

# **SPECIFICATIONS**

**CITY OF CARROLLTON, TX  
JIMMY PORTER PARK PAVILLION**

**CONTRACT DOCUMENTS  
AND  
SPECIFICATIONS**

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*NOTE: For work not specifically identified above, Contractor shall follow the Standard Specifications and Drawings found in the Public Works Construction Standards, October 2004 Edition as published by the North Central Texas Council of Governments.*

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## SECTION 012000

### PRICE AND PAYMENT PROCEDURES

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

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

##### 1.02 RELATED REQUIREMENTS

- A. Document - All Contract Documents as described in General Conditions.

##### 1.03 SCHEDULE OF VALUES FOR CONSTRUCTION PHASE

- A. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to City for approval.
- B. Forms filled out by hand will not be accepted.
- C. Submit Schedule of Values in duplicate within 15 days after Notice to Proceed in both MS Excel electronic file and hard copy.
- D. Format: Utilize the Table of Contents of Project Manual. Identify each line item with number and title of the specification Section. Identify site mobilization.
- E. Include separately from each line item, a direct proportional amount of Contractor's overhead and profit.
- F. Revise schedule to list approved Change Orders, with each Application For Payment.

##### 1.04 APPLICATIONS FOR PROGRESS PAYMENTS

- A. Payment Period: Submit at intervals stipulated in the Agreement.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to City for approval.
- C. Forms filled out by hand will not be accepted.
- D. For each item, provide a column for listing each of the following:
  - 1. Item Number.
  - 2. Description of work.
  - 3. Scheduled Values.
  - 4. Previous Applications.
  - 5. Work in Place under this Application.
  - 6. Authorized Change Orders.
  - 7. Total Completed to Date of Application.
  - 8. Percentage of Completion.
  - 9. Balance to Finish.
  - 10. Retainage.

- E. Execute certification by signature of authorized officer.
- F. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.
- G. Submit three copies of each Application for Payment.
- H. Include the following with the application:
  - 1. Construction progress schedule, revised and current as specified in Section 01300.
  - 2. Current construction photographs specified in Section 013000.
  - 3. Conditional Waiver and Release on Progress Payment from each Subcontractor that performed work in the current Progress Payment in the form prescribed by Chapter 53 of the Texas Property Code
  - 4. Unconditional Waiver and Release on Progress Payment for each Subcontractor that performed work included in the immediately prior Progress Payment in the form prescribed by Chapter 53 of the Texas Property Code
  - 5. Monthly report as required in Section 013000.
  - 6. SWPPP inspection reports
- I. When City requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

#### **1.05 MODIFICATION PROCEDURES**

- A. Submit name of the individual authorized to receive change documents and who will be responsible for informing others in Contractor's employ or subcontractors of changes to the Contract Documents.
- B. For minor changes not involving an adjustment to the Contract Price or Contract Time, City Representative will issue instructions directly to Contractor.
- C. For other required changes, City Representative will issue formal directive instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
  - 1. The document will describe the required changes and will designate method of determining any change in Contract Price or Contract Time.
  - 2. Promptly execute the change.
- D. For changes for which advance pricing is desired, City Representative will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within seven (7) calendar days.
- E. Contractor may propose a change by submitting a request for change to City Representative, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 016000.
- 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: City Representative will issue Change Orders for signatures of parties as provided in the General 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 Price.
- 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.
- K. Claims for extra work will not be paid unless the work covered by such claims was authorized in writing by the owner.
- L. No change orders will be issued for extra work, materials, correction of deficiencies or any other activity related in whole or part to errors and/or omissions in plans or specifications generated by Contractor or their agents.

#### **1.06 APPLICATION FOR FINAL PAYMENT**

- A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Price, previous payments, and sum remaining due.
- B. Application for Final Payment will not be considered until the following have been accomplished:
  - 1. All closeout procedures specified in Section 01770.

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

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

**END OF SECTION**

## SECTION 013000

### ADMINISTRATIVE REQUIREMENTS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Preconstruction meeting.
- B. Progress meetings.

##### 1.02 RELATED REQUIREMENTS

- A. Section 013200 - Construction Progress Documentation: Progress schedules and construction photography.
- B. Section 013300 - Shop Drawings and Submittal Procedures.
- C. Section 017000 - Execution Requirements
- D. Section 017700 - Closeout Procedures

##### 1.03 PROJECT COORDINATION

- A. Project Coordinator: City of Carrollton Representative.
- B. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field offices and sheds, for contractor access, traffic, and parking facilities.
- C. During construction, coordinate use of site and facilities through the Project Coordinator.
- D. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.
- E. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities.
- F. Coordinate field engineering and layout work under instructions of the Project Coordinator.
- G. Make the following types of submittals to City of Carrollton:
  - 1. Copies of requests for interpretation made to the Architect.
  - 2. Field reports.
  - 3. Change Order Requests.
  - 4. Progress schedules.
  - 5. Progress photographs.
  - 6. Requests for Substitution.
  - 7. Shop Drawings, product data, and samples.
  - 8. Applications for Payment.
  - 9. Closeout Submittals.

#### PART 2 PRODUCTS (NOT USED)

## **PART 3 EXECUTION**

### **3.01 PRECONSTRUCTION MEETING**

- A. City of Carrollton will schedule a meeting prior to Contractor mobilization.
- B. Attendance Required:
  - 1. City of Carrollton.
  - 2. Contractor
  - 3. Architect.
  - 4. Contractor's Sub-contractors.
- C. Agenda:
  - 1. Final distribution of Contract Documents.
  - 4. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.
  - 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
  - 7. Scheduling.
- D. All public utility companies, contractors and sub-contractors, along with any and all Municipal Departments will be in attendance so that work coordination will occur. Contractor will submit sequence of work for the project at this time.
- E. A separate pre-construction meeting may be required and coordinated by the City of Carrollton Building Inspection Dept as part of the building permit. **The Contractor shall strictly comply with the Building Inspection Dept's requirements related to such.**
- F. For all meetings, the Contractor is responsible for recordation of minutes and distribution of copies within two days after meeting to City of Carrollton, Architect, participants, and those affected by decisions made.

### **3.02 PROGRESS MEETINGS**

- A. Schedule and administer meetings throughout progress of the Work at maximum weekly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, City of Carrollton, Architect, as appropriate to agenda topics for each meeting.

- D. Agenda:
1. Review minutes of previous meetings.
  2. Review of Work progress.
  3. Field observations, problems, and decisions.
  4. Identification of problems that impede, or will impede, planned progress.
  5. Review of submittals schedule and status of submittals.
  6. Maintenance of progress schedule.
  7. Corrective measures to regain projected schedules.
  8. Planned progress during succeeding work period.
  9. Maintenance of quality and work standards.
  10. Effect of proposed changes on progress schedule and coordination.
  11. Other business relating to Work.
- E. Record minutes and distribute copies within two days after meeting to participants, with one copy to Architect, City of Carrollton, participants, and those affected by decisions made.

**END OF SECTION**

## SECTION 013200

### CONSTRUCTION PROGRESS DOCUMENTATION

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Related Documents: Provisions established in General Conditions of the Contract, Scope & Compensation, Carrollton General Design Standards, Division 1 General Requirements, and all other contract documents are collectively applicable to this Section.
- B. Section Includes:
  - 1. Procedures for preparation and submittal of construction Progress Schedules and periodical updating.
  - 2. Construction photography.

##### 1.2 PROGRESS SCHEDULES

- A. Format:
  - 1. Submit a computer generated horizontal bar chart with separate line for each section of Work, identifying first work day of each week in both hard copy and electronic format directly compatible with Microsoft Project.
- B. Sequence of Listings: The chronological order of the start of each item of Work.
- C. Scale and Spacing: To provide space for notations and revisions.
- D. Sheet Size: 11 by 17 inches.
- E. Content:
  - 1. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
  - 2. Identify each item by major Specification section number.
  - 3. Indicate the early and late start, early and late finish, float dates, and duration.
  - 4. Identify work of separate stages, if applicable, and other logically grouped activities.
  - 5. Provide sub-schedules for each stage of Work.
  - 6. Provide sub-schedules to define critical portions of entire Schedule.
  - 7. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
  - 8. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by CITY and under Allowances. Show decision dates for selection of finishes.
  - 9. Show delivery dates for CITY furnished products and products specified under Allowances, if applicable.

- F. Revisions to Schedules:
1. Schedule updates shall be submitted with each application for payment. Payment applications will not be processed until update is received.
  2. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
  3. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
  4. Provide narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect.
- G. Distribution:
1. Distribute copies of Schedules reviewed by CITY to job site file, subcontractors, suppliers, and other concerned entities.
  2. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in Schedules.

### 1.3 MONTHLY REPORTS BY THE CONTRACTOR

- A. Report Format:
1. Contractor shall submit a monthly report to the City Representative. Report shall include an overview of the project to date, documenting current status of work, construction trades at site and future work scheduled over the next 2-3 months. Included shall be the construction photos documenting project status.
  2. Report shall also include project logs, RFI's, submittals, updated construction schedule with projected changes and other documents as appropriate.
- B. Delivery: Reports shall be sent via email in PDF format to the City Representative and Architect for review prior to submittal with monthly application for payment. Hard copies of the report including the photographs shall be included with the monthly application for payment.

### 1.4 WEEKLY UPDATES BY THE DESIGN-BUILDER

- A. Update Format:
1. On a weekly basis, the Contractor shall email the City Representative and Architect an update of the project for the current week. The updates shall include a detailed project status, work accomplished during the week, work planned over the next 2-3 weeks as well as any notifications of special coordination issues (power interruptions, project delays), etc. The Contractor shall notify the Owner of any possible delays (per GC 20), as unfavorable weather is not an allowable delay and should not be included.
  2. The update shall identify any outstanding submittals or RFI's and status of completion or resolution.
  3. Identify in the report any actions items that are required from the City or Architect.

- B. Weekly reports are to be received by the City Representative by 5:00pm on each Friday for the duration of the construction phase of the contract.
- C. The City will charge the Design-Builder an Administrative Fee of \$500 per occurrence for failure to provide weekly report without approval from the City Representative.

#### 1.5 CONSTRUCTION PHOTOGRAPHS

- A. Provide digital photographs of site and construction throughout progress of Work.
- B. Take photographs on cutoff date for each Application for Payment, and delivery electronically to CITY via email, CD-ROM or USB flash drive.
- C. Take a minimum of 20 photographs at maximum 2 week intervals throughout the progress of the work, and shall contain, as a minimum, the following elements.
  - 1. Site clearing.
  - 2. Excavations & demolition
  - 3. Interior & exterior construction.
  - 4. Planting.
  - 5. Formwork.
  - 6. Concrete placement.
  - 7. Final completion.
- D. Medium:
  - 1. Full color, digital format at a density of four (4) megapixel or greater.
  - 2. Identify each photo electronically by listing name of project, phase, orientation of view, and date and time of view.
  - 3. Digital video will also be accepted but cannot be substituted for photographs.
- E. Technique:
  - 1. Provide factual presentation.
  - 2. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.
- F. Views:
  - 1. Provide non-aerial photographs from a sufficient number of views at each specified time in order to sufficiently document the progress of the work, until Date of Completion.
  - 2. Consult with CITY for instructions on views required.

#### 1.6 SUBMITTALS

- A. Progress Schedule:
  - 1. Submit initial Schedules within 10 days from Notice to Proceed on Construction Phase. After review, resubmit required revised data within 10 days.
  - 2. Submit revised Progress Schedules with each Application for Payment. Payment applications will not be processed until update is received.

- B. Construction Photographs:  
1. Deliver electronic files with application for payment.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

CONTRACTOR'S NAME  
 ADDRESS  
 TELEPHONE & FAX

LOGO

JOBSITE  
 ADDRESS OR LOCATION  
 TELEPHONE & FAX

CONTACT & EMAIL

<b>SUBMITTAL NO.</b>		<b>000</b>
Contract No:	Subcontractor (or provider) Name:	
Project Name:	Subcontractor Address:	
Date Submitted:	Specification Section Ref:	
Trade or Discipline:	Drawing Sheet Ref:	
Contractor's Job No:	Contractor's Transmittal No:	
Transmittal From:	Product Data	
Transmittal To:	Shop Drawing	
	Samples	
Digital or Hard Copy:	Certifications	
Copies Sent:	Miscellaneous	
	Coordination Information	
Reviewed By:	Date:	

Contractor Certification:

The General Contractor and his Subcontractors certify that they have reviewed and coordinated the information presented in this submittal with the requirements of the contract documents and with all site conditions.

The General Contractor is responsible for complying with the Contract Documents, including verifying dimensions & quantities, layout, coordination between trades, construction means, methods, techniques, sequences and safety. All deviations or changes shall be identified and presented to the Owner and Architect before any changes are incorporated into the constructed project.

CONTRACTOR'S SUBMITTAL & APPROVAL BLOCKS  
 ACTIONS AND RESPONSES

CONTRACTOR'S ARCHITECT SUBMITTAL & APPROVAL BLOCKS  
 ACTIONS AND RESPONSES

CITY OF CARROLLTON'S SUBMITTAL & APPROVAL BLOCKS  
 ACTIONS AND RESPONSES

## SECTION 013300

### SUBMITTAL PROCEDURES

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Related Documents: Provisions established in General Conditions of the Contract, Scope and Compensation, Carrollton General Design Standards, Division 1 General Requirements, and all other City contract documents are collectively applicable to this Section.
- B. Section Includes:
  - 1. Submittal procedures.
  - 2. Proposed products list.
  - 3. Shop drawings.
  - 4. Product data.
  - 5. Samples.
  - 6. Manufacturers' instructions.
  - 7. Manufacturers' certificates.
  - 8. Schedule of submittals.
- C. All submittals must include CD ROM w/PDF files also CAD files (when appropriate).
- D. Delays resulting from incomplete or rejected submittals, or failure of Contractor to make submittal in advanced time sufficient for review and/or ordering of product are not responsibility of CITY, and do not warrant extension of contract time.

##### 1.2 DEFINITIONS

- A. Shop Drawings: Include drawings, diagrams, schedules and other data specially prepared for the Work by Contractor or a subcontractor, sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.
- B. Product Data: Include illustrations, standard schedules, performance charts, instructions, brochures, diagrams, test data and other information furnished by Contractor to illustrate material, product or system for some portion of the Work.
- C. Samples: Physical examples illustrating materials, equipment or workmanship and establish standards by which the Work will be judged. Samples include field samples.
- D. Quality Control Submittals: Pertain to quality control and CITY information which do not require review and approval by the Architect or City Representative and are to be retained for project file only. If reviewed, project information will be reviewed for compliance with the Contract Documents only. The review will not constitute a detailed review of adequacy of submitted design calculations. The appropriateness and accuracy of calculations is the responsibility of the submitting Contractor (and Contractor's professional architect/engineer when such calculations are required to be professionally sealed). Examples of quality control submittals:
  - 1. Design data and calculations.
  - 2. Test reports.
  - 3. Certifications.
  - 4. Manufacturer's installation instructions.
  - 5. Manufacturer's field reports.
- E. Contract Closeout Submittals: Pertain to contract closeout related information which do not require review and approval by the City Representative and are to be retained for project file only. Examples of contract closeout submittals:
  - 1. Project record information.
  - 2. Warranties.
  - 3. Operation and maintenance data.
  - 4. CITY instruction reports.

- F. Administrative Submittals: Refer to General and Supplementary Conditions for requirements for administrative submittals. Such submittals include, but are not limited to:
1. Permits.
  2. Applications for payment.
  3. Performance and payment bonds.
  4. Insurance certificates.
  5. List of Subcontractors.
  6. Project Cost Estimate.

1.3 GENERAL REQUIREMENTS

- A. Original drawings prepared by Contractor, Contractor's design professional, Subcontractor, Supplier, or Distributor, which illustrate some portion of the work, showing fabrication, layout, setting or erection details, prepared by a qualified detailer. PDF files and when appropriate AutoCAD files, shall be submitted for all shop drawing submittals. Sheet sizes within files shall be of original size and at a density that is fully legible.
- B. Submit each individual submittal as a single PDF file and when appropriate AutoCAD files shall be submitted for all shop drawing submittals. If file size allows, submittal may be transmitted by email. For large submittals, file should be transmitted via CD-ROM or USB flash drive (transmittal media will not be returned). Fax copies are not considered an acceptable electronic delivery.
- C. Product submittals shall be accompanied with a hard copy of formal cover letter in correct format. Cover letter shall also be transmitted electronically.
- D. Drawings shall be dated and marked to show the name of the Project, Architect, Contractor, originating Sub-contractor, Manufacturer or supplier, pertinent Drawing sheets, detail numbers, Specification section number, and separate details as pertinent.
- E. Prepare and submit, with construction schedule, a separate schedule listing dates for submission and lead dates for reviewed shop drawings, product data and samples for each item. Schedule submissions at least 30 days before date reviewed submittals will be needed, in accordance with approved submittal schedule.
- F. Schedule submittals to expedite Project in accordance with approved Construction Progress Schedules and in such sequence as to cause no delay in the Work or in the activities of CITY or of separate contractors.
- G. Deliver submittals to the Architect's and City Representative's offices at business address during City Hall business hours. Submittals physically delivered or electronically transmitted during non-City Hall business hours will be considered received the next business day. Submittals accepted only from Contractor.
- H. Initial submittal shall be made to Architect via email or other electronic transfer with the City Rep copied. Architect will review and forward to City for approval. City will make final distribution.
- I. Submit product data, shop drawings, samples, calculations, certificates, manufacturer's instructions, and other items requested within each specification section. Present in a clear and thorough manner original drawings which illustrate the portion of the work showing fabrication, layout, setting, or erection details, prepared by a qualified detailer.
- J. All submittals shall be presented in a manner to allow reproduction on a black & white copier and convey all submittal data. DO NOT "HIGHLIGHT" product information with shaded markers.
- K. Number submittals sequentially (001, 002, 003...) in a large font in the upper right corner as the submittal number. It is permissible to add another line just above the "contract" line that is labeled "Extended Submittal No.:" (ie Extended Submittal No: 1-032000-1) that includes referenced specification section.
- L. Designate resubmittals with an "R" (001-R1) and supplemental with an "S" (001-S1). Resubmittals are a full reissuance and void the previous submittals (used in a case of a rejection or revise & resubmit). Supplements are attachments to the previous submittal (used when minor additional information is required).

- M. Apply Contractor's stamp, sign or initial and date certifying that review, verification of products, field dimensions, adjacent construction Work, and coordination of information, is in accordance with requirements of Work and Contract Documents.
- N. Clearly identify on submittal cover pages in writing at time of submission, deviations in submittals from requirements of Contract Documents. Deviations from Contract Documents that are not identified in this manner are automatically considered rejected and subject to replacement at no additional cost to the Owner regardless of any approval stamps on returned submittals.
- O. Do not perform Work on any element requiring submittal and review of shop drawings, product data, samples, or other similar submittals until respective submittal has been approved by CITY.
- P. Maintain in field office a copy of submittal schedule and log of submittals indicating current status of each item.
- Q. Prepare submittals using English units of measurement unless specified otherwise in the plan set.
- R. Coordinate submittals into logical groupings to facilitate interrelation of the several items.
  - 1. Finishes which involve City Representative's selection of colors, textures, or patterns.
  - 2. Associated items which require correlation for efficient function or for installation.
- S. Do not make "Mass" submittals (6 or more submittals) at one time. If Mass submittals are received, CITY's review time stated above will be extended as necessary to perform proper review. City Engineer will review Mass submittals based upon priority determined by CITY after consultation with Contractor.
- T. Provide adequate blank space on each submittal for Architect, Engineer and CITY's stamps as applicable.

#### 1.4 PROPOSED PRODUCTS LIST

- A. Refer to appropriate sections of plans and specifications.

#### 1.5 SHOP DRAWINGS

- A. Check and coordinate shop drawings of any section or trade with requirements of other sections or trades and as necessary for proper coordination and complete installation of Work.
- B. Do not use Contract Drawings for shop drawings. Provide original shop drawings with changes from Contract Drawings clearly indicated.
- C. Show layout, details, materials, dimensions, thicknesses, methods of assembly, attachments, relation to adjoining Work, and other pertinent data and information. Submit detail drawings of special accessory components not included in manufacturer's product data.
- D. Identify field dimensions; show relation to adjacent or critical features of Work or products.
- E. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- F. Existing Conditions:
  - 1. Show locations of existing conditions which affect installation of new Work.
  - 2. Show details of existing conditions and proposed modifications as requested by City Engineer.
- G. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- H. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

#### 1.6 CHANGED CONDITION DRAWINGS

- A. When specified in individual Sections, submit changed condition drawings in same quantities as for shop drawings.
- B. Where conditions differ from Contract Documents or shop drawings and remedial work is necessary, submit drawing showing changes.
- C. Submit drawing bearing seal and signature of professional engineer responsible for design.

- D. Indicate differing condition and required work caused by differing condition.

#### 1.7 CALCULATIONS

- A. When specified in individual Sections, submit calculations.
- B. Submit engineering calculations for component sizes, deflections, and connections.
- C. Submit calculations bearing seal and signature of professional engineer licensed in Texas responsible for design.
- D. Where existing conditions deviate from Contract Documents or shop drawings, submit calculations for existing condition, including calculations for anticipated corrective action required, and changes to loads transferred to "base building" structure.

#### 1.8 PRODUCT DATA

- A. Transmittal:
  - 1. Submit under accepted form transmittal letter in both hard copy and electronic format. Identify Project by title and number. Identify Work and product by Specification section and Article number.
  - 2. Submit the number of copies which the Contractor requires, plus 2 copies which will be retained by the CITY. Minimum of two samples are required if not otherwise specified
- B. Submit only pages which are pertinent.
  - 1. Mark each copy of standard printed data to identify pertinent products, models, options, and other data referenced to Specification Section and Article number.
  - 2. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.
  - 3. Modify manufacturer's standard data, schematic drawings, and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete information not applicable.
- C. After review, distribute copies of reviewed product data to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

#### 1.9 SAMPLES

- A. Transmittal:
  - 1. Label each sample with identification required for transmittal letter with full Project information.
  - 2. Submit the number or samples specified in individual specification Sections; one of which will be retained by CITY.
  - 3. Submit samples simultaneously to the Architect's office and to the City's office.
  - 4. Submit number of samples specified in individual Specifications sections. Minimum of two samples are required if not otherwise specified.
- B. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- C. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for CITY selection.
- D. Submit samples to illustrate functional characteristics of products, including parts and attachments.
- E. Provide field samples of finishes at Project, at location acceptable to CITY, as required by individual Specifications section and in accordance with Section 014500. Install each sample complete and finished.
- F. Approved samples which may be used in the Work are indicated in individual specification Sections.

#### 1.10 REVIEW FOR COLOR COORDINATION

- A. General: All Color Selections must be reviewed by the City for coordination with USERS, CITY STAFF and coordinated with color selections determined during the design phase of this project. Colors will NOT be reviewed and released individually without coordination with

- other color selections. Final selection and approval of finishes and colors WILL BE reviewed in related group and selections determined at that time.
- B. Contractor's Responsibility: The Contractor shall procure and produce product and system submittals with color critical selections at the beginning of the project. The Contractor shall notify the City Representative of time sensitive or critical path material & color selections no later than 30 days after the Notice to Proceed on Construction Phase. These and other critical submittals shall be expedited so that the City Representative has time to schedule and coordinate the City's internal review process.
  - C. Submittals Requiring Color Coordination Review – General Listing: Note that other systems and components may need to be included.
    - 1. Exterior Components: All exterior finish materials such as Brick, BUR Roofing, Prefinished Metal Roofing & Trim, Colored Tile, Pavers, Plaster Color & Finish, Masonry Veneers, Exterior Glazing, Prefinished Fencing, etc.
    - 2. Interior Components: Color Masonry, Ceramic Tile, Plastic Laminate, Solid Surfacing, Cabinets & Millwork Finishes, Stained & Transparent Wood (veneer selection & finish), Wood Doors, Aluminum Framing & Entrances, all Flooring, Lockers, Manufactured Components (corner guards, benches, etc.), Toilet Compartments, Resilient Base, any materials listed on the Interior Color Selections OR, any other items that could potentially impact the project schedule. Additionally, any long lead time systems and some MEP systems may require critical color selections.
  - D. Submittals requiring product data & sample review and selection WILL NOT BE REVIEWED until both components are received for review.

#### 1.11 INFORMATIONAL SUBMITTALS

- A. Informational submittals upon which CITY is not expected to take responsive action may be so identified in Contract Documents. When professional certification of performance criteria of materials, systems, or equipment is required by Contract Documents, CITY shall be entitled to rely upon accuracy and completeness of such certifications.
- B. Types of Informational Submittals:
  - 1. Design data: Submit with shop drawings.
  - 2. Test reports: Submit within 2 weeks of testing.
  - 3. Certifications:
    - a. Submit certifications when specified in individual Specification sections.
    - b. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
    - c. Certifications may be recent or previous test results on material or product, but must be acceptable to CITY.
    - d. Submit manufacturer or fabricator certifications with product data.
    - e. Submit certificates of compliance within 2 weeks following approval or acceptance by authority having jurisdiction.
    - f. Submit installation certifications within 2 weeks following completion of product installation.
  - 4. Engineering Certifications:
    - a. Submit certificated statement, signed and sealed by professional engineer responsible for design attesting to the following:
      - 1) Conformity to applicable governing codes.
      - 2) Conformity to criteria in Contract Documents.
      - 3) Component parts were designed or selected for locale and application intended.
    - b. Submit with shop drawings. Submit prior to fabrication if shop drawings are not required by individual specification sections.
  - 5. Qualification Data:
    - a. When specified in individual Sections, submit manufacturer's, fabricator's, and installer's qualifications verifying years of experience.
    - b. Include list of completed projects having similar scope of Work identified by name, location, date, reference names, and phone numbers.

- c. Submit manufacturer qualification data with proposed products list.
- 6. Manufacturer's Instructions:
  - a. Refer to Section 0145000 for requirements.
  - b. When specified in individual Specification sections, submit manufacturer's printed instructions for delivery, storage, assembly, installation, adjusting, finishing, and other pertinent data.
  - c. Identify conflicts between manufacturer's instructions and Contract Documents.
  - d. Submit with product data.
- 7. Manufacturer's Certificates:
  - a. When specified in individual specification Sections, submit manufacturers' certificate to CITY for review, in quantities specified for Product Data.
  - b. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.
  - c. Certificates may be recent or previous test results on material or Product, but must be acceptable to CITY.
- 8. Manufacturer's Field Reports:
  - a. Refer to Section 014500 for requirements.
  - b. When specified in individual Specification sections, submit written results and findings of manufacturer's field services specified as part of Field Quality Control.
  - c. Submit within 2 weeks following completion of field services covered in individual reports.
- C. Quantity: Submit in quantities specified for product data.

#### 1.12 COORDINATION DRAWINGS

- A. Provide information required by Project Coordinator for preparation of coordination drawings.
- B. Review drawings prior to submission to Architect and City.

#### 1.13 INCOMPLETE, PARTIAL AND REJECTED SUBMITTALS

- A. Incomplete Submittal: Submittal not complying with specified submittal requirements.
- B. Partial Submittal: Submittal subdivided into components as indicated in submittal schedule and each component submitted separately.
- C. CITY will not review incomplete submittals. Complete submittals for each item are required. Submittal will not be considered official until it is complete in every respect including electronic file delivery.
- D. Submittals will be returned without processing if they have not been reviewed and stamped by Contractor AND Contractor's Architect for coordination of work and conformance with the Drawings and Specifications prior to submission to CITY, if they are not initialed or signed by authorized person, if they are not dated, or if it becomes evident that they have not been properly reviewed.
- E. Make re-submittal under procedures specified for initial submittals; identify changes made since previous submittal.
- F. Delays resulting from incomplete or rejected submittals are not responsibility of CITY, and do not warrant extension of contract time..

#### 1.14 PROGRESS SCHEDULES

- A. Refer to Section 013200.

#### 1.15 CONSTRUCTION PHOTOGRAPHS

- A. Refer to Section 013200.

#### 1.16 CONTRACTOR REVIEW

- A. All Shop Drawings required by these Construction Documents are considered as "tools" of construction and not "tools" of design. By submitting Shop Drawings the Contractor acknowledges his understanding and acceptance of this principle. Shop Drawings stamped,

signed and dated as approved by the General Contractor but showing evidence that they have not been carefully checked by the Contractor will be returned to the Contractor, rechecked by the Contractor and resubmitted to the CITY.

- B. Review submittal prior to transmittal; determine and verify field measurements, field construction criteria, quantities and details, manufacturer's catalog numbers, and conformance of submittal with requirements of Contract Documents.
- C. Coordinate submittal with requirements of Work and of Contract Documents.
- D. Sign or initial in a rubber-stamped review block format, each sheet of shop drawings and product data, and each sample label to certify compliance with requirements of Contract Documents. Notify CITY in writing at time of submittal of any deviations from requirements of Contract Documents.
- E. Do not fabricate products or begin work which requires submittal until return of submittal with CITY acceptance.
- F. Contractor's responsibility for errors and omissions in submittal is not relieved by CITY's, review of submittal.
- G. Responsibility for deviations in submittal from requirements of Contract Documents is not relieved by CITY's review of submittal, unless CITY gives specific written acceptance of deviations. CITY will review submittal for general conformance to design intent only.

#### 1.17 CITY REVIEW

- A. CITY will review construction progress schedules, and submittal schedules. City Representative will review product lists, shop drawings, product data, and samples and return within 15 working days of receipt excepting conditions previously noted.
- B. Informational submittals and other similar data are for CITY's information and do not require CITY's responsive action.
- C. CITY's and Architect's review of submittals is for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents. CITY's and Architect's review is not conducted for purpose of determining accuracy and completeness of items such as dimensions and quantities, which remain responsibility of Contractor.
- D. CITY's review and approval of submittals does not relieve Contractor of responsibility for deviations from Contract Document requirements, unless CITY is specifically informed in writing of deviations and specific approval is received in writing from CITY for such deviation.
- E. CITY's review and acceptance of submittals does not indicate acceptance of changes in Contract time or cost.
- F. Submittals made by Contractor which are not required by Contract Documents may be returned without action.

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

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

**END OF SECTION**

## SECTION 014500

### QUALITY CONTROL

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Related Documents: Provisions established in General Conditions of the Contract, Scope & Compensation, Carrollton General Design Standards, Division 1 General Requirements, and other City contract documents are collectively applicable to this Section.
- B. Section Includes:
  - 1. Quality control of products and workmanship.
  - 2. Manufacturer's instructions.
  - 3. Manufacturer's certificates and field services.
  - 4. Mockups.
  - 5. Field samples.
  - 6. Owner provided testing laboratory services.
  - 7. Selection and payment.
  - 8. Laboratory responsibilities.
  - 9. Laboratory reports.
  - 10. Limits on testing laboratory authority.
  - 11. Contractor's responsibilities.
  - 12. Schedule of inspections and tests.

##### 1.2 DESCRIPTION

- A. Maintain quality control over supervision, subcontractors, suppliers, manufacturers, products, services, workmanship, and site conditions, to produce Work in accordance with Contract Documents.

##### 1.3 DEFINITIONS

- A. Field Samples: Partial installation of selected materials installed at Project site for CITY's review and approval of visual features and workmanship.
- B. Mock-ups: Full size assemblies that incorporate several materials or elements of construction erected for CITY's review and approval of visual features and workmanship. Mock-ups represent quality of materials and workmanship required for Work.

##### 1.4 PERFORMANCE REQUIREMENTS

- A. Workmanship:
  - 1. Comply with industry standards of the region except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
  - 2. Provide suitably qualified personnel to produce Work of specified quality.

3. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.
  4. Provide finishes to match approved samples.
- B. Manufacturer's Instructions:
1. Prepare instructions and data by personnel experienced in maintenance and operation of described products.
  2. Require compliance with instructions in full detail, including each step in sequence. Do not omit preparatory steps or installation procedures unless specifically modified or exempted by Contract Documents.
  3. Maintain one complete set of instructions at Project Site during installation and until completion.
  4. Should instruction conflict with Contract Documents, request clarification from City Representative before proceeding.
- C. Manufacturer's Certificates:
1. When required in individual Specifications section, submit manufacturer's certificate, in duplicate, certifying that products meet or exceed specified requirements, executed by responsible officer.
- D. Manufacturer's Field Services and Reports:
1. Submit reports in accordance in accordance with Section 013300.
  2. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.

#### 1.5 QUALITY ASSURANCE

- A. Supervise performance of Work in such manner and by such means to ensure that Work, whether completed or in progress, will not be subjected to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.
- B. Ensure that persons performing Work are qualified to produce workmanship of specified quality.
- C. Monitor quality control over products, suppliers, manufacturers, services, site conditions, and workmanship to ensure Work complies with Contract Documents.
- D. Comply with specified reference standards as minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

#### 1.6 EXAMINATION OF CONDITIONS

- A. Examine substrates and conditions under which Work is to be performed. Do not commence work over unsatisfactory conditions detrimental to proper and timely execution of Work.
- B. Do not proceed with Work until unsatisfactory conditions have been corrected.

- C. Commencement of installation constitutes acceptance of conditions and cost of any corrective measures are responsibility of Design-Builder.

## 1.7 MOCKUPS

### A. General:

1. Use materials, fabrication and installation methods identical with those indicated for Work. Simulate actual construction conditions as accurately as possible.
2. Provide mock-ups required by individual Specification sections.
3. Approval:
  - a. Obtain CITY's written approval for each mock-up.
  - b. Do not start production of materials for final Project site erection until City Representative's approval of mock-ups has been obtained.
  - c. Approved mock-ups will serve as standard of quality and workmanship of Work; maintain mock-ups until completion of relevant Work.
4. Upon completion of relevant Work or when directed by CITY, demolish and remove mock-ups.

### B. Visual Mock-up

1. Provide full scale mock-up for review of CITY.
2. Unless specified or directed otherwise, erect visual mock-ups at Project site at location acceptable to CITY.
3. Obtain CITY approval of visual mock-up prior to fabrication and construction of test mock-up.

## 1.8 FIELD SAMPLES

### A. General:

1. Provide field samples at site required by individual Specification sections.
2. Erect at location acceptable to CITY; perform Work in accordance with applicable Specification sections.
3. Construct complete, including Work of related trades required in finished Work.
4. Make adjustments necessary to obtain approval from CITY. Do not proceed with further work until sample installation has been approved by CITY.
5. Approved samples will serve as standard of quality and workmanship of Work; maintain samples until completion of relevant Work.
6. Upon completion of Work or when directed by CITY, demolish field samples and remove from site, unless accepted by CITY as part of completed Work.

## 1.9 TESTING LABORATORY SERVICES

### A. General:

1. Testing laboratory services shall be provided per TESTING LABORATORY SERVICES specification section.
2. Note that the requirements for the TESTING, ADJUSTING AND BALANCING of mechanical systems are not considered as part of work under the TESTING LABORATORY SERVICES specification section. The testing, adjusting and balancing agency shall be paid for in full by the Contractor.

**PART 2      PRODUCTS (NOT USED)**

**PART 3      EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 014529**  
**TESTING LABORATORY SERVICES**

**PART 1 GENERAL**

**1.01 SCOPE**

- A. A qualified independent testing and inspection agency, selected and retained by the Owner and approved by Architect, will perform special inspection, material testing and other laboratory services specified herein.
- B. Testing and inspection agency shall make and perform all special inspections and structural tests in accordance with the rules and regulations of Building Code, local authorities, specifications of ASTM, and these Contract Documents.
- C. Materials and workmanship not meeting required standards or performance obligations are to be removed and replaced. Replacement and subsequent testing shall be at CONTRACTOR's expense.
- D. Where the term Laboratory is used, it means the approved testing and inspection agency engaged by the Owner. Where the term Special Inspector is used, it means the designated and accredited special inspector employed by or affiliated with the Laboratory.
- E. Where the term Geotechnical Service is used, it means an agency specializing in soil analysis and professional geotechnical engineering, which is under the direction of a licensed engineer or licensed geologist and which is retained by the Owner for construction phase testing and inspection of foundation construction and earthwork. It may be the same agency as the laboratory.
- F. Where the term Geotechnical Engineer is used, it means the licensed design professional in responsible charge of the subsurface investigation and report from which the building foundation system is derived. He may be a member of the geotechnical service engaged by the Owner to perform construction phase services.
- G. Laboratory inspection shall not relieve CONTRACTOR or fabricator of its responsibility to furnish materials and workmanship in accordance with Contract Documents.
- H. Schedule of Tests and Inspections contained in Section 3 of this Testing Laboratory Services specifications is intended to establish minimum criteria covering multiple components of construction but should not be considered a comprehensive list of all required testing and inspection. Identification of specific tests and inspections related to the final design are contained in other sections of the specifications.

**1.02 QUALIFICATIONS**

- A. The testing and inspection agency shall meet all requirements of ASTM E 329, "Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction" and ASTM E 543, "Standard Practice for Agencies Performing Nondestructive Testing." Special Inspectors shall be qualified persons who have demonstrated competence to the satisfaction of the

building official for inspection of the particular type of construction requiring special inspection.

- B. The testing and inspection agency shall each be insured against errors and omissions by a professional liability insurance policy having a limit of liability not less than \$2,000,000.00.
- C. All Special Inspection and Testing services shall be under the direction of a Professional Engineer licensed in the State of Texas, charged with engineering managerial responsibility and having at least 5 years engineering experience in special inspection and testing of construction materials.
- D. Special Inspectors monitoring concrete work shall be ACI certified inspectors.
- E. Special Inspectors performing structural steel inspection shall be currently certified AWS Certified Welding Inspectors (CWI), in accordance with provisions of AWS QCI, "Standard and Guide for Qualification and Certification of Welding Inspectors." Special Inspector may be supported by assistant Special Inspectors who may perform specific inspection functions under supervision of the Special Inspector. Assistant Special Inspectors shall be currently certified AWS Certified Associate Welding Inspectors (CAWI). Work of Assistant Special Inspectors shall be regularly monitored by the Special Inspector, generally on a daily basis.
- F. Prior to start of Work, submit agency name, address and telephone number, name of full time licensed Engineer in responsible charge, and name of each Special Inspector who will inspect the work.
- G. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.

### **1.03 RESPONSIBILITIES OF CONTRACTOR**

- A. See respective technical sections for specific requirements.
- B. Deliver to the laboratory, without cost to Owner, adequate quantities of representative samples of materials proposed for use which are required to be tested.
- C. Advise inspecting agency and Owner's Representative or his designee sufficiently in advance of construction operations to allow inspecting agency to assign personnel for special inspection and testing as specified.
- D. Notify Owner's Representative or his designee and inspecting agency of each day's construction operations expected to require special inspection, at least 24 hours in advance for work occurring Tuesday through Saturday, and 72 hours in advance for work occurring on Monday of such operations, to allow Special Inspector to complete any required checks or tests in a timely manner.
- E. Provide adequate facilities for safe storage and proper curing of concrete test samples on project site for the first 24 hours and also for subsequent field curing, as required by ASTM C 31.
- F. Furnish such nominal labor and equipment as is required to assist laboratory personnel in obtaining and handling samples at the site and in accessing work

for special inspection.

- G. Furnish concrete mix designs, in accordance with ACI 301, Section 3.9, made by an independent testing laboratory or qualified concrete supplier. Where mix designs by an independent testing laboratory are required, laboratory shall be selected and paid by CONTRACTOR.
- H. Obtain required inspections or approvals by Building Official. All inspection requests and notifications required by Building Code Section 109 are responsibility of CONTRACTOR. Approval of any inspection activity by the City of Carrollton Building Inspection Department does NOT constitute "City" acceptance with respect to the Contract Documents.
- I. Provide current welder certifications for each welder to be employed.
- J. Furnish fabrication/erection inspection and testing of all welds in accordance with AWS D1.1, Chapter 6.
- K. Submit prequalification of all welding procedures to be used in executing the work.
- L. Review and sign the Statement of Special Inspections in conjunction with other responsible parties prior to the initiation of construction.

#### **1.04 AUTHORITY AND DUTIES OF SPECIAL INSPECTOR AND TESTING LABORATORY**

- A. Special Inspector shall keep records of inspections. The special inspector shall furnish inspection reports to the building official, Owner's Representative, Architect, CONTRACTOR, and the registered design professional in responsible charge.
  - 1. Reports shall indicate that work inspected was done in conformance with approved construction documents.
  - 2. Discrepancies shall be brought immediately to the attention of the CONTRACTOR for correction.
  - 3. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the building official, Owner's Representative and to the Architect prior to the completion of that phase of the work.
  - 4. A final report documenting required special inspections and correction of any discrepancies shall be submitted at a date to be agreed upon prior to the start of work, by the permit applicant and the building official.
- B. Perform all special inspection and testing duties as required by Chapter 17 of the International Building Code and as herein specified.
- C. Special Inspectors or other representatives of the testing agency, who have reviewed and are familiar with the project and specifications, shall participate in all preconstruction conferences. They shall coordinate material testing and special inspection requirements with CONTRACTOR and his subcontractors consistent with planned construction schedule. They shall also attend, throughout the course of the project, such conferences as may be required or requested to address quality control issues.
- D. Test and/or inspect the work assigned for conformance with the approved construction documents, specifications and applicable material and

- workmanship provisions of the building code. Perform testing and inspection in a timely manner to avoid delay of the work.
- E. Obtain a copy of current approved Contract Documents, including addenda, from the Owner for use during inspections.
  - F. Submit test and/or inspection reports to the Building Official, Owner's Representative, CONTRACTOR, the Architect, the Structural Engineer of Record and other designated persons in accordance with the schedule in the Statement of Special Inspections.
  - G. Review and sign the Statement of Special Inspections in conjunction with other responsible parties prior to the initiation of construction.
  - H. Special Inspectors are not authorized to revoke, alter, relax, enlarge, or release any requirement of the Contract Documents or to approve or accept any portion of work, except where such approval is specifically called for in Specifications.
  - I. Special Inspectors do not act as foremen, or perform other duties for CONTRACTOR. Work will be checked as it progresses, but failure to detect any defective work or materials shall not, in any way, prevent later rejection when such defect is discovered.

#### **1.05 SUBMITTALS**

- A. At minimum, all inspection reports shall be distributed by email in pdf format. Provide hard copies as requested by Owner, Architect, CONTRACTOR or other designated party.
- B. Distribute copies of reports of each and every inspection as described above. In addition, copy concrete cylinder break reports to concrete supplier.
- C. Test Reports Shall Include:
  - 1. Date issued.
  - 2. Project title and number.
  - 3. Name of inspector.
  - 4. Date and time of sampling or inspection.
  - 5. Identification of product and specifications section.
  - 6. Location in the Project.
  - 7. Type of test/inspection.
  - 8. Date of test/inspection.
  - 9. Results of test/inspection.
  - 10. Conformance with Contract Documents.
  - 11. When requested by Architect, provide interpretation of results.
- D. In addition to furnishing a written report, notify CONTRACTOR verbally of any uncorrected conditions or failures to comply with requirements of Contract Documents and immediately email corresponding report to Owner, Architect and Engineer.
- E. At completion of each trade or branch of work requiring inspecting and/or testing, submit an interim report attesting to satisfactory completion of that work and full compliance with requirements of Contract Documents.

- F. Upon completion of all work which requires special inspection, submit a final report documenting required special inspections and correction of any deficiencies noted in the inspections. Final report shall bear the seal of the supervising licensed engineer for the testing and inspection agency.
- G. Submit copies of test results, sealed by a Licensed Engineer, to municipal authorities having jurisdiction, as they may require or request.

#### **1.06 REFERENCED STANDARDS**

- A. Latest adopted edition of all standards referenced in this Section shall apply, unless noted otherwise. In case of conflict between these Contract Documents and a referenced standard, Contract Documents shall govern. In case of conflict between these Contract Documents and the Building Code, the more stringent shall govern.
- B. ASTM C 1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.
- C. ASTM C 1093 - Standard Practice for Accreditation of Testing Agencies for Unit Masonry.
- D. ASTM D 3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- E. ASTM E 329 - Standard Specification for Agencies Engaged Construction Inspection and/or Testing.
- F. ASTM E 543 - Standard Practice for Agencies Performing Nondestructive Testing.

#### **PART 2 PRODUCTS**

NOT USED

#### **PART 3 SCHEDULE OF TESTS AND INSPECTIONS**

##### **3.01 EXCAVATIONS**

- A. A Special Inspector from the Owner's geotechnical engineering service shall perform service specified in this subsection.
- B. Observe the excavation process, exposed faces of excavation and installation of retention systems. Check for compliance with Contract Documents and make alternative recommendations as may be required to suit field conditions.
- C. Review all geotechnical parameters and assumptions used in the development of calculations and Drawings for retention systems, including lateral design forces rock wedge stability analysis, rock bolt lengths and spacing, and surcharge effects.
- D. Review all required submittals pertaining to geotechnical requirements.
- E. Check adequacy and accuracy of Contractor's monitoring program, equipment, procedures, and measurements related to movements of the excavated face and adjacent structures.
- F. Immediately report any observed unsafe conditions. Request additional shoring, bracing, or rock bolting where judged to be necessary as excavation

progresses..

### **3.02 PIER DRILLING OPERATION**

- A. A Special Inspector shall provide services herein specified.
- B. Special Inspector shall make continuous inspections of drilled pier construction to check the following for compliance with the approved soils report and the Contract Documents:
  - 1. Verify soundness of bearing stratum and desired penetration.
  - 2. Verify placement locations, plumbness and pier dimensions including shaft diameter, bell diameter and length.
  - 3. Verify reinforcing steel size, grade, quantity and placement.
  - 4. Monitor condition of hole and removal of water and loose material from bottom. Verify cleanliness/preparation of sides to develop skin friction.
  - 5. Verify compliance with specified time limit regarding how long holes are permitted to stand open and exposed to air before placing concrete.
  - 6. Monitor placement of concrete and use of tremie or pumps.
  - 7. Monitor extraction of casing, if used.
- C. Special Inspector shall furnish complete pier log showing diameter, top and bottom elevations of each pier, actual penetration into bearing stratum, elevation of top of bearing stratum, volume of concrete used, and deviations from specified tolerances.
- D. Request probe holes when deemed necessary to confirm safe bearing capacity.

### **3.03 BUILDING PAD**

- A. The geotechnical service shall perform testing and inspection specified herein, unless noted otherwise. Inspections at the jobsite shall be carried out by a designated Special Inspector in accordance with the Building Code.
- B. CONTRACTOR shall make available, free of charge, adequate samples of each fill and backfill material from proposed sources of supply.
- C. A 50 pound sample of each type of off-site and site-excavated material proposed for use shall be given to the geotechnical service by CONTRACTOR between 10 and 30 calendar days prior to start of specified work. Analyze samples as required to provide a soil description and to determine compliance with gradation and quality requirements, and test as follows:
  - 1. Tests for liquid limit of soils in accordance with ASTM D 4318.
  - 2. Tests for plastic limit of soils and plasticity index of soils in accordance with ASTM D 4318.
  - 3. Tests for moisture/density relations of soil in accordance with ASTM D 698 or D 1557, as applicable.
- D. Furnish a report for each individual test, describing variances from specified requirements and stating whether material is acceptable for intended use.
- E. Inspect underslab drainage material and placement for compliance with specified gradation, quality, and compaction.
- F. Inspect excavated subgrade, confirm elevation, and identify to CONTRACTOR

any remaining unsuitable material which must be removed, and any soft areas which must be recompacted.

- G. Inspect and test prepared subgrade after initial rolling and compaction of scarified surface, before the placement of any fill.
- H. Continuously inspect placement lift thickness and compaction of all fill materials, including continuous inspection of moisture conditioning of on-site soils. Verify fill material compliance with specified material properties.
- I. Make in-place compaction test for moisture content and density relations, and density of materials-in-place to determine that backfill and fill materials have been compacted to specified density. Tests shall be made at the following frequencies:
  - 1. One (1) test for each 5000 square feet of area of each lift placed under building or floor slab. Stagger test locations in each lift from those in previous lift. A minimum of 3 tests will be required of each lift.
  - 2. One (1) test for each 100 linear feet, or portion thereof, of each lift placed against foundation walls, with locations staggered as above.
  - 3. One (1) test of each lift placed below any isolated footing or similar support and every 100 linear feet under continuous footings, with locations taken on a different side in each case, from the lift below.
- J. Check and report on compliance with the approved soils report and the Contract Documents. Reports may be combined on a daily basis, if desired, provided that location of each test and applicable lift are clearly identified and any problems are detailed.

### **3.04 CARTON FORM INSPECTION**

- A. Inspect carton forms for size, installation and integrity before each concrete pour.
  - 1. Confirm that the carton forms are the detailed width and depth.
  - 2. Confirm that all carton forms are solid and that all wet or damaged cartons have been removed prior to placing concrete.
  - 3. Confirm ends of cartons are properly capped and joints are properly sealed per specifications.
  - 4. Confirm round pier forms are being used per specifications and voids are properly formed under pilasters.

### **3.05 PRECAST HOLLOW-CORE SLABS**

- A. Inspect the installation of precast hollow core slabs. Check for proper bearing lengths, joint position and excessive field cuts.

Check each bearing point of each unit for gaps, spalls and other deficiencies which may reduce bearing capacity.

Verify that all joints between units are filled solid with grout prior to placement of topping.

### **3.06 CONCRETE REINFORCING STEEL AND EMBEDDED METAL ASSEMBLIES**

- A. A Special Inspector shall perform testing and inspection specified herein.
- B. Welds shall be inspected by a certified welding inspector.

- C. Inspect all concrete reinforcing steel prior to placing of concrete for compliance with Contract Documents and approved shop drawings.
- D. Observe and Report on the Following:
  - 1. Number and size of bars. Include spacing of stirrups and column ties.
  - 2. Bending and lengths of bars.
  - 3. Splicing.
  - 4. Clearance to forms including chair heights.
  - 5. Clearance to sides and bottom of trench if soil-formed.
  - 6. Clearance between bars or spacing.
  - 7. Rust, form oil, and other contamination.
  - 8. Grade of steel. Verify that reinforcing being welded is ASTM A 706.
  - 9. Securing, tying, and chairing of bars.
  - 10. Excessive congestion of reinforcing steel.
  - 11. Installation of anchor rods and placement of concrete around such rods.
  - 12. Fabrication and installation of embedded metal assemblies, including visual inspection of all welds.
  - 13. Visually inspect studs and deformed bar anchors on embedded assemblies for compliance with Contract Documents. Check number, spacing and weld quality. If, after welding, visual inspection reveals that a sound weld or a full 360\_ fillet has not been obtained for a particular stud or bar, such stud or bar shall be struck with a hammer and bent 15\_ off perpendicular and then bent back into position. Anchors failing this test shall be replaced.

### **3.07 CONCRETE INSPECTION AND TESTING**

- A. A Special Inspector shall perform testing and inspection specified herein, unless otherwise noted. Comply with ACI 311, "Guide For Concrete Inspection" and "ACI Manual of Concrete Inspection" (SP-2)
- B. Receive and evaluate all proposed concrete mix designs submitted by CONTRACTOR. If mix designs comply with Drawings and Specifications, laboratory shall submit a letter to Architect certifying compliance. Mix designs not complying with Drawings and Specifications shall be returned by laboratory as unacceptable.
- C. Periodically inspect formwork for shape, location and dimensions of the concrete member being formed.
- D. Verify use of the required mix design.
- E. Secure composite samples of concrete at the jobsite in accordance with ASTM C 172.
- F. Mold and cure 3 specimens from each sample in accordance with ASTM C 31. Supervise curing and protection provided (by others) for test specimens in field, and transportation from field to laboratory. Test cylinders shall be stored in the field 24 hours and then be carefully transported to laboratory and cured in accordance with ASTM C 31.
- G. Test specimens in accordance with ASTM C 39. 2 specimens shall be tested at 28 days for acceptance and 1 shall be tested at 7 days for information.
- H. Make 1 strength test (3 cylinders) for each 100 cubic yards, or fraction thereof,

of each mix design of concrete placed in any 1 day.

- I. Make 1 slump test for each set of cylinders following procedural requirements of ASTM C 143 and C 172. Make additional slump tests whenever consistency of concrete appears to vary. Do not permit placement of concrete having a measured slump outside limits given on Drawings, except when approved by Architect. Slump tests corresponding to samples from which strength tests are made shall be reported with strength test results. Other slump tests need not be reported.
- J. Determine total air content of air entrained normal-weight concrete sample for each strength test in accordance with ASTM C 231.
- K. Determine temperature of concrete sample for each strength test.
- L. Determine air content and unit weight of lightweight concrete sample for each strength test in accordance with ASTM C 173 and C 567.
- M. Testing agency shall provide a competent inspector at the batch plant to observe the mixing of the first batch of each mix design destined for the project. Inspector shall examine concrete materials for compliance with Specifications and approved mix design, weighing and measuring devices, proportioning and mixing of materials, water and cement content, general operation of plant, and transportation of concrete to jobsite. Inspector shall verify that amount of free surface moisture contained in both fine and coarse aggregate has been properly accounted for in concrete proportioning to achieve required consistency and water cement ratio. Once proper procedures and quality assurance program have been confirmed by the inspector, in-plant inspections may cease.
- N. Monitor addition of water to concrete at jobsite and length of time concrete is allowed to remain in the truck before placement. Inspector shall compare mixture with criteria on approved mix design and report any significant deviation to Architect, CONTRACTOR and concrete supplier. Do not permit addition of water which will exceed maximum water/cement ratio for the mix as given on approved mix design.
- O. Continuously observe placing of all concrete, except non-structural slabs-on-grade and sitework. Observe and report on placing method, consolidation, cold joints, length of drop, and displacement of reinforcement.
- P. Certify each delivery ticket indicating class of concrete delivered (or poured), amount of water added and time at which cement and aggregate was dispensed into truck, and time at which concrete was discharged from truck.
- Q. Evaluation and Acceptance:
  1. If measured slump, or air content of air entrained concrete, falls outside specified limits a check test shall be made immediately on another portion of same sample. In the event of a second failure, concrete shall be considered to have failed to meet requirements of the specifications, and shall not be used in structure.
  2. Strength level of concrete will be considered satisfactory if averages of all sets of 3 consecutive strength test results are equal to, or exceed, specified

strength and no individual test result (average of 2 cylinders) is below specified strength by more than 500 psi.

- R. Concrete Test Reports:
  - 1. Reports shall be made and distributed immediately after respective tests or inspections are made.
  - 2. Where reports indicate deviations from Contract Documents, they shall also include a determination of probable cause of deviation and, where applicable, a recommendation for corrective action.
  - 3. Whenever testing laboratory recognizes a trend of decreasing quality in concrete due to changing seasons, conditions of curing, or other cause, this shall be brought to Architects attention, along with a recommendation for corrective action to be taken before materials fall below requirements of Specifications.
- S. Periodically inspect application of curing compound and monitor curing temperature and techniques for compliance with specified requirements.

### **3.08 STRUCTURAL STEEL**

- A. A Special Inspector shall inspect structural steel during fabrication and during and after erection for conformance with Contract Documents and shop drawings. Review and report on fabricator's quality control procedures and capabilities.
- B. Shop Inspection:
  - 1. Periodic inspection of fabrication process, including verifying markings on bolts, nuts and washers to comply with ASTM standards and welding to monitor effectiveness of quality control program. Inspection of shop welding to "verification inspection", in accordance with AWS D1.1, Chapter 6.
  - 2. Review manufacturer's certificate of compliance for bolts and structural steel.
- C. Field Inspection:
  - 1. Proper erection of all pieces.
  - 2. Proper installation of all bolts, including checking of calibration of impact wrenches used with high-strength bolts.
  - 3. Plumbness of structure and proper bracing.
  - 4. Proper painting and galvanizing.
  - 5. Details of bracing and stiffening.
  - 6. Periodic inspection of welding while in progress.
  - 7. Application of joint details at each connection.
  - 8. Visual examination of all completed welds.
  - 9. Inspect all shop fabricated members, upon arrival at jobsite, for member straightness and alignment and for defects incurred during transit and handling.
  - 10. Proper grouting of column base plates.
- D. Qualifications of Welders: Fabricator and erector shall provide testing laboratory with names of welders to be employed on work, along with

certification that each welder has passed qualification tests within the last year, using procedures covered in American Welding Society "Structural Welding Code - Steel," D1.1, latest edition. Verify all welder qualifications.

- E. Inspection of Field Welding Shall Include the Following:
1. Visually inspect fillet welds for size, soundness, and proper return around ends. Check for seams, folds, and delaminations.
  2. Inspect surfaces to be welded. Surface preparations, fit-up and cleanliness of surface shall be noted. Electrodes shall be checked for size, type and condition.
  3. Welding inspector shall be present during alignment and fit-up of members being welded, and shall check for correct surface preparation of root openings, sound weld metal, and proper penetration in root pass. Where weld has not penetrated completely, inspector shall order joint to be chipped down to sound metal, or gouged out, and rewelded. Root passes shall be thoroughly inspected for cracks. All cracks shall be gouged out and rewelded to 2" beyond each end of crack.
  4. Inspector shall check that all welds have been marked with welder's symbol and shall mark welds requiring repairs and shall make a reinspection. Inspector shall maintain a written record of all welds. Work completed and inspected shall receive an identification mark by the inspector. Unacceptable material and work shall be identified by word "reject" or "repair" marked directly on material.
  5. Testing agency shall advise Owner and Architect of any shop and/or field conditions which, in his opinion, may require further tests and examination by means other than specified. Such further tests and examinations shall be performed as authorized by Owner and Architect.
  6. Owner reserves the right to use ultrasonic or radiographic inspection to verify adequacy of all welds. Testing procedures and acceptance criteria shall be as specified in AWS D1.1.
- F. Inspection of Bolted Construction Shall be in Accordance with AISC Specification for Structural Steel Buildings and as Follows:
1. All bolts shall be visually inspected to ensure plies have been brought into snug contact.
  2. High strength bolting shall be inspected in accordance with Section 9 of "Specifications for Structural Joints Using ASTM A 325 or A 490 Bolts."
  3. For all high strength bolts, unless specifically noted on Drawings to require only "snug- tight" installation, inspector shall observe required jobsite testing and calibration, and shall confirm procedure to be used does provide required tension. He then shall monitor the work to assure tested procedures are routinely followed. Tightening by calibrated wrench and turn-of-the-nut method without match-marking shall be continuously inspected.
  4. Verify markings on bolts, nuts and washers to comply with ASTM Standards.

### **3.09 WOOD FRAMING**

- A. Field Inspection Shall Consist of the Following:

1. Check sizes and grades of load bearing framing members, including load bearing wall studs, header beams, and diagonal bracing members.
  2. Verify use of preservative treated wood for sill plates and other applications as required by the contract documents.
  3. Check lengths, gages, and numbers/spacing of nails, screws, lag screws, and bolts used in load bearing construction.
  4. Verify proper installation of roof anchors, shear wall holddown assemblies, and other anchor assemblies detailed in the drawings or defined in the specifications and general notes.
  5. Verify proper installation of bracing assemblies and attachments at wood/steel framing interfaces and other locations detailed in the contract documents.
- B. A Special Inspector shall inspect the fabrication process of prefabricated wood structural elements and assemblies in accordance with Section 1704.2 of the International Building Code. In accordance with the Code, Special Inspections are not required where the work is done on the premises of a fabricator registered and approved to perform such work without Special Inspection. At completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building official stating that the work was performed in accordance with the approved construction documents.
- C. A Special Inspector shall inspect wood structural panel blocked diaphragms utilizing multiple rows of fasteners (high-load diaphragms) as tabulated in International Building Code Table 2306.3.2.
1. The Special Inspector shall verify that the wood structural panel sheathing grade and thickness conform to the requirements of the approved building plans.
  2. The Special Inspector shall verify that the nominal size of framing members at adjoining panel edges, the nail or staple diameter and length, the number of fastener lines, and the spacing between fasteners in each line and at edge margins agree with the approved building plans.

### **3.10 DRILLED-IN ANCHOR BOLTS AND DOWELS**

- A. Inspect drilling of each hole and installation of each anchor, including hole size, hole preparation, number, spacing, anchor size, installation of grout or adhesive (where applicable) and anchor installation for compliance with contract documents and with printed instructions of manufacturer.
- B. Verify installation torque for each expansion bolt for compliance with manufacturer's installation instructions.

### **3.11 OPEN WEB JOISTS**

- A. Inspect all joists either in plant or at jobsite for conformance with specified fabrication requirements. Check welded connections between web and chord, splices, and straightness of members.
- B. Inspect installation of joists at jobsite. Check connections to supporting members, chord extensions, number of rows of bridging, and bridging connections for conformance with Contract Documents and referenced standards.

- C. Inspect manufacturer's certificate of compliance.
- D. Check welder qualification certificates for both shop and field welding operators.

### **3.12 METAL ROOF DECK**

- A. Field Inspection Shall Consist of the Following:
  - 1. Checking types, gauges, and finishes for conformance with Contract Documents and shop drawings.
  - 2. Examination for proper erection of all metal deck, including fastenings at supports and side laps, reinforcing of holes, and miscellaneous deck supports.
  - 3. Certification of welders, under AWS D1.3 Structural Welding Code - Sheet Steel.
  - 4. Visual inspection of at least 25% of all welds.

### **3.13 SPRAYED FIREPROOFING**

- A. Verify applied thickness, density, and bond strength of sprayed fireproofing meets fire rating requirements of approved design.
- B. Verify installation meets fire rating requirements of approved design.
- C. Inspect and Test for Thickness as Follows:
  - 1. Test 25% of structural frame columns and beams in each building level.
  - 2. Test 10% of beams other than structural frame in each building level.
  - 3. Test 1 slab per each 5000 square feet of building area.
- D. Inspect and test for density on slabs, beams, and column, 1 of each test for each 10,000 square feet of building area.
- E. Inspect and test for bond strength 1 test for beams and 1 test for slabs for each 10,000 square feet of area.
- F. Inspection and test procedures in accordance with ASTM E 605 and E 736.

### **3.10 MASONRY**

- A. Inspection:
  - 1. A Special Inspector shall perform testing and inspection specified herein on a periodic basis, except where otherwise noted. Inspect work in progress at least once for each 5000 square feet of wall laid, but not less than once each day, to check compliance with Contract Documents and applicable Building Code. The frequency of inspection shall conform to the requirements of the Building Code for an essential facility.
  - 2. Inspect the following:
    - (a) Proportions of site-prepared mortar, and grout.
    - (b) Placement of masonry units and construction of mortar joints.
    - (c) Placement of reinforcement.
    - (d) Grout space prior to grouting (continuous inspection).
    - (e) Placement of grout (continuous inspection).
    - (f) Size and location of structural elements.
    - (g) Type, size and location of anchors, including other details of

anchorage of masonry to structural members, frames or other construction (continuous inspection).

- (h) Specified size, grade and type of reinforcement.
- (i) Welding of reinforcing bars (continuous inspection).
- (j) Protection of masonry during cold weather (temperature below 40° F) or hot weather (temperature above 90° F).
- (k) Preparation of required grout specimens, mortar specimens, and/or prisms for testing (continuous inspection).
- (l) Compliance with required inspection provisions of the construction documents and the approved submittals shall be verified.

3. Provide a report of each inspection - Prism Tests

- (a) Make prism tests in advance of operations using materials under same conditions and with same bonding arrangement as for structure. Observe and inspect actual construction of prisms. Moisture content of unit at time of laying, consistency of mortar, and width and thickness of mortar joints shall be same as used in structure.
- (b) Cure and test prisms in accordance with applicable provisions of ASTM C 1314. Test 5 specimens of each type of masonry unit before delivering material to jobsite and submit results for approval. During construction, test 3 specimens of each type of masonry unit for each 5000 square feet of wall placed.
- (c) Standard age of test specimens is 28 days, but 7 day tests may be used, provided relationship between 7 day and 28 day strengths is established by test for materials used.
- (d) Build prisms of hollow masonry units the same width as unit by 16" long in plan and 16" high, using specified masonry units, applying mortar to only face shells. Do not fill hollow core with grout. Compute value of ultimate net compressive strength by dividing ultimate load by net face shell area of masonry units (length X twice face shell thickness).
- (e) Build brick prisms 1 brick width and length in plan and 5 bricks high, using full bed joints as specified. Compute ultimate compressive strength by dividing ultimate load by net area of masonry units.
- (f) Build prisms on job using same materials and methods as for wall construction. Store prisms in a place where they will be undisturbed for 2 days and have approximately same curing conditions as wall construction. After 2 days, transport to laboratory in a manner which will not disturb mortar bond and then cure and test as set forth under ASTM C 1314.
- (g) When average strength of a set of prisms falls below specified compressive strength ( $F'_m$ ), masonry corresponding to the test shall be deemed unacceptable. In such case, notify Architect and CONTRACTOR immediately

### 3.11 Right-of-Way Paving & Utilities

In addition to those outlined herein, for all work in streets, fire lanes and all other

rights of way, testing shall include but is not limited to the following

- A. Reinforced Concrete Pavement
  - (1) Analysis of Aggregates
  - (2) Decantation Tests
  - (3) Slump and Air Content Tests
  - (4) Flexural or Compressive Strength Tests
- B. Lime Treated Base or Flexible Base
  - (1) Lime requirements as indicated by test method ASTM C977-83a, Appendix X1
  - (2) Field Compaction Tests – ASTM D698-90 Method A
- C. Embankment or Pavement Subgrade
  - (1) Moisture – Density Curves
  - (2) Field Compaction Tests – Test Method ASTM D698-90 Method A
- D. Hot Mix Asphaltic Concrete
  - (1) Prepare or Check Mix Design
  - (2) Provide Full Quality Control at Hot Mix Plant
    - (a) Hot Bin Gradation Tests
    - (b) Air Void- Stability and Density Tests
    - (c) Percent Asphalt Content
  - (3) Make Tests from Samples of Mix
    - (a) Extraction
    - (b) Gradation
    - (c) Percent Asphalt
    - (d) Stability and Density Tests
- E. Structural Concrete
  - (1) Mix Design
  - (2) Batch Plant Weight and Moisture Checks
  - (3) Slump and Air Tests
  - (4) Compressive Strength Tests
- F. Utility Trenches
  - (1) Moisture – Density Curves
  - (2) Field Compaction Tests – Test Method ASTM D698

END OF SECTION 01 45 29



# CARROLLTON

T E X A S

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## Statement of Special Inspections

Project:  
Location:  
City of Carrollton  
City Representative:  
Architect of Record:  
Structural Engineer of Record:

This Statement of Special Inspections is submitted as a condition for permit issuance in accordance with the Special Inspection requirements (Chapter 17) of the International Building Code. The Statement includes a Schedule of Special Inspections applicable to this project as well as the required qualifications for the Special Inspector and Agents of the Special Inspector to perform on this project.

The Special Inspector shall keep records of all inspections, furnish inspection reports, and identify discrepancies as detailed by Testing Section of the project specifications.

A Final Report of Special Inspections, documenting the completion of all required Special Inspections and confirming the correction of any discrepancies, will be submitted prior to issuance of a Certificate of Use and Occupancy.

The Special Inspections program does not relieve the Contractor of his or her responsibilities. Job Site safety and means and methods of construction are solely the responsibility of the Contractor.

This Statement of Special Inspections is in addition to any inspections or certifications required by the City of Carrollton Building Inspections Department and/or the Contract Documents

### Schedule of Special Inspection

The following sheets comprise the required schedule of special inspections for this project. The construction divisions which require special inspections for this project are as follows.

- |   |   |
|---|---|
| <input type="checkbox"/> Soils                                    | <input type="checkbox"/> Site Retaining Walls                           |
| <input type="checkbox"/> Special Foundations                      | <input type="checkbox"/> Cold-Formed Steel Framed "X" Bracing / Seismic |
| <input type="checkbox"/> Cast-in-Place Concrete                   | <input type="checkbox"/> Resisting Systems                              |
| <input type="checkbox"/> Structural Load Bearing Precast Concrete | <input type="checkbox"/> Wall Panels and Veneers                        |
| <input type="checkbox"/> Post Tensioned Concrete                  | <input type="checkbox"/> Sprayed Fire Resistant Materials               |
| <input type="checkbox"/> Structural Masonry – Level 1             | <input type="checkbox"/> Exterior Insulation & Finish System (EIFS)     |
| <input type="checkbox"/> Wood Shear Walls                         | <input type="checkbox"/> Smoke Control                                  |
| <input type="checkbox"/> Structural Steel                         | <input type="checkbox"/> Quality Assurance for Seismic Resistance       |
|   | <input type="checkbox"/> Quality Assurance for Wind Requirements        |

Seismic Design Category:  
Basic Wind Speed:  
Wind Exposure Category:

Statement of Special Inspections Prepared by (Structural Engineer of Record):

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Signature \_\_\_\_\_ Date \_\_\_\_\_

Owner's Authorization

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Signature \_\_\_\_\_ Date \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

## SECTION 015000

### TEMPORARY FACILITIES AND CONTROLS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Temporary utilities.
- B. Temporary telecommunications services.
- C. Temporary sanitary facilities.
- D. Temporary Controls: Barriers, enclosures, and fencing.
- E. Security requirements.
- F. Vehicular access and parking.
- G. Waste removal facilities and services.
- H. Project identification sign.
- I. Field offices.

##### 1.02 TEMPORARY UTILITIES

- A. Provide and pay for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes.
- B. Use trigger-operated nozzles for water hoses, to avoid waste of water.

##### 1.03 TELECOMMUNICATIONS SERVICES

- A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.
- B. Telecommunications services shall include:
  - 1. Microsoft Windows based personal computer dedicated to project telecommunications, with necessary software and laser printer.
  - 2. Telephone Land Lines: One line, minimum; one handset per line.
  - 3. Email: Account/address reserved for project use.
  - 4. Facsimile Service: Minimum of one dedicated fax machine/printer, with dedicated phone line.
    - a. Fax-to-email software is acceptable alternative.

##### 1.04 TEMPORARY SANITARY FACILITIES

- A. **Use of existing facilities or newly constructed facilities by construction personnel is strictly prohibited.**
- B. Provide and maintain required facilities and enclosures at a location satisfactory to the Owner, for use by the employees of the CONTRACTOR and by the Engineer. Provide at time of project mobilization.
- C. All such facilities shall conform to the requirements of State and local health authorities, ordinances and laws.
- D. Maintain daily in clean, well ventilated and sanitary condition.
- E. At end of construction, return facilities to same or better condition as originally found.

### **1.05 CONSTRUCTION WATER**

- A. Contractor is responsible for the cost of all water associated with the project until full acceptance including vegetation establishment. Procurement and cost of a temporary water meter is the Contractor's responsibility and considered subsidiary to the General Conditions of the contract. Prevailing water rates are available by contacting the City's Utilities Department at 972-466-3120.
- B. The Contractor shall not operate any fire hydrants without the knowledge and permission of the City or their representative. The CONTRACTOR will not operate any existing valves in the City of Carrollton.
- C. When new water meters are required by the work, Contractor shall order, have installed, place in service, hold the account in the Contractor's name, and pay all expenses for installation and use for the duration of the contract. Account shall be transferred to the City immediately prior to Official Acceptance.

### **1.06 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.
- C. Provide protection for plants designated to remain. Replace damaged plants.
- D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.
- E. Maintain required egress from existing occupied building during construction work; comply with all directives from fire marshal.

### **1.07 FENCING**

- A. Construction: Commercial grade chain link fence.
- B. Provide 6 foot high fence around construction site; equip with vehicular and pedestrian gates with locks.

### **1.08 EXTERIOR ENCLOSURES**

- A. Provide temporary insulated weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.
- B. Provide temporary roofing as specified in Section 07595.

### **1.09 SECURITY**

- A. Provide security and facilities to protect Work, and City of Carrollton's operations from unauthorized entry, vandalism, or theft.

### **1.10 VEHICULAR ACCESS AND PARKING**

- A. Coordinate access and haul routes with governing authorities and City of Carrollton.
- B. Provide and maintain access to fire hydrants, free of obstructions.

- C. Provide means of removing mud from vehicle wheels before entering streets.
- D. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.
- E. On day of scheduled meetings, designate one parking space each for City of Carrollton and Architect use.

#### **1.11 WASTE REMOVAL**

- A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
- B. Provide containers with lids. Remove trash from site periodically.
- C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.
- D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

#### **1.12 PROJECT IDENTIFICATION**

- A. Provide up to two 4' x 4' project identification signs per City of Carrollton's General Design Standards for Capital Improvements Project Sign.
- B. Erect on site at locations established by Owner.
- C. No other signs are allowed without City of Carrollton permission except those required by law.

#### **1.13 FIELD OFFICES**

- A. Office: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture, drawing rack and drawing display table.
- B. Provide space for Project meetings, with table and chairs to accommodate 6 persons.
- C. Locate offices a minimum distance of 30 feet from existing and new structures.
- D. Smoke-Free Facility: Offices shall be smoke free and free of previous smoke.

#### **1.14 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.
- E. Restore new permanent facilities used during construction to specified condition.

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

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

**END OF SECTION**

## SECTION 016000

### PRODUCT REQUIREMENTS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. General product requirements.
- B. Transportation, handling, storage and protection.
- C. Product option requirements.
- D. Substitution limitations and procedures.
- E. Procedures for City of Carrollton-supplied products.
- F. Maintenance materials, including extra materials, spare parts, tools, and software.

##### 1.02 RELATED REQUIREMENTS

- A. Section 013300 - Shop Drawing and Submittal Procedures.
- B. Section 014500 - Quality Control: Product quality monitoring.

##### 1.03 SUBMITTALS

- A. Product Data Submittals: See requirements of Section 013300. Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: See requirements of Section 013300. Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: See requirements of Section 013300. Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
  - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.
  - 2. Unless specifically noted otherwise, assume that one sample of each item will not be returned.

#### PART 2 PRODUCTS

##### 2.01 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by the Contract Documents.
- B. Do not use products having any of the following characteristics:
  - 1. Made using or containing CFC's or HCFC's.
  - 2. Made of wood from newly cut old growth timber.

## **2.02 PRODUCT OPTIONS**

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.
- D. All products shall comply with City of Carrollton Facility Services Department General Building Standards and City of Carrollton General Design Standards.

## **2.03 MAINTENANCE MATERIALS**

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver and place in location as directed; obtain receipt prior to final payment.

## **PART 3 EXECUTION**

### **3.01 SUBSTITUTION PROCEDURES**

- A. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor PROVIDED the Contractor specifically requests such in writing in accordance with these specifications. Unauthorized substitutions or deviations from the Contract Documents is subject to rejection, removal and replacement with a product suitable to the Owner at Contractor's expense.
- B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
- C. A request for substitution constitutes a representation that the submitter:
  - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
  - 2. Will provide the same warranty for the substitution as for the specified product.
  - 3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to City of Carrollton.
  - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
- D. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- E. Substitution Submittal Procedure:
  - 1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
  - 2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
  - 3. The City Representative will notify Contractor in writing of decision to accept or reject request.

### **3.02 OWNER-SUPPLIED PRODUCTS**

- A. City of Carrollton's Responsibilities:
  - 1. Arrange for and deliver City of Carrollton reviewed shop drawings, product data, and samples, to Contractor.
  - 2. Arrange and pay for product delivery to site.
  - 3. On delivery, inspect products jointly with Contractor.
  - 4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
  - 5. Arrange for manufacturers' warranties, inspections, and service.
- B. Contractor's Responsibilities:
  - 1. Review City of Carrollton reviewed shop drawings, product data, and samples.
  - 2. Receive and unload products at site; inspect for completeness or damage jointly with City of Carrollton.
  - 3. Handle, store, install and finish products.
  - 4. Repair or replace items damaged after receipt.

### **3.03 TRANSPORTATION AND HANDLING**

- A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- B. Transport and handle products in accordance with manufacturer's instructions.
- C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.
- F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.
- G. Jobsite Deliveries: The Contractor shall have ALL deliveries (construction materials, supplies, documents, samples or other items) directed to their home office, local office or the jobsite for signature ONLY BY the Contractor themselves or their assigns. In no case shall deliveries for this Contract be addressed to, dropped-off, sent, left, transferred or received by an ANY CITY OF CARROLLTON ENTITY OR LOCATION. The Contractor shall direct their personnel, subcontractors, suppliers, material men or delivery companies to comply with these policies. The City of Carrollton accepts NO RESPONSIBILITY for any item that is received by someone other than the Contractor or their assigns; and, the Contractor is notified that they can make no claim of any kind due to mis-delivery or delays.

### **3.04 STORAGE AND PROTECTION**

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
- G. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- H. Prevent contact with material that may cause corrosion, discoloration, or staining.
- I. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- J. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

**END OF SECTION**

## SECTION 017000

### EXECUTION REQUIREMENTS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures.
- B. Requirements for alterations work, including selective demolition, except removal, disposal, and/or remediation of hazardous materials and toxic substances.
- C. Pre-installation meetings.
- D. Cutting and patching.
- E. Surveying for laying out the work.
- F. Cleaning and protection.
- G. Demonstration and instruction of City of Carrollton personnel.
- H. General requirements for maintenance service.

##### 1.02 RELATED REQUIREMENTS

- A. Section 013000 - Administrative Requirements: Submittals procedures.
- B. Section 015000- Temporary Facilities and Controls: Temporary exterior enclosures.

##### 1.03 SUBMITTALS

- A. See Section 013000 and Section 013300, for submittal procedures.
- B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
  - 1. On request, submit documentation verifying accuracy of survey work.
  - 2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in conformance with Contract Documents.
  - 3. Submit surveys and survey logs for the project record.
- C. Storm Water and Erosion Protection: Implement storm water and erosion protection procedures as required by Federal, State and local jurisdictions. Provide documentation as required by all agencies.
- D. Cutting and Patching: CONTRACTOR shall perform all cutting, patching, or fitting of his work that may be required to make its several parts come together properly and fit it to existing facilities or the work of others as shown or reasonably implied by the drawings and/or specifications for the completed project. The CONTRACTOR shall not endanger existing facilities or the work of others by cutting, digging, or otherwise, and shall not cut existing work or the work of others unless specifically noted on the drawing and specifications or permitted by the Owner.
  - 1. Submit written request in advance of cutting or alteration that affects:
  - 2. Structural integrity of any element of Project.
  - 3. Integrity of weather exposed or moisture resistant element.
  - 4. Efficiency, maintenance, or safety of any operational element.
  - 5. Visual qualities of sight exposed elements.

6. Work of City of Carrollton or separate Contractor.
7. Include in request:
  - a. Identification of Project.
  - b. Location and description of affected work.
  - c. Necessity for cutting or alteration.
  - d. Description of proposed work and products to be used.
  - e. Scope of cutting, fitting, patching, or alteration.
  - f. Listing of applicable trades.
  - g. Proposed products and materials.
  - h. Extent of refinishing.
  - i. Effect on work of City of Carrollton or separate Contractor.
  - j. Written permission of affected separate Contractor.
  - k. Date and time work will be executed.

- E. Should conditions or schedule require change of products or methods different than original installation, submit written recommendation to CITY explaining conditions necessitating change and requirements of alternative materials or methods.
- F. Approval by CITY to proceed with cutting and patching does not waive CITY's right to later require complete removal and replacement of unsatisfactory work.
- G. Project Record Documents: Accurately record actual locations of capped and active utilities.

#### **1.04 PAYMENT FOR COSTS**

- A. Costs resulting from ill-timed or defective work, or work not conforming to Contract Documents, including costs for additional services to CITY, or other consultants shall be borne by the CONTRACTOR.

#### **1.05 QUALIFICATIONS**

- A. For demolition work, employ a firm specializing in the type of work required.
- B. For survey work, employ a land surveyor registered in Texas and acceptable to City. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.
- C. For field engineering, employ a Professional Engineer of the discipline required for specific service on Project, licensed in Texas.

#### **1.06 PROJECT CONDITIONS**

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
- C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- D. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.

- E. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
  - 1. Minimize amount of bare soil exposed at one time.
  - 2. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
  - 3. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
  - 4. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
- F. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.
- G. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.
- H. Rodent Control: Provide methods, means, and facilities to prevent rodents from accessing or invading premises.
- I. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.
- J. Smoke-Free Facility: There shall be no smoking in the building(s) once exterior walls are constructed whether or not windows are installed or any gypsum board has been installed or stored in the space. There shall be no smoking at any time when any City employee or representative is present.

#### **1.07 COORDINATION**

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. CONTRACTOR shall coordinate working hours and any no-activity dates with the Owner.
- C. Notify affected utility companies and comply with their requirements.
- D. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- E. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- G. Coordinate completion and clean-up of work of separate sections.

- H. After City of Carrollton occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of City of Carrollton's activities.
- I. Any new utility service required by the project shall be initially paid and activated by and in the CONTRACTOR's name. Transfer of the account to the City's name shall occur at the conclusion of the contract. It is the responsibility of the CONTRACTOR to coordinate account changes.
- J. Coordinate all access, storage and restoration with Owner.

## **PART 2 PRODUCTS**

### **2.01 PATCHING MATERIALS**

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 016000.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

### **3.02 PREPARATION**

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

### **3.03 PREINSTALLATION MEETINGS**

- A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify City ten days in advance of meeting date.
- D. Prepare agenda and preside at meeting:
  - 1. Review conditions of examination, preparation and installation procedures.
  - 2. Review coordination with related work.
- E. Record minutes and distribute copies within two days after meeting to City of Carrollton, participants, and those affected by decisions made.

### **3.04 LAYING OUT THE WORK**

- A. It shall be the responsibility of the CONTRACTOR to stake and construct the work to the position and elevations as set out on the plans.
- B. The CONTRACTOR shall be responsible for all surveying on this project beyond that provided by the Owner. During the progress of the work, the CONTRACTOR will furnish construction stakes as required.
- C. The CONTRACTOR shall keep the Owner's Representative informed, at least 48 hours in advance, of the time and places at which the CONTRACTOR wishes to do verification of horizontal and vertical control points with minimum inconvenience to the Owner's Representative and minimum delay to the CONTRACTOR.
- D. Verify locations of survey control points prior to starting work.
- E. Promptly notify City of any discrepancies discovered.
- F. CONTRACTOR shall locate and protect survey control and reference points.
- G. Control datum for survey is that established by City of Carrollton Benchmarks.
- H. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- I. Promptly report to City the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- J. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to City.
- K. The CONTRACTOR will be held responsible for the preservation of all control points established by the Owner and, if any of the points have been carelessly or willfully destroyed or disturbed by the CONTRACTOR they shall be replaced by the CONTRACTOR or the cost of replacing them will be charged against the CONTRACTOR and deducted from the payment of the work.
- L. Utilize recognized engineering survey practices.
- M. Establish a minimum of two permanent bench marks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.

- N. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
  - 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations; and final elevations.
  - 2. Grid or axis for structures.
  - 3. Building foundation, column locations, ground floor elevations, and structural bench marks.
- O. Periodically verify layouts by same means.
- P. Maintain a complete and accurate log of control and survey work as it progresses.
- Q. On completion of foundation walls and major site improvements, prepare a certified survey illustrating dimensions, locations, angles, and elevations of construction and site work.

### **3.05 GENERAL INSTALLATION REQUIREMENTS**

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

### **3.06 CONSTRUCTION IN RIGHT-OF-WAY**

- A. For the purposes of this Contract, "Right-of-Way" shall include all property owned by, controlled by or the responsibility of the City of Carrollton including but not limited to the project site, and all provisions of this section applied unless clearly specified otherwise.
- B. Prepare Right-of-Way
  - 1. Removal and legally dispose of all obstructions from the right-of-way and from designated easements. Such obstructions shall be considered to include remains of houses not completely removed by others, foundations, floor slabs, concrete brick, lumber, plaster, septic tanks, basements, abandoned utility pipes or conduits, underground service station tanks, equipment or other foundations, fences, retaining walls, vegetation, and other debris.
  - 2. It is the intent of this specification to provide for the removal and disposal of all obstructions and objectionable materials not specifically provided for elsewhere in the plans and specifications.
- C. Stockpiling of Material within the Right-of-Way
  - 1. The stockpiling of construction materials such as backfill and embedment within the right-of-way shall be limited to that required for one day's work and shall not be left out overnight. Stockpiling of pipe and other construction materials within the right-of-way shall be limited to one truckload. Exceptions will be considered on a case-by-case basis during construction.
  - 2. CONTRACTOR shall acquire the City's permission for any material storage on City property prior to placement.

#### D. Excavation

1. No classification will be made for any materials to be excavated under this contract, regardless of the type of material encountered or the methods and equipment required to complete the excavation. No extra compensation will be allowed for encountering different types of material on this project.
2. The estimated quantities of excavation and fill shown on the drawing and/or the proposal are for CONTRACTOR information only. Payment for excavation, loading, hauling, sprinkling, manipulation, and compacting this material will be bid in accordance with the proposal.
3. Compaction and consolidation of the backfill materials shall conform to geotechnical report recommendations. Unless stated otherwise, trenches shall be backfilled using the native material and compacted to 95 percent of maximum density as determined by ASTM D698 in six (6) inch lifts at optimum moisture content (to plus 4 percent above optimum moisture content) in areas influenced by vehicular traffic and in ten (10) inch lifts in areas not subjected to or influenced by vehicular traffic.
4. The excess excavation material resulting in this project shall be legally disposed of by the CONTRACTOR (at his expense) at sites approved by the Owner.

#### E. Removal Existing Pipe & Drainage Structures

1. Existing storm drainage pipe removed but not relayed shall become the property of the CONTRACTOR and removed from the site by the CONTRACTOR unless otherwise shown on the plans. There shall be no separate pay item for removal of any drainage structure or pipe.

#### F. Disposal of Surplus Materials

1. Surplus material not required for other parts of the work and not otherwise specifically covered by the drawings or specifications shall become the property of the CONTRACTOR for legal disposal by him unless otherwise directed by the City. The cost of disposal of surplus material is not a pay item, and shall be subsidiary to all other contract conditions.

#### G. Repair of Utility Cuts

1. All taps and connections to sanitary sewer, storm sewer and water mains, and pavement removal/replacement for such shall conform to the specifications and the City of Carrollton's General Design Standards in materials and construction methods. This Scope of Services shall include all labor, equipment and materials necessary to complete the work including bypass pumping, excavation, embedment, concrete encasement, backfill, cement stabilized backfill, hauling, plugging of existing lines, proper disposal and any testing necessary.

#### H. Water Jetting Backfill

1. All trench backfill that does not require density control shall be water jetted until settlement ceases. Water jetting IS NOT a separate pay item and cost thereof shall be included in the price bid for pipe complete in place.
2. The water shall be applied under pressure when jetting backfill. The tank truck hauling the water shall be equipped with a pressure pump capable of delivering water through a two (2") inch pipe at a minimum of thirty (30 psi) pounds per square inch pressure. All water jetting of backfill will be to the satisfaction of the Director of Engineering or his representative.

- I. Clearance from Other Pipes
  - 1. The location of water and wastewater mains shall conform to the separation distances prescribed by the Texas Commission on Environmental Quality (TCEQ), 30TAC290.44, or by superceding provisions of state regulations.
- J. Relocation of Fire Hydrants
  - 1. All fire hydrants (whether shown on the plans as new, to be relocated, or reset) shall be new fire hydrants. Existing fire hydrants labeled to be relocated or reset shall be salvaged and delivered to the City Service Center at 2711 Nimitz.
  - 2. Relocated fire hydrants are to be paid for per each hydrant to include all incidental items required by the specifications, the relocation on the companion valve, excavation, backfill, thrust blocking, additional pipe and fitting, as required.
- K. Construction in Roads and Driveways
  - 1. No public road shall be entirely closed overnight, unless otherwise shown and approved on the Plans. It shall be the responsibility of the CONTRACTOR to build and maintain all weather bypasses and detours, if necessary, and to properly light, barricade and mark all bypasses and detours that might be required on and across the roads involved in the work included in this contract.
  - 2. The CONTRACTOR shall make every effort to complete construction and allow immediate access to adjacent property at driveway entrances located along the roadways. Owners or tenants of improvements where access and/or entrance drives are located shall be notified at forty-eight (48) hours and at twenty-four (24) hours prior to the time the construction will be started at their driveways or entrances and informed as to the length of time driveways will be closed.
  - 3. The CONTRACTOR shall be responsible for all road and entrance reconstruction and repairs and maintenance of same during the defined in the Maintenance Bond. In the event the repairs and maintenance are not made immediately to the satisfaction of the Engineer, and it becomes necessary for the City to make such repairs, the CONTRACTOR shall reimburse the City for the cost of such repairs. Such cost shall be deducted from the CONTRACTOR's pay request.
  - 4. The CONTRACTOR shall, at all times, keep a sufficient width of the roadway clear of dirt and other material to allow the free flow of traffic. The CONTRACTOR shall assume any and all responsibility for damage, personal or otherwise, that may be caused by the construction along roads and private drives..
- L. Barricades, Warnings & Detour Signs
  - 1. The CONTRACTOR shall not close a street or site to traffic or interfere with traffic movement without first notifying the City Inspector and securing permission to do so. When any street or site or any section of such is closed, or traffic flow is restricted, the CONTRACTOR shall furnish and maintain barricades, warning and directing signs, lights and red flags within the entire limits of the project in accordance with the Texas Manual of Uniform Traffic Control Devices. All lights shall be kept burning between the hours of sunset and sunrise.
  - 2. All expense incurred for furnishing and maintaining flagmen, barricades, warning and directing signs, flags and lights and any incidentals necessary for the proper direction, safety and convenience of traffic during the contract period shall be borne by the CONTRACTOR.
  - 3. Flagmen shall be provided when deemed necessary by the Director of Engineering or his representative.

#### M. Traffic Control and Road Closures

1. If the CONTRACTOR desires to close a public street, the CONTRACTOR must provide to the office of the Director of Engineering, a traffic control plan complying with the Texas Manual of Uniform Traffic Control Devices, signed and sealed by a Texas Registered Professional Engineer.
2. The traffic control plan must be submitted and approved a minimum of five working days prior to CONTRACTOR starting work.
3. The traffic control devices must be installed in conformance with the submitted traffic control plan before the CONTRACTOR will be allowed to begin work within City right-of-way.
4. Traffic control and public safety extends to parking lots and general circulation paths within the project property. The CONTRACTOR shall coordinate the City Representative to ensure access is maintained for facility patrons and activities.

#### N. Protection of Trees, Plants and Soil

1. Any trees or other landscape features scarred or damaged by the CONTRACTOR's operations shall be restored or replaced at the CONTRACTOR's expense. Trimming or pruning to facilitate the work will be permitted only by experienced workmen in an approved manner. Pruned limbs of one (1") inch diameter or larger, shall be thoroughly treated as soon as possible with a tree wound dressing. CONTRACTOR is to notify property Owner before pruning begins.
2. The CONTRACTOR shall take all precautions required to prevent soil erosion during the construction. If not included in the plans, the CONTRACTOR shall submit an erosion control plan signed and sealed by a professional engineer licensed to practice in Texas. When the area of construction exceeds one acre the plan must be submitted and approved prior to CONTRACTOR starting work. If excessive erosion occurs, the CONTRACTOR shall take immediate steps to prevent further erosion and restore the disturbed surface with topsoil and vegetation at completion of the work.
3. Unless specifically provided otherwise, all areas disturbed during construction, whether defined as a work area or not, shall be sodded. Any of these areas will be sodded with the same type of grass that was existing before construction began. Sodding and fertilizing shall be done in accordance with the North Central Texas Council of Governments Standard Specifications for Public Works Construction.
4. Sodded areas shall be fertilized with a 16-8-8 (N-P-K) meeting the requirements of the NCTCOG specifications. Application rate of fertilizer shall be as recommended by manufacturer of fertilizer.
5. The CONTRACTOR shall maintain sodded and seeded areas for a six (6) week period following planting or until the grass has an established minimum height of two inches.
6. Repair of damaged vegetative material not specifically itemized otherwise is considered subsidiary to the General Conditions of this contract.

### 3.07 ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
1. Verify that construction and utility arrangements are as shown.
  2. Report discrepancies to City before disturbing existing installation.
  3. Beginning of alterations work constitutes acceptance of existing conditions.

- B. Keep areas in which alterations are being conducted separated from other areas that are still occupied.
1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 015000 in locations indicated on drawings.
- C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
  2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.
- D. Remove existing work as indicated and as required to accomplish new work.
1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
  2. Remove items indicated on drawings.
  3. Relocate items indicated on drawings.
  4. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
  5. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.
- E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.
1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
  2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
  3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
    - a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
    - b. Provide temporary connections as required to maintain existing systems in service.
  2. Verify that abandoned services serve only abandoned facilities.
  3. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.
- F. Protect existing work to remain.
1. Prevent movement of structure; provide shoring and bracing if necessary.
  2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
  3. Repair adjacent construction and finishes damaged during removal work.

- G. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
  - 1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.
  - 2. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.
  - 3. Where a change of plane of 1/4 inch or more occurs in existing work, submit recommendation for providing a smooth transition for Architect review and request instructions.
- H. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.
- I. Refinish existing surfaces as indicated:
  - 1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
  - 2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.
- J. Clean existing systems and equipment.
- K. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.
- L. Do not begin new construction in alterations areas before demolition is complete.
- M. Comply with all other applicable requirements of this section.

### **3.08 CUTTING AND PATCHING**

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. See Alterations article above for additional requirements.
- C. Perform whatever cutting and patching is necessary to:
  - 1. Complete the work.
  - 2. Fit products together to integrate with other work.
  - 3. Provide openings for penetration of mechanical, electrical, and other services.
  - 4. Match work that has been cut to adjacent work.
  - 5. Repair areas adjacent to cuts to required condition.
  - 6. Repair new work damaged by subsequent work.
  - 7. Remove samples of installed work for testing when requested.
  - 8. Remove and replace defective and non-conforming work.
- D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- E. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

- G. Restore work with new products in accordance with requirements of Contract Documents.
- H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with IBC and IFC, to full thickness of the penetrated element.
- J. Patching:
  1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
  2. Match color, texture, and appearance.
  3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

### **3.09 PROGRESS CLEANING**

- A. The CONTRACTOR shall, at all times, keep the site and adjacent right-of-way free from accumulation of waste material, debris, or rubbish caused by his employees or work. Contractor shall sprinkle dusty debris with water as necessary. On-site vegetation shall be mowed as necessary. Waste materials, rubbish and debris shall be removed from site, and legally disposed of at public or private dumping areas off Owner's property. At the completion of the work, he shall remove from the site all his tools, surplus materials, debris, and shall leave the site and his work "broom clean", or its equivalent at his expense, unless otherwise noted on the drawings or specified herein.
- B. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- C. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- D. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- E. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.
- F. The City may initiate any and all activities in this section if the CONTRACTOR fails to satisfactorily or promptly perform such. CONTRACTOR remains responsible for all expenses associated with cleaning regardless of whether they are performed by the CONTRACTOR or the CITY. The CONTRACTOR shall reimburse the CITY for all expenses incurred by the CITY associated with this section prior to CONTRACTOR's submittal of any payment application immediately following any CITY initiated cleaning activity.

### **3.10 PROTECTION OF INSTALLED WORK**

- A. Protect installed work from damage by construction operations. Final delivery of all work to the City shall be in new condition. Damage occurring prior to final acceptance shall be replaced or repaired by CONTRACTOR at no additional expense to the City.
- B. Provide special protection where specified in individual specification sections.

- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.
- H. During unfavorable weather, wet ground, or other unsuitable construction conditions, the CONTRACTOR shall confine his operations to work which will not be affected adversely thereby. No portion of the work shall be constructed under conditions which would affect adversely the quality or efficiency thereof, unless special means or precautions are taken by the CONTRACTOR to perform the work in a proper and satisfactory manner.

### **3.11 DEMONSTRATION AND INSTRUCTION**

- A. Demonstrate operation and maintenance of products to City of Carrollton's personnel two weeks prior to date of Substantial Completion.
- B. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.
- C. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- D. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of owner personnel.
- E. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with City of Carrollton's personnel in detail to explain all aspects of operation and maintenance.
- F. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

### **3.12 ADJUSTING**

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

### **3.13 FINAL CLEANING**

- A. Use cleaning materials that are nonhazardous.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- D. Clean filters of operating equipment.

- E. Clean debris from roofs, gutters, downspouts, and drainage systems.
- F. Clean site; sweep paved areas, rake clean landscaped surfaces.
- G. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

### **3.14 MAINTENANCE**

- A. Provide service and maintenance of components indicated in specification sections.
- B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than two years from the Date of final acceptance or the length of the specified warranty, whichever is longer.
- C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the City of Carrollton.

**END OF SECTION**

**SECTION 017700**  
**CLOSEOUT PROCEDURES**

**PART 1        GENERAL**

1.1 SUMMARY

- A. Related Documents: Provisions established in General Conditions of the Contract, Scope and Compensation, Carrollton General Design Standards, Division 1 General Requirements, and other City contract documents are collectively applicable to this Section.
- B. Section Includes:
  - 1. Administrative provisions for Final Completion and for final acceptance.
- C. "Completion" shall be the date on which the Work is complete and accepted by the OWNER and includes all close-out documentation. The Contractor and the OWNER agree to sign a certificate of Completion confirming the date of Completion. The City of Carrollton does not recognize substantial completion. Any reference to "Substantial Completion" throughout the construction documents should be interpreted as "Full Project Completion"
- D. Neither the final certificate of payment nor any provision in the contract documents nor partial or entire occupancy of the project by the Owner shall constitute an acceptance of work not done in accordance with the contract documents or relieve the Contractor of liability in respect of any express warranties or responsibility for faulty materials or workmanship. The Contractor shall remedy all defects in the work and pay for damage to other work resulting therefrom, which shall appear within a period of two (2) years from the date of final written acceptance of the work under the Contract, unless a longer period is specified. The Owner will give notice of observed defects with reasonable promptness. The Contractor shall, in case of work performed by his Subcontractors, secure warranties from said Subcontractors and deliver copies of same to the Engineer upon completion of the work.

1.2 PREREQUISITES FOR FINAL COMPLETION

- A. Complete items in following paragraphs before requesting final acceptance and final payment. List known exceptions, if any, in request.
- B. Conduct inspection to substantiate basis for request that Work is complete. Create comprehensive list (initial punch list) indicating items to be completed or corrected, value of incomplete or non-conforming work, reason for being incomplete, and date of anticipated completion for each item. Include copy of list with request for Certificate of Completion.
- C. Submit statement showing accounting of changes to Contract Sum.
- D. Advise CITY of pending insurance change-over requirements at final payment.

- E. Obtain and submit releases enabling CITY's full, unrestricted use of Project and access to services and utilities. Include certificate of occupancy, operating certificates, and similar releases from authorities having jurisdiction and utility companies.
- F. Submit project record documents in compliance with Section 017800, maintenance manuals, electronic copies of all project documents, and other similar final record data.
- G. Deliver tools, spare parts, extra stocks of material, and similar physical items to CITY Engineer.
- H. Comply with requirements of contract documents for restoring permanent systems operated prior to Completion.
- I. Discontinue or change over and remove temporary facilities and services from Project site, along with construction tools, mock-ups, and similar elements.
- J. Perform final cleaning in accordance with Contract Documents.
- K. Touch-up and otherwise repair and restore marred exposed finishes.
- L. Submit final punch list indicating all items have been completed or corrected.
- M. Submit final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
- N. Submit specified warranties, workmanship/maintenance bonds, maintenance agreements, and other similar documents.
- O. Submit updated accounting statement for final changes to Contract Sum.
- P. Submit consent of surety to final payment.

### 1.3 FINAL COMPLETION

- A. When Contractor considers Work is complete, Contractor shall submit written certification of the following:
  1. Contract Documents have been reviewed.
  2. Work has been inspected for compliance with Contract Documents.
  3. Work has been completed in accordance with Contract Documents, and deficiencies listed with punch list have been corrected.
  4. Operation of systems has been demonstrated to Owner's personnel.
  5. Work is complete and ready for final inspection.
- B. Should CITY inspection find Work incomplete, he will promptly notify Contractor in writing listing observed deficiencies. Such notification will simply notate observed incomplete items, deficiencies and other unfinished contract requirements. Neither the inspection by the Owner or any of their officials, employees, or agents, nor any order by the Owner for payment of money, or any payment for, or acceptance of, the

whole or any part of the work by the Owner, nor any extension of time, nor any possession taken by the Owner or its employees, nor any action of the Owner shall operate as a waiver of any provision of the contract. The contractor remains responsible for satisfactory completion of all work whether noted on this list or not.

- C. Contractor shall remedy deficiencies and send a second certification of final completion.
- D. The Contractor is responsible for scheduling and coordinating a post construction inspection for compliance with the Texas Accessibility Standards and include all inspection fees of a Registered Accessibility Specialist. The contractor shall be held responsible for repair, removal, replacement and/or all other activities and costs necessary to address violations in the inspection report for items that were not constructed according to plans and accessible elements that may be damaged during construction in accordance with the Texas Accessibility Standards. Inspection shall be coordinated with the City and performed by a Texas Registered Accessibility Specialist. The City shall be notified as soon as the inspection is scheduled but not less than 48 hours before the inspection. The post construction accessibility inspection shall be conducted prior to the final project walk-thru and all comments incorporated in the "punch list".
- E. When CITY finds work is complete, CITY will consider closeout submittals.
- F. Project is not considered complete and final payment will not be made until the CITY has made full written acceptance.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Evidence of Compliance with Requirements of Governing Authorities
  - 1. Certificate of Occupancy.
  - 2. Certificates of Inspection required for plumbing, mechanical and electrical systems.
- B. Project Record Documents: Under provisions of Section 017800.
- C. Operation and Maintenance Data: Under provisions of Section 017800.
- D. Warranties and Bonds: Under provisions of Section 017800.
- E. Spare Parts and Maintenance Materials: Under provisions of Section 017800.
- F. Evidence of Payment and Release of Liens: In accordance with Conditions of the Contract.
- G. Consent of Surety to Final Payment.
- H. Certificates of Insurance for Products and Completed Operations: In accordance with Supplementary Conditions.
- I. Texas Department of Licensing and Regulation Architectural Barriers Post Construction Accessibility Inspection report with full acceptance of all elements.

1.5 APPLICATION FOR FINAL PAYMENT

- A. Submit application for final payment in accordance with provisions of Conditions of the Contract.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 017800

### CLOSEOUT SUBMITTALS

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Related Documents: Provisions established in General Conditions of the Contract, Scope & Compensation, Carrollton General Design Standards, Division 1 General Requirements, and other City contract documents are collectively applicable to this Section.
- B. Section Includes:
  - 1. Maintenance of Record Documents and Samples.
  - 2. Submittal of Record Documents and Samples.
  - 3. Format and content of operation and maintenance manuals.
  - 4. Instruction of Owner's personnel.
  - 5. Preparation and submittal of warranties and bonds.
  - 6. Spare parts, overages, and maintenance materials.
  - 7. Schedule of submittals.
- C. The project will not be considered complete nor accepted until all close-out documents are received and approved as acceptable by the City. The contract finish date shall include all work AND delivery, receipt and approval of all close-out documents.

##### 1.2 PROJECT RECORD DOCUMENTS

- A. Maintenance of Documents and Samples:
  - 1. In addition to requirements in Contract Documents, maintain at the site for Owner one record copy of:
    - a. Contract Drawings.
    - b. Specifications.
    - c. Addenda.
    - d. Change Orders and other modifications to the Contract.
    - e. Reviewed shop drawings, product data, and samples.
    - f. Field test records.
    - g. Inspection certificates.
    - h. Manufacturer's certificates.
    - i. TDLR Post Construction Accessibility Inspection with all violations resolved
  - 2. Record Documents and samples will be stored in the Contractor's Field Office apart from documents used for construction. It is the responsibility of each sub-contractor to update these documents contemporaneously for locations of concealed and buried piping, utilities, wiring, etc.
  - 3. Label and file Record Documents and samples in accordance with Section number listings in Table of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

4. Maintain Record Documents in a clean, dry and legible condition. Do not use Record Documents for construction purposes.
5. Keep Record Documents and samples available for inspection by CITY.

B. Recording:

1. The Contractor shall indicate all changes made during construction on a single copy of approved construction drawings. All notes and comments necessary to give a clear conception of exactly how all items were constructed including location shall be shown.
2. The Contractor shall maintain and be held responsible for all plan revisions as they occur during the course of construction.
3. Record information on a set of blue line or bond opaque drawings, and in a copy of a Project Manual.
4. Provide felt tip marking pens, maintaining separate colors for each major system, for recording information.
5. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.
6. Contract Drawings and Shop Drawings: Legibly mark each item to record actual construction, including:
  - a. Measured depths of elements of foundation in relation to finish first floor datum.
  - b. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - c. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of construction.
  - d. Field changes of dimension and detail.
  - e. Changes made by Modifications.
  - f. Details not on original Contract Drawings.
  - g. References to related shop drawings and Modifications.
7. Specifications: Legibly mark each item to record actual construction, including:
  - a. Manufacturer, trade name, and catalog number of each product actually installed, particularly optional items and substitute items.
  - b. Changes made by Addenda and Modifications.
8. Other Documents: Maintain manufacturer's certifications, inspection certifications, field test records, and other documents required by individual Specifications sections.

### 1.3 OPERATION AND MAINTENANCE MANUALS

A. Contents, Each Volume

1. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of CITY and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.
2. For Each Product or System: List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
3. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.

4. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
  5. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 014500.
- B. Manual for Materials and Finishes:
1. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Provide information for re-ordering custom manufactured products.
  2. Tabular summary of all final finishes by room that includes but not limited to wall, floor, ceiling, base, and other related products. This should reflect all final selections that are in the finished facility.
  3. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
  4. Moisture-protection and Weather-exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
  5. Additional Requirements: As Specified in individual Specifications sections.
  6. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.
- C. Manual for Equipment and Systems:
1. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Give function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
  2. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications.
  3. Include as-installed color coded wiring diagrams.
  4. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
  5. Maintenance Requirements: Include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
  6. Provide servicing and lubrication schedule, and list of lubricants required.
  7. Include manufacturer's printed operation and maintenance instructions.
  8. Include sequence of operation by controls manufacturer.
  9. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
  10. Provide as-installed control diagrams by controls manufacturer.
  11. Provide Contractor's coordination drawings, with as- installed color coded piping diagrams.

12. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
  13. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
  14. Include test and balancing reports as specified in individual specification sections.
  15. Additional Requirements: As specified in individual Specifications sections.
  16. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.
- D. Submittals:
1. Copies of all final submittals showing approval stamps of Contractor, Architect and City.
- E. Instruction of Owner Personnel:
1. Before final inspection, instruct Owner's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times. For equipment requiring seasonal operation, perform instructions for other seasons within 6 months.

#### 1.4 WARRANTIES AND BONDS

- A. Preparation
1. Obtain warranties and bonds, executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of completion is determined.
  2. Verify that documents are in proper form, contain full information, and are notarized.
  3. Co-execute submittals when required.
  4. Retain warranties and bonds until time specified for submittal.

#### 1.5 SPARE PARTS, OVERAGES, AND MAINTENANCE MATERIALS

- A. Products Required:
1. Provide a minimum of 5% attic stock of each finish product (including but not limited to: flooring materials, ceiling tile, paint, etc.). Full 5% attic stock of brick or stone mason materials may not be required. Coordinate with owner for acceptable amount of such materials. Contractor to remove any attic stock not desired by Owner.
  2. Provide quantities of products, spare parts, special equipment keys (one for each installed unit plus two), maintenance tools, and maintenance materials specified in individual sections to be provided to Owner, in addition to that required for completion of Work but not less than 5%.
  3. Products: Identical to those installed in the Work. Include quantities in original purchase from manufacturer to avoid variations in manufacture.
- B. Storage, Maintenance:
1. Contractor responsible for storage and safeguard of all products until delivery and acceptance by the Owner.

2. Maintain spare products in original containers with labels intact and legible, until delivery to Owner.
  3. Unless approved otherwise by the Owner, Contractor shall store all products until project completion.
- C. Delivery:
1. Coordinate with Owner: Deliver and unload spare products to Owner at location specified by the Owner and obtain receipt prior to final payment.
  2. For portions of Project accepted and occupied by Owner prior to Completion, deliver a proportional part of spare products to Owner; obtain receipt.

## 1.6 SUBMITTALS

- A. At Contract closeout, deliver Record Documents including samples, Operation and Maintenance Manuals, and Warranties and Bonds under provisions of Section 017700.
- B. Format for both Operation & Maintenance and Warranty & Bonds Manuals:
1. Binders: Commercial quality, 8-1/2 by 11 inch three-ring binders with hardback, cleanable, plastic covers; 3 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
  2. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of Product or work item
  3. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
  4. Text and spreadsheet related documents shall be submitted in hard copy, and electronic format compatible with Microsoft Word and/or Excel, AND electronic files of each sheet in Adobe Acrobat (PDF) format.
  5. Arrange and name electronic files in a logical manner identical to hard copies, and include appropriate bookmarks corresponding to binder tabs.
- C. Format Specific to Operation & Maintenance Manuals:
1. Prepare data in the form of an instructional manual.
  2. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; list with title of Project; name, address and telephone number of Contractor, and identify subject matter of contents.
  3. Arrange content by systems, under section numbers and sequence of Table of Contents of this Project Manual.
  4. Separate each product and system with index tab sheets keyed to the Table of Contents listing, and typed description of product and major component parts of equipment.
  5. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.
- D. Format Specific to Warranty & Bonds Manual:
1. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor; and name of responsible principal.
  2. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as

necessary. List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

- E. Record Drawings:
1. The Contractor shall submit one bond hand-marked (stamped Record Drawing) set of plans to the Owner's representative for review at the completion of the project.
  2. Upon Owner approval of the hand-marked bond copy, all plan revisions shall be reflected electronically in the AutoCAD design files (or other native design format). Contractor shall enlist the designer to have all revisions incorporated in the appropriate electronic files and re-issue of the plans. Costs associated with file revisions including expenses associated with designers' revisions are considered subsidiary to the construction contract and the full responsibility of the Contractor.
  3. Contractor shall receive revised files from the designer AND CONFIRM ALL revisions have been properly incorporated in the CAD files.
  4. All Contract closeout documents plan sheets shall be submitted in reproducible hard copy AND electronic format compatible with AutoCAD 2000 or later, AND electronic files of each sheet in Adobe Acrobat (PDF) format.
  5. Contractor shall submit one (1) full size bond set, and two (2) half-size bond sets of stamped Record Drawing plans along with one (1) CD or other acceptable form of mobile media containing the electronic versions of the as-built plans to the Owner.
- F. Operations and Maintenance & Warranty/Bond Manuals:
1. Submit 1 copy of preliminary draft or proposed formats and outlines of contents before start of Work. CITY will review draft and return one copy with comments.
  2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within 10 days after acceptance.
  3. Submit one copy each (hard and electronic) of completed volumes in final form 15 days prior to final inspection. Copy will be returned after final inspection, with CITY comments, and Engineer's comments where applicable. Revise content of documents as required prior to final submittal.
  4. Submit 2 copies each (hard and electronic) of revised volumes of data in final form within 10 days after final inspection.
- G. All Contract closeout documents shall be submitted in one complete package.
- H. Transmit with cover letter in duplicate, listing:
1. Date.
  2. Project title and number.
  3. Contractor's name, address, and telephone number.
  4. Number and title of each Record Document.
  5. Signature of Contractor or authorized representative.

**PART 2      PRODUCTS (NOT USED)**

**PART 3      EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 03 10 00**  
**CONCRETE FORMING AND ACCESSORIES**

**PART 1 GENERAL**

1.1 SUMMARY

- A. Section Includes:
  - 1. Formwork for cast-in place concrete.
  - 2. Shoring, bracing, and anchorage.
  - 3. Form accessories.
  - 4. Form stripping.
- B. Related Sections:
  - 1. Section 03 20 00 - Concrete Reinforcing.
  - 2. Section 03 30 00 - Cast-In-Place Concrete.

1.2 REFERENCES

- A. American Concrete Institute:
  - 1. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials.
  - 2. ACI 301 - Specifications for Structural Concrete.
  - 3. ACI 318 - Building Code Requirements for Structural Concrete.
  - 4. ACI 347 - Guide to Formwork for Concrete.
- B. American Forest and Paper Association:
  - 1. AF&PA - National Design Specifications for Wood Construction.
- C. The Engineered Wood Association:
  - 1. APA/EWA PS 1 - Voluntary Product Standard for Construction and Industrial Plywood.
- D. ASTM International:
  - 1. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
  - 2. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials.

1.3 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 318.
- B. For wood products furnished for work of this Section, comply with AF&PA.

1.4 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Coordinate this Section with other sections of work, requiring attachment of components to formwork.

## **PART 2 PRODUCTS**

### **2.1 WOOD FORM MATERIALS**

- A. Form Materials: At discretion of Contractor.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify lines, levels, and centers before proceeding with formwork. Verify dimensions agree with Drawings.
- C. When formwork is placed after reinforcement resulting in insufficient concrete cover over reinforcement before proceeding, request instructions from Engineer.

### **3.2 INSTALLATION**

- A. Formwork - General:
  - 1. Carefully verify horizontal and vertical positions of forms. Correct misaligned or misplaced forms before placing concrete.
  - 2. Complete wedging and bracing before placing concrete.
- B. Forms for Smooth Finish Concrete:
  - 1. Use steel, plywood or lined board forms.
  - 2. Use clean and smooth plywood and form liners, uniform in size, and free from surface and edge damage capable of affecting resulting concrete finish.
  - 3. Install form lining with close-fitting square joints between separate sheets without springing into place.
  - 4. Use care in forming and stripping wood forms to protect corners and edges.
  - 5. Level and continue horizontal joints.
  - 6. Keep wood forms wet until stripped.
- C. Erect formwork, shoring, and bracing to achieve design requirements, in accordance with requirements of ACI 318.
- D. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.

### **3.3 INSTALLATION - INSERTS, EMBEDDED PARTS, AND OPENINGS**

- A. Locate and set in place items required to be cast directly into concrete.
- B. Install accessories straight, level, and plumb. Ensure items are not disturbed during concrete placement.
- C. Construction Joints:
  - 1. Install surfaced pouring strip where construction joints intersect exposed surfaces to provide straight line at joints.
  - 2. Just prior to subsequent concrete placement, remove strip and tighten forms to conceal shrinkage.

3. Show no overlapping of construction joints. Construct joints to present same appearance as butted plywood joints.
  4. Arrange joints in continuous line straight, true and sharp.
- D. Screeds:
1. Set screeds and establish levels for tops of concrete slabs and levels for finish on slabs.
  2. Slope slabs to drain where required or as shown on Drawings.
  3. Before depositing concrete, remove debris from space to be occupied by concrete and thoroughly wet forms. Remove freestanding water.
- 3.4 FORM CLEANING
- A. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.
  - B. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out forms, unless formwork and concrete construction proceed within heated enclosure. Use compressed air or other means to remove foreign matter.
- 3.5 FORM REMOVAL
- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads and removal has been approved by City.
  - B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
  - C. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.
  - D. Leave forms in place for minimum number of days as specified in ACI 347.
- 3.6 ERECTION TOLERANCES
- A. Construct formwork to maintain tolerances required by ACI 318.
- 3.7 FIELD QUALITY CONTROL
- A. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.
  - B. Notify City after placement of reinforcing steel in forms, but prior to placing concrete.
  - C. Schedule concrete placement to permit formwork inspection before placing concrete.

END OF SECTION

## SECTION 03 20 00

### CONCRETE REINFORCING

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section Includes:
  - 1. Reinforcing bars.
  - 2. Reinforcement accessories.

##### 1.2 REFERENCES

- A. American Concrete Institute:
  - 1. ACI 301 - Specifications for Structural Concrete.
  - 2. ACI 318 - Building Code Requirements for Structural Concrete.
  - 3. ACI 530.1 - Specifications for Masonry Structures.
  - 4. ACI SP-66 - ACI Detailing Manual.
- B. ASTM International:
  - 1. ASTM A184/A184M - Standard Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.
  - 2. A185/A185M-07 Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
  - 3. ASTM A496/A496M - Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement.
  - 4. ASTM A497/A497M - Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement.
  - 5. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
  - 6. ASTM A704/A704M - Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.
  - 7. ASTM A706/A706M - Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
  - 8. ASTM A767/A767M - Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement.
  - 9. ASTM A775/A775M - Standard Specification for Epoxy-Coated Steel Reinforcing Bars.
  - 10. ASTM A884/A884M - Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement.
  - 11. ASTM A934/A934M - Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars.
  - 12. ASTM A996/A996M - Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement.
- C. Concrete Reinforcing Steel Institute:
  - 1. CRSI - Manual of Standard Practice.
  - 2. CRSI - Placing Reinforcing Bars.

##### 1.3 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 318.

1.4 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Coordinate with placement of formwork, formed openings and other Work.

**PART 2 PRODUCTS**

2.1 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615/A615M, 60 75ksi yield grade, deformed billet bars, uncoated finish.

2.2 ACCESSORY MATERIALS

- A. Tie Wire: Minimum 16 gage annealed type
- B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions including load bearing pad on bottom to prevent vapor retarder puncture.
- C. Special Chairs, Bolsters, Bar Supports, Spacers Adjacent to Weather Exposed Concrete Surfaces: Plastic-coated steel type; size and shape to meet Project conditions.

2.3 FABRICATION

- A. Fabricate concrete reinforcement in accordance with ACI 318 code.
- B. Form reinforcement bends with minimum diameters in accordance with ACI 318.
- C. Locate reinforcement splices not indicated on Drawings, at point of minimum stress

**PART 3 EXECUTION**

3.1 PLACEMENT

- A. Space reinforcement bars with minimum clear spacing in accordance with ACI 318
  1. Where bars are indicated in multiple layers, place upper bars directly above lower bars.
- B. Maintain concrete cover around reinforcement as follows:

Reinforcement Location		Minimum Concrete Cover
Footings and Concrete Formed Against Earth		3 inches
Concrete exposed to earth or weather	No. 6 bars and larger	2 inches
	No. 5 bars and smaller	1-1/2 inches
Supported Slabs, Walls, and Joists	No. 14 bars and larger	1-1/2 inches
	No. 11 bars and smaller	3/4 inches
Beams and Columns		1-1/2 inches

Shell and Folded Plate Members	No. 6 bars and larger	3/4 inches
	No. 5 bars and smaller	1/2 inches

### 3.2 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed by Owner's testing laboratory in accordance with ACI 318.
- B. Provide free access to Work and cooperate with appointed firm.
- C. Reinforcement Inspection:
  - 1. Placement Acceptance: Specified and ACI 318 material requirements and specified placement tolerances.
  - 2. Periodic Placement Inspection: Inspect for correct materials, fabrication, sizes, locations, spacing, concrete cover, and splicing.

END OF SECTION

**SECTION 03 30 00**  
**CAST-IN-PLACE CONCRETE**

**PART 1 GENERAL**

1.1 SUMMARY

- A. Section includes cast-in-place concrete for the following:
  - 1. Slabs on grade.
  - 2. Control, expansion and contraction joint devices.
- B. Related Sections:
  - 1. Section 03 10 00 - Concrete Forming and Accessories
  - 2. Section 03 20 00 - Concrete Reinforcing.
  - 3. Section 03 39 00 - Concrete Curing.
  - 4. Section 31 23 23 - Fill: Sand layer over vapor retarder.

1.2 REFERENCES

- A. American Concrete Institute:
  - 1. ACI 301 - Specifications for Structural Concrete.
  - 2. ACI 305 - Hot Weather Concreting.
  - 3. ACI 306.1 - Standard Specification for Cold Weather Concreting.
  - 4. ACI 308.1 - Standard Specification for Curing Concrete.
  - 5. ACI 318 - Building Code Requirements for Structural Concrete.
- B. ASTM International:
  - 1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
  - 2. ASTM C31/C31M - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
  - 3. ASTM C33 - Standard Specification for Concrete Aggregates.
  - 4. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
  - 5. ASTM C42/C42M - Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
  - 6. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete.
  - 7. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic Cement Concrete.
  - 8. ASTM C150 - Standard Specification for Portland Cement.
  - 9. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete.
  - 10. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
  - 11. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
  - 12. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
  - 13. ASTM C330 - Standard Specification for Lightweight Aggregates for Structural Concrete.
  - 14. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete.
  - 15. ASTM C595 - Standard Specification for Blended Hydraulic Cements.
  - 16. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
  - 17. ASTM C685/C685M - Standard Specification for Concrete Made By Volumetric Batching and Continuous Mixing.
  - 18. ASTM C845 - Standard Specification for Expansive Hydraulic Cement.

19. ASTM C989 - Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars.
20. ASTM C1017/C1017M - Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.
21. ASTM C1064/C1064M - Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
22. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).
23. ASTM C1116 - Standard Specification for Fiber-Reinforced Concrete and Shotcrete.
24. ASTM C1157 - Standard Performance Specification for Hydraulic Cement.
25. ASTM C1218/C1218M - Standard Test Method for Water-Soluble Chloride in Mortar and Concrete.
26. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures.
27. ASTM D994 - Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).
28. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
29. ASTM D1752 - Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
30. ASTM D6690 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.
31. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials.
32. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
33. ASTM E1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs.
34. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.

### 1.3 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.
- B. Project Record Documents: Accurately record actual locations of embedded utilities and components concealed from view in finished construction.

### 1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 318.
- B. Conform to ACI 305 when concreting during hot weather.
- C. Conform to ACI 306.1 when concreting during cold weather.
- D. Acquire cement and aggregate from one source for Work.

### 1.5 ENVIRONMENTAL REQUIREMENTS

- A. Maintain concrete temperature after installation at minimum 50 degrees F for minimum 7 days.

### 1.6 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

- B. Coordinate placement of joint devices with erection of concrete formwork and placement of form accessories.

## **PART 2 PRODUCTS**

### **2.1 CONCRETE MATERIALS**

- A. Cement: ASTM C150, Type I - Normal Portland type unless indicated otherwise on Drawings.
- B. Normal Weight Aggregates: ASTM C33.
  - 1. Coarse Aggregate Maximum Size: In accordance with ACI 318.
- C. Water: ACI 318; potable,

### **2.2 JOINT DEVICES AND FILLER MATERIALS**

- A. Joint Filler Type A: ASTM D1751; Asphalt impregnated fiberboard or felt, 1/4-inch thick; tongue and groove profile.
- B. Construction Joint Devices: Integral galvanized steel; 1/8-inch thick, formed to tongue and groove profile, with removable top strip exposing sealant trough, knockout holes spaced at 6 inches, ribbed steel spikes with tongue to fit top screed edge.

### **2.3 CONCRETE MIX**

- A. Select proportions for concrete in accordance with ACI 318 trial mixtures.
- B. Provide concrete to the following criteria:
  - 1. Class C - 3000-psi, 28-day compressive strength; W/C ratio, 0.58 maximum (non-air-entrained), 0.46 maximum (air-entrained).
- C. Admixtures: Include admixture types and quantities indicated in concrete mix designs only when approved by Owner.
  - 1. Use accelerating admixtures in cold weather. Use of admixtures will not relax cold weather placement requirements.
  - 2. Do not use calcium chloride or admixtures containing calcium chloride.
  - 3. Use set retarding admixtures during hot weather.
  - 4. Add air entrainment admixture to exterior exposed concrete unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content with a tolerance of plus or minus 1-1/2 percent within following limits:
    - a. Concrete structures and slabs exposed to freezing and thawing, deicer chemicals, or hydraulic pressure:
      - 1) 4.5 percent (moderate exposure); 6.0 percent (severe exposure) 1-inch max. aggregate.
      - 2) 5.0 percent (moderate exposure); 6.0 percent (severe exposure) 3/4-inch max. aggregate.
      - 3) 5.5 percent (moderate exposure); 7.0 percent (severe exposure) 1/2-inch max. aggregate.
    - b. Other concrete (not exposed to freezing, thawing, or hydraulic pressure) or to receive a surface hardener: 2 percent to 4 percent air.
- D. Ready Mixed Concrete: Mix and deliver concrete in accordance with ASTM C94/C94M.

- E. Site Mixed Concrete: Mix concrete in accordance with ACI 318.

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify requirements for concrete cover over reinforcement.
- C. Verify anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with placing concrete.

#### **3.2 PREPARATION**

- A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent. Remove laitance, coatings, and unsound materials.
- B. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.
- C. Remove debris and ice from formwork, reinforcement, and concrete substrates.
- D. Remove water from areas receiving concrete before concrete is placed.

#### **3.3 PLACING CONCRETE**

- A. Place concrete in accordance with ACI 318.
- B. Notify testing laboratory and Owner minimum 24 hours prior to commencement of operations.
- C. Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints, and are not disturbed during concrete placement.
- D. Install vapor retarder under interior slabs on grade in accordance with ASTM E1643. Lap joints minimum 6 inches and seal watertight by taping edges and ends.
- E. Repair vapor retarder damaged during placement of concrete reinforcing. Repair with vapor retarder material; lap over damaged areas minimum 6 inches and seal watertight.
- F. Separate slabs on grade from vertical surfaces with 1/2-inch thick joint filler.
- G. Place joint filler in floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.
- H. Extend joint filler from bottom of slab to within 1/4-inch of finished slab surface.
- I. Install construction joint devices in coordination with floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.
- J. Install joint device anchors. Maintain correct position to allow joint cover to be flush with floor and wall finish.
- K. Install joint covers in longest practical length, when adjacent construction activity is complete.

- L. Apply sealants in joint devices in accordance manufacturer's instructions.
- M. Deposit concrete at final position. Prevent segregation of mix.
- N. Place concrete in continuous operation for each panel or section determined by predetermined joints.
- O. Consolidate concrete.
- P. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- Q. Place concrete continuously between predetermined expansion, control, and construction joints.
- R. Do not interrupt successive placement; do not permit cold joints to occur.
- S. Saw cut joints within 12 hours after placing. Use 3/16 inch thick blade, cut into 1/4 depth of slab thickness.

#### 3.4 CONCRETE FINISHING

- A. Provide formed concrete surfaces to be left exposed with smooth rubbed finish
- B. Nonslip Broom Finish exterior concrete walks, platforms, steps, and ramps, and elsewhere as indicated.

#### 3.5 CURING AND PROTECTION

- A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
  - 1. Protect concrete footings from freezing for minimum 5 days.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
- C. Cure concrete in accordance with ACI 308.1 using spray on membrane method.

#### 3.6 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed by Owner's testing laboratory in accordance with ACI 318.
- B. Provide free access to Work and cooperate with appointed firm.
- C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of Work.
- D. Concrete Inspections:
  - 1. Continuous Placement Inspection: Inspect for proper installation procedures.
  - 2. Periodic Curing Inspection: Inspect for specified curing temperature and procedures.
- E. Strength Test Samples:
  - 1. Sampling Procedures: ASTM C172.

2. Cylinder Molding and Curing Procedures: ASTM C31/C31M, cylinder specimens, field cured.
  3. Sample concrete and make one set of three cylinders for every 75 cu yds or less of each class of concrete placed each day and for every 5,000 sf of surface area for slabs and walls.
  4. When volume of concrete for any class of concrete would provide less than 5 sets of cylinders, take samples from five randomly selected batches, or from every batch when less than 5 batches are used.
  5. Make one additional cylinder during cold weather concreting, and field cure.
- F. Field Testing:
1. Slump Test Method: ASTM C143/C143M.
  2. Air Content Test Method: ASTM C173/C173M ASTM C231.
  3. Temperature Test Method: ASTM C1064/C1064M.
  4. Measure slump and temperature for each compressive strength concrete sample.
  5. Measure air content in air entrained concrete for each compressive strength concrete sample.
- G. Cylinder Compressive Strength Testing:
1. Test Method: ASTM C39/C39M.
  2. Test Acceptance: In accordance with ACI 318.
  3. Test one cylinder at 7 days.
  4. Test one cylinders at 28 days.
  5. Retain one cylinder for 60 days for testing when requested by Owner.
  6. Dispose of remaining cylinders when testing is not required.
- H. Core Compressive Strength Testing:
1. Sampling and Testing Procedures: ASTM C42/C42M.
  2. Test Acceptance: In accordance with ACI 318.
  3. Drill three cores for each failed strength test from concrete represented by failed strength test.
- I. Maintain records of concrete placement. Record date, location, quantity, air temperature and test samples taken.

### 3.7 PATCHING

- A. Allow Owner to inspect concrete surfaces immediately upon removal of forms.
- B. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Owner upon discovery.
- C. Patch imperfections as directed by Owner.

### 3.8 DEFECTIVE CONCRETE

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- B. Repair or replacement of defective concrete will be determined by Owner.
- C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Owner for each individual area.

END OF SECTION

**SECTION 03 39 00**  
**CONCRETE CURING**

**PART 1 GENERAL**

1.1 SUMMARY

- A. Section includes initial and final curing of horizontal and vertical concrete surfaces.
- B. Related Sections:
  - 1. Section 03 30 00 - Cast-In-Place Concrete.

1.2 REFERENCES

- A. American Concrete Institute:
  - 1. ACI 301 - Specifications for Structural Concrete.
  - 2. ACI 308.1 - Standard Specification for Curing Concrete.
  - 3. ACI 318 - Building Code Requirements for Structural Concrete.
- B. ASTM International:
  - 1. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete.
  - 2. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
  - 3. ASTM C1315 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.
  - 4. ASTM D2103 - Standard Specification for Polyethylene Film and Sheeting.

1.3 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 318.

**PART 2 EXECUTION**

2.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify substrate surfaces are ready to be cured.

2.2 INSTALLATION - HORIZONTAL SURFACES

- A. Cure concrete in accordance with ACI 308.1.

2.3 PROTECTION OF FINISHED WORK

- A. Section 01 70 00 - Execution and Closeout Requirements: Protecting finished Work.

END OF SECTION

## SECTION 04 41 00

### STONE MASONRY VENEER

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This Section includes the following: Native stone masonry veneer.

##### 1.3 SUBMITTALS

- A. Product Data: For each variety of stone, stone accessory, and other manufactured product specified.
- B. Stone Samples for Verification: Sets for each color, grade, finish, and variety of stone required. Include two or more samples in each set showing the full range of variations expected in these characteristics.
- C. Qualification Data: For firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

##### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who has completed stone masonry veneer similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Source Limitations for Stone: Obtain stone from a single quarry with resources to provide materials of consistent quality in appearance and physical properties without delaying the work.
- C. Source Limitations for Mortar and Grout Materials: Obtain mortar ingredients of uniform quality for each cementitious component from a single manufacturer and each aggregate from one source or producer.

##### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in undamaged condition.
- B. Store and handle stone and related materials to prevent deterioration or damage due to moisture, temperature changes, contaminants, corrosion, breaking, chipping, or other causes.
- C. Store cementitious materials off the ground, under cover, and in a dry location.
- D. Store aggregates, covered and in a dry location, where grading and other required characteristics can be maintained and contamination avoided.

- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

## 1.6 PROJECT CONDITIONS

- A. Protection of Stone Masonry Veneer: During erection, cover tops of walls, projections, and sills with waterproof sheeting at the end of each day's work. Cover partially completed stone masonry veneer when construction is not in progress.
- B. Stain Prevention: Immediately remove grout, mortar, and soil to prevent them from staining the face of stone masonry veneer. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Remove and replace stone masonry veneer damaged by frost or freezing conditions. Comply with the following requirements: Cold-Weather Construction: When ambient temperature is within limits indicated, use the following procedures:
  - a. 40 to 32 deg F: Heat mixing water or sand to produce mortar temperatures between 40 and 120 deg F.
  - b. 32 to 25 deg F: Heat mixing water and sand to produce mortar temperatures between 40 and 120 deg F. Maintain mortar above freezing until used in masonry.
  - c. 25 deg F and below: Do not install stone veneer.
- 2. Cold-Weather Protection: When mean daily temperature is within limits indicated, provide the following protection:
  - a. 40 to 25 deg F: Cover masonry with weather-resistant membrane for 48 hours after construction.
  - b. 25 to 20 deg F: Cover masonry with insulating blankets or provide enclosure and heat for 48 hours after construction to prevent freezing. Use windbreaks when wind velocity exceeds 15 mi./h.
  - c. 20 deg F and below: Provide enclosure and heat to maintain temperatures above 32 deg F within enclosure for 48 hours after construction.
- 3. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and above and will remain so until stone masonry veneer has dried out, but not less than 7 days after completing cleaning.
- D. Hot-Weather Requirements: Protect stone masonry veneer work when temperature and humidity conditions produce excessive evaporation of water from mortar. Provide artificial shade and wind breaks and use cooled materials as required. Do not apply mortar to substrates with temperatures of 100 deg F and above.

## PART 2 - PRODUCTS

### 2.1 STONE

- A. Provide natural white limestone (chopped) as selected.
  - 1. Austin White Chopped
  - 2. Height 4" – 8"
  - 3. Depth 4" nominal
  - 4. Length 8" – 16"
  - 5. Dimensions provided are nominal, match dimensions of nearby structures.

### 2.2 MORTAR MATERIALS

- A. Portland cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide color selected by Architect from full range available, including white cement.
  - 1. Hydrated Lime: ASTM C 207, Type S.

2. Portland Cement-Lime Mix: Packaged blend of Portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207.
- B. Aggregate: ASTM C 144.
  - C. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with record of satisfactory performance in stone masonry mortars.
  - D. Latex additive (water emulsion), serving as replacement for part of or all gaging water, of type specifically recommended by latex additive manufacturer for use with job-mixed Portland cement and aggregate and not containing a retarder.
  - E. Ready-Mixed Mortar: Cementitious materials, water, and aggregate complying with requirements specified in this Article; combined with set-controlling admixtures to produce a ready-mixed mortar complying with ASTM C 1142.
  - F. Water: Potable

### 2.3 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Pre-molded filler strips complying with ASTM D 1056, Type 2, Class A, Grade 1; compressible up to 35 percent; of width and thickness indicated; formulated from the following material: Neoprene.
- B. Mortar Net, in wall cavities.

### 2.4 MASONRY CLEANERS

- A. Job-Mixed Detergent Solution: Solution of 1/2-cup dry-measure tetrasodium polyphosphate and 1/2-cup dry-measure laundry detergent dissolved in 1 gal. of water.

### 2.5 MORTAR MIXES

- A. General: Comply with referenced standards and with manufacturers' written instructions for mix proportions, mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures needed to produce mortar of uniform quality and with optimum performance characteristics.
  1. Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated. Do not use calcium chloride.
  2. Mixing: Combine and thoroughly mix cementitious materials, water, and aggregates in a mechanical batch mixer, unless otherwise indicated. Discard mortar when it has reached initial set.
- B. Mortar for Stone Masonry Veneer: Comply with ASTM C 270, Proportion Specification, for job-mixed mortar; and ASTM C 1142 for ready-mixed mortar, of types indicated below:
  1. Limit cementitious materials in mortar to Portland cement and lime.
  2. Set stone with Type N mortar.
  3. Point stone with Type N mortar.
  4. Latex-Modified Portland Cement Setting Mortar: Proportion and mix Portland cement, aggregate, and latex additive to comply with written instructions of latex additive manufacturer.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine surfaces to receive stone masonry veneer, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of stone masonry veneer.
  - 1. Examine substrate to verify that inserts, reinforcement, veneer ties, flashing, and other items installed in unit masonry or concrete and required for or extending into stone masonry veneer are correctly installed.
  - 2. Do not proceed with installation until unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Advise installers of other work about specific requirements for placement of reinforcement, anchors, ties, flashing, and similar items to be built into stone masonry veneer.
- B. Protect stone masonry veneer during erection as follows:
  - 1. Cover tops of walls with non-staining, waterproof sheeting at end of each day's work. Cover partially completed structures when work is not in progress. Extend cover a minimum of 24 inches down both sides and hold securely in place.
  - 2. Prevent staining of stone from mortar, grout, sealants, and other sources. Immediately remove such materials without damaging stone.
  - 3. Protect base of walls from rain-splashed mud and mortar splatter by coverings spread on the ground and over the wall surface.
- C. Clean stone surfaces that have become dirty or stained by removing soil, stains, and foreign materials before setting. Clean stone by thoroughly scrubbing with fiber brushes and then drenching with clear water. Use only mild cleaning compounds that contain no caustic or harsh materials or abrasives.

### **3.3 SETTING STONE MASONRY VENEER, GENERAL**

- A. Execute stone masonry veneer by skilled masons experienced with the kind and form of stone and installation method indicated. Arrange stones for uniformity of appearance, with color and size variations uniformly dispersed for an evenly blended appearance.
- B. Set stone to comply with requirements indicated on Drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure stone masonry veneer in place. Set stone accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances.
- C. Provide expansion, control, and pressure-relieving joints of widths and at locations indicated.
  - 1. Sealing expansion and other joints is specified in Division 7 Section "Joint Sealants."
  - 2. Keep expansion joints free of mortar and other rigid materials.

### **3.4 CONSTRUCTION TOLERANCES**

- A. Variation from Plumb: For vertical lines and surfaces, do not exceed 1/4-inch in 10 feet, 3/8-inch in 20 feet, or 1/2-inch in 40 feet or more. For external corners, expansion joints, control joints, and other conspicuous lines, do not exceed 1/4-inch in 20 feet or 1/2-inch in 40 feet or more.
- B. Variation from Level: For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines, do not exceed 1/4-inch in 20 feet or 1/2-inch in 40 feet or more.

- C. Measure variation from plumb, level, and position shown in plan as the variation of the average plane of the face of each stone from a plumb, level, or dimensioned plane.

### 3.5 POINTING

- A. Prepare stone joint surfaces for pointing with mortar by removing dust and mortar particles. Where setting mortar was removed to depths greater than surrounding areas, apply pointing mortar first in layers not greater than 3/8-inch until a uniform depth is formed.
- B. Point stone joints by placing and compacting pointing mortar in layers not greater than 3/8 inch. Compact each layer thoroughly and allow to become thumbprint hard before applying next layer.
- C. Tool joints, when pointing mortar is thumbprint hard, with a smooth jointing tool to produce a smooth joint profile.

### 3.6 ADJUSTING AND CLEANING

- A. Remove and replace stone masonry veneer of the following description:
  - 1. Broken, chipped, stained, or otherwise damaged stone. Stone may be repaired if the methods and results are approved by Owner.
  - 2. Defective joints.
  - 3. Stone masonry veneer and joints not matching approved samples and mockups.
  - 4. Stone masonry veneer not complying with other requirements indicated.
- B. Replace in a manner that result in stone masonry veneer's matching approved samples, complying with other requirements, and showing no evidence of replacement.
- C. In-Progress Cleaning: Clean stone masonry veneer as work progresses. Remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean stone masonry veneer as follows:
  - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
  - 2. Test cleaning methods on mockup; leave one-half of panel uncleaned for comparison purposes. Obtain Owner's approval of sample cleaning before proceeding with cleaning of masonry.
  - 3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.
  - 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing thoroughly with clear water.
  - 5. Clean stone by bucket and brush hand-cleaning method described in BIA Technical Note No. 20 Revised II, using the following masonry cleaner: Job-mixed detergent solution.
- E. Protection: Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer that ensure stone masonry veneer is without damage and deterioration at the time of Substantial Completion.

END OF SECTION

## SECTION 13 34 19.01

### PERFORMANCE SPECIFICATION FOR PAVILION STRUCTURE

#### DIMENSIONS:

Shape	Hexagon, two-tiered
Roof Dimensions, eave point to eave point	32'-0"
Column Dimension, center to center	28'-0"
Clearance Height, concrete slab to upper rail	8'-0"
Roof slope	6:12 preferred, 8:12 max

#### ACCESSORIES:

Steel cupola  
Handrail (36")  
Overhead decorative railing

#### DESIGN CRITERIA:

- A. Structure shall be designed and fabricated to comply with the 2012 International Building Code with standard load designs of the greater value of 20 psf minimum live load and 100 mph sustained wind load or site specific conditions and the applicable zone for seismic loads. Design drawings shall be sealed by a licensed professional engineer of the State of Texas.
- B. All members shall be designed according to the "American Institute of Steel Construction (AISC) specifications and the American Iron and Steel Institute (AISI) specifications for cold-formed members.
- C. All fabrication welds shall be in strict accordance with the structural welding code of the American Welding Society (AWS) specifications. All structural welds shall be in compliance with the requirements of "Pre-qualified" welded joints. All welding shall conform to ASTM A-233 series E-70XX electrodes - low hydrogen. Field welding shall not be required.

#### COLUMNS AND FRAMEWORK:

- A. All members shall be one piece hollow steel shape (HSS) tube with a minimum 3/16-inch wall thickness, sized accordingly by a structural engineer and conform to ASTM A-500 grade B. Plate material shall be ASTM A-36. Base plates shall be provided on columns for attachment to footings.

#### ROOFING AND TRIM:

- A. Roof panels shall be 24 gauge steel rib type panels, uninsulated and have a factory applied paint/coating. Trim panels shall be pre-formed and pre-finished to match roofing. Attachment hardware shall match roof color. Color to be selected by Owner.

#### FINISH:

- A. All frame members shall be media blasted to a white finish removing all rust, scale, oil and grease. A factory applied primer shall be applied prior to the finish coating/paint surface. Finish shall be a smooth uniform surface with no pits, runs or sags. Color to be selected by Owner.

#### HARDWARE:

- A. All structural hardware and roofing fasteners shall be provided. Bolts shall be ASTM A-325 and hidden at all connections.

ERECTION:

- A. Manufacturer shall supply complete layout and detail plans with installation instructions for the structure. The structure shall be erected in a work-man-like manner with framing, roofing and trim installed according to the manufacturer's installation instructions. Care shall be taken to avoid damaging the structure during installation. Touch up surface finish with paint provided to prevent rusting.

WARRANTY:

- A. A 10 year warranty against manufacturer defects shall be provided.

PRELIMINARY SUBMITTAL:

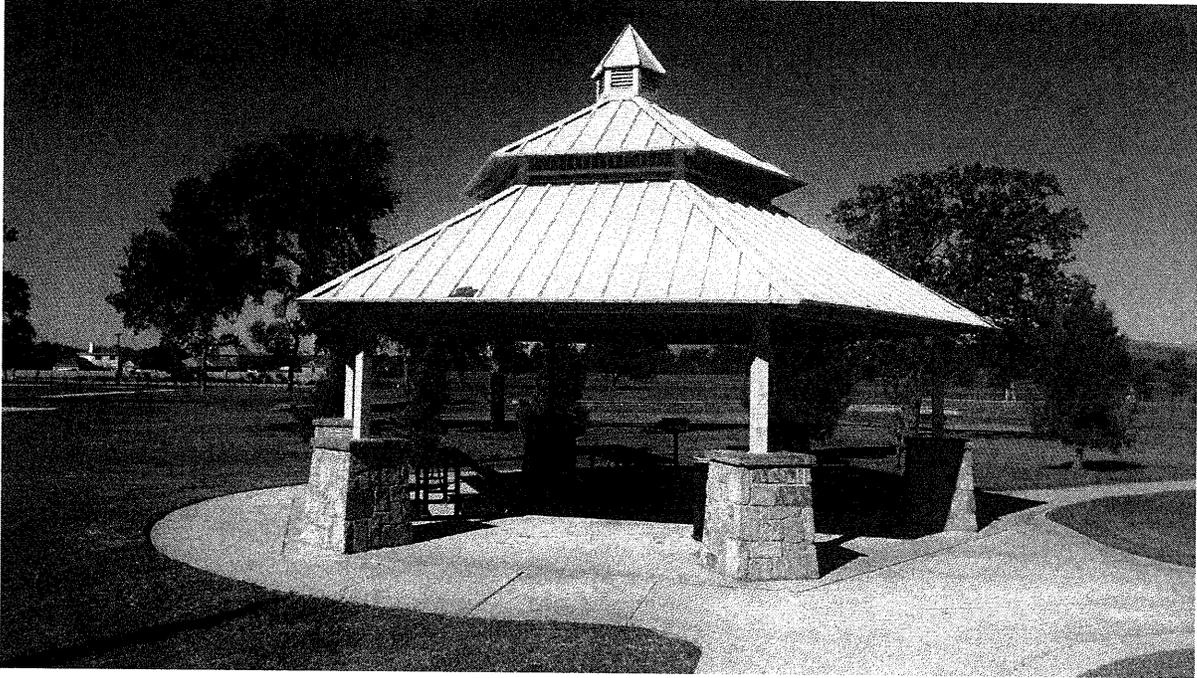
- A. Contractor shall submit a preliminary design from their chosen manufacturer along with their bid. This submittal shall indicate conformance to the above specifications and shall not constitute shop drawings for the project. Bids submitted without a manufacturer's design will be rejected.

EXAMPLE PROJECTS:

A. Oak Creek Park, Oak Creek Drive, Carrollton, TX



B. Oakwood Springs Park, Hamilton Drive, Carrollton, TX



END OF SECTION