  - 1. General project coordination procedures.
  - 2. Administrative and supervisory personnel.
  - 3. Coordination drawings.
  - 4. Requests for Interpretation (RFIs).
  - 5. Project meetings.
- B. Related Sections:
  - 1. 01 7700 Closeout Procedures

#### **1.3 COORDINATION**

- A. Coordinate construction operations of the Contract to ensure efficient and orderly installation of each part of the Work within Contract scope. Coordinate operations and procedures with work that will be performed by others, where necessary for efficient and orderly installation of each part of the Work. Coordinate activities that depend on each other for proper installation, connection, and operation.
  - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate administrative procedures with other construction activities, whether within or outside of Contract scope, to avoid conflicts and to ensure orderly progress of the Work. Coordinate procedural and temporary matters such as, but not limited to: schedule, meetings, temporary facilities, submittals, closeout, and system startup.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
  - 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.



1.4 COORDINATION DRAWINGS/BUILDING INFORMATION MODEL

- A. Coordination Drawings, General: Prepare coordination Drawings/Building Information Model (BIM) where limited space availability necessitates coordination, or if coordination is required to facilitate integration into the Project of products and materials that are fabricated or installed by more than one entity.
1. Purpose: Coordination drawings/model show in advance the Project's final construction using actual dimensions of the construction and components to prevent physical conflicts and functional incompatibilities during construction.
  2. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
    - a. All entities involved in the Project's construction are required to participate. Coordinate the addition of trade-specific information to the coordination drawings in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
    - b. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
    - c. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
    - d. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
    - e. Indicate required installation sequences.
    - f. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- B. Coordination Drawing/BIM Organization: Organize coordination drawings/BIM as follows:
1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire protection, fire alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
  2. Plenum Space: Indicate sub-framing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
  3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire protection, fire alarm, and electrical equipment.
  4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
  5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
  6. Mechanical and Plumbing Work: Show the following:
    - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
    - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
    - c. Fire-rated enclosures around ductwork.
  7. Electrical Work: Show the following:
    - a. Runs of vertical and horizontal conduit 1-1/4 inch diameter and larger.
    - b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire alarm locations.

- c. Panel board, switch board, switchgear, transformer, busway, generator, and motor control center locations.
    - d. Location of pull boxes and junction boxes, dimensioned from column center lines.
  8. Fire Protection System: Show the following:
    - a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.
  9. Submit for Information: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the accuracy of the coordination, which is the Contractor's responsibility. If the Architect determines that the coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, the Architect will so inform the Contractor, who shall make changes as directed and resubmit.
  10. Prepare coordination drawing submittal in accordance with requirements of Division 01 section specifying submittal procedures. In addition to electronic files, submit hard copies in number specified for Shop Drawings.

#### 1.5 REQUESTS FOR INTERPRETATION/INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI on the form specified and in compliance with the General Conditions.
  1. RFIs shall be submitted through the Contractor. RFI's submitted otherwise will be returned unprocessed, without response.
  2. In order to expedite processing, each RFI shall include only one distinct issue.
  3. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Project schedule.
  4. RFI's that do not contain adequate references to the Drawings and Specifications are subject to immediate rejection.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation, providing the related information pertinent to understand the issue.
- C. RFI Forms: Use Request for Interpretation form bound in the Project Manual or as approved by Architect.
- D. RFI Response: Each RFI will be reviewed, required action will be determined, and a response will be issued according to the time specified in the General Conditions. RFIs received after 1:00 p.m. will be considered as received the following working day.
  1. RFIs may be returned without action for reasons such as:
    - a. Requests involving submittals or substitutions.
    - b. The Contract Documents contain the information needed to answer the request.
    - c. Incomplete or poorly prepared RFIs, or RFI's based on superseded Documents.
  2. The action may include a request for additional information, in which case the time period for response will begin upon receipt of the additional information.
  3. When the response described on RFI may result in a change to the Contract Time or the Contract Sum, Contractor may submit a Change Proposal according to Contract Document provisions dealing with Contract Modification Procedures. Give notification of such changes within 10 days of receipt of the RFI response.
- E. If in disagreement with RFI response, Contractor shall give notice of such disagreement within 7 working days of receiving the RFI response.
- F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. When requested, submit log within 1 working day of request.
  1. Number RFI's consecutively. Follow-up RFI's on the same topic should retain number of original and add "R\_\_" number suffix.

1.6 PROJECT MEETINGS AND CONFERENCES

- A. General: All entities involved in the Project shall participate, as necessary, in meetings and conferences called for the benefit of the Project. Contractor shall be responsible for attendance of all entities performing work under the Contract, as requested or appropriate to meeting purpose.
1. Contractor shall attend meetings called by Owner or Architect.
  2. Notify Owner and Architect within a reasonable period in advance of scheduled meetings and conferences. Architect's and Owner's attendance shall not be required at meetings for subcontractor or general construction coordination, except as specifically requested by Contractor.
  3. Except as otherwise agreed, the entity calling the meeting/conference shall conduct it as follows:
    - a. Inform participants and others involved, and individuals whose presence is required, of date and time. Notify Owner and Architect of scheduled meeting dates and times.
    - b. Attendees: Entities concerned with current progress or involved in planning, coordination, or performance of future activities, except as special purpose meetings or conferences require otherwise. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
    - c. Agenda: Prepare the meeting agenda and distribute it to all invited attendees. Review progress of construction activities, procedures, and preparations. Discuss items that could affect Project progress.
    - d. Record significant discussions, agreements, and disagreements, including required corrective measures and actions. Resolve the items or identify steps to resolution. Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within a time period sufficient to permit actions pursuant to the meeting.
- B. Preconstruction Conference: A preconstruction conference shall be held before starting construction, at a time convenient to Owner and Architect.
1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Discuss significant items that could affect progress. Agenda will be developed by Contractor, with input from Owner, Architect.
- C. Progress Meetings: The Owner, Architect and Contractor together, shall determine frequency sufficient to ensure meeting the construction schedule.
1. Coordinate dates of meetings with preparation of payment requests, except as otherwise agreed.
  2. Contractor's Construction Schedule: Review progress since the last meeting and for next period. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time. Review present and future needs of each entity present.
  3. Schedule Updating: Revise construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- D. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting.
  2. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- E. Coordination Meetings: Conduct Project coordination meetings at regular intervals as agreed to by Owner, Architect and Contractor. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
1. Attendees: Architect's and Owner's attendance shall not be required at meetings. In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
    - b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
    - c. Review present and future needs of each contractor present, including the following:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) Status of submittals.
      - 4) Off-site fabrication.
      - 5) Access.
      - 6) Temporary facilities and controls.
      - 7) Quality and work standards.
      - 8) Change Orders.
  3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

SECTION 01 3110 - REQUEST FOR INTERPRETATION

DATE TRANSMITTED: \_\_\_\_\_

RFI NO.: \_\_\_\_\_

**Contractor requests interpretation of the following from 1Architecture:**

(Note: Request only 1 interpretation per RFI. This permits individual handling and expedites response. Please include all relevant specification and drawing references as well as photographs of the condition.)

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

This box, if checked by the Contractor, indicates a potential change to the Contract Sum associated with this RFI. The change is in the range of \$ \_\_\_\_\_ to \$ \_\_\_\_\_.

This box, if checked by the Contractor, indicates a potential change to the Contract Time associated with this RFI. The change is in the range of \_\_\_\_\_ days to \_\_\_\_\_ days.

Requested By: (name): \_\_\_\_\_

**1Architecture response:**

Date Received: \_\_\_\_\_

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

1Arch DOES NOT expect a change to the  Contract Sum  Contract Time related to this RFI.  
 1Arch expects a change to the  Contract Sum  Contract Time related to this RFI.

Response By: \_\_\_\_\_ Date: \_\_\_\_\_

Date Transmitted: \_\_\_\_\_

**NOTE:** This base form is formatted for completion on screen using MS Word. Only form revisions by 1 Architecture are valid.

**SECTION 01 3120 - ELECTRONIC FILES AGREEMENT**

Project Title: SALINE COURTHOUSE TRAIL ALIGNMENT  
Project Location: ROSE, OKLAHOMA  
1Architecture Project No./Package ID, Title: 1408-018

The Contractor has requested that 1Architecture provide certain electronic/data/digital files (Files) from 1Architecture's Instruments of Service, and/or Work Product, as the case may be, for the Project identified above. The Files are requested for the purpose of providing convenience in the preparation of submittals, such as shop drawings and coordination drawings.

Contractor covenants and agrees that: 1) the Files are Instruments of Service of 1Architecture, the author, and/or Work Product of 1Architecture, as the case may be; 2) in providing the Files, 1Architecture does not transfer common law, statutory law, or other rights, including copyrights; 3) the Files are not Contract Documents, in whole or in part; and 4) the Files are not As-Built files.

Contractor agrees to report defects in the Files to 1Architecture, within 10 days of the initial Files transmittal date (Acceptance Period). It is understood that, if necessary, 1Architecture will correct such defects in a timely manner and retransmit the Files. Contractor further understands that correction of defects reported after the Acceptance Period, is at the sole discretion of 1Architecture.

Contractor understands that the Files have been prepared to 1Architecture criteria and may not conform to Contractor's drafting or other documentation standards. The Contractor further agrees that they are using the Files at their own risk, and that 1Architecture does not warrant the accuracy of these Files.

Contractor understands that due to the translation process of certain CADD/BIM formats, and the transmission of such Files to Contractor that 1Architecture does not guarantee the accuracy, completeness or integrity of the data, and that the Contractor will hold 1Architecture harmless for any data or file clean-up required to make these Files usable.

Contractor understands that even though 1Architecture may have computer virus scanning software to detect the presence of computer viruses, there is no guarantee that computer viruses are not present in the Files, and that Contractor will hold 1Architecture harmless for such viruses and their consequences, as well as any and all liability or damage caused by the presence of a computer virus in the Files.

Contractor agrees that the use of the Files does not reduce nor modify the Contractor's contract responsibilities for submitting complete and coordinated services.

Contractor agrees, to the fullest extent permitted by law, to indemnify and hold 1Architecture harmless from any and all damage, liability, or cost (including protection from loss due to attorney's fees and costs of defense), arising from or in any way connected with and changes made to the Files by Contractor or Contractor's failure to coordinate the electronic Files with modifications to the Contract Documents.

Under no circumstances shall transfer of Files to Contractor be deemed a sale by 1Architecture. 1Architecture makes no warranties, express or implied, of merchantability or fitness for any particular purpose.

**Accepted for the Contractor:**

_____	_____
<b>By</b>	<b>Company</b>
_____	_____
<b>Signature</b>	<b>Title</b>
_____	_____
<b>Date</b>	

**END OF SECTION**

## SECTION 01 3200 - CONSTRUCTION PROGRESS DOCUMENTATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Startup construction schedule.
  - 2. Submittal Schedule.
  - 3. Contractor's construction schedule.
  - 4. Construction schedule updating reports.
  - 5. Daily construction reports.
  - 6. Material location reports.
  - 7. Site condition reports.
  - 8. Special reports.
- B. Related Requirements:
  - 1. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
  - 2. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.

#### 1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
  - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
  - 2. Predecessor Activity: An activity that precedes another activity in the network.
  - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the schedule of values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum unless otherwise approved by Architect.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.
- F. Float: The measure of leeway in starting and completing an activity.
  - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

G. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
1. Working electronic copy of schedule file, where indicated.
  2. PDF electronic file.
- B. Construction Schedule Updating Reports: Submit with Applications for Payment.
- C. Daily Construction Reports: Submit at weekly intervals.
- D. Material Location Reports: Submit at weekly intervals.
- E. Site Condition Reports: Submit at time of discovery of differing conditions.
- F. Special Reports: Submit at time of unusual event.

### PART 2 - PRODUCTS

#### 2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.
1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
  2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
    - a. Structural components.
    - b. HVAC equipment.
    - c. Electrical Switchgear.
    - d. Minor electrical components
  3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule (submit 14 days after "Notice to Proceed").
  4. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
  5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
  6. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.



- C. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
  - 1. Unresolved issues.
  - 2. Unanswered Requests for Information.
  - 3. Rejected or unreturned submittals.
  - 4. Notations on returned submittals.
  - 5. Pending modifications affecting the Work and Contract Time.
- D. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance and date by which recovery will be accomplished.
- E. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

## 2.2 STARTUP CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit startup, horizontal, bar-chart-type construction schedule within seven days of date established for the Notice to Proceed.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

## 2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

- A. General: Prepare network diagrams using AON (activity-on-node) format.
- B. Startup Network Diagram: Submit diagram within 14 days of date established for the Notice to Proceed. Outline significant construction activities for the first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- C. CPM Schedule: Prepare Contractor's construction schedule using a cost- and resource-loaded, time-scaled CPM network analysis diagram for the Work.
  - 1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 30 days after date established for the Notice to Proceed.
    - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.
  - 2. Conduct educational workshops as necessary to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
  - 3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
  - 4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to coordinate with the Contract Time.
- D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
    - a. Preparation and processing of submittals.
    - b. Mobilization and demobilization.
    - c. Purchase of materials.
    - d. Delivery.
    - e. Fabrication.
    - f. Installation.
    - g. Testing.
    - h. Punch list and final completion.
    - i. Activities occurring following final completion.
  2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
  3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
  4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
    - a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.
  5. Cost- and Resource-Loading of CPM Schedule: Assign cost to construction activities on the CPM schedule. Do not assign costs to submittal activities. Obtain Architect's approval prior to assigning costs to fabrication and delivery activities. Assign costs under main subcontracts for testing activities, operation and maintenance manuals, punch list activities, Project record documents, Environmental documentation, and demonstration and training (if applicable), in the amount of 5 percent of the Contract Sum.
    - a. Each activity cost shall reflect an appropriate value subject to approval by Architect.
    - b. Total cost assigned to activities shall equal the total Contract Sum.
- E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.
- F. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:
  1. Contractor or subcontractor and the Work or activity.
  2. Description of activity.
  3. Main events of activity.
  4. Immediate preceding and succeeding activities.
  5. Early and late start dates.
  6. Early and late finish dates.
  7. Activity duration in workdays.
  8. Total float or slack time.
  9. Average size of workforce.
  10. Dollar value of activity (coordinated with the schedule of values).
- G. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
  1. Identification of activities that have changed.
  2. Changes in early and late start dates.
  3. Changes in early and late finish dates.
  4. Changes in activity durations in workdays.
  5. Changes in the critical path.

6. Changes in total float or slack time.
  7. Changes in the Contract Time.
- H. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.
1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
  2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
  3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
  4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.
    - a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
    - b. Submit value summary printouts one week before each regularly scheduled progress meeting.

## 2.4 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
1. List of subcontractors at Project site.
  2. Approximate count of personnel at Project site.
  3. Equipment at Project site.
  4. Material deliveries.
  5. High and low temperatures and general weather conditions, including presence of rain or snow.
  6. Accidents.
  7. Meetings and significant decisions.
  8. Unusual events (see special reports).
  9. Stoppages, delays, shortages, and losses.
  10. Meter readings and similar recordings.
  11. Emergency procedures.
  12. Orders and requests of authorities having jurisdiction.
  13. Change Orders received and implemented.
  14. Construction Change Directives received and implemented.
  15. Services connected and disconnected.
  16. Equipment or system tests and startups.
  17. Partial completions and occupancies.
  18. Substantial Completions authorized.
- B. Material Location Reports: At weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:
1. Material stored prior to previous report and remaining in storage.
  2. Material stored prior to previous report and since removed from storage and installed.
  3. Material stored following previous report and remaining in storage.
- C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.5 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
  - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  - 3. As the Work progresses, indicate final completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect, Contractor, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
  - 1. Post copies in Project meeting rooms and temporary field offices.
  - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

**END OF SECTION**

## SECTION 01 3216 - CONSTRUCTION SCHEDULE

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Construction schedule, bar chart type.

#### 1.2 REFERENCES

- A. AGC (CPSM) - Construction Planning and Scheduling Manual; Associated General Contractors of America; 2004.
- B. M-H (CPM) - CPM in Construction Management - Project Management with CPM, O'Brien, McGraw-Hill Book Company; 2006.

#### 1.3 SUBMITTALS

- A. Promptly (within 15 working days) after award of the Contract, Submit one or both of the following:
  - a. Horizontal bar chart with separate bar for each major trade or operation, identifying first workday of each week and critical path.
  - b. Network analysis system using the critical path method.
- B. Submit the number of opaque reproductions that Contractor requires, plus one physical and one digital copy that will be retained by Architect.

#### 1.4 QUALITY ASSURANCE

- A. Scheduler: Construction Manager personnel or specialist Consultant specializing in CPM scheduling with one year minimum experience in scheduling construction work of a complexity comparable to this Project, and having use of computer facilities capable of delivering a detailed graphic printout within 48 hours of request.

#### 1.5 SCHEDULE FORMAT

- A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.
- B. Diagram Sheet Size: Maximum 11x 17 inches or width required.
- C. Sheet Size: Multiples of 8-1/2 x 11 inches.
- D. Scale and Spacing: To allow for notations and revisions.

## **PART 2 - PRODUCTS (NOT USED)**

## **PART 3 – EXECUTION**

### **3.1 PRELIMINARY SCHEDULE**

- A. Prepare preliminary schedule in the form of a horizontal bar chart.

### **3.2 CONTENT**

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Identify each item by specification section number.
- C. Identify work of separate stages and other logically grouped activities.
- D. Provide sub-schedules for each stage of Work identified in Section 01 1000.
- E. Provide sub-schedules to define critical portions of the entire schedule.
- F. Include conferences and meetings in schedule.
- G. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
- H. Provide separate schedule of submittal dates for shop drawings, product data, samples, and owner-furnished products, Products identified under Allowances, and dates reviewed submittals will be required from Architect. Indicate decision dates for selection of finishes.
- I. Indicate delivery dates for owner-furnished products.
- J. Coordinate content with schedule of values specified in Article 9, sub-section 9.2, of the General Conditions.
- K. Provide legend for symbols and abbreviations used.

### **3.3 BAR CHARTS**

- A. Include a separate bar for each major portion of Work or operation.
- B. Identify the first work day of each week.

### **3.4 REVIEW AND EVALUATION OF SCHEDULE**

- A. Participate in joint review and evaluation of schedule with Architect at each submittal.
- B. Evaluate project status to determine work behind schedule and work ahead of schedule.
- C. After review, revise as necessary as result of review, and resubmit within 10 days.

### **3.5 UPDATING SCHEDULE**

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity.

- C. Annotate diagrams to graphically depict current status of Work.
- D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- E. Indicate changes required to maintain Date of Substantial Completion.
- F. Submit reports required to support recommended changes.
- G. Provide narrative report to define problem areas, anticipated delays, and impact on the schedule. Report corrective action taken or proposed and its effect including the effects of changes on schedules of separate contractors.

### 3.6 DISTRIBUTION OF SCHEDULE

- A. Distribute copies of updated schedules to Contractor's project site file, to Subcontractors, suppliers, Architect, Owner, and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

**END OF SECTION**

## SECTION 01 3233 - PHOTOGRAPHIC DOCUMENTATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
  - 1. Preconstruction photographs.
  - 2. Periodic construction photographs.
  - 3. Final completion construction photographs.
  - 4. Web-based construction photographic and video documentation.
- B. Related Requirements:
  - 1. Division 01 Section "Submittal Procedures" for submitting photographic documentation.
  - 2. Division 01 Section "Closeout Procedures" for submitting photographic documentation as project record documents at Project closeout.
  - 3. Division 31 Section "Site Clearing" for photographic documentation before site clearing operations commence.

#### 1.3 INFORMATIONAL SUBMITTALS

- A. Digital Photographs: Submit image files within three days of taking photographs.
  - 1. Digital Camera: Minimum sensor resolution of 8 megapixels.
  - 2. Format: Minimum 3200 by 2400 pixels, in unaltered original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of photograph, accompanied by key plan file.
  - 3. Identification: Provide the following information with each image description in file metadata tag:
    - a. Name of Project.
    - b. Name and contact information for photographer, for final construction completion photographs only.
    - c. Name of Architect and Contractor.
    - d. Date photograph was taken.
    - e. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction, for final construction completion photographs only.
    - f. Unique sequential identifier keyed to accompanying key plan.

#### 1.4 QUALITY ASSURANCE

- A. Photographer Qualifications for Final Completion Photographs: An individual who has been regularly engaged photographing construction projects for not less than three years.
- B. Web-Based Photographic Documentation Service Provider: A firm specializing in providing photographic equipment, Web-based software, and related services for construction projects, with record of providing satisfactory services similar to those required for Project.



1.5 USAGE RIGHTS

- A. Obtain and transfer copyright usage rights to Owner for unlimited reproduction of all photographic documentation.

**PART 2 - PRODUCTS**

2.1 PHOTOGRAPHIC MEDIA

- A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of 8 megapixels, and at an image resolution of not less than 3200 by 2400 pixels.

**PART 3 - EXECUTION**

3.1 CONSTRUCTION PHOTOGRAPHS

- A. Final Completion Photographer: Engage a qualified photographer to take construction photographs.
- B. Pre-Construction and Construction Progress Photography: CM's on-site project staff to take pre-construction and construction progress photographs.
- C. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
  - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- D. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
  - 1. Date and Time: Include date and time in file name for each image.
  - 2. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to Architect.
- E. Preconstruction Photographs: Before starting construction, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect.
  - 1. Flag excavation areas before taking construction photographs.
  - 2. Take 20 photographs to show existing conditions adjacent to property before starting the Work.
  - 3. Take 20 photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
  - 4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- F. Periodic Construction Photographs: Take 20 minimum photographs monthly with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- G. Final Completion Construction Photographs: Take 20 color photographs after date of Substantial Completion for submission as project record documents. Architect will inform photographer of desired vantage points.
  - 1. Do not include date stamp.

**END OF SECTION**

**SECTION 01 3553 - SECURITY PROCEDURES**

**PART 1 - GENERAL**

1.1 SECTION INCLUDES

- A. Security measures including entry control, personnel identification and miscellaneous restrictions.

1.2 RELATED REQUIREMENTS

- A. Section 01 1000 - Summary: use of premises and occupancy.
- B. Section 01 5100 - Temporary Utilities: temporary lighting.

1.3 SECURITY PROGRAM

- A. Protect Work from theft, vandalism, and unauthorized entry.
- B. Initiate program at project mobilization.
- C. Maintain program throughout construction period until Substantial Completion.
- D. Coordinate with Owner's security program if applicable.

1.4 ENTRY CONTROL

- A. Restrict entrance of persons and vehicles into Project site and existing facilities.
- B. Allow entrance only to authorized persons with proper identification.
- C. Maintain log of workers and visitors, make available to Owner on request.
- D. Contractor shall control entrance of persons and vehicles related to Owner's operations.

1.5 PERSONNEL IDENTIFICATION

- A. Provide project orientation decals to each person authorized to enter premises.
- C. Maintain a list of accredited persons, submit copy to Owner on request.
- D. Provide badges to all temporary visitors to the site. Require return of badges prior to their leaving the site.

1.6 RESTRICTIONS

- A. Do not allow cameras on site or photographs taken except by written approval of Owner, except as required for construction progress documentation or as deemed necessary by CM's project staff.

**PART 2 PRODUCTS – (NOT USED)**

**PART 3 EXECUTION – (NOT USED)**

**END OF SECTION**

## **SECTION 01 4000 - QUALITY REQUIREMENTS**

### **PART 1 - GENERAL**

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, Commissioning Authority, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Requirements:
  - 1. Division 01 "Mock-Ups".
  - 2. Divisions 02 through 34 Sections for specific test and inspection requirements.

#### 1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
- D. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- E. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

- F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
  - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- I. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

#### 1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

#### 1.5 ACTION SUBMITTALS

- A. Shop Drawings: For integrated exterior mockups or building areas for testing, provide plans, sections, and elevations, indicating materials and size of mockup construction.
  - 1. Indicate manufacturer and model number of individual components.
  - 2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.
- B. Sample Construction: Process submittal for field samples as specified for product submittal, for documentation.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience, include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
  - 1. Distribution: Distribute schedule to Owner, Architect, Commissioning Authority, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

- C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
1. Entity (Owner or CM) financially responsible to provide each test required for the project.
  2. Specification Section number and title.
  3. Entity responsible for performing tests and inspections.
  4. Description of test and inspection.
  5. Identification of applicable standards.
  6. Identification of test and inspection methods.
  7. Number of tests and inspections required.
  8. Time schedule or time span for tests and inspections.
  9. Requirements for obtaining samples.
  10. Unique characteristics of each quality-control service.
- D. The Contractor shall submit the Schedule of Tests and Inspections to the Architect and Owner within 15 working days after date of receipt of notice to proceed and before commencing with any testing of the Work.

#### 1.7 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections to the Architect within 7 working days of the test or inspection's completion. Include the following:
1. Date of issue.
  2. Project title and number.
  3. Name, address, and telephone number of testing agency.
  4. Dates and locations of samples and tests or inspections.
  5. Names of individuals making tests and inspections.
  6. Description of the Work and test and inspection method.
  7. Identification of product and Specification Section.
  8. Complete test or inspection data.
  9. Test and inspection results and an interpretation of test results.
  10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
  11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
  12. Name and signature of laboratory inspector.
  13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare and submit written information documenting manufacturer's technical representative's tests and field inspections specified in other Sections to the Architect within 7 working days of the field report's completion. Include the following:
1. Name, address, and telephone number of technical representative making report.
  2. Statement on condition of substrates and their acceptability for installation of product.
  3. Statement that products at Project site comply with requirements.
  4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  6. Statement whether conditions, products, and installation will affect warranty.
  7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare and submit written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections to the Architect within 7 working days of the test or inspection's completion. Include the following:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

#### 1.8 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
  1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
  1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
  2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

1.9 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
  - 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform within 10 working days after date of Contractor's notice to proceed and before commencing with any testing of the Work.
  - 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to and paid for by the Contractor.
  
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are the Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
  - 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
  - 2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
    - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
  - 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  - 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, via email and hard copy, of each quality-control service to the Architect within 48 hours of the service's completion.
  - 5. Testing and inspecting requested by Contractor and not required by the Contract Documents are the Contractor's responsibility.
  - 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
  
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."
  
- D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
  
- E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
  
- F. Testing Agency Responsibilities: Cooperate with Architect, Commissioning Authority (if LEED Certification applies) and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
  - 1. Notify Architect, Commissioning Authority, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  - 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
  - 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.

4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor to the Architect within 5 working days of the test or inspection's completion.
  5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
  6. Do not perform any duties of Contractor.
- G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field curing of test samples.
  5. Delivery of samples to testing agencies.
  6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  7. Security and protection for samples and for testing and inspecting equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

#### 1.10 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage qualified testing agency special inspector to conduct special tests and inspections required by the Documents and authorities having jurisdiction as responsibility of Owner, and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
  2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
  3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect within 7 working days of the test or inspection's completion with copy to Contractor and to authorities having jurisdiction.
  4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
  5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
  6. Retesting and reinspecting corrected work.

### **PART 2 - PRODUCTS (NOT USED)**

### **PART 3 - EXECUTION**

#### 3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
1. Date test or inspection was conducted.
  2. Description of the Work tested or inspected.
  3. Date test or inspection results were transmitted to Architect.
  4. Identification of testing agency or special inspector conducting test or inspection.



- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's, reference during normal working hours. If log is updated, send updated log with the payment application for reference.

### 3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
  - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 7329 Cutting and Patching.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

**END OF SECTION**

**SECTION 01 4200 - DEFINITIONS AND REFERENCE STANDARDS**

**PART 1 - GENERAL**

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. Definitions are intended to apply to other sections except as otherwise specifically indicated.

<b><u>Term</u></b>	<b><u>Definition</u></b>
Approved	When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
As otherwise agreed	Used in relation to items to be determined after Contract by agreement between Owner, Architect, and Contractor, with input from other entities as appropriate.
Certified	Guaranteed in writing over the signature of an authorized representative of the certifying organization.
Delete	To remove something entirely from the Work.
Directed	An instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
Furnish	Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
Indicated	Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
Install	Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
N.I.C./NIC	Not in Contract.
Necessary	That which is reasonably necessary to the proper completion of the Work.
Per	In accordance with the requirements of.
Products	Materials, equipment, or systems.
Project Site	Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.
Provide	Furnish and install, complete and ready for the intended use.

Regulations	Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
Replace	To put something new in place of.
Required	Referring to requirements of the Contract Documents, unless its use clearly implies a different interpretation.
Shown/indicated	Appearing on the Drawings, unless their use clearly implies a different interpretation.
Supply	Same as Furnish

### 1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in the Work of the Project will be held to be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
  - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.
- D. No Change to Contract Responsibilities: No provision of any reference standard, manual, statute, code or regulation (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the Owner, Contractor, Construction Manager, Architect, Architect's consultants, or officers, directors, agents or employees of any of them from those set forth in the Contract Documents, nor shall it be effective to assign to the Architect, Architect's consultants, or officers, directors, agents or employees of any of them any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the Contract provisions.

### 1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

## **PART 2 - PRODUCTS (Not Used)**

## **PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

## SECTION 01 5000 – TEMPORARY FACILITIES AND CONTROLS

### PART 1 – GENERAL

#### 1.1 SECTION INCLUDES

- A. Temporary Sanitary Facilities
- B. Barriers

#### 1.2 RELATED REQUIREMENTS

- A. Section 01 5000 - Temporary Facilities and Controls:

#### 1.3 GENERAL

- A. In addition to specific responsibilities for temporary facilities and controls indicated in this Section, each contractor is responsible for the following:
  - 1. Installation, operation, maintenance, and removal of each temporary facility necessary for its own normal construction activity, and costs and use charges associated with each facility, except as otherwise provided for in this Section.
  - 2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
  - 3. Its own storage and fabrication sheds.
  - 4. Temporary enclosures for its own construction activities.
  - 5. Staging and scaffolding for its own construction activities.
  - 6. General hoisting facilities for its own construction activities, up to 2 tons.
  - 7. Progress cleaning of work areas affected by its operations on a daily basis.
  - 8. Secure lockup of its own tools, materials, and equipment.
  - 9. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.
- B. Unless noted otherwise, all temporary facilities, utilities, barriers, and project identification to be Contractor provided and Owner paid as required for construction operations.

#### 1.4 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
- B. Maintain the provided facilities daily in a clean and sanitary condition.

- C. At the end of construction, return all facilities to the same or better condition as originally found.

#### 1.5 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
- C. Provide protection for plants designated to remain. Replace damaged plants.
- D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

#### 1.6 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore existing facilities used during construction to original condition.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

**END OF SECTION**

## **SECTION 01 5500 - VEHICULAR ACCESS AND PARKING**

### **PART 1 - GENERAL**

#### 1.1 SECTION INCLUDES

- A. Access roads.
- B. Parking.
- C. New permanent pavements.
- D. Construction parking control.
- E. Flag persons.
- F. Flares and lights.
- G. Haul routes.
- H. Maintenance.
- J. Removal, repair.
- K. Mud from site vehicles.

#### 1.2 RELATED REQUIREMENTS

- A. Section 01 1000 - Summary: access to site, work sequence, and occupancy.

### **PART 2 - PRODUCTS**

#### 2.1 MATERIALS

- A. Temporary Construction: Contractor's option.
- B. Materials for Permanent Construction: As specified in product specification sections, including earthwork, paving base, and topping.

### **PART 3 - EXECUTION**

#### 3.1 PREPARATION

- A. Clear areas, provide surface and storm drainage of road, parking, area premises, and adjacent areas.

#### 3.2 PARKING

- A. Use of designated areas of existing parking facilities by construction personnel to be coordinated by Contractor with Architect and Owner.

- B. Do not allow heavy vehicles or construction equipment in parking areas.
- C. Arrange for temporary parking areas to accommodate use of construction personnel.
- D. When site space is not adequate, provide additional off-site parking.
- E. Locate as approved by Owner.

### 3.3 NEW PERMANENT PAVEMENTS

- A. Prior to Substantial Completion the base for permanent roads and parking areas may be used for construction traffic.
- B. Avoid traffic loading beyond paving design capacity.

### 3.4 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and Owner's operations.
- B. Monitor parking of construction personnel's vehicles in existing facilities. Maintain vehicular access to and through parking areas.
- C. Prevent parking on or adjacent to access roads or in non-designated areas.

### 3.5 HAUL ROUTES

- A. Confine construction traffic to designated haul routes.
- B. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

### 3.6 MAINTENANCE

- A. Maintain traffic and parking areas in a sound condition free of excavated material, construction equipment, Products, mud, snow, ice, and excessive dust.
- B. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.

3.7 REMOVAL, REPAIR

- A. Repair existing facilities damaged by use, to original condition.
- B. Repair damage caused by installation to specified condition.

3.8 MUD FROM SITE VEHICLES

- A. Provide means of removing mud from vehicle wheels before entering streets.

**END OF SECTION**



**SECTION 01 7123 – CONTRACTOR CONSTRUCTION STAKING**

**PART 1 - GENERAL**

1.1 SUMMARY

- A. This section consists of furnishing labor, equipment, and material to provide construction layout methods and materials and the maintenance of these for the proper execution and inspection of the work.

**PART 2 – PRODUCTS (NOT USED)**

**PART 3 –**

**EXECUTION**

3.1 STAKING

- A. Identify and verify the bench marks.
- B. Notify the Architect if bench marks established by the Owner have been destroyed, damaged, or removed previous to the beginning of construction.
- C. Stake the limits for construction as shown on plans.
  - 1. Construction boundaries.
  - 2. Protected areas.
  - 3. Property lines.
  - 4. Right-of-Way lines.
  - 5. Easements, if the work is restricted by the easement.
- D. Stake the line and grade of construction features.
- E. Provide qualified staff with appropriate equipment to perform construction layout work.
- F. Notify the Architect of plan errors initially by verbal communication followed by written communication (letter on company letterhead, Request for Interpretation form, or email). All communication shall go through the approved chain of communication.
  - 1. Architect will evaluate the claimed plan error.
  - 2. Architect will issue a clarification if there is no error.
  - 3. If there is a plan error, the Architect shall arrange for special surveys to determine the corrective action for the plan error.

NOTE: Any surveying or checking of the layout by the Architect or Owner's surveyor and the acceptance of all or any part of it shall not relieve the Contractor of the responsibility to secure the proper line and grade of the construction features shown in the plans and/or corrective direction provided in writing by the Engineer.

- 4. Architect will provide written direction to remedy the error if there is a plan error.

**END OF SECTION**

**SECTION 01 7413 – PROGRESS CLEARING**

**PART 1 - GENERAL**

1.1 SUMMARY

- A. The Contractor shall generally maintain the project site in a clean, orderly fashion, free of materials in areas that are not expressly designated as staging or material storage areas.

**PART 2 – PRODUCTS (NOT USED)**

**PART 3 - EXECUTION**

3.1 CLEAN-UP

- A. Immediately upon installation of any portion of the work, the Contractor shall restore all fills, topsoil, and utilities to their location and condition prior to construction.
- B. The Contractor shall install, maintain, and keep clean all erosion control devices as shown on the plans and Contract Documents.
- C. Immediately upon installation of any block in length of work herein contemplated, the Contractor shall remove all materials, tools, debris, excess excavated material, and equipment; and restore the site in a manner satisfactory to the Engineer.
- D. Clean-up and restoration of service line transfers shall be made immediately following each transfer installation.

**END OF SECTION**

## SECTION 01 7419 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
  1. Salvaging nonhazardous and construction waste.
  2. Recycling nonhazardous and construction waste.
  3. Disposing of nonhazardous and construction waste.

#### 1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycle, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- C. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials, including the following:
  1. Construction Waste:
    - a. Wood sheet materials.
    - b. Wood trim.
    - c. Piping.
    - d. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
      - 1) Paper.
      - 2) Cardboard.
      - 3) Boxes.
      - 4) Plastic sheet and film.

- 5) Polystyrene packaging.
- 6) Wood crates.
- 7) Plastic pails.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- B. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- C. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

#### 1.6 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Waste Management Conference: Conduct a conference at the Project site in accord with 01 3100 Project Management and Coordination. Review methods and procedures related to waste management including, but not limited to, the following:
  1. Review and discuss waste management plan including responsibilities of waste management coordinator.
  2. Review requirements for documenting quantities of each type of waste and its disposition.
  3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
  4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
  5. Review waste management requirements for each trade.

#### 1.7 WASTE MANAGEMENT PLAN

- A. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
  1. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
  2. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
  3. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.
  4. Submit work plan to the Architect within 15 working days of receipt of the notice to proceed.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION**

3.1 RECYCLING CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.
- C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
  - 1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
    - a. Inspect containers and bins for contamination and remove contaminated materials if found.
  - 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  - 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
  - 4. Store components off the ground and protect from the weather.
  - 5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.

3.2 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
  - 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
  - 2. Polystyrene Packaging: Separate and bag materials.
  - 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
  - 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Wood Materials:
  - 1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
  - 2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

3.3 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
  - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.

2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Remove waste materials from Owner's property and legally dispose of them.

**END OF SECTION**

**SECTION 01 7420 – REMOVAL OF CONDEMNED MATERIALS AND STRUCTURES**

**PART 1 - GENERAL**

1.1 SUMMARY

- A. The Contractor shall remove from the site of the work, without delay, all rejected and condemned materials or structures of any kind brought to or incorporated in the work.

**PART 2 – PRODUCTS (NOT USED)**

**PART 3 - EXECUTION**

3.1 REMOVAL OF CONDEMNED MATERIALS AND STRUCTURES

- A. The Contractor shall remove from the site of the work, without delay, all rejected and condemned materials or structures of any kind brought to or incorporated in the work, and upon his failure to do so, or to make satisfactory progress in so doing, within forty- eight (48) hours after the service of a written notice from the Architect/Engineer ordering such removal, the condemned material or structure may be removed by the Owner and the cost of such removal to be taken out of the money that may be due or may become due the Contractor on account of or by virtue of this Contract. No such rejected or condemned material shall again be offered for use by the Contractor under this or any other Contract under this project.

**END OF SECTION**

## **SECTION 01 7700 - CLOSEOUT PROCEDURES**

### **PART 1 - GENERAL**

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Substantial Completion procedures.
  - 2. Final Completion procedures.
  - 3. Warranties.
  - 4. Final cleaning.
  - 5. Repair of the Work.
- B. Related Requirements:
  - 1. Division 01 Section "Photographic Documentation" for submitting final completion construction photographic documentation.
  - 2. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 3. Divisions 02 through 34 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

#### 1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

#### 1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.



- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 5 working days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
  3. Submit closeout submittals specified in individual Divisions 02 through 34 Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  4. Submit test/adjust/balance records.
  5. Submit sustainable design submittals required in Division 01 and in individual Division 02 through 34 Sections.
  6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 5 working days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request. Advise Owner of pending insurance changeover requirements.
1. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  2. Complete startup and testing of systems and equipment.
  3. Perform preventive maintenance on equipment used prior to Substantial Completion.
  4. Advise Owner of changeover in heat and other utilities.
  5. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
  6. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements as required.
  7. Complete final cleaning requirements, including touchup painting.
  8. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 5 working days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected. Should a second or additional reinspection be made necessary by incomplete work, the Contractor will be responsible for the associated costs.
  2. Results of completed inspection will form the basis of requirements for final completion.

#### 1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment.
  2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.

- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 5 working days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected. Should a second or additional reinspection be made necessary by incomplete work, the Contractor will be responsible for the associated costs.

#### 1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. The list shall indicate the value of each item on the list and reasons why the Work is incomplete.
1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
  2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
  3. Include the following information at the top of each page:
    - a. Project name.
    - b. Date.
    - c. Name of Architect.
    - d. Name of Contractor.
    - e. Page number.
  4. Submit list of incomplete items in the following format:
    - a. MS Excel electronic file. Architect will return annotated file.
    - b. PDF electronic file. Architect will return annotated file.

#### 1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Partial Occupancy: Submit properly executed warranties within 15 working days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
  2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
  1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

## **PART 3 - EXECUTION**

### **3.1 FINAL CLEANING**

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Remove snow and ice to provide safe access to building.
    - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - h. Sweep concrete floors broom clean in unoccupied spaces.
    - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
    - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
    - k. Remove labels that are not permanent.
    - l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
    - m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

- n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
- o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
  - 1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.
- p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
- q. Leave Project clean and ready for occupancy.

### 3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
  - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
  - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
    - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
  - 3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
  - 4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

**END OF SECTION**

## **SECTION 01 7839 - PROJECT RECORD DOCUMENTS**

### **PART 1 - GENERAL**

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
  - 1. Record Drawings.
  - 2. Record Specifications.
  - 3. Record Product Data.
- B. Related Requirements:
  - 1. Application for payment
  - 2. Division 01 Section "Closeout Procedures" for general closeout procedures.
  - 3. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 4. Divisions 02 through 34 Sections for specific requirements for project record documents of the Work in those Sections.

#### 1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
  - 1. Number of Copies: Submit one set(s) of marked-up record prints.
  - 2. Number of Copies: Submit copies of record Drawings as follows:
    - a. Initial Submittal:
      - 1) Submit one paper-copy set(s) of marked-up record prints.
      - 2) Submit PDF electronic files of scanned record prints and one of file prints.
      - 3) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
    - b. Final Submittal:
      - 1) Submit PDF electronic files of scanned record prints and one set of prints.
      - 2) Print each drawing, whether or not changes and additional information were recorded.
- B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.

### **PART 2 - PRODUCTS**

#### 2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
  - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, Subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

- a. Give particular, timely attention to information on concealed elements that would be difficult to identify or measure and record later.
  - b. Accurately record information in an acceptable drawing technique.
  - c. Record data as soon as possible after obtaining it.
  - d. Record and check the markup before enclosing concealed installations.
  - e. Cross-reference record prints to corresponding archive photographic documentation.
  2. Content: Types of items requiring marking include, but are not limited to, the following:
    - a. Dimensional changes to Drawings.
    - b. Revisions to details shown on Drawings.
    - c. Depths of foundations below first floor.
    - d. Locations and depths of underground utilities.
    - e. Revisions to routing of piping and conduits.
    - f. Revisions to electrical circuitry.
    - g. Actual equipment locations.
    - h. Duct size and routing.
    - i. Locations of concealed internal utilities.
    - j. Changes made by Change Order.
    - k. Changes made following Architect's written orders.
    - l. Details not on the original Contract Drawings.
    - m. Field records for variable and concealed conditions.
    - n. Record information on the Work that is shown only schematically.
  3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
  4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
  5. Mark important additional information that was either shown schematically or omitted from original Drawings.
  6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Same digital data software program, version, and operating system as the original Contract Drawings or equal approved by Architect.
  2. Format: DWG, Version 2016, Microsoft Windows operating system.
  3. Format: Annotated PDF electronic file with comment function enabled.
  4. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
  5. Refer instances of uncertainty to Architect for resolution.
  6. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
    - a. Record markups in separate layers.
- C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location that does not block any information.
1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
  2. Format: Annotated PDF electronic file with comment function enabled.
  3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
  4. Identification: As follows:
    - a. Project name.
    - b. Date.

- c. Designation "PROJECT RECORD DRAWINGS."
- d. Name of Architect.
- e. Name of Contractor.

## 2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
  - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
  - 4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
  - 5. Note related Change Orders, record Product Data and record Drawings where applicable.
- B. Format: Submit record Specifications as annotated PDF electronic file or scanned PDF electronic file(s) of marked-up paper copy of Specifications.

## 2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
  - 1. Give particular, timely attention to information on concealed products and installations that cannot be readily identified and recorded later.
  - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
  - 3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- B. Format: Submit record Product Data as scanned PDF electronic file(s) of marked-up paper copy of Product Data.
  - 1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

## **PART 3 - EXECUTION**

### 3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

**END OF SECTION**

**SECTION 01 56 39  
TREE PROTECTION**

**PART 1 — GENERAL**

**1.01 SUMMARY**

- A. This section includes the protection and trimming of trees that interfere with or are affected by, execution of work, whether temporary or permanent construction.

**1.02 PROJECT CONDITIONS**

- A. Variations in Site Conditions: If a condition is observed while the work is being performed that requires attention beyond the original scope of work, the conditions shall be immediately reported to the landscape architect.

**PART 2- EXECUTION**

**2.01 PREPARATION OF TREE PROTECTION ZONES**

- A. Temporary Fencing: Install temporary fencing around tree protection zones to protect trees and vegetation from construction damage. Temporary fence to remain in place until after the completion of work.
- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.
- C. Do not store construction materials, debris, or excavated material inside tree protection zones. Do not permit vehicles or foot traffic within tree protection zones; prevent soil compaction over root systems.
- D. Maintain tree protection zones free of weeds and trash.

**2.02 TREE PRUNING**

- A. Pruning Standards: Prune Trees according to ANSI A300 (Part 1) as follows:
  - 1. Type of Pruning: Cleaning. Obtain approval from Landscape Architect or Owner's authorized representative prior to removing branches greater than 2.5" in diameter.

**2.03 TREE REPAIR**

- A. Promptly contact Oklahoma City Parks and Recreation to schedule repair for trees damaged by construction operations within 24 hours.
- B. Trees indicated to remain in place that are damaged or die during construction such that the Landscape Architect determine are incapable of restoring to normal growth pattern shall be replaced at the Contractor's expense.

**END OF SECTION 01 56 39**



**SECTION 31 05 19.13  
GEOTEXTILES FOR EARTHWORK**

**PART 1 — GENERAL**

**1.1 SCOPE**

This drop-in specification covers the technical requirements for the Manufacturing and Installation of the nonwoven geotextile. All materials meet or exceed the requirements of this specification, and all work will be performed in accordance with the procedures provided in these project specifications.

**1.2 REFERENCES**

- A. American Society for Testing and Materials (ASTM)
1. ASTM D 5261, Standard Test Method for Measuring Mass per Unit Area of Geotextiles
  2. ASTM D 4632, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
  3. ASTM D 4533, Standard Test Method for Index Trapezoidal Tearing Strength of Geotextiles
  4. ASTM D 4833, Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes and Related Products
  5. ASTM D 4491, Standard Test Method for Water Permeability of Geotextiles by Permittivity
  6. ASTM D 4751, Standard Test Method for Determining Apparent Opening Size of a Geotextile
  7. ASTM D 4354, Standard Practice for Sampling of Geosynthetics for Testing
  8. ASTM D 4759, Standard Practice for Determining the Specifications Conformance of Geosynthetics

**1.3 SUBMITTALS**

- A. Prior to material delivery to project site, the contractor shall provide the engineer with a written certification or manufacturers quality control data which displays that the geotextile meets or exceeds minimum average roll values (MARV) specified herein.
- B. The contractor shall submit, if required by the engineer, manufacturer's quality control manual for the geotextile to be delivered to the site.

**2 PRODUCT**

**2.1 GEOTEXTILE**

- A. The nonwoven needlepunched geotextile specified herein shall be made from staple fiber.
- B. The geotextile shall be manufactured from prime quality virgin polymer.
- C. The geotextile shall be able to withstand direct exposure to ultraviolet radiation from Sun for up to 30 days without any noticeable effect on index or performance properties.

## 2.2 MANUFACTURE

All rolls of the geotextile shall be identified with permanent marking on the roll or packaging, with the manufacturers name, product identification, roll number and roll dimensions.

## 2.3 TRANSPORT

- A. Transportation of the geotextile shall be the responsibility of the contractor.
- B. During shipment, the geotextile shall be protected from ultraviolet light exposure, precipitation, mud, dirt, dust, puncture, or other damaging or deleterious conditions.
- C. Upon delivery at the job site, the contractor shall ensure that the geotextile rolls are handled and stored in accordance with the manufacturer's instructions as to prevent damage.

## 3. EXECUTION

### 3.1 QUALITY ASSURANCE

- A. The landscape architect shall examine the geotextile rolls upon delivery to the site and report any deviations from project specifications to the contractor.
- B. The engineer may decide to arrange conformance testing of the rolls delivered to the job site. For this purpose, the engineer shall take a sample three feet (along roll length) by roll width according to ASTM Practice D 4354. The sample shall be properly marked, wrapped and sent to an independent laboratory for conformance testing.
- C. The pass or fail of the conformance test results shall be determined according to ASTM Practice D 4759.

### 3.2 INSTALLATION

- A. The geotextile shall be handled in such a manner as to ensure that it is not damaged in any way. Should the contractor damage the geotextile to the extent that it is no longer usable as determined by these specifications or by the engineer, the contractor shall replace the geotextile at his own cost.
- B. The geotextile shall be installed to the lines and grades as shown on the contract drawings and as described herein.
- C. The geotextile shall be rolled down the slope in such a manner as to continuously keep the geotextile in tension by self weight. The geotextile shall be securely anchored in an anchor trench where applicable, or by other approved or specified methods.
- D. In the presence of wind, all geotextiles shall be weighted by sandbags or approved equivalent. Such anchors shall be installed during placement and shall remain in place until replaced with cover material.
- E. The contractor shall take necessary precautions to prevent damage to adjacent or underlying materials during placement of the geotextile. Should damage to such material occur due to the fault of the contractor, the latter shall repair the damaged materials at his own cost and to the satisfaction of the engineer.
- F. During placement of the geotextile, care shall be taken not to entrap soil, stones or excessive moisture that could hamper subsequent seaming of the geotextile as judged by the engineer.
- G. The geotextile shall not be exposed to precipitation prior to being installed and shall not be exposed to direct Sun light for more than 15 days after installation.
- H. The geotextile shall be seamed using heat seaming or stitching methods as recommended by the manufacturer and approved by the engineer. Sewn seams shall be made using polymeric thread with chemical resistance equal to or exceeding that of the geotextile. All sewn seams shall be continuous. Seams shall be oriented down slopes

perpendicular to grading contours unless otherwise specified. For heat seaming, fusion welding techniques recommended by the manufacturer shall be used.

- I. The contractor shall not use heavy equipment to traffic above the geotextile without approved protection.
- J. The geotextile shall be covered as soon as possible after installation and approval. Installed geotextile shall not be left exposed for more than 15 days.
- K. Material overlying the geotextile shall be carefully placed to avoid wrinkling or damage to the geotextile.

**END OF SECTION 31 05 19.13**

**SECTION 31 23 33**

**EXCAVATING, BACKFILLING AND COMPACTING**

**PART 1 — GENERAL**

**1.01 DESCRIPTION**

- A. Work included: Excavate, backfill, compact and grade the site to the elevations shown on the drawings as specified herein and as needed to meet the requirements of the construction shown in the Contract Documents.
  - 1. Work Included: Do all cutting, filling, compacting of fills and rough grading required to bring the entire project area to sub-grades as follows:
    - a. For surfaced areas – to the respective surfacing or base course, and fixed by the finished grades therefore. Plans indicate finish spot elevations. Calculate sub-grade elevations and finish work to provide designed grades and drainage.

**1.02 QUALITY ASSURANCE**

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Use equipment adequate in size, capacity and numbers to accomplish the work of this Section in a timely manner.
- C. Protection: Protect newly graded areas from the actions of the elements. Any settlement or washing that occurs prior to acceptance of the work shall be repaired, and grades re-established to the required elevations and slopes. Fill to required sub-grade levels any areas where settlement occurs.

**PART 2 — PRODUCTS**

**2.01 SOIL MATERIALS**

- A. Fill and backfill materials:
  - 1. Provide soil materials free from organic matter and deleterious substances, containing no rocks or lumps over 4" in greatest dimension and with not more than 15% of the rocks or lumps larger than 2-3/8" in their greatest dimension. Fill shall be reasonably free from roots, wood, or other organic material.
  - 2. Fill materials shall meet the criteria outlined in sub-section 3.03 in this specification.
  - 3. Do not permit rocks having a dimension greater than 1" in the upper 12" of fill or embankment.

4. Excavated material shall be stockpiled and tested for suitability as select fill.
5. All stone discovered during excavation shall be retained and stored on site.

### **PART 3 — EXECUTION**

#### **3.01 SURFACE CONDITIONS**

- A. Utilities: Refer to Site Work or other related specifications in this document.
- B. Protection of persons and property:
  1. Barricade open holes and depressions occurring as part of the work and post warning lights on property adjacent to or with public access.
  2. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
  3. Protect structures, utilities, sidewalks, pavements and other facilities from damage caused by settlement, lateral movement, washout and other hazards created by operations under this Section.
- C. Dewatering:
  1. Remove all water, including rain water, encountered during trench and sub-structure work to an approved location by pumps, drains and other approved methods.
  2. Keep excavations and site construction area free from water.
- D. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors and to other work being performed on or near the site.
- E. Maintain access to adjacent areas at all times.
- F. Job Conditions:
  1. Do not deposit any fill on a sub-grade that is muddy, frozen, or that contains frost.
  2. Positive drainage should be provided during construction and maintained throughout the life of the proposed development. Infiltration of water into utility or foundation excavations must be prevented during construction.

#### **3.02 EXCAVATING**

- A. Perform excavating of every type of material encountered within the limits of the work to the lines, grades and elevations indicated and specified herein.
- B. Excavation of rock:

1. Where rocks, boulders, granite or similar material is encountered and cannot be removed or excavated by conventional earth moving or ripping equipment, take required steps to proceed with the general grading operations of the work and remove or excavate such material by means which will neither cause additional cost to the Owner nor endanger buildings or structures whether on or off the site.
  2. Do not use explosives without written permission from the owner.
- C. Excavate and backfill in a manner and sequence that will provide proper drainage at all times. Excess cut shall be placed on-site to match existing grade in a location determined by a representative of the Parks and Recreation Department.
- D. Remove all debris subject to termite attack, rot or corrosion, and all other deleterious materials from areas to be filled. Prior to placing fill material, the surface of the ground shall be scarified to a depth of six inches (6") and the moisture content of the loosened materials shall be such that it will readily bond with the first layer of fill material.
- E. Hauled Borrow:
1. Obtain material required for fill as outlined in section 3.03 to this specification.
- F. Swales, ditches, gutters:
1. Cut accurately to the grades and elevations shown.
  2. Maintain excavations free from detrimental quantities of leaves, sticks, trash and other debris until completion of the work.
- G. Unauthorized excavation:
1. Unauthorized excavation consists of removal of materials beyond indicated sub-grade elevations or dimensions without specific instruction from the Owner's Representative.
  2. Under footings or retaining walls:
    - a. Fill unauthorized excavations by extending the indicated bottom elevation of the footing or base to the excavated bottom without altering the required top elevation.
  3. Elsewhere:
    - b. Backfill and compact unauthorized excavations as specified for authorized excavations, unless otherwise directed by the Owner's Representative.
- H. Stability of excavations:
1. Slope sides of excavations to 1:1 or flatter, unless otherwise directed by the Owner's Representative.
  2. Shore and brace where sloping is not possible because of space restrictions or

stability of the materials being excavated.

3. Maintain sides and slopes of excavations in a safe condition until backfilling is completed.

I. Excavating for structures:

1. Conform to elevations and dimensions shown within a tolerance of 0.10 ft and extending a sufficient distance from footings and foundations to permit placing and removing concrete formwork, installation of services, other construction required and for inspection.
2. In excavating for footings and foundations, take care not to disturb bottom of excavation:
  - a. Excavate by hand tools to final grade just before concrete is placed.
  - b. Trim bottoms to required lines and grades to leave solid base to receive concrete.
3. Excavate for footings and foundations only after general site excavating, filling and grading are complete.

J. Cold weather protection:

1. Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees F.

### 3.03 FILLING AND BACKFILLING

A. General:

1. For each classification listed below, place acceptable soil material in layers to required sub-grade elevations.
  - a. In excavations: Use satisfactory excavated or borrow materials.
  - b. Under slabs: Use granular fill, if so called for on the Drawings.
  - c. Fill areas shall consist of select fill and shall be compacted to required standard proctor density (see 3.04 "Compacting").

B. Ground surface preparation:

1. Remove vegetation, debris, unsatisfactory soil materials, obstructions and deleterious matter from ground surface prior to placement of fills.
2. Plow, strip or break up sloped surfaces steeper than one vertical to four horizontal so that fill material will bond with existing surface.

3. When existing ground surface has a density less than that specified under "compacting" for the particular area:
  - break up the ground surface
  - pulverize
  - moisture-condition to the optimum moisture content
  - compact to required depth and percentage of maximum density.

C. Rough Grading:

1. Rough grading of all areas within the project, including excavated and filled sections and adjacent transition areas shall be reasonably smooth, compacted and free from irregular surface changes.
2. The degree of finish shall be that ordinarily obtainable from either blade-grader or scraper operations, except as otherwise specified.
3. The finished sub-grade surface generally shall be not more than 0.33 feet above or below the established grade or approved cross section, with due allowance for topsoil, sod and pavement depths.
4. The tolerance for areas within ten feet (10') of buildings and all areas to be paved, shall not exceed 0.15 feet above or below the established sub-grade.
5. All ditches, swales and gutters shall be finished to drain readily.
6. The sub-grade shall be evenly sloped to provide drainage away from building walls in all directions at a grade not less than one-quarter inch (1/4") per foot.
7. Provide roundings at top and bottom of banks and at other breaks in grade.

D. Replacing Topsoil:

1. Place no topsoil until sub-grade has been approved.
2. Scarify soil to a depth of three inches (3").
3. Spread, rake, and compact topsoil to form a layer with minimum depth of six inches (6") so that after settlement there will be proper drainage conforming to elevations on Drawings.
4. Maintain surfaces (protecting with cover if necessary).

E. Select Fill

1. Provide select borrow that passes a 3 in [75 mm] sieve and remove material from the site that does not reduce to a size 3 in [75 mm] or less. Select borrow shall have a liquid limit of 50, a plasticity index of 8 to 18 and a slake durability of 80.
2. If the Contractor encounters a lens, layer, or stratum of unacceptable material in a trail alignment cut, the contractor may combine the unacceptable material with acceptable material as long as the resulting uniform mixture meets the Contract requirements.



3. Provide select borrow that is uniform in gradation and plastic properties.
4. Unless otherwise required by the Contract, provide all materials for select borrow. Make preliminary investigations to locate and verify the proposed material source.
5. Contractor may stockpile and utilize excavated soil on site provided the soil has been tested and conforms to the criteria in Table 1.
5. Test select borrow in accordance with Table 1

Table 1: Select Borrow Testing Methods

Test Item	Method
Sieve analysis	AASHTO T 88 <sup>a</sup>
Preparing Samples	AASHTO T 87
Liquid Limit	AASHTO T 89
Plastic Limit and Plasticity Index	AASHTO T 90
Slake Durability	AASHTO D4644
<sup>a</sup> Omit the Hydrometer Test	

### 3.04 COMPACTING

- A. Control soil compaction during construction according to ASTM D1557, and as approved by Owner's representative.
  1. Structures:
    - a. Compact the top 8" of sub-grade and each layer of fill material or backfill material at 95% of proctor density.
  2. Lawn and unpaved area:
    - a. Compact the top 8" of sub-grade and each layer of fill material or backfill material at 85% of proctor density.
    - b. Compact the upper 12" of filled areas, or natural soils exposed by excavating, at 85% of proctor density.
  3. Walks:
    - a. Compact the top 8" of sub-grade and each layer of fill material or backfill material at 95% of proctor density.
  4. Pavements:
    - a. Compact the top 8" of sub-grade and each layer of fill material or backfill material at 95% of proctor density.

B. Moisture control:

1. Wet soil material may be stockpiled or spread and allowed to dry.
2. Assist drying by disking, harrowing or pulverizing until moisture content is reduced to a satisfactory value as determined by moisture density relation tests approved by the Owner's Representative.

**3.05 FIELD QUALITY CONTROL**

- A. The contractor shall provide soil samples for testing at 200 linear foot intervals along the trail alignment. All base materials shall comply with the definition of select fill as outlined in subsection 3.03 of this specification.
- B. Secure Owner's Representative's inspection and approval of subgrades and fill layers before subsequent construction is permitted thereon.
- C. Provide field density testing of earthwork areas as required by the Owner's
- D. Representative.
- E. If, in the Owner's Representative's opinion based on reports of the testing laboratory, sub-grade or fills which have been placed are below specified density, Contractor shall provide at their cost, additional compacting and testing as required to provide proof of compliance to these specifications.

**3.06 MAINTENANCE**

- A. Protection of newly graded areas:
  1. Protect newly graded areas from traffic and erosion and keep free from trash and weeds.
  2. Repair and reestablish grades in settled, eroded and rutted areas to the specified tolerances.
- B. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, reshape and compact to the required density prior to further construction.

**3.07 CERTIFICATION**

- A. Upon completion of this portion of the work and as a condition of its acceptance:
  1. Deliver to the Owner's Representative a written report certifying that the compaction requirements have been obtained.
    - a. State in the report the area or fill or embankment, the compaction density obtained and the type or classification of fill material placed.

**END OF SECTION 31 23 33**

**SECTION 32 11 23**  
**Aggregate Base Course**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

A. The work to be performed includes the preparation of the aggregate base course foundation; and the production, stockpiling, hauling, placing, and compacting of aggregate base course.

**1.02 RELATED SECTIONS**

A. The following is a list of specifications which may be related to this section:

1. Section 31 23 16, Excavation and Fill.

**1.03 REFERENCES**

A. The following is a list of standards which may be referenced in this section:

1. American Association of State Highway and Transportation Officials (AASHTO):

1. M147, Standard Specification for Materials for Aggregate and Soil- Aggregate Subbase, Base, and Surface Courses.
2. T11, Standard Method of Test for Materials Finer Than 75 $\mu$ m (No. 200) Sieve in Mineral Aggregates by Washing.
3. T27, Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregates.

d. T89, Standard Specification for Determining the Liquid Limit of Soils.

5. T90, Standard Specification for Determining the Plastic Limit and Plasticity Index of Soils.
6. T96, Standard Specification for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
7. T99, Standard Specification for the Moisture-Density Relations of Soils Using a 2.5 kg (5.5 pound) Rammer and a 305 mm (12 in) Drop.
8. T180, Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18-in) Drop.
9. T190, Standard Specification for Resistance R-Value and Expansion Pressure of Compacted Soils.
10. T265, Standard Method of Test for Laboratory Determination of Moisture Content of Soils.
11. T310, Standard Specification for In-Place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

2. ASTM International (ASTM):

1. C88, Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
2. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/

3. D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-
4. D1883, Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils.
5. D2419, Test Method for Sand Equivalent Value of Soils and Fine Aggregate.
6. D4791, Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.

**1.04 SUBMITTALS**

1. Contractor shall cooperate with landscape architect in obtaining and providing samples of all specified materials.
2. Contractor shall submit certified laboratory test certificates for all items required in this section.
3. Contractor shall submit tickets for each load of aggregate.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

1. Aggregates: Aggregates for bases shall be crushed stone, crushed slag, crushed gravel or natural gravel that conforms to the quality requirements of AASHTO M147, except that the requirements for the ratio for the minus No. 200 sieve fraction to the minus No. 40 sieve fraction shall not apply. The requirements for the Los Angeles wear test shall not apply to Class 1, 2, and 3. Aggregates for bases shall meet the grading requirements as called out in the DRAWINGS. The liquid limit shall be as shown in the table and the plasticity index shall be  $\leq 6$ .
2. Gradations:

Revised 03/2012

Standard US Sieve Size	Percentage by Weight Passing Square-Mesh Sieves						
	LL < 35			LL < 30			
	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7
4 inches	--	100	--	--	--	--	--
3 inches	--	95 - 100	--	--	--	--	--
2 1/2 inches	100	--	--	--	--	--	--
2 inches	95 - 100	--	--	100	--	--	--
1 1/2 inches	--	--	--	90 - 100	100	--	--
1 inch	--	--	--	--	95 - 100	--	100
3/4 inch	--	--	--	50 - 90	--	100	--
No. 4	30 - 65	--	--	30 - 50	30 - 70	30 - 65	--
No. 8	--	--	--	--	--	25 - 55	20 - 85
No. 200	3 - 15	3 - 15	20 max.	3 - 12	3 - 15	3 - 12	5 - 15

Note: Class 3 materials shall consist of bank or pit run material.

**PART 3 EXECUTION**

### 3.01 GENERAL

#### A. Equipment:

1. Equipment shall be capable of performing the work as described in this specification. Equipment that is inadequate to obtain the results specified shall be replaced or supplemented as required to meet the requirements of this specification. Any equipment that is used in an improper manner may be cause for rejection of the work if in the opinion of engineer the work fails to meet the requirements of this specification.
2. Equipment used for compaction shall be the rolling type, vibratory type, or combination of both types, and shall be of sufficient capacity to meet the compaction requirements herein.

### 3.02 PREPARATION OF FOUNDATION

#### 1. General:

1. The foundation shall be considered to be the finished earth subgrade, subbase course, or base course, as the case may be, upon which any subbase, base, or surface course is to be constructed.
2. Preparation of foundation for construction of a subbase, base, or surface course shall consist of the work necessary to restore, correct, strengthen, or prepare the foundation to a condition suitable for applying and supporting the intended course.
3. The foundation shall be prepared and constructed such that it will have a uniform density throughout. It shall be brought to the required alignment and cross section with equipment and methods adapted for the purpose. Upon completion of the shaping and compacting operations, the foundation shall be smooth, at the required density, and at the proper elevation and contour to receive the aggregate base course.
4. Unless otherwise provided, all holes, ruts, and other depressions in the foundation shall be filled with materials similar to those existing in the foundation. High places shall be excavated and removed to the required lines, grade and section.
5. Areas of yielding or unstable material shall be excavated and backfilled with stabilization rock as determined by landscape architect. Base course material shall not be placed on a foundation that is soft, spongy, or one that is covered by ice or snow. Base course shall not be placed on a dry or dusty foundation where the existing condition would cause rapid dissipation of moisture from the base course material and hinder or preclude its proper compaction. Dry foundations shall have water applied, reworked, and compacted as necessary.
6. Landscape architect may direct contractor to make minor adjustments in the finish grade from that shown in the drawings as may be necessary or desirable to maintain the characteristics of a stabilized foundation by minimizing the amount of cutting into or filling.
7. (12) inches of the subgrade shall be scarified and compacted to a minimum of ninety- five percent (95%) of the Maximum Standard Proctor Density (ASTM D698). Onsite material may be used, as accepted by landscape architect, for compacted fill for the aggregate base course. Fill shall be placed within two percent (2%) of optimum moisture content and compacted to a minimum of ninety five percent (95%) of the Maximum Standard Proctor Density (ASTM D698).
8. Earth Subgrade: When the foundation is an earth subgrade it shall be prepared by removing all vegetation, excavating and removing materials, filling depressions, scarifying, shaping, smoothing and compacting to meet the required grade, section and density. Stones over six (6) inches in greatest dimension shall be removed.

### 3.03 PLACEMENT

1. The aggregate base course shall be constructed to the width and section shown in the drawings. If the required compacted depth of base course exceeds six (6) inches, the base shall be constructed in two (2) or more layers of approximate equal thickness. The maximum compacted thickness of any one (1) layer shall not exceed six (6) inches.
2. Each layer shall be constructed as far in advance of the succeeding layer as landscape architect may direct. The work shall, in general, proceed from the point on the project nearest the point of supply of the aggregate in order that the hauling equipment may travel over the previously placed material, and the hauling equipment shall be routed as uniformly as possible over all portions of the previously constructed courses or layers of the base course.
3. The material shall be deposited on the soil foundation, or previously placed layer, in a manner to minimize segregation and to facilitate spreading to a uniform layer of the required section. In the event that blending of materials is necessary to provide required gradation and properties of the material, and is done in the trail, the same shall be accomplished by mixing the aggregate and blending material by means of blade graders, discs, harrows, or other equipment to effect a uniform distribution and gradation throughout the finished mixture. Excessive mixing and grading that will cause segregation between the coarse and fine materials is prohibited.

### 3.04 COMPACTION

4. After a layer or course has been placed and spread to the required thickness, width and contour, it shall be compacted. If the material is too dry to readily attain the required density, it shall be uniformly moistened to the degree necessary during compaction operations for proper compaction.
5. Compaction of each layer shall continue until the required density specified in Article Preparation of Foundation is reached. The surface of each layer shall be maintained during compaction operations in such a manner that a uniform texture is produced and aggregates firmly keyed.
6. All areas where proper compaction is not obtainable due to segregation of materials, excess fines, or other deficiencies in the aggregate shall be reworked as necessary or the material removed and replaced with aggregates that will meet this specification.
4. The surface of each layer shall be kept true and smooth at all times.

**END OF SECTION 32 11 23**

**SECTION 32 15 40  
CRUSHED STONE SURFACING**

**PART 1 GENERAL**

**1. SUMMARY**

- a. Related Documents:
  - 1) Drawings and general provisions of the Subcontract apply to this Section.
  - 2) Review these documents for coordination with additional requirements and information that apply to work under this Section.
- b. Section Includes:
  - 1) Crushed stone paving course, compacted.
- c. Related Sections:
  - 1) 32 11 23 Aggregate Base Course

**2. REFERENCES**

- a. General:
  - 1) The following documents form part of the Specifications to the extent stated. Where differences exist between codes and standards, the one affording the greatest protection shall apply.
  - 2) Unless otherwise noted, the referenced standard edition is the current one at the time of commencement of the Work.
- b. American Association of State Highway and Transportation Officials:
  - 1) AASHTO T 27 Sieve Analysis of Fine and Coarse Aggregates.

**PART 2 PRODUCTS**

**1. MATERIALS**

- a. Coarse Stone: Decomposed granite natural stone; free of shale, clay, friable materials and debris; graded [in accordance with AASHTO T 27] [within the following limits:

Sieve Size	Percent Passing
3/8-inch (10 mm)	100%

**PART 3 EXECUTION**

1. INSPECTION
  - a. Beginning of installation means acceptance of existing conditions.
  
2. PLACING STONE PAVING
  - a. Spread decomposed granite stone material over prepared base to a total compacted thickness of 1 inches.
  - b. Spread crushed granite stone material over prepared base to a total compacted thickness of 3 inches.
  - c. Place stone in 2 inches layers and compact.
  - d. Level surfaces to elevations and gradients indicated.
  - e. Add water to assist compaction. With an excess water condition, rework topping and aerate to reduce moisture content.
  - f. Perform hand tamping in areas inaccessible to compaction equipment.

**END OF SECTION 32 15 40**



**SECTION 32 32 53**  
**Stone Retaining Walls**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

A. This work shall consist of installing boulders, stacked boulders, and rock retaining walls constructed at the location (s) shown on the drawings.

**1.02 RELATED SECTIONS**

A. The following is a list of specifications which may be related to this section:

1. Section 32 11 23 Aggregate Base Course

**1.03 REFERENCES**

A. The following is a list of standards which may be referenced in this section:

1. American Association of State Highway and Transportation Officials (AASHTO):
  1. T85, Standard Method of Test for Specific Gravity and Absorption of Coarse Aggregate.
  2. T103, Standard Method of Test for Soundness of Aggregates by Freezing and Thawing.
  3. T104, Standard Method of Test for Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate.
2. ASTM International (ASTM):
  1. C39, Standard Test Method for Compressive Cylindrical Concrete Specimens.
  2. C150, Standard Specification for Portland Cement. 31 37 19 - 1 . D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-

**1.04 DEFINITIONS**

A. Terms "boulders," and "rock," may be used interchangeably in this section.

**1.05 SUBMITTALS**

1. Contractor shall cooperate with landscape architect in obtaining and providing samples of all specified materials.

**1.06 QUALITY ASSURANCE**

A. Mock-up:

1. Prior to the construction of any rock walls, contractor or subcontractor who is constructing the walls for contractor shall show engineer an example of similar rock walls that they had constructed previously.
2. After acceptance of this previous work, contractor or subcontractor shall construct approximately ten (10) linear feet of rock wall as shown on the drawings for approval by landscape architect.

3. If the construction is approved, contractor or subcontractor shall construct the rest of the rock wall. If the construction is not approved, contractor shall make any changes required by owner and landscape architect to obtain approval, and construct the remainder of the wall as approved.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

#### **A. Boulders**

1. Gradation: Boulders for a boulder edge shall have a maximum ratio of largest to smallest rock dimension shall as shown on the drawings. Walls shall be constructed of rock having a mean diameter of nine (36) inches to eighteen (18) inches.
2. Control of gradation will be by visual inspection.
3. Color: The color of boulders shall be light to dark brown or gray.

## **PART 3 EXECUTION**

### **3.01 BOULDERS**

A. Boulders shall be placed at the locations as shown on the drawings and installed with the following requirements:

1. Subgrade:
  1. The subgrade to receive each boulder shall be excavated and any unstable material shall be removed.
  2. Boulders shall be placed on subgrade with granular bedding.
  3. Subgrade shall be excavated a minimum of 6" to a maximum of 12" behind boulders.
  4. Backfill behind boulders shall be compacted to ninety five percent (95%) Maximum Standard Proctor Density (ASTM D698). Care shall be taken during compaction to avoid disturbing and/or damaging the integrity of the boulder channel edge.
  5. Finished grades and subgrade for boulders shall be determined from the height of each boulder used.
2. Boulders
  1. The top of all boulders shall be as indicated on the drawings.
  2. The boulders shall be carefully picked and arranged so that adjacent rock surfaces match within two (2) inches in top elevation and two (2) inches along the vertical exposed face or channel side of rock.
  3. Boulders shall be placed such that adjacent boulders "touch" each other and voids do not exceed four (4) inches. It is the intent of construction to minimize voids.
  4. Contractor shall, if deemed necessary, support the boulders from falling over before and during the placement of backfill, and completing compaction work on either side of the boulder.
  5. Smaller rocks shall be "chinked in" to fill all voids behind the boulders. Smaller rocks shall also be used to "chink in gaps larger than four (4) inches.

**END OF SECTION 32 32 53**

**SECTION 32 92 19**  
**Hydroseeding**

**PART 1 — GENERAL**

**1.01 SCOPE OF WORK**

Provide all materials, labor and equipment necessary to complete all work as shown on the drawings and as specified herein, including, but not limited to, the following:

- Apply specified treatments to all hydroseeded areas as specified on the plans.
- All other labor and materials reasonably incidental to the satisfactory completion of the work, including cleanup of the site.

**1.02 SITE CONDITIONS**

It is the responsibility of the contractor to visit the site to determine existing conditions; including access, the nature and extent of existing improvements on the site and upon adjacent public and private property, and other factors that may affect the work of this section.

**1.03 SUBMITTALS**

The contractor shall submit letters of compliance, manufacturer's literature, upon written request 10 working days in advance, samples for any of the following items:

1. Seed Mixes (or individual items)
2. Mulches
3. Binders/Tackifiers
4. Fertilizers
5. Erosion control matting

**1.04 WORK SCHEDULE**

The contractor shall proceed with work during a period of September through December. The work shall progress as soon as the site becomes available and conditions on site are suitable for work within limitations typical of the season.

**1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING**

1. All products shall be delivered to the site in manufacturer's unopened standard containers bearing original labels showing quantity, analysis, and name of manufacturer.
2. All materials shall be stored in designated areas and in such a manner as to protect from weather or other conditions that might decrease the effectiveness of the product.

**1.06 ANALYSIS OF SAMPLES AND TESTS**

1. Samples: The owner reserves the right to take and analyze samples of materials for conformity to the specifications at any time. On request, seed shall deliver to owner 30 days prior to seeding so seed can be tested. Seed samples shall be drawn in accordance with procedures outlined in AOSA, Association of Official Seed Analysts.
2. Rejected material: Rejected materials shall be removed immediately from the

site at the contractor's expense. Contractor shall pay the cost of testing replacement materials.

### **1.07 Final Acceptance and Warranty Period**

Upon completion of specified work, the owner shall accept each area. The contractor shall not provide warranty beyond those granted by any of the material manufacturers. It shall be the right of the owner to inspect work for compliance to the specifications and advise the contractor, in writing, of any work that is found to deviate from specifications.

After 60 days the contractor may apply to the landscape architect to have the plant material accepted for maintenance. The warranty period shall be 60 days after the acceptance date, and the plant material shall be acceptable when:

1. A healthy active grass provides at least 95% coverage with no bare area greater than 18 inches in diameter.
2. The grass cover is essentially free of weeds.

## **PART 2 — PRODUCTS**

### **2.01 GENERAL**

All products shall be in conformance with the specifications listed below. Any changes to products to be used shall be approved, in writing, by the owner or owner's representative prior to job site delivery.

### **2.02 SEED MIXES**

A. Seed. Provide seed from the most recent season's crop meeting the requirements of Oklahoma state seed law, including the testing and labeling for pure live seed (PLS = Purity x Germination). Furnish seed of the designated species, in labeled unopened bags or containers to the jobsite and retain seed tags for Engineer or Owner's Representative review and approval before planting. Use within 12 months from the date of the analysis.

Seed Mix 'A'  
Inlands Sea Oats *Chasmanthium latifolium*

### **2.03 Mulch**

1. Straw or Hay Mulch. Use straw mulch consisting of oat, wheat, or native prairie grass straw, or hay mulch of either Bermuda grass or native prairie grasses. Use straw or hay mulch free of Johnson grass and other noxious and foreign materials. Keep the mulch dry and do not use molded or rotted material.

2. Cellulose Fiber Mulch. Use a wood fiber/recycled paper blend mulch such as 'Second Nature-Wood Fiber Blend' manufactured by Central Fiber Corporation, 1525 Waynesburg Drive SE, Canton OH 44707, (888) 452-2630, or equivalent. If a different mulch is to be used, submit manufacturer's literature for the selected material for approval prior to hydromulching operations. Keep mulch dry until applied. Do not use molded or rotted material.

#### **2.04 Organic Stabilizer/Tackifier**

1. Tacking Methods. Use a water-soluble tacking agent, such as guar, applied in accordance with the manufacturer's recommendations or mechanically crimp all straw or hay mulch into the soil so that it will not blow or wash away.

#### **2.05 Equipment**

Equipment used for application of slurry shall be a commercial-type Hydro-Seeder and have a built-in agitation system with an operation capacity sufficient to agitate, suspend and homogeneously mix slurry. Tank capacity shall be a minimum of 1,500 gallons and shall be mounted on a truck to allow access to the site. Distribution Lines: Large enough to prevent stoppage and allow for even distribution of slurry over the site. Pump: Shall be able to generate 150 psi at the nozzle.

#### **2.06 Fertilizer**

Provide a 15-15-15 fertilizer at a rate of 250 lbs/AC or equivalent

#### **2.07 Water**

Water must be clean and free of industrial wastes and other substances harmful to the growth of vegetation.

### **PART 3 — EXECUTION**

#### **3.01 General**

Areas to receive seeding treatments include all turfgrass areas as shown on the site plan, and other areas as determined by the owner.

Contractor shall be available to re-treat areas disturbed by ongoing activities.

Cost of retreatment shall be the responsibility of the owner.

#### **3.02 Construction**

Cultivate the area to be planted to a depth of .5 inches before placing the seed unless otherwise directed. Fertilizer may be placed simultaneously to hydroseeding operations. Plant the specified seed at the specified rates and designated method, and apply mulch the same day.

A. Hydroseeding. Mix seed, fertilizer, and fiber mulch at the specified application rate and apply uniformly as a homogeneous slurry to areas shown on the plans. Apply seed within 4 hours of the placement of components in the tank. Apply with a machine specifically designed and manufactured for mixing and applying hydromulch, such as a Finn or Kincaid hydroseeder.

Suggested mulch application rate:

- Slopes less than 3:1-- 12 lb. per acre (dry weight of mulch).
- Slopes 3:1 or greater—20 lb. per acre (dry weight of mulch).

#### **3.04 Clean-up**

1. General: All turf areas and staging areas shall be maintained in a neat and orderly condition. Keep paved area free of soil.

2. Hydro-Seeding Overspray: Installing contractor is responsible for washing or otherwise cleaning excess material off all area not intended to receive treatment.

3. Debris: Clean up and remove associated materials and debris from project site before Final Acceptance.

**END OF SECTION 32 92 19**

**SECTION 32 94 13  
Landscape Edging**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

A. This work shall consist of installing stone edging constructed at the location (s) shown on the drawings.

**1.02 RELATED SECTIONS**

A. The following is a list of specifications which may be related to this section:

1. Section 32 11 23 Aggregate Base Course

**1.03 DEFINITIONS**

A. Terms "stone," and "edging," may be used interchangeably in this section.

**1.05 SUBMITTALS**

1. Contractor shall cooperate with landscape architect in obtaining and providing samples of all specified materials.

**1.06 QUALITY ASSURANCE**

A. Mock-up:

1. Prior to the construction of any stone edging, contractor or subcontractor who is constructing the edging for contractor shall show landscape architect an example of similar rock edging that they had constructed previously.
2. After acceptance of this previous work, contractor or subcontractor shall construct approximately ten (10) linear feet of stone edging as shown on the drawings for approval by landscape architect.
3. If the construction is approved, contractor or subcontractor shall construct the rest of the stone edging. If the construction is not approved, contractor shall make any changes required by owner and landscape architect to obtain approval, and construct the remainder of the wall as approved.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

A. Chop Stone

1. Gradation: Stone for a landscape edge shall have a maximum ratio of largest to smallest rock dimension shall as shown on the drawings. Edges shall be constructed of rock having a mean width of 4 (4) inches to five (5) inches.
2. Control of gradation will be by visual inspection.

3. Color: The color of boulders shall be light to dark brown or gray.

### **PART 3 EXECUTION**

#### **3.01 CHOP STONE**

A. Stones shall be placed at the locations as shown on the drawings and installed with the following requirements:

1. Subgrade:
  1. The subgrade to receive each stone shall be excavated and any unstable material shall be removed.
  2. stones shall be placed on subgrade with granular bedding.
  3. Finished grades and subgrade for stones shall be determined from the height of each boulder used.
2. Boulders
  1. The top of all stones shall be as indicated on the drawings.
  2. Stones shall be placed such that adjacent boulders "touch" each other and voids do not exceed four (.5) inches. It is the intent of construction to minimize voids.
  3. Smaller rocks shall be "chinked in" to fill all voids between the stones. Smaller rocks shall also be used to "chink in gaps larger than four (.5) inches.

**END OF SECTION 32 94 13**



**SECTION 33 05 27.33**  
**Corrugated Metal Culvert Arch Pipe**

**PART 1 — GENERAL**

**1.01 SCOPE OF WORK**

The work consists of furnishing and placing arched corrugated metal pipe and the necessary fittings.

**2.01 MATERIAL**

1. Pipe and fittings shall be metallic zinc-coated, aluminum-coated, or aluminum-zinc alloy-coated corrugated steel conforming to the requirements of ASTM A 742, A 760, A 761, A 762, A 849, A 875, A 885, and A 929.
2. Pipe joint coupling bands shall be provided meeting the pipe manufacturer's recommendations. Watertight coupling bands shall be provided when specified in section 11 of this specification.
3. Coupling bands shall be installed to provide straight alignment of the connecting pipe ends. The bands shall be positioned to overlap adjacent pipe ends equally. The coupling bands shall be corrugated to match the corrugations of the pipe section ends being connected.

**3.01 SUBMITTALS**

1. The contractor shall submit letters of compliance, manufacturer's literature, upon written request 10 working days in advance.

**4.01 FABRICATION**

1. Fabrication of appurtenant sections shall be performed as shown on the drawings and described in this specification. The items may consist of inlet sections, outlet sections, end sections, elbows, skew or beveled sections, rod reinforced ends, cut-off collars, or headwalls. Fabrication of these appurtenant sections shall be made from metallic-coated material identical to that from which the attached pipe is fabricated. Fabrication shall be of a quality and finished workmanship equal to that required for the pipe.

**5.01 HANDLING OF THE PIPE**

1. The contractor shall furnish equipment as necessary to install the pipe without damaging the pipe or coating. The pipe shall be transported and handled in a manner to prevent damage to the pipe and coating.

**6.01 LAYING AND BEDDING OF THE PIPE**

1. Unless otherwise specified, the pipe shall be installed in accordance with the manufacturer's recommendations. Pipe shall be installed so no reversal of grade between joints results unless otherwise shown on the drawings.

2. Field welding of corrugated galvanized iron or steel pipe is not permitted. The pipe sections shall be joined with fabricator-supplied coupling bands meeting the specified joint requirements. The coupling shall be installed as recommended by the fabricator.

3. The pipe shall be firmly and uniformly bedded throughout its full length to the depth and in the manner specified on the drawings.

#### 7.01 BACKFILL

1. The pipe shall be loaded sufficiently during backfilling to prevent displacement from line and grade and NRCS-ME (451-1) 5/09 to maintain full contact with the bedding during the placement operations.

**Initial backfill**—Unless otherwise specified, initial backfill to 6 inches above the top of the conduit is required. Earth haunching and initial backfill material shall consist of soil material that is free of rocks, stones, or hard clods more than 3 inch in diameter. Coarse backfill material shall be the specified sand, gravel, crushed rock, or drainfill material.

Initial backfill shall be placed in two stages. In the first stage (haunching), backfill is placed to the pipe spring line (center of pipe). In the second stage, it is placed to 6 inches above the top of the pipe.

The first stage material shall be worked carefully under the haunches of the pipe to provide continuous support throughout the entire pipe length. The haunching backfill material shall be placed in layers that have a maximum thickness of about 6 inches and are compacted as shown on the drawings. During compaction operations, care shall be taken to ensure that the tamping or vibratory equipment does not come in contact with the pipe and the pipe is not deformed or displaced.

**Final backfill**—Final backfill shall consist of placing the remaining material required to complete the backfill from the top of the initial backfill to the ground surface, including mounding at the top of the trench. Final backfill material within 2 feet of the top of the pipe shall be free of debris or rocks larger than 3 inches nominal diameter. Coarse backfill material shall be the specified sand, gravel, crushed rock, or drainfill. Final backfill shall be placed in approximately uniform, compacted layers. Final backfill compaction requirements shall be as shown on the drawings.

Vehicles or construction equipment shall not be allowed to cross the pipe until the minimum earth cover has been obtained.

#### 8.01 ITEMS OF WORK AND CONSTRUCTION DETAILS

1. Provide all materials, labor and equipment necessary to complete all work as shown on the drawings and as specified herein, including, but not limited to, the following:

- Apply specified treatments to all hydroseeded areas as specified on the plans.
- All other labor and materials reasonably incidental to the satisfactory completion of the work, including cleanup of the site.

**END OF SECTION 33 05 27.33**