PROJECT MANUAL

New Canopy/Shelters for the TRANSYLVANIA COUNTY LIBRARY

BREVARD, NORTH CAROLINA
June 10, 2025

RICHARD L. WORLEY, AIA ARCHITECT
4078 HAYWOOD ROAD, MILLS RIVER, NC 28759
(828) 891-7389 EXT. 126

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4 0 7 8 Haywood Road – Mills River, North Carolina 28759 Phone (828) 891-7389 ext. 126 fax (828) 891-5882

SECTION 000010 - INVITATION TO BID

Transylvania County will be accepting sealed bids for the **Canopy/Shelter for the Transylvania County Library,** located at 212 Gaston St., Brevard, North Carolina, 28712.

The project consist of two canopy/shelters (primary and secondary), concrete foundations and slabs, grading and grass seeding, cmu/stone column bases with concrete caps and electrical consisting of electrical outlets, basic lighting and wiring for cameras.

In addition, there is an Alternate for Stamped Concrete finish in lieu of standard concrete finish.

The work will be let under one contract. **General Prime** bids only.

Plans and specifications will be on file and available for public inspection beginning after Monday, June 16, 2025, at the following location.

Transylvania County Finance Office
101 South Broad Street
Brevard, NC 28712

Copies of RFP with detailed specifications, information and selection criteria may be obtained by qualified bidders beginning June 16, 2025 by contacting Jennifer Galloway at the Transylvania County Finance Department, 101 South Broad Street, Brevard, NC 28712 or at jennifer.galloway@transylvaniacounty.org, or at 828-884-3104.

A MANDATORY Pre-Bid Conference will be held on Tuesday, June 24, 2025 at 10:00 AM EST in the County Commissioners Chambers at 101 South Broad Street, Brevard, NC 28712. The Conference will include a discussion of the scope and nature of the work, review of the Contract Documents and discussion of questions submitted by the bidders. **Attendance is required by all contractors who plan to bid on this project**.

Questions regarding the project documents should be submitted in writing by Wednesday, July 2, 2025 at 4:00 PM EST to Jennifer Galloway at 101 South Broad Street, Brevard, NC 28712 or emailed to **jennifer.galloway@transylvaniacounty.org**,

Bid is to be submitted on Form of Proposal (Bid Form) provided in the Project Manual. Submit bids in sealed envelope that is clearly labeled with Project Name, Bidders Name and License Number on the outside of envelope.

The Owner will receive sealed bids on Thursday, July 10, 2025 at 10:00 AM EST, at the Transylvania County Administration Building located at101 South Broad Street, Brevard, NC 28712. **Bids received after the specified date and time will not be accepted**. All prime bidders are invited to attend. Bids will be opened and read aloud.

A Bid Security is required in the amount of 5% of the bid. Bid security must be in the form of an AIA A310 document, certified check or cashier check made payable to Transylvania County.

A Performance Bond and Payment Bond will be required of the successful bidder. Bonds must be executed by a surety company licensed to do business in North Carolina. Bond form shall be AIA Document A312. Refer to General and Supplementary Conditions indicated in the Project Manual.

All bidders must have a NC General Contractors License in accordance with NC State Laws. The Owners reserve the right to waive irregularities and to reject bids.

RICHARD L. WORLEY, AIA ARCHITECT

SECTION 000020 - FORM OF PROPOSAL June 10,2025

TO: Transylvania County
21 East Main Street
Brevard, NC 28712

I have received the documents entitled Amphitheater Canopy/Shelters for the Transylvania County Library**,** located at 212 S. Gaston St., Brevard, North Carolina, 28712 dated June 10, 2025. I have received **Addenda** _____and have included their provisions in my Proposal. I have examined both the documents and the site and submit the following proposal. This proposal includes all work as indicated in the Drawings and Specifications.

This Form of Proposal must include the follow documents:

1. List of Subcontractors
2. Affidavit.
3. Contractors Qualification Form
4. Minority Business Participation Forms
5. Bid Security
6. E-Verify Affidavit

In submitting this proposal, I agree:

1. To hold my bid open for 45 days.
2. To enter into and execute a Contract, if awarded on the basis of this proposal.
3. To accomplish the work in accordance with the Contract Documents.
4. To provide all required documentation regarding sales tax information associated with this project to the Owner in accordance with Government requirements in order for the Owners to receive reimbursement.
5. To maintain the terms of the E-Verify Affidavit.

BASE BID: (excluding Alternates and Unit Prices if any below)
I will construct this project for the lump-sum price of:

_____Dollars ($ _____).

ALTERNATES: (Refer to Bid Documents for description of Alternates). Alternates are **not** included in base bid.

Alternate #1: I will provide this Alternate for the lump-sum price of: $_____

I Propose and agree to complete the work within _____calendar days from date the contract has been awarded.

DATE:_____SIGNED:_____

LICENSE #:_____

SECTION 000030 - LIST OF SUBCONTRACTORS

At a minimum, the required Subcontractors that should be included on the List of Subcontractors: Grading, Canopy/Shelter Structure Vendor and Erector – Sole Source), Concrete foundations/slabs/etc., Stormwater piping, Electrical, CMU, Stonework, etc. In addition, all other Subcontractors with a scope of work in excess of $10,000.00 for this project based upon the submitted Bid proposal.

PROJECT: _____

CONTRACTOR: _____

SUBCONTRACTORS:

(1)

Name: _____

Address: _____

Telephone: _____

Contact Person: _____

Type of Work: _____

Percentage of Total Contract: _____

(2)

Name: _____

Address: _____

Telephone: _____

Contact Person: _____

Type of Work: _____

Percentage of Total Contract: _____

(3)

Name: _____

Address: _____

Telephone: _____

Contact Person: _____

Type of Work: _____

Percentage of Total Contract: _____

(4)

Name: _____

Address: _____

Telephone: _____

Contact Person: _____

Type of Work: _____

Percentage of Total Contract: _____

(5)

Name: _____

Address: _____

Telephone: _____

Contact Person: _____

Type of Work: _____

Percentage of Total Contract: _____

(6)

Name: _____

Address: _____

Telephone: _____

Contact Person: _____

Type of Work: _____

Percentage of Total Contract: _____

Make additional copies if needed.

AFFIDAVIT

This form must be completed, signed, notarized and returned with Bid. Failure to do so will be considered justification for the rejection of your Bid. A separate form must be submitted by each principal of a joint venture Bid.

Project: Transylvania County
Amphitheater Canopy/Shelters for Transylvania County Library)
Brevard, North Carolina

Date: _____

STATE OF: _____ COUNTY (CITY) OF: _____

This day personally appeared before the undersigned, a Notary Public in and for the City/County and State aforesaid, _____, who have been first duly sworn according to law, did depose and aver as follows:

1. That he is _____
(Owner, partner, president, etc.)

of _____
(Insert name of Bidder)

2. That he is personally familiar with the Bid of

_____submitted in connection with
(Name of Bidder)

the above-captioned project.

3. That the Bid of said _____
(Insert name of Bidder)

Was formulated and submitted in good faith as the true

Bid of said _____
(Insert name of Bidder)

4. That in the preparation and submission of this Bid, said Bidder did not, either directly or indirectly, enter into any combination or arrangement with any person, firm or corporation or enter into any agreement, participate in any collusion, or otherwise take any action in the restraint of free, competitive bidding in violation of the Sherman Act (15 USC Section 1).

And further this deponent saith not.

_____
Affiant

Subscribed and sworn to before me this _____ day of

_____ 20 _____.

My commission expires _____

_____
Notary Public

Note: This Affidavit must be submitted with the Bid. Failure to submit will be considered justification for rejection of the Bid.

SECTION 000050-CONTRACTOR'S

QUALIFICATION FORM

PART 1- GENERAL

Contractor is to submit with bid a Contractor's Qualification Statement- AlA Document A305-2020 with Ex. A General Information and Ex. C Project Specific Information. A draft copy has been provided for Contactor's review of these documents. The submitted document in the bid package is to be an original document that has been fully executed.

PART 2- PRODUCTS (Not Used)

PART 3- EXECUTION (Not Used)

END OF SECTION 000050

AIA® Document A305® – 2020

Contractor's Qualification Statement

THE PARTIES SHOULD EXECUTE A SEPARATE CONFIDENTIALITY AGREEMENT IF THEY INTEND FOR ANY OF THE INFORMATION IN THIS A305-2020 TO BE HELD CONFIDENTIAL.

SUBMITTED BY:
(Organization name and address.)

SUBMITTED TO:
(Organization name and address.)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

TYPE OF WORK TYPICALLY PERFORMED
(Indicate the type of work your organization typically performs, such as general contracting, construction manager as constructor services, HVAC contracting, electrical contracting, plumbing contracting, or other.)

THIS CONTRACTOR'S QUALIFICATION STATEMENT INCLUDES THE FOLLOWING:
(Check all that apply.)

- ☐ Exhibit A – General Information
- ☐ Exhibit B – Financial and Performance Information
- ☐ Exhibit C – Project-Specific Information
- ☐ Exhibit D – Past Project Experience
- ☐ Exhibit E – Past Project Experience (Continued)

CONTRACTOR CERTIFICATION
The undersigned certifies under oath that the information provided in this Contractor's Qualification Statement is true and sufficiently complete so as not to be misleading.

_____ _____
Organization's Authorized Representative Signature **Date**

_____
Printed Name and Title

NOTARY
State of:
County of:
Signed and sworn to before me this day of

_____
Notary Signature

My commission expires:

AIA® Document A305® – 2020 Exhibit A

General Information

This Exhibit is part of the Contractor's Qualification Statement, submitted by
and dated the day of in the year
(In words, indicate day, month and year.)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

§ A.1 ORGANIZATION
§ A.1.1 Name and Location
§ A.1.1.1 Identify the full legal name of your organization.

§ A.1.1.2 List all other names under which your organization currently does business and, for each name, identify jurisdictions in which it is registered to do business under that trade name.

§ A.1.1.3 List all prior names under which your organization has operated and, for each name, indicate the date range and jurisdiction in which it was used.

§ A.1.1.4 Identify the address of your organization's principal place of business and list all office locations out of which your organization conducts business. If your organization has multiple offices, you may attach an exhibit or refer to a website.

§ A.1.2 Legal Status
§ A.1.2.1 Identify the legal status under which your organization does business, such as sole proprietorship, partnership, corporation, limited liability corporation, joint venture, or other.

.1 If your organization is a corporation, identify the state in which it is incorporated, the date of incorporation, and its four highest-ranking corporate officers and their titles, as applicable.

.2 If your organization is a partnership, identify its partners and its date of organization.

.3 If your organization is individually owned, identify its owner and date of organization.

.4 If the form of your organization is other than those listed above, describe it and identify its individual leaders:

§ A.1.2.2 Does your organization own, in whole or in part, any other construction-related businesses? If so, identify and describe those businesses and specify percentage of ownership.

§ A.1.3 Other Information

§ A.1.3.1 How many years has your organization been in business?

§ A.1.3.2 How many full-time employees work for your organization?

§ A.1.3.3 List your North American Industry Classification System (NAICS) codes and titles. Specify which is your primary NAICS code.

§ A.1.3.4 Indicate whether your organization is certified as a governmentally recognized special business class, such as a minority business enterprise, woman business enterprise, service disabled veteran owned small business, woman owned small business, small business in a HUBZone, or a small disadvantaged business in the 8(a) Business Development Program. For each, identify the certifying authority and indicate jurisdictions to which such certification applies.

§ A.2 EXPERIENCE

§ A.2.1 Complete Exhibit D to describe up to four projects, either completed or in progress, that are representative of your organization's experience and capabilities.

§ A.2.2 State your organization's total dollar value of work currently under contract.

§ A.2.3 Of the amount stated in Section A.2.2, state the dollar value of work that remains to be completed:

§ A.2.4 State your organization's average annual dollar value of construction work performed during the last five years.

§ A.3 CAPABILITIES

§ A.3.1 List the categories of work that your organization typically self-performs.

§ A.3.2 Identify qualities, accreditations, services, skills, or personnel that you believe differentiate your organization from others.

§ A.3.3 Does your organization provide design collaboration or pre-construction services? If so, describe those services.

§ A.3.4 Does your organization use building information modeling (BIM)? If so, describe how your organization uses BIM and identify BIM software that your organization regularly uses.

§ A.3.5 Does your organization use a project management information system? If so, identify that system.

§ A.4 REFERENCES

§ A.4.1 Identify three client references:
(Insert name, organization, and contact information)

§ A.4.2 Identify three architect references:
(Insert name, organization, and contact information)

§ A.4.3 Identify one bank reference:
(Insert name, organization, and contact information)

§ A.4.4 Identify three subcontractor or other trade references:
(Insert name, organization, and contact information)

AIA® Document A305® – 2020 Exhibit C

Project Specific Information

This Exhibit is part of the Contractor's Qualification Statement, submitted by
and dated the day of in the year
(In words, indicate day, month and year.)

PROJECT:
(Name and location or address.)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

CONTRACTOR'S PROJECT OFFICE:
(Identify the office out of which the contractor proposes to perform the work for the Project.)

TYPE OF WORK SOUGHT
(Indicate the type of work you are seeking for this Project, such as general contracting, construction manager as constructor, design-build, HVAC subcontracting, electrical subcontracting, plumbing subcontracting, etc.)

CONFLICT OF INTEREST
Describe any conflict of interest your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, or any of the individuals listed in Exhibit A Section 1.2, may have regarding this Project.

§ C.1 PERFORMANCE OF THE WORK

§ C.1.1 When was the Contractor's Project Office established?

§ C.1.2 How many full-time field and office staff are respectively employed at the Contractor's Project Office?

§ C.1.3 List the business license and contractor license or registration numbers for the Contractor's Project Office that pertain to the Project.

§ C.1.4 Identify key personnel from your organization who will be meaningfully involved with work on this Project and indicate (1) their position on the Project team, (2) their office location, (3) their expertise and experience, and (4) projects similar to the Project on which they have worked.

§ C.1.5 Identify portions of work that you intend to self-perform on this Project.

§ C.1.6 To the extent known, list the subcontractors you intend to use for major portions of work on the Project.

§ C.2 EXPERIENCE RELATED TO THE PROJECT

§ C.2.1 Complete Exhibit D to describe up to four projects performed by the Contractor's Project Office, either completed or in progress, that are relevant to this Project, such as projects in a similar geographic area or of similar project type. If you have already completed Exhibit D, but want to provide further examples of projects that are relevant to this Project, you may complete Exhibit E.

§ C.2.2 State the total dollar value of work currently under contract at the Contractor's Project Office:

§ C.2.3 Of the amount stated in Section C.2.2, state the dollar value of work that remains to be completed:

§ C.2.4 State the average annual dollar value of construction work performed by the Contractor's Project Office during the last five years.

§ C.2.5 List the total number of projects the Contractor's Project Office has completed in the last five years and state the dollar value of the largest contract the Contractor's Project Office has completed during that time.

§ C.3 SAFETY PROGRAM AND RECORD

§ C.3.1 Does the Contractor's Project Office have a written safety program?

§ C.3.2 List all safety-related citations and penalties the Contractor's Project Office has received in the last three years.

§ C.3.3 Attach the Contractor's Project Office's OSHA 300a Summary of Work-Related Injuries and Illnesses form for the last three years.

§ C.3.4 Attach a copy of your insurance agent's verification letter for your organization's current workers' compensation experience modification rate and rates for the last three years.

§ C.4 INSURANCE

§ C.4.1 Attach current certificates of insurance for your commercial general liability policy, umbrella insurance policy, and professional liability insurance policy, if any. Identify deductibles or self-insured retentions for your commercial general liability policy.

§ C.4.2 If requested, will your organization be able to provide property insurance for the Project written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis?

§ C.4.3 Does your commercial general liability policy contain any exclusions or restrictions of coverage that are prohibited in AIA Document A101-2017, Exhibit A, Insurance A.3.2.2.2? If so, identify.

§ C.5 SURETY

§ C.5.1 If requested, will your organization be able to provide a performance and payment bond for this Project?

§ C.5.2 Surety company name:

§ C.5.3 Surety agent name and contact information:

§ C.5.4 Total bonding capacity:

§ C.5.5 Available bonding capacity as of the date of this qualification statement:

SECTION 000060 – MINORITY BUSINESS PARTICIPATION FORMS

PART 1 - GENERAL

1.1 SUMMARY

A. The following are the Minority Business Participation Forms. Review documents and include appropriate form as required in Contractor's Bid Package.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 000100

Identification of HUB Certified/ Minority Business Participation

I, ____.
(Name of Bidder)

do hereby certify that on this project, we will use the following HUB Certified/ minority business as construction subcontractors, vendors, suppliers or providers of professional services.

Firm Name, Address and Phone #	Work Type	*Minority Category	**HUB Certified (Y/N)

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

The total value of minority business contracting will be ($)________________.

State of North Carolina AFFIDAVIT A – Listing of Good Faith Efforts

County of _____

(Name of Bidder)

Affidavit of_____

I have made a good faith effort to comply under the following areas checked:

Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101)

- ❑ **1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- ❑ **2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due.
- ❑ **3 – (15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- ❑ **4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- ❑ **5 – (10 pts)** Attended prebid meetings scheduled by the public owner.
- ❑ **6 – (20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- ❑ **7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- ❑ **8 – (25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- ❑ **9 – (20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- ❑ **10 - (20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of_____, County of_____

Subscribed and sworn to before me this _____day of _____20____

Notary Public_____

My commission expires _____

State of North Carolina --AFFIDAVIT B-- Intent to Perform Contract with Own Workforce.

County of _____

Affidavit of _____
(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the _____

_____ contract.
(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20___

Notary Public _____

My commission expires _____

Do not submit with bid Do not submit with bid Do not submit with bid Do not submit with bid

State of North Carolina - AFFIDAVIT C - Portion of the Work to be Performed by HUB Certified/Minority Businesses

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the portion of the work to be executed by HUB certified/minority businesses as defined in GS143-128.2(g) and 128.4(a),(b),(e) is equal to or greater than 10% of the bidders total contract price, then the bidder must complete this affidavit.
This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder.

Affidavit of _____ I do hereby certify that on the
(Name of Bidder)

_____
(Project Name)

Project ID#_____ Amount of Bid $_____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. Attach additional sheets if required

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

SEAL

Signature:_____

Title:_____

State of _____, County of _____
Subscribed and sworn to before me this _____day of _____20____
Notary Public_____
My commission expires_____

State of North Carolina AFFIDAVIT D – Good Faith Efforts

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the goal of 10% participation by HUB Certified/ minority business **is not** achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts:

Affidavit of _____ I do hereby certify that on the
(Name of Bidder)

_____
(Project Name)

Project ID#_____ Amount of Bid $_____

I will expend a minimum of _____% of the total dollar amount of the contract with HUB certified/ minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. (Attach additional sheets if required)

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

Examples of documentation that may be required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.

B. Copies of quotes or responses received from each firm responding to the solicitation.

C. A telephone log of follow-up calls to each firm sent a solicitation.

D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.

E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.

F. Copy of pre-bid roster

G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.

H. Letter detailing reasons for rejection of minority business due to lack of qualification.

I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder.

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this _____day of _____20____

Notary Public_____

My commission expires _____

CERTIFICATION FOR TAXES

Contract No: _____

Title: _____

I hereby certify that during the period _____ through _____,

_____ paid North Carolina sales and use taxes aggregating $_____ with respect to building materials, supplies, fixtures and equipment which have become a part of or annexed to a building or structure erected, altered or repaired by _____, and that the vendors from whom the property was purchased, the dates and numbers of the invoices covering the purchases, the total amount of the invoices of each vendor, the North Carolina sales and use taxes paid thereon, and the cost of property with-drawn from warehouse stock and North Carolina sales or use taxes paid thereon are as set forth in the attachments hereto.

_____
Signature

_____
Title

N.C.State Tax (4.75%) $_____

Name of County	County Tax (2.0%, 2.25%)

Total County Taxes $_____

Total Taxes (State and County) $_____

.

SECTION 000100 – GENERAL CONDITIONS

PART 1 - GENERAL

1.1 SUMMARY

A. The General Conditions of the Contract for Construction is AIA Document A201 – 2017. Contractor is responsible for obtaining a copy of this document.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 000100

SECTION 000110 - SUPPLEMENTARY CONDITIONS

The following supplements modify the "General Conditions of the Contract for Construction," AIA Document A201 - 2017 Edition. Where a portion of the General Conditions is modified or deleted by the Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect.

ARTICLE 1; GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS –No Modifications.

1.1.2 THE CONTRACT - No Modifications.

1.1.3 THE WORK - No Modifications

1.1.4. THE PROJECT - No Modifications.

1.1.5 THE DRAWINGS - No Modifications.

1.1.6 THE SPECIFICATIONS - No Modifications.

1.1.7 INSTRUMENTS OF SERVICE - No Modifications.

1.1.8 INITIAL DECISION MAKER – No Modifications.

1.2 CORRELATION AND INTENT OF CONTRACT DOCUMENTS

1.2.1 No Modifications.

Add Section 1.2.1.1 to Section 1.2.1:

1.2.1.1 In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities:

.1 Modifications.
.2 The Agreement.
.3 Addenda, with those of later date having precedence over those of earlier date.
.4 The Supplementary Conditions.
.5 The General Conditions of the Contract for Construction.
.6 Division 1 of the Specifications.
.7 Drawings and Divisions 2–49 of the Specifications.
.8 Other documents specifically enumerated in the Agreement as part of the Contract Documents.

1.2.2 No Modifications

1.2.3 No Modifications.

1.3 CAPITALIZATION - No Modifications.

1.4 INTERPRETATION - No Modifications.

1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

1.5.1 No Modifications.

1.5.2 No Modifications.

1.6 TRANSMISSION OF DATA IN DIGITAL FORM - No Modifications.

ARTICLE 2; OWNER

2.1 GENERAL

2.1.1 No Modifications.

2.1.2 No Modifications.

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.2.1 No Modifications.

2.2.2 No Modifications.

2.2.3 No Modification.

2.2.4 No Modifications.

Delete Section 2.2.5 and substitute the following:

2.2.5 The General Contractors will be furnished, free of charge the digital electronic PDF files of both the Drawings and Project Manual. Additional sets will be furnished at the cost of reproduction, postage and handling as follows:

2.3 OWNER'S RIGHT TO STOP THE WORK - No Modifications.

2.4 OWNER'S RIGHT TO CARRY OUT THE WORK - No Modifications.

ARTICLE 3; CONTRACTOR

3.1 GENERAL

3.1.1 No Modifications.

3.1.2 No Modifications.

3.1.3 No Modifications.

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

3.2.1 No Modifications.

3.2.2 No Modifications.

3.2.3 No Modifications.

3.2.4 No Modifications.

Add the following Section 3.2.5 to Section 3.2:

3.2.5 The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect for evaluating and responding to the Contractor's requests for information that are not prepared in accordance with the Contract Documents or where the requested information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner-provided information, Contractor-prepared coordination drawings, or prior Project correspondence or documentation.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

3.3.1 No Modifications.

3.3.2 No Modifications.

3.3.3 No Modifications.

3.4 LABOR AND MATERIALS

3.4.1 No Modifications.

3.4.2 Add Section 3.4.2.1 to Section 3.4.2:

3.4.2.1 After the Contract has been executed, the Owner and Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in the General Requirements (Division 1 of the Specifications). By making requests for substitutions, the Contractor:

.1 represents that the contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified;
.2 represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified;
.3 certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently becomes apparent; and
.4 will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

Add the following to the end of Section 3.4.2:

3.4.2.2 The Owner shall be entitled to reimbursement from the Contractor for amounts paid to the Architect for reviewing the Contractor's proposed substitutions and making agreed-upon changes in the Drawings and Specifications resulting from such substitutions.

3.4.3. No Modifications.

3.5 WARRANTY - No modification.

3.6 TAXES

3.6.1The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

3.6.2 Add the following Paragraph:

3.6.2 The Owner is eligible for reimbursement of all sales tax. The Contractor is to submit the Transylvania County Sales/Use Tax Form included in the Project Manual with each Application. Should additional information be required for adequate documentation verifying that taxes have been paid and which State, County and City collected the taxes, in order for the Owner to apply for reimbursement, the Contractor will be responsible for providing such documentation.

3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

3.7.1 No modification

3.7.2 No Modifications.

3.7.3 No Modifications.

3.7.4 No Modifications.

3.7.5 No Modifications.

3.8 ALLOWANCES

3.8.1 No modification

3.8.2.1 No modification

3.8.2.2 No Modifications.

3.8.2.3 No Modifications.

3.8.3 No modification

3.9 SUPERINTENDENT

3.9.1 No Modifications.

3.9.2 No Modifications.

3.9.3 No Modifications.

3.10 CONTRACTOR'S CONSTRUCTION AND SUBMITTAL SCHEDULES

3.10.1 No modification.

3.10.2 No Modifications.

3.10.3 No Modifications.

3.11 DOCUMENTS AND SAMPLES AT THE SITE - No modification.

3.12. SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

3.12.1 No Modifications.

3.12.2 No Modifications.

3.12.3 No Modifications.

3.12.4 No Modifications.

3.12.5 No Modification.

3.12.6 No Modifications.

3.12.7 No Modifications.

3.12.8 No Modifications.

3.12.9 No Modifications.

3.12.10 No Modifications.

Add Section 3.12.11 to Section 3.12:

3.12.11 The Architect’s review of Contractor’s submittals will be limited to examination of an initial submittal and one (1) resubmittal. The Owner is entitled to obtain reimbursement from the Contractor for amounts paid to the Architect for evaluation of additional resubmittals.

3.13 USE OF SITE - No modification.

3.14 CUTTING AND PATCHING

3.14.1 No Modification

3.14.2 No Modifications.

3.15 CLEANING UP

3.15.1 No Modifications.

3.15.2 No Modifications.

3.16 ACCESS TO WORK - No modification.

3.17 ROYALTIES, PATENTS AND COPYRIGHTS - No modification.

3.18 INDEMNIFICATION

3.18.1 No modification

3.18.2 No Modifications.

ARTICLE 4; ARCHITECT

4.1 GENERAL

4.1.1 No Modifications.

4.1.2 No Modifications.

4.2 ADMINISTRATION OF THE CONTRACT

4.2.1 Add Clause 4.2.2.1 to Subparagraph 4.2.1:

4.2.2 No Modifications.

Add Section 4.2.2.1 to Section 4.2.2 as follows:

4.2.2.1 The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect for site visits made necessary by the fault of the Contractor or by defects and deficiencies in the Work.

4.2.3 No Modifications.

4.2.4 The Owner and Contractor shall communicate with each other through the Architect about matters arising out of or relating to the Project. Communications by and with the Architects' consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

4.2.5 No Modifications.

4.2.6 No Modifications.

4.2.7 No Modifications.

Add Section 4.2.7.1 to Section 4.2.7 as follows:

4.2.7.1 In no case will the Architect's review period on any submittal be less than three (3) days after receipt of the submittal from the Contractor.

4.2.8 No Modifications.

4.2.9 No Modifications.

4.2.10 No Modifications.

4.2.11 No Modifications.

4.2.12 No Modifications.

4.2.13 No Modifications.

4.2.14 No Modifications.

Add Section 4.2.14.1 to Section 4.2.7 as follows:

4.2.14.1 Contractor's requests for information shall be prepared and submitted in accordance with Division 1 "General Requirements" included in the Contract Documents. The Architect will return without action requests for information that do not conform to requirements of the Contract Documents.

ARTICLE 5; SUBCONTRACTORS

5.1 DEFINITIONS

5.1.1 No Modifications.

5.1.2 No Modifications.

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 Delete "as soon as practicable" and replace with "not later that 21 days"

5.2.2 No Modifications.

5.2.3 No Modifications.

5.2.4 No Modifications.

Add Section 5.2.5 as follows:

5.2.5 Not later than seven (7) days after the date of commencement of the Work, the Contractor shall furnish in writing to the Owner through the Architect the names of persons or entities proposed as manufacturers or fabricators for certain products, equipment and systems identified in the General Requirements (Division 1 of the Specifications) and, where applicable, the name of the installing Subcontractor.

5.3 SUBCONTRACTURAL RELATIONS - No Modifications.

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

5.4.1.1 No Modifications.

5.4.1.2 No Modifications.

5.4.2 No Modifications.

5.4.3 No Modifications.

ARTICLE 6; CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 No Modifications.

6.1.2 No Modifications.

6.1.3 No Modifications.

6.1.4 No Modifications.

6.2 MUTUAL RESPONSIBILITY

6.2.1 No Modifications.

6.2.2 No Modifications.

6.2.3 No Modifications.

6.2.4 No Modifications.

6.2.5 No Modifications.

6.3 OWNER'S RIGHT TO CLEAN UP _ No Modifications.

ARTICLE 7; CHANGES IN THE WORK

7.1 GENERAL

7.1.1 No Modifications.

7.1.2 No Modifications.

7.1.3 No Modifications.

Add paragraph 7.1.4 as following:

7.1.4 The combined overhead and profit included in the total cost to the Owner of a change in the Work shall be based on the following schedule:

.1 For the Contractor, for Work performed by the Contractor's own forces, 15 percent of cost.

.2 For the Contractor, for Work performed by the Contractor's Subcontractor, 5 percent of the amount due the Subcontractor.

.3 For each Subcontractor involved, for Work performed by that Subcontractor's own forces, 15 percent of the cost.

.4 For each Subcontractor, for Work performed by the Subcontractor's Sub-subcontractors, 5 percent of the amount due the Sub-subcontractor.

.5 Cost to which overhead and profit is to be applied shall be determined in accordance with Subparagraph 7.3.7.

.6 In order to facilitate checking of quotations for extras or credits, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including labor, materials, and Subcontracts. Labor and materials shall be itemized in the manner prescribed above. Where major cost items are Subcontracts, they shall be itemized also. In no case will a change involving over $200.00 be approved without such itemization.

7.2 CHANGE ORDERS

7.2.1 No Modifications.

7.2.1.1 No Modifications.

7.2.1.2 No Modifications.

7.2.1.3 No Modifications.

7.3 CONSTRUCTION CHANGE DIRECTIVES

7.3.1 No Modifications.

7.3.2 No Modifications.

7.3.3 No Modifications.

7.3.4 No Modifications.

7.3.5 No Modifications.

7.3.6 No Modifications.

7.3.7 No Modifications.

7.3.8 No Modifications.

7.3.9 No Modifications.

7.3.10 No Modifications.

7.4 MINOR CHANGES IN THE WORK – No Modification

ARTICLE 8; TIME

8.1 DEFINITIONS

8.1.1 No Modifications.

8.1.2 No Modifications.

8.1.3 No Modifications.

8.1.4 The term “day” as used in the Contract Documents shall mean working day, excluding weekends and legal holidays unless otherwise noted in the documents.

8.2 PROGRESS AND COMPLETION

8.2.1 No Modifications.

8.2.2 No Modifications.

8.2.3 No Modifications.

8.3 DELAYS AND EXTENSIONS OF TIME

8.3.1 No Modifications.

8.3.2 No Modifications.

8.3.3 No Modifications.

ARTICLE 9; PAYMENTS AND COMPLETION

9.1 CONTRACT SUM – No Modifications.

9.2 SCHEDULE OF VALUES – No Modifications.

9.3 APPLICATIONS FOR PAYMENT

9.3.1 Add the following sentence to Subparagraph 9.3.1:

The form of Application for Payment, duly notarized, shall be a current authorized edition of AIA Document G702, Application and Certification for Payment, supported by AIA Document G703, Continuation Sheet.

.1 No Modifications.

.2 No Modifications.

Add the following Subparagraph 9.3.1.3:

.3 Until the Work is 50% complete, the Owner shall pay 95% of the amount due the Contractor on account of progress payments. At the time the work is 50% complete, with written consent of the surety, the Owner shall not retain any further retainage from monthly payments due the Contractor if the Contractor continues to perform satisfactorily and any nonconforming work identified has been corrected. It is the intent of this paragraph to comply with applicable North Carolina State Law.

9.3.2 No Modifications.

9.3.3 No Modifications.

9.4 CERTIFICATES FOR PAYMENT

9.4.1 No Modifications.

9.4.2 No Modifications.

9.5 DECISIONS TO WITHHOLD CERTIFICATION

9.5.1 No Modifications.

9.5.2 No Modifications.

9.5.3 No Modifications.

9.6 PROGRESS PAYMENTS

9.6.1 No Modifications.

9.6.2 No Modifications.

9.6.3 No Modifications.

9.6.4 No Modifications.

9.6.5 No Modifications.

9.6.6 No Modifications.

9.6.7 No Modifications.

9.7 FAILURE OF PAYMENT – No Modifications.

9.8 SUBSTANTIAL COMPLETION

9.8.1 No Modifications.

9.8.2 No Modifications.

9.8.3 No Modifications.

Add Section 9.8.3.1 to Section 9.8.3 as follows:

9.8.3.1 The Architect will perform no more than two (2) inspections to determine whether the Work or a designated portion thereof has attained Substantial Completion in accordance with the Contract Documents. The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect for any additional inspections.

9.8.4 No Modifications.

9.8.5 Delete the second sentence and substitute the following:

Upon such acceptance and consent of surety, if any, the Owner shall make payment sufficient to increase the total payments to no less than 97.5% of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work and unsettled claims. It is the intent of this paragraph to comply with applicable North Carolina State Law.

9.9 PARTIAL OCCUPANCY OR USE

9.9.1 No Modifications.

9.9.2 No Modifications.

9.9.3 No Modifications.

9.10 FINAL COMPLETION AND FINAL PAYMENT

9.10.1 No Modifications.

9.10.1.1 The Architect will perform no more than two (2) inspections to determine whether the Work or a designated portion thereof has attained Substantial Completion in accordance with the Contract Documents. The Owner is entitled to reimbursement form the Contractor for amounts paid to the Architect for any additional inspections.

9.10.2 No Modifications.

9.10.3 No Modifications.

9.10.4 No Modifications.

9.10.5 No Modifications.

ARTICLE 10; PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS – No Modifications

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 No Modifications.

10.2.2 No Modifications.

10.2.3 No Modifications.

10.2.4 Add the following paragraph:

10.2.4.1 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary, the Contractor shall give the Owner reasonable advance notice.

10.2.5 No Modifications.

10.2.6 No Modifications.

10.2.7 No Modifications.

10.3 HAZAARDOUS MATERIALS

10.3.1 No Modifications.

10.3.2 No Modifications.

10.3.3 No Modifications.

10.3.4 No Modifications.

10.3.5 No Modifications.

10.3.6 No Modifications.

10.4 EMERGENCIES - No Modifications.

ARTICLE 11; INSURANCE AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.1 No Modifications.

11.1.2 Add the following Clauses 11.1.2.1 to Subparagraph 11.1.2:

11.1.2.1 The limits for Worker's Compensation and Employers' Liability insurance shall meet statutory limits mandated by State and Federal Laws. If (1) limits in excess of those required by statute are to be provided or (2) the employer is not statutorily bound to obtain such insurance coverage or (3) additional coverages are required, additional coverage and limits for such insurance shall be as follows:

.1 Workers Compensation:

(a) State:	Statutory, with a limit of at least $500,000.00
(b) Applicable Federal (e.g., Longshoremen's):	Statutory, with a limit of at least $500,000.00
(c) Employer's Liability:	$100,000.00 per Accident $500,000.00 Disease, Policy Limit $100,000.00 Disease, Each Employee

.2 Comprehensive or Commercial General Liability (including Contractor's Liability, Contingent Liability, Contractors Liability, Premises-Operations; Independent Contractor's Protective; Products and Completed Operations; Broad Form Property Damage):

(a) Bodily Injury:

$1,000,000.00	Each Person
$1,000,000.00	Each Occurrence
$3,000,000.00	Aggregate

(b) Property Damage:

$1,000,000.00	Each Occurrence
$3,000,000.00	Aggregate

(c) Products and Completed Operations to be Maintained for **one** year after final payment:

$3,000,000.00	Aggregate

(d) Property Damage Liability Insurance shall provide X, C, and U coverage.

(e) Broad Form Property Damage Coverage shall include Completed Operations.

.3 Contractual Liability:

(a) Bodily Injury:

$1,000,000.00	Each Occurrence
$1,000,000.00	Annual Aggregate

(b) Property Damage:

$1,000,000.00	Each Occurrence

$1,000,000.00 Aggregate

.4 Personal Injury, with Employment Exclusion deleted:

$1,000,000.00 Each Person

.5 Business Auto Liability (including owned, non-owned and hired vehicles):

(a) Bodily Injury:

$1,000,000.00 Each Person
$1,000,000.00 Each Occurrence

(b) Property Damage:

$1,000,000.00 Each Occurrence

.6 If the General Liability coverages are provided by a Commercial Liability policy, the:

(a) General Aggregate shall be not less than $500,000.00 and it shall apply, in total, to this Project only.
(b) Fire Damage Limits shall be not less than $100,000.00 on any one fire.
(c) Medical Expense Limit shall be not less than $ N/A on any one person.

.7 Umbrella Excess Liability:

$1,000,000.00 over primary insurance
$10,000.00 retention for self-insured hazards each Occurrence.

.8 Aircraft Liability (owned and non-owned) when Aircraft are used in performance of the Contract:

.9 Watercraft Liability (owned and non-owned) when Watercraft are used in the performance of the Contract:

11.1.3 – Add the following sentence to Section 11.1.3:

If this insurance is written on a Commercial General Liability policy form, the certificates shall be ACORD form 25-S, completed and supplemented in accordance with AIA Document G715™–1991, Instruction Sheet and Supplemental Attachment for ACORD Certificate of Insurance 25-S.

11.1.4 – No Modifications:

11.2 OWNER'S INSURANCE – No Modifications.

11.3 WAIVER OF SUBROGATION _ No Modifications.

11.4 LOSS OF USE BUSINESS INTERRUPTION, AND DELAY IN COMPLETION INSURANCE – No Modifications.

11.5 ADJUSTMENT AND SETTLMENT OF INSURED LOSS – No Modifications.

ARTICLE 12; UNCOVERING AND CORRECTION OF WORK.

12.1 UNCOVERING OF WORK

12.1.1 No Modifications.

12.1.2 No Modifications.

12.2 CORRECTION OF WORK

12.2.1 No Modifications.

12.2.2 No modification.

.1 No Modifications.

.2 No Modifications.

.3 No Modifications.

Add the following Section 12.2.2.4 to Section 12.2.2:

12.2.2.4 Upon request by the Owner and prior to the expiration of one year from the date of Substantial Completion, the Architect will conduct and the Contractor shall attend a meeting with the Owner to review the facility operations and performance.

12.2.3 No Modifications.

12.2.4 No Modifications.

12.2.5 No Modifications.

12.3 ACCEPTANCE OF NONCONFORMING WORK – No Modifications.

ARTICLE 13; MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW – No Modifications.

13.2 SUCCESSORS AND ASSIGNS

13.2.1 No Modifications.

13.2.2 No Modifications.

13.3 RIGHTS AND REMEDIRS – No Modifications.

13.3.1 No Modifications.

13.3.2 No Modifications.

13.4 TESTS AND INSPECTIONS

13.4.1 No modification.

13.4.2 No Modifications.

13.4.3 No Modifications.

13.4.4 No Modifications.

13.4.5 No Modifications.

13.4.6 No Modifications.

13.5 INTEREST – No Modifications.

ARTICLE 14; TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

14.1.1 No Modifications.

.1 No Modifications.

.2 No Modifications.

.3 No Modifications.

.4 No Modifications.

14.2 TERMINATION BY THE FOR CAUSE

14.2.1 No Modifications.

.1 No Modifications.

.2 No Modifications.

.3 No Modifications.

.4 No Modifications.

14.2.2 No Modifications.

.1 No Modifications.

.2 No Modifications.

.3 No Modifications.

14.2.3 No Modifications.

14.2.4 No Modifications.

14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

14.3.1 No Modifications.

14.3.2 No Modifications.

.1 No Modifications.

.2 No Modifications.

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

14.4.1 No Modifications.

14.4.2 No Modifications.

.1 No Modifications.

.2 No Modifications.

.3 No Modifications.

14.4.3 No Modifications.

ARTICLE 15; CLAIMS AND DISPUTES

15.1 CLAIMS

15.1.1 **DEFINITION** - No Modifications.

15.1.2 **TIME LIMIT ON CLAIMS** – No Modifications.

15.1.3 **NOTICE OF CLAIMS** – No Modifications.

.1 No Modifications.

.2 No Modifications.

15.1.4 **CONTINUING CONTRACT PERFORMANCE** – No Modifications.

.1 No Modifications.

.2 No Modifications.

15.1.5 **CLAIMS FOR ADDITIONAL COST** – No Modifications.

15.1.6 **CLAIMS FOR ADDITIONAL TIME** – No Modifications.

.1 No Modifications.

.2 No Modifications.

15.1.7 **WAIVE OF CLAIMS FOR CONSEQUENTIAL DAMAGES** – No Modifications.

.1 No Modifications.

.2 No Modifications.

15.2 INITIAL DECISION

15.2.1 No Modifications.

15.2.2 No Modifications.

15.2.3 No Modifications.

15.2.4 No Modifications.

15.2.5 No Modifications.

15.2.6 No Modifications.

.1 No Modifications.

15.2.7 No Modifications.

15.2.8 No Modifications.

15.3 MEDIATION

15.3.1 No Modifications.

15.3.2 No Modifications.

15.3.3 No Modifications.

15.3.4 No Modifications.

15.4 ARBITRATION

15.4.1 No Modifications.

.1 No Modifications.

15.4.2 No Modifications.

15.4.3 No Modifications.

15.4.4 No Modifications.

.1 No Modifications.

.2 No Modifications.

.3 No Modifications.

END SECTION 00110

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Work covered by the Contract Documents.
2. Use of premises.
3. Owner's occupancy requirements.
4. Specification formats and conventions.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: Canopy/Shelters for the Transylvania County Library**.**

1. Project Location: Located at 212 Gaston St., Brevard, North Carolina, 28712.

B. Owner: Transylvania County, 101 South Broad Street, Brevard, NC 28712

1. Owner's Representative: Mr. Larry Reece, County Engineer/Project Manager

C. Architect: Richard L. Worley, AIA Architect, 4078 Haywood Road, Mills River, NC 28759

D. The Work consists of the following:

1. The project consists of two canopy/shelters (primary and secondary), concrete foundations and slabs, grading and grass seeding, cmu/stone column bases with concrete caps and electrical work consisting of electrical outlets, basic lighting and wiring for cameras.

   In addition, there is an Alternate for Stamped Concrete finish in lieu of standard concrete finish.

E. Project will be constructed under a single prime contract.

1.3 WORK UNDER OTHER CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.

1.4 USE OF PREMISES

A. Use of Site: Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits: Confine constructions operations to site as agreed upon at the start of the project.

2. Owner Occupancy: Given that this is a Public Library Campus, the Contractor does have to allow for Owner occupancy of portions around the Project site area as well as the Owners separate contractors and existing building occupants in the adjoining buildings and the site. Preconstruction meeting will be required and specific requirement will be negotiated at that time. Although the construction is scheduled for times during the Summer when the High School is not in full session, the operations will be on going to some extent and the Contractor is responsible for coordinating construction with Owner's operations.
3. Driveways and Entrances: Keep driveways **parking, loading areas,** and entrances serving occupiable premises clear and available to Owner, Students, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials unless specifically agree upon.

a. Schedule deliveries to minimize use of driveways and entrances.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.5 OWNER'S OCCUPANCY REQUIREMENTS

A. Owner Occupancy: The site will be available to the Contractor but portions of the site may also be used by the Owner and/or separate contractors that are designated by work being provided by the Owner's employees or sub-contractors as well as Students. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner, Student and Public usage and access to approved areas.

1. Maintain access to existing walkways, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.

B. Owner Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed areas of building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.

1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied before Owner occupancy.
2. Obtain a Certificate of Occupancy from authorities having jurisdiction before Owner occupancy.
3. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of building.

4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of building.

1.6 WORK RESTRICTIONS

A. Nonsmoking Site and Building: Smoking is not permitted within the building or within 25 feet (8 m) of entrances, operable windows, or outdoor air intakes building being constructed.

1.7 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "MasterFormat" numbering system.

1. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

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SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.3 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Execute accepted alternates under the same conditions as other work of the Contract.

C. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES:

A. **Alternate No. 1:** In lieu of the specified concrete slabs on this project, provide slabs with Stamped Concrete finish in accordance with Project Manual - Section #033600 Stamped Concrete.

END OF SECTION 012300

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.3 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use form **acceptable to Architect/Owner**.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.

g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from **ICC-ES and NC Building Code**.
j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within **fourteen** days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within **fourteen** days of receipt of request, or **seven** days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

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

1.5 PROCEDURES

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

1.6 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than **fourteen** days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

    a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    b. Substitution request is fully documented and properly submitted.
    c. Requested substitution will not adversely affect Contractor's construction schedule.
    d. Requested substitution has received necessary approvals of authorities having jurisdiction.
    e. Requested substitution is compatible with other portions of the Work.
    f. Requested substitution has been coordinated with other portions of the Work.
    g. Requested substitution provides specified warranty.
    h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Not allowed.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

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SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. See Division 01 Section "Allowances" for procedural requirements for handling and processing allowances.

C. See Division 01 Section "Unit Prices" for administrative requirements for using unit prices.

1.2 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

1.3 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within **time specified in Proposal Request** after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

1.4 ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 21 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than **21** days after such authorization.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Change Directive: Architect may issue a Change Directive. Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

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SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
2. Submit the schedule of values to Architect at earliest possible date, but no later than 14 (Fourteen) days before the date scheduled for submittal of initial Applications for Payment.

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Arrange schedule of values consistent with format of **AIA Document G703**.
2. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of **five** percent of the Contract Sum.
3. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

    a. Differentiate between items stored on-site and items stored off-site.

4. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
5. Overhead Costs: Include total cost and proportionate share of general overhead and profit for each line item.
6. Overhead Costs: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
7. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling **five** percent of the Contract Sum and subcontract amount.
8. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.3 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Times: Submit Application for Payment to Architect by the Twenty Fifth of the month. The period covered by each Application for Payment is one month, ending on the **last day of the month**.

1. Submit draft copy of Application for Payment [**seven**] <**Insert number**> days prior to due date for review by Architect.

D. Application for Payment Forms: Use **AIA Document G702 and AIA Document G703** as form for Applications for Payment.

E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. **Architect** will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

F. Transmittal: Submit **three** signed and notarized original copies of each Application for Payment to **Architect** by a method ensuring receipt **within 24 hours**. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from **entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment**.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.

5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule (preliminary if not final).
4. Products list (preliminary if not final).
5. Sustainable design action plans, including preliminary project materials cost data.
6. Schedule of unit prices.
7. Submittal schedule (preliminary if not final).
8. List of Contractor's staff assignments.
9. List of Contractor's principal consultants.
10. Copies of building permits.
11. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
12. Initial progress report.
13. Report of preconstruction conference.
14. Certificates of insurance and insurance policies.
15. Performance and payment bonds.
16. Data needed to acquire Owner's insurance.

I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706.
5. AIA Document G706A.
6. AIA Document G707.
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. Coordination Drawings.
2. Project meetings.
3. Requests for Interpretation (RFIs).

B. See Division 01 Section "Multiple Contract Summary" for a description of the division of Work among separate contracts and responsibility for coordination activities not in this Section.

C. See Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.2 DEFINITIONS

A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.3 COORDINATION

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.
4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.
9. Project closeout activities.

1.4 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:

   a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
   b. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

2. Sheet Size: At least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
3. Number of Copies: Submit **four** opaque copies of each submittal. Architect will return **two copies**.
4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.

1.5 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.

3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within **three** days of the meeting.

B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than **15** days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Tentative construction schedule.
    b. Phasing.
    c. Critical work sequencing and long-lead items.
    d. Designation of key personnel and their duties.
    e. Procedures for processing field decisions and Change Orders.
    f. Procedures for RFIs.
    g. Procedures for testing and inspecting.
    h. Procedures for processing Applications for Payment.
    i. Distribution of the Contract Documents.
    j. Submittal procedures.
    k. LEED requirements.
    l. Preparation of Record Documents.
    m. Use of the premises **and existing building**.
    n. Work restrictions.
    o. Owner's occupancy requirements.
    p. Responsibility for temporary facilities and controls.
    q. Construction waste management and recycling.
    r. Parking availability.
    s. Office, work, and storage areas.
    t. Equipment deliveries and priorities.
    u. First aid.
    v. Security.
    w. Progress cleaning.
    x. Working hours.

3. Minutes: **Record** and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.

2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. The Contract Documents.
    b. Options.
    c. Related RFIs.
    d. Related Change Orders.
    e. Purchases.
    f. Deliveries.
    g. Submittals.
    h. Review of mockups.
    i. Possible conflicts.
    j. Compatibility problems.
    k. Time schedules.
    l. Weather limitations.
    m. Manufacturer's written recommendations.
    n. Warranty requirements.
    o. Compatibility of materials.
    p. Acceptability of substrates.
    q. Temporary facilities and controls.
    r. Space and access limitations.
    s. Regulations of authorities having jurisdiction.
    t. Testing and inspecting requirements.
    u. Installation procedures.
    v. Coordination with other work.
    w. Required performance results.
    x. Protection of adjacent work.
    y. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at **regular** intervals. Coordinate dates of meetings with preparation of payment requests.

1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule,

in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

1) Review schedule for next period.

b. Review present and future needs of each entity present, including the following:

1) Interface requirements.
2) Sequence of operations.
3) Status of submittals.
4) Deliveries.
5) Off-site fabrication.
6) Access.
7) Site utilization.
8) Temporary facilities and controls.
9) Work hours.
10) Hazards and risks.
11) Progress cleaning.
12) Quality and work standards.
13) Status of correction of deficient items.
14) Field observations.
15) RFIs.
16) Status of proposal requests.
17) Pending changes.
18) Status of Change Orders.
19) Pending claims and disputes.
20) Documentation of information for payment requests.

3. Minutes: **Record** the meeting minutes.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.

a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

1.6 REQUESTS FOR INTERPRETATION (RFIs)

A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.

1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:

1. Project name.
2. Date.
3. Name of Contractor.
4. Name of Architect.
5. RFI number, numbered sequentially.
6. Specification Section number and title and related paragraphs, as appropriate.
7. Drawing number and detail references, as appropriate.
8. Field dimensions and conditions, as appropriate.
9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
10. Contractor's signature.
11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.

C. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow **seven** working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:

   a. Requests for approval of submittals.
   b. Requests for approval of substitutions.
   c. Requests for coordination information already indicated in the Contract Documents.
   d. Requests for adjustments in the Contract Time or the Contract Sum.
   e. Requests for interpretation of Architect's actions on submittals.
   f. Incomplete RFIs or RFIs with numerous errors.

2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."

   a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within **10** days of receipt of the RFI response.

D. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within **seven** days if Contractor disagrees with response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log **weekly**.

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.

4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

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SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. See Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule.

C. See Division 01 Section "Quality Requirements" for submitting test and inspection reports.

D. See Division 01 Section "Closeout Procedures" for submitting warranties.

E. See Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

F. See Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.

G. See Division 01 Section "Demonstration and Training" for submitting videotapes of demonstration of equipment and training of Owner's personnel.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect's responsive action.

B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.

C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow **15** days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow **15** days for review of each resubmittal.

D. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately **6 by 8 inches (150 by 200 mm)** on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Include the following information on label for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name and address of Contractor.
    e. Name and address of subcontractor.
    f. Name and address of supplier.
    g. Name of manufacturer.
    h. Submittal number or other unique identifier, including revision identifier.

        1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).

    i. Number and title of appropriate Specification Section.
    j. Drawing number and detail references, as appropriate.
    k. Location(s) where product is to be installed, as appropriate.
    l. Other necessary identification.

E. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will **discard submittals** received from sources other than Contractor.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked "NO EXCEPTION TAKEN" or “MAKE CORRECTIONS NOTED”.

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Use only final submittals with mark indicating "NO EXCEPTION TAKEN" or “MAKE CORRECTIONS NOTED” taken by Architect.

1.4 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

A. General: Architect's CAD files will not be provided to Contractor for Contractor's use in connection with Project.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's written recommendations.
b. Manufacturer's product specifications.
c. Manufacturer's installation instructions.
d. Manufacturer's catalog cuts.
e. Wiring diagrams showing factory-installed wiring.
f. Printed performance curves.
g. Operational range diagrams.
h. Compliance with specified referenced standards.
i. Testing by recognized testing agency.

4. Number of Copies: Submit **four** copies of Product Data, unless otherwise indicated. Architect will return **two** copies. Mark up and retain one returned copy as a Project Record Document.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

   a. Dimensions.
   b. Identification of products.
   c. Fabrication and installation drawings.
   d. Roughing-in and setting diagrams.
   e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
   f. Shopwork manufacturing instructions.
   g. Templates and patterns.
   h. Schedules.
   i. Notation of coordination requirements.
   j. Notation of dimensions established by field measurement.
   k. Relationship to adjoining construction clearly indicated.
   l. Seal and signature of professional engineer if specified.
   m. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
3. Number of Copies: Submit two opaque (bond) copies of each submittal. Architect will return one copy.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

   a. Generic description of Sample.
   b. Product name and name of manufacturer.
   c. Sample source.
   d. Number and title of appropriate Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

a. Number of Samples: Submit two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return one submittal with options selected.

5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

a. Number of Samples: Submit **three** sets of Samples. Architect will retain **two** Sample sets; remainder will be returned.

E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location.

1. Number of Copies: Submit **three** copies of product schedule or list, unless otherwise indicated. Architect will return **two** copies.

F. Submittals Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

G. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."

H. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

I. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.

1. Number of Copies: Submit **three** copies of subcontractor list, unless otherwise indicated. Architect will return **two** copies.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit **two** copies of each submittal, unless otherwise indicated. Architect will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."

B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

C. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

M. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

N. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed

before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

O. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

Q. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

R. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.

S. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Statement on condition of substrates and their acceptability for installation of product.
2. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.

T. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

U. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect.

1. Architect will not review submittals that include MSDSs and will return them for resubmittal.

2.3 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit **three** copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken:

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300

SECTION 013516 - ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes special procedures for alteration work.

1.2 DEFINITIONS

A. Alteration Work: This term includes remodeling, renovation, repair, and maintenance work performed within existing spaces or on existing surfaces as part of the Project.

B. Consolidate: To strengthen loose or deteriorated materials in place.

C. Design Reference Sample: A sample that represents the Architect's prebid selection of work to be matched; it may be existing work or work specially produced for the Project.

D. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Architect.

F. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.

G. Repair: To correct damage and defects, retaining existing materials, features, and finishes. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.

H. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.

I. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.

J. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.

K. Retain: To keep an element or detail secure and intact.

L. Strip: To remove existing finish down to base material unless otherwise indicated.

1.3 PROJECT MEETINGS FOR ALTERATION WORK

A. Preliminary Conference for Alteration Work: Before starting alteration work, **conduct** conference at **Project site**.

1. Attendees: In addition to the General Contractor's Project Manager and Superintendent representatives of Owner, Architect/Engineers shall be represented at the meeting.
2. Agenda: Discuss items of significance that could affect progress of alteration work, including review of the following:

a. Fire-prevention plan.
b. Governing regulations.
c. Areas where existing construction is to remain and the required protection.
d. Hauling routes.
e. Sequence of alteration work operations.
f. Storage, protection, and accounting for salvaged and specially fabricated items.
g. Existing conditions, staging, and structural loading limitations of areas where materials are stored.

3. Reporting: General Contractor **will record** conference results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from conference.

B. Coordination Meetings: Conduct coordination meetings specifically for alteration work at **monthly** intervals. Coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Agenda: Review and correct or approve minutes of previous coordination meeting. Review other items of significance that could affect progress of alteration work. Include topics for discussion as appropriate to status of Project.
2. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.4 MATERIALS OWNERSHIP

A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered or uncovered during the Work, regardless of whether they were previously documented, remain Owner's property.

1.5 INFORMATIONAL SUBMITTALS

A. Fire-Prevention Plan: Submit **30 days** before work begins.

1.6 QUALITY ASSURANCE

A. Alteration Work Program: Prepare a written plan for alteration work for whole Project, including each phase or process and protection of surrounding materials during operations.

Show compliance with indicated methods and procedures specified in this and other Sections. Coordinate this whole-Project alteration work program with specific requirements of programs required in other alteration work Sections.

1. Dust and Noise Control: Include locations of proposed temporary dust- and noise-control partitions and means of egress from occupied areas coordinated with continuing on-site operations and other known work in progress.
2. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.

B. Fire-Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire-control devices during each phase or process. Coordinate plan with Owner's fire-protection equipment and requirements. Include fire-watch personnel's training, duties, and authority to enforce fire safety.

C. Safety and Health Standard: Comply with ANSI/ASSP A10.6.

1.7 STORAGE AND HANDLING OF SALVAGED MATERIALS

A. Salvaged Materials:

1. Clean loose dirt and debris from salvaged items unless more extensive cleaning is indicated.
2. Pack or crate items after cleaning; cushion against damage during handling. Label contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area **on-site designated by Owner**.
5. Protect items from damage during transport and storage.

B. Salvaged Materials for Reinstallation:

1. Repair and clean items for reuse as indicated.
2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make items functional for use indicated.

C. Existing Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by Architect, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after alteration and other construction work in the vicinity is complete.

D. Storage: Catalog and store items within a weathertight enclosure where they are protected from moisture, weather, condensation, and freezing temperatures.

1. Identify each item for reinstallation with a nonpermanent mark to document its original location. Indicate original locations on plans, elevations, sections, or photographs by annotating the identifying marks.
2. Secure stored materials to protect from theft.
3. Control humidity so that it does not exceed 85 percent. Maintain temperatures 5 deg F (3 deg C) or more above the dew point.

PART 2 - PRODUCTS - (Not Used)

PART 3 - EXECUTION

3.1 PROTECTION

A. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from alteration work.

1. Use only proven protection methods, appropriate to each area and surface being protected.
2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where alteration work is being performed.
3. Erect temporary barriers to form and maintain fire-egress routes.
4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during alteration work.
5. Contain dust and debris generated by alteration work, and prevent it from reaching the public or adjacent surfaces.
6. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
7. Protect floors and other surfaces along hauling routes from damage, wear, and staining.

B. Temporary Protection of Materials to Remain:

1. Protect existing materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
2. Do not attach temporary protection to existing surfaces except as indicated as part of the alteration work program.

C. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.

D. Utility and Communications Services:

1. Notify Owner, Architect, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by alteration work before commencing operations.
2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for alteration work.

3. Maintain existing services unless otherwise indicated; keep in service, and protect against damage during operations. Provide temporary services during interruptions to existing utilities.

E. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is functioning properly.

1. Prevent solids such as adhesive or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from alteration work.
2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

F. Existing Roofing: Prior to the start of work in an area, install roofing protection.

3.2 PROTECTION FROM FIRE

A. General: Follow fire-prevention plan and the following:
1. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate work.

a. If combustible material cannot be removed, provide fire blankets to cover such materials.

B. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or combustible materials, including welding, torch-cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:

1. Obtain Owner's approval for operations involving use of welding or other high-heat equipment. **Use of open-flame equipment is not permitted.** Notify Owner **at least 72 hours** before each occurrence, indicating location of such work.
2. As far as practicable, restrict heat-generating equipment to shop areas or outside the building.
3. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
4. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.
5. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
6. Fire Watch: Before working with heat-generating equipment or combustible materials, station personnel to serve as a fire watch at each location where such work is performed. Fire-watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows:
a. Maintain fire-watch personnel at **each area of** Project site until **60 minutes** after conclusion of daily work.

C. Fire-Control Devices: Provide and maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel and the fire-watch personnel are trained in fire-extinguisher and blanket use.

3.3 PROTECTION DURING APPLICATION OF CHEMICALS

A. Protect motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm or spillage resulting from applications of chemicals and adhesives.

B. Cover adjacent surfaces with protective materials that are proven to resist chemicals selected for Project unless chemicals being used will not damage adjacent surfaces as indicated in alteration work program. Use covering materials and masking agents that are waterproof and UV resistant and that will not stain or leave residue on surfaces to which they are applied. Apply protective materials according to manufacturer's written instructions. Do not apply liquid masking agents or adhesives to painted or porous surfaces. When no longer needed, promptly remove protective materials.

C. Do not apply chemicals during winds of sufficient force to spread them to unprotected surfaces.

D. Neutralize alkaline and acid wastes and legally dispose of off Owner's property.

E. Collect and dispose of runoff from chemical operations by legal means and in a manner that prevents soil contamination, soil erosion, undermining of paving and foundations, damage to landscaping, or water penetration into building interior.

3.4 GENERAL ALTERATION WORK

A. Perform surveys of Project site as the Work progresses to detect hazards resulting from alterations.

B. Notify Architect of visible changes in the integrity of material or components whether from environmental causes including biological attack, UV degradation, freezing, or thawing or from structural defects including cracks, movement, or distortion.

1. Do not proceed with the work in question until directed by Architect.

END OF SECTION 013516

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspection services may be required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
2. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.2 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed a minimum of **five** previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.

1. Use of trade-specific terminology in referring to a Work result does not require that certain construction activities specified apply exclusively to specific trade(s).

D. Mockups: Physical assemblies of portions of the Work constructed to establish the standard by which the Work will be judged. Mockups are not Samples.

1. Mockups are used for one or more of the following:

a. Verify selections made under Sample submittals.
b. Demonstrate aesthetic effects.
c. Demonstrate the qualities of products and workmanship.
d. Demonstrate successful installation of interfaces between components and systems.

e. Perform preconstruction testing to determine system performance.

2. Product Mockups: Mockups that may include multiple products, materials, or systems specified in a single Section.
3. In-Place Mockups: Mockups constructed on-site in their actual final location as part of permanent construction.

E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria. Unless otherwise indicated, copies of reports of tests or inspections performed for other than the Project do not meet this definition.

F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) in accordance with 29 CFR 1910.7, by a testing agency accredited in accordance with NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

G. Source Quality-Control Tests and Inspections: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. The term "testing laboratory" has the same meaning as the term "testing agency."

I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect[**or Construction Manager**].

1.3 DELEGATED DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated Design Services Statement: Submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services as well as the licensed professional. All professionals to provide signature and seal on design documents.

1.4 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements is specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, inform the Architect regarding the conflict and obtain clarification prior to proceeding with the Work. Refer conflicting requirements that are different, but apparently equal, to Architect for clarification before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified is the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 ACTION SUBMITTALS

A. Mockup Shop Drawings:

1. Include plans, sections, elevations, and details, indicating materials and size of mockup construction.
2. Indicate manufacturer and model number of individual components.
3. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

1.6 INFORMATIONAL SUBMITTALS

A. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:

1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
2. Main wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.

B. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

C. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.7 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, telephone number, and email address of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspection.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Statement on condition of substrates and their acceptability for installation of product.
2. Statement that products at Project site comply with requirements.
3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
5. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Statement that equipment complies with requirements.
2. Results of operational and other tests and a statement of whether observed performance complies with requirements.
3. Other required items indicated in individual Specification Sections.

1.8 QUALITY ASSURANCE

A. Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products

from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities be performed by entities who are recognized experts in those operations. Specialists will satisfy qualification requirements indicated and engage in the activities indicated.

1. Requirements of authorities having jurisdiction supersede requirements for specialists.

G. Testing and Inspecting Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented in accordance with **ASTM E329**; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect, demonstrate, repair, and perform service on installations of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor Responsibilities:

a. Provide test specimens representative of proposed products and construction.
b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
c. When testing is complete, remove test specimens and test assemblies[**, and mockups**]; do not reuse products on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups of size indicated.
2. Build mockups in location indicated or, if not indicated, as directed by Architect.
3. Notify Architect **seven** days in advance of dates and times when mockups will be constructed.
4. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed to perform same tasks during the construction at Project.
5. Demonstrate the proposed range of aesthetic effects and workmanship.
6. Obtain Architect's approval of mockups before starting corresponding work, fabrication, or construction.

    a. Allow **seven** days for initial review and each re-review of each mockup.

7. Promptly correct unsatisfactory conditions noted by Architect's preliminary review, to the satisfaction of the Architect, before completion of final mockup.
8. Approval of mockups by the Architect does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
9. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
10. Demolish and remove mockups when directed unless otherwise indicated.

1.9 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
2. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor**, and the Contract Sum will be adjusted by Change Order**.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.

1. Engage a qualified testing agency to perform quality-control services.

    a. Contractor will not employ same entity engaged by Owner, unless agreed to in writing by Owner.

2. Notify testing agencies at least **24** hours in advance of time when Work that requires testing or inspection will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
4. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected Work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform duties of Contractor.

E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."

F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

G. Contractor's Associated Requirements and Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Preliminary design mix proposed for use for material mixes that require control by testing agency.

6. Security and protection for samples and for testing and inspection equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.10 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified **testing agency** to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's **and authorities' having jurisdiction** reference during normal working hours.

1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

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SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms, including "requested," "authorized," "selected," "required," and "permitted," have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms, including "shown," "noted," "scheduled," and "specified," have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

1. For standards referenced by applicable building codes, comply with dates of standards as listed in building codes.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations, List: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they are to mean the recognized name of the entities in the following list. **Abbreviations and acronyms not included in this list are to mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."** The information in this list is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. AABC - Associated Air Balance Council; www.aabc.com.
2. AAMA - American Architectural Manufacturers Association; (see FGIA).
3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
7. ABMA - American Boiler Manufacturers Association; www.abma.com.
8. ACI - American Concrete Institute; www.concrete.org.
9. ACP - American Clean Power; (Formerly: American Wind Energy Association); www.cleanpower.org.
10. ACPA - American Concrete Pipe Association; www.concretepipe.org.
11. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
12. AF&PA - American Forest & Paper Association; www.afandpa.org.
13. AGA - American Gas Association; www.aga.org.
14. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
15. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
16. AI - Asphalt Institute; www.asphaltinstitute.org.
17. AIA - American Institute of Architects (The); www.aia.org.
18. AISC - American Institute of Steel Construction; www.aisc.org.
19. AISI - American Iron and Steel Institute; www.steel.org.
20. AITC - American Institute of Timber Construction; (see PLIB).
21. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
22. AMPP - Association for Materials Protection and Performance; www.ampp.org.
23. ANSI - American National Standards Institute; www.ansi.org.
24. AOSA/SCST - Association of Official Seed Analysts (The)/Society of Commercial Seed Technologists (The); www.analyzeseeds.com.
25. APA - APA - The Engineered Wood Association; www.apawood.org.
26. APA - Architectural Precast Association; www.archprecast.org.
27. API - American Petroleum Institute; www.api.org.
28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
29. ASA - Acoustical Society of America; www.acousticalsociety.org.
30. ASCE - American Society of Civil Engineers; www.asce.org.

31. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (see ASCE).
32. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
33. ASME - ASME International; [**American Society of Mechanical Engineers (The)**]; www.asme.org.
34. ASSE - ASSE International; (American Society of Sanitary Engineering); www.asse-plumbing.org.
35. ASSP - American Society of Safety Professionals; www.assp.org.
36. ASTM - ASTM International; www.astm.org.
37. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
38. AVIXA - Audiovisual and Integrated Experience Association; www.avixa.org.
39. AWI - Architectural Woodwork Institute; www.awinet.org.
40. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
41. AWPA - American Wood Protection Association; www.awpa.com.
42. AWS - American Welding Society; www.aws.org.
43. AWWA - American Water Works Association; www.awwa.org.
44. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
45. BIA - Brick Industry Association (The); www.gobrick.com.
46. BICSI - BICSI, Inc.; www.bicsi.org.
47. BIFMA - Business and Institutional Furniture Manufacturer's Association; www.bifma.org.
48. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
49. BWF - Badminton World Federation; www.bwfbadminton.com.
50. CARB - California Air Resources Board; www.arb.ca.gov.
51. CDA - Copper Development Association Inc.; www.copper.org.
52. CE - Conformite Europeenne (European Commission); www.ec.europa.eu/growth/single-market/ce-marking.
53. CEA - Canadian Electricity Association; www.electricity.ca.
54. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
55. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
56. CGA - Compressed Gas Association; www.cganet.com.
57. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
58. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
59. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
60. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
61. CPA - Composite Panel Association; www.compositepanel.org.
62. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
63. CRRC - Cool Roof Rating Council; www.coolroofs.org.
64. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
65. CSA - CSA Group; www.csagroup.org.
66. CSI - Cast Stone Institute; www.caststone.org.
67. CSI - Construction Specifications Institute (The); www.csiresources.org.
68. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
69. CTA - Consumer Technology Association; www.cta.tech.
70. CTI - Cooling Technology Institute; www.coolingtechnology.org.
71. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
72. DHA - Decorative Hardwoods Association; www.decorativehardwoods.org.
73. DHI - Door and Hardware Institute; www.dhi.org.
74. ECIA - Electronic Components Industry Association; www.ecianow.org.

75. EIMA - EIFS Industry Members Association; www.eima.com.
76. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
77. EOS/ESD - EOS/ESD Association, Inc.; Electrostatic Discharge Association; www.esda.org.
78. ESTA - Entertainment Services and Technology Association; www.esta.org.
79. EVO - Efficiency Valuation Organization; www.evo-world.org.
80. FCI - Fluid Controls Institute; www.fluidcontrolsinstitute.org.
81. FGIA - Fenestration and Glazing Industry Alliance; https://fgiaonline.org.
82. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.
83. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
84. FM Approvals - FM Approvals LLC; www.fmapprovals.com.
85. FM Global - FM Global; www.fmglobal.com.
86. FRSA - Florida Roofing and Sheet Metal Contractors Association, Inc.; www.floridaroof.com.
87. FSA - Fluid Sealing Association; www.fluidsealing.com.
88. FSC - Forest Stewardship Council U.S.; www.fscus.org.
89. GA - Gypsum Association; www.gypsum.org.
90. GS - Green Seal; www.greenseal.org.
91. HI - Hydraulic Institute; www.pumps.org.
92. HMMA - Hollow Metal Manufacturers Association; (see NAAMM).
93. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
94. IAS - International Accreditation Service; www.iasonline.org.
95. ICC - International Code Council; www.iccsafe.org.
96. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
97. ICPA - International Cast Polymer Association (The); www.theicpa.com.
98. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
99. IEC - International Electrotechnical Commission; www.iec.ch.
100. IEEE SA - IEEE Standards Association; https://standards.ieee.org.
101. IES - Illuminating Engineering Society; www.ies.org.
102. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
103. IGMA - Insulating Glass Manufacturers Alliance; (see FGIA).
104. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.org.
105. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
106. Intertek - Intertek Group; www.intertek.com.
107. ISA - International Society of Automation (The); www.isa.org.
108. ISFA - International Surface Fabricators Association; www.isfanow.org.
109. ISO - International Organization for Standardization; www.iso.org.
110. ITU - International Telecommunication Union; www.itu.int.
111. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
112. LPI - Lightning Protection Institute; www.lightning.org.
113. MBMA - Metal Building Manufacturers Association; www.mbma.com.
114. MCA - Metal Construction Association; www.metalconstruction.org.
115. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
116. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
117. MHI - Material Handling Industry; www.mhi.org.
118. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
119. MPI - Master Painters Institute; www.paintinfo.com.
120. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry, Inc.; www.msshq.org.

121. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
122. NACE - NACE International; (National Association of Corrosion Engineers International); (see AMPP).
123. NADCA - National Air Duct Cleaners Association; www.nadca.com.
124. NAIMA - North American Insulation Manufacturers Association; www.insulationinstitute.org.
125. NALP - National Association of Landscape Professionals; www.landscapeprofessionals.org.
126. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
127. NBI - New Buildings Institute; www.newbuildings.org.
128. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.
129. NCMA - National Concrete Masonry Association; www.ncma.org.
130. NEBB - National Environmental Balancing Bureau; www.nebb.org.
131. NECA - National Electrical Contractors Association; www.necanet.org.
132. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
133. NEMA - National Electrical Manufacturers Association; www.nema.org.
134. NETA - InterNational Electrical Testing Association; www.netaworld.org.
135. NFHS - National Federation of State High School Associations; www.nfhs.org.
136. NFPA - National Fire Protection Association; www.nfpa.org.
137. NFPA - NFPA International; (see NFPA).
138. NFRC - National Fenestration Rating Council; www.nfrc.org.
139. NGA - National Glass Association (The); www.glass.org.
140. NHLA - National Hardwood Lumber Association; www.nhla.com.
141. NLGA - National Lumber Grades Authority; www.nlga.org.
142. NOFMA - National Oak Flooring Manufacturers Association; (see NWFA).
143. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
144. NRCA - National Roofing Contractors Association; www.nrca.net.
145. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
146. NSF - NSF International; www.nsf.org.
147. NSI - Natural Stone Institute; www.naturalstoneinstitute.org.
148. NSPE - National Society of Professional Engineers; www.nspe.org.
149. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
150. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
151. NWFA - National Wood Flooring Association; www.nwfa.org.
152. NWRA - National Waste & Recycling Association; www.wasterecycling.org.
153. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
154. PDI - Plumbing & Drainage Institute; www.pdionline.org.
155. PLASA - PLASA; www.plasa.org.
156. PLIB - Pacific Lumber Inspection Bureau; www.plib.org.
157. PVCPA - Uni-Bell PVC Pipe Association; www.uni-bell.org.
158. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
159. RFCI - Resilient Floor Covering Institute; www.rfci.com.
160. RIS - Redwood Inspection Service; (see WWPA).
161. SAE - SAE International; www.sae.org.
162. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
163. SDI - Steel Deck Institute; www.sdi.org.
164. SDI - Steel Door Institute; www.steeldoor.org.
165. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
166. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (see ASCE).

167. SIA - Security Industry Association; www.securityindustry.org.
168. SJI - Steel Joist Institute; www.steeljoist.org.
169. SMA - Screen Manufacturers Association; www.smainfo.org.
170. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
171. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
172. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
173. SPIB - Southern Pine Inspection Bureau; www.spib.org.
174. SPRI - Single Ply Roofing Industry; www.spri.org.
175. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
176. SSINA - Specialty Steel Industry of North America; www.ssina.com.
177. SSPC - SSPC: The Society for Protective Coatings; (see AMPP).
178. STI/SPFA - Steel Tank Institute/Steel Plate Fabricators Association; www.steeltank.com.
179. SWI - Steel Window Institute; www.steelwindows.com.
180. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
181. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
182. TCNA - Tile Council of North America, Inc.; www.tcnatile.com.
183. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.kbcdco.tema.org.
184. TIA - Telecommunications Industry Association (The); www.tiaonline.org.
185. TMS - The Masonry Society; www.masonrysociety.org.
186. TPI - Truss Plate Institute; www.tpinst.org.
187. TPI - Turfgrass Producers International; www.turfgrasssod.org.
188. TRI - Tile Roofing Industry Alliance; www.tileroofing.org.
189. ULSE - UL Standards & Engagement Inc.; www.ulse.org.
190. UL - UL Solutions Inc.; www.ul.com.
191. USAV - USA Volleyball; www.usavolleyball.org.
192. USGBC - U.S. Green Building Council; www.usgbc.org.
193. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
194. WA - Wallcoverings Association; www.wallcoverings.org.
195. WCLIB - West Coast Lumber Inspection Bureau; (see PLIB).
196. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
197. WDMA - Window & Door Manufacturers Association; www.wdma.com.
198. WI - Woodwork Institute; www.woodworkinstitute.com.
199. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
200. WWPA - Western Wood Products Association; www.wwpa.org.

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they are to mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut fur Normung e.V.; www.din.de.
2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they are to mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.

1. CPSC - U.S. Consumer Product Safety Commission; www.cpsc.gov.

2. DOC - U.S. Department of Commerce; www.commerce.gov.
3. DOD - U.S. Department of Defense; www.defense.gov.
4. DOE - U.S. Department of Energy; www.energy.gov.
5. DOJ - U.S. Department of Justice; www.ojp.usdoj.gov
6. DOS - U.S. Department of State; www.state.gov.
7. EPA - United States Environmental Protection Agency; www.epa.gov.
8. FAA - Federal Aviation Administration; www.faa.gov.
9. GPO - U.S. Government Publishing Office; www.gpo.gov.
10. GSA - U.S. General Services Administration; www.gsa.gov.
11. HUD - U.S. Department of Housing and Urban Development; www.hud.gov.
12. LBNL - Lawrence Berkeley National Laboratory; Energy Technologies Area; www.lbl.gov/.
13. NIST - National Institute of Standards and Technology; www.nist.gov.
14. OSHA - Occupational Safety & Health Administration; www.osha.gov.
15. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
16. USACE - U.S. Army Corps of Engineers; www.usace.army.mil.
17. USDA - U.S. Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
18. USDA - U.S. Department of Agriculture; Rural Utilities Service; www.usda.gov.
19. USP - U.S. Pharmacopeial Convention; www.usp.org.
20. USPS - United States Postal Service; www.usps.com.

D. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they are to mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from U.S. Government Publishing Office; www.govinfo.gov.
2. DOD - U.S. Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.dsp.dla.mil/Specs-Standards/.
3. DSCC - Defense Supply Center Columbus; (see FS).
4. FED-STD - Federal Standard; (see FS).
5. FS - Federal Specification; Available from DLA Document Services; www.dsp.dla.mil/Specs-Standards/.

    a. Available from Defense Standardization Program; www.dsp.dla.mil.
    b. Available from U.S. General Services Administration; www.gsa.gov.
    c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org.

6. MILSPEC - Military Specifications and Standards; (see DOD).
7. USAB - United States Access Board; www.access-board.gov.
8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (see USAB).

E. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they are to mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. BEARHFTI; California Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation; (see BHGS).
2. BHGS; State of California Bureau of Household Goods and Services; (Formerly: California Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation); www.bhgs.dca.ca.gov.
3. CCR; California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; www.oal.ca.gov/publications/ccr/.
4. CDPH; California Department of Public Health; Indoor Air Quality Program; www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/Main-Page.aspx.
5. CPUC; California Public Utilities Commission; www.cpuc.ca.gov.
6. SCAQMD; South Coast Air Quality Management District; www.aqmd.gov.
7. TFS; Texas A&M Forest Service; Sustainable Forestry and Economic Development; https://tfsweb.tamu.edu/.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

A. Installation, removal, and use charges for temporary facilities to be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, **Owner's construction forces,** Architect, **occupants of Project,** testing agencies, and authorities having jurisdiction.

B. Water from Existing System: Water from Owner's existing water system is available for use **without metering and without payment of use charges**. Provide connections and extensions of services as required for construction operations from source of water.

1.3 INFORMATIONAL SUBMITTALS

A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.

B. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.

C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

D. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold. Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.

1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and requirements for replacing water-damaged Work.
2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these

operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.

3. Indicate methods to be used to avoid trapping water in finished work.

1.4 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Accessible Temporary Egress: Comply with applicable provisions in **ICC A117.1 in accordance with State and Local codes**.

1.5 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

A. Field Offices: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:

1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
2. Conference room of sufficient size to accommodate meetings of 6 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot- (1.2-m-) square tack and marker boards.
3. Drinking water and temporary toilet facility.
4. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F (20 to 22 deg C).
5. Lighting fixtures capable of maintaining average illumination of 20 fc (215 lx) at desk height.

2.2 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
2. Heating, Cooling, and Dehumidifying Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

3.2 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.3 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.

1. Connect temporary sewers to **municipal system** as directed by authorities having jurisdiction.

C. Sanitary Facilities: Provide temporary toilets, wash facilities, safety shower and eyewash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

D. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

1. Install electric power service **in strict accordance with all NC Codes and coordinate location with construction activity.**

E. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.4 SUPPORT FACILITIES INSTALLATION

A. Comply with the following:

1. Provide construction for temporary field offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines that is noncombustible in accordance with ASTM E136. Comply with NFPA 241.
2. Utilize designated area within existing building for temporary field offices.
3. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

C. Parking: **Use areas of Owner's existing** parking areas for construction personnel.

D. Storage and Staging: **Use designated areas of Project site** for storage and staging needs.

E. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
2. Remove snow and ice as required to minimize accumulations.

F. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
1. Temporary Signs: Provide other signs as required to inform public and individuals seeking entrance to Project.

a. Provide temporary, directional signs for construction personnel and visitors.

2. Maintain and touch up signs so they are legible at all times.

G. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."

H. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

C. Temporary Erosion and Sedimentation Control: Comply with **requirements of authorities having jurisdiction and information on construction drawings.**

D. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, in accordance with **authorities having jurisdiction and in accordance with construction drawings.**

1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant-protection zones.
2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

E. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

F. Tree and Plant Protection: Comply with requirements specified in Section 015639 "Temporary Tree and Plant Protection."

G. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

H. Site Enclosure Fence: **Before construction operations begin and Prior to commencing earthwork**, furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.

1. Extent of Fence: **As required to enclose entire Project site or portion determined sufficient to accommodate construction operations and as indicated on Drawings**.

I. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.

J. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

K. Temporary Egress: Provide temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction. Provide signage directing occupants to temporary egress.

L. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

3.6 MOISTURE AND MOLD CONTROL

A. Moisture and Mold Protection: Protect stored materials and installed Work in accordance with Moisture and Mold Protection Plan.

B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:

1. Protect porous materials from water damage.
2. Protect stored and installed material from flowing or standing water.
3. Keep porous and organic materials from coming into prolonged contact with concrete.
4. Remove standing water from decks.
5. Keep deck openings covered or dammed.

3.7 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

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SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of This Section Includes: Administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 012500 "Substitution Procedures" for requests for substitutions.

1.2 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Salvaged items or items reused from other projects are not considered new products. Items that are manufactured or fabricated to include recycled content materials are considered new products unless otherwise indicated.
3. Comparable Product: Product by named manufacturer that is demonstrated and approved through the comparable product submittal process described in "Comparable Products" Article, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. Published attributes and characteristics of basis-of-design product establish salient characteristics of products.

1. Evaluating Comparable Products: In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification. **Manufacturer's published attributes and characteristics of basis-of-design product also establish salient characteristics of products for purposes of evaluating comparable products.**

C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications; submit a comparable product request or substitution request, if applicable.

D. Comparable Product Request Submittal: An action submittal requesting consideration of a comparable product, including the following information:

1. Identification of basis-of-design product or fabrication or installation method to be replaced, including Specification Section number and title and Drawing numbers and titles.
2. Data indicating compliance with the requirements specified in "Comparable Products" Article.

E. Basis-of-Design Product Specification Submittal: An action submittal complying with requirements in Section 013300 "Submittal Procedures."

F. Substitution: Refer to Section 012500 "Substitution Procedures" for definition and limitations on substitutions.

1.3 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products, using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

1.5 PRODUCT WARRANTIES

A. Warranties specified in other Sections are to be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written standard warranty form furnished by individual manufacturer for a particular product and issued in the name of Owner or endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner and issued in the name of Owner or endorsed by manufacturer to Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included in the Project Manual, prepare a written document, using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in Specifications establish salient characteristics of products.

B. Product Selection Procedures:

1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

    a. Sole product may be indicated by the phrase "Subject to compliance with requirements, provide the following."

2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

    a. Sole manufacturer/source may be indicated by the phrase "Subject to compliance with requirements, provide products by the following."

3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with

requirements. Comparable products or substitutions for Contractor's convenience **will not** be considered **unless otherwise indicated**.

a. Limited list of products may be indicated by the phrase "Subject to compliance with requirements, provide one of the following."

4. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience **will not** be considered **unless otherwise indicated**.

a. Limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, provide products by one of the following."

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications may additionally indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

a. For approval of products by unnamed manufacturers, comply with requirements in Section 012500 "Substitution Procedures" for substitutions for convenience.

C. Visual Matching Specification: Where Specifications require the phrase "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or a similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with the following requirements:

1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those of the named basis-of-design product. Significant product qualities include attributes, such as type,

function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.

3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects, with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

B. Architect's Action on Comparable Products Submittal: If necessary, Architect will request additional information or documentation for evaluation within **seven** days of receipt of a request for a comparable product. Architect will notify Contractor of approval or rejection of proposed comparable product within **15** days of receipt of request, or **seven** days of receipt of additional information or documentation, whichever is later.

1. Architect's Approval of Submittal: **Marked with approval notation from Architect's action stamp**. See Section 013300 "Submittal Procedures."

C. Submittal Requirements, Two-Step Process: Approval by Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

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SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work, including, but not limited to, the following:

1. Construction layout.
2. Field engineering.
3. Installation.
4. Cutting and patching.
5. Coordination of Owner's portion of the Work.
6. Progress cleaning.
7. Starting and adjusting.
8. Protection of installed construction.
9. Correction of the Work.

B. Related Requirements:

1. Section 011000 "Summary" for coordination of **Owner-furnished products , Owner-performed work , Owner's separate contracts**, and limits on use of Project site.
2. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.
3. Section 024119 "Selective Demolition" for demolition and removal of selected portions of the building.

1.2 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.3 INFORMATIONAL SUBMITTALS

A. Certified Surveys: Submit **two** copies signed by **land surveyor**.

B. Certificates: Submit certificate signed by **land surveyor**, certifying that location and elevation of improvements comply with requirements.

1.4 CLOSEOUT SUBMITTALS

A. Final Property Survey: Submit three copies showing the Work performed and record survey data.

1.5 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, or when encountering the need for cutting and patching of elements whose structural function is not known, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of specified products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials. Use materials that are not considered hazardous.

C. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, **mechanical and electrical systems,** and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, gas service piping, and water-service piping; underground electrical services; and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work, including Specification Section number and paragraph, and Drawing sheet number and detail, where applicable.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to **local utility and Owner** that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect in accordance with requirements in Section 013100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks and existing conditions. If discrepancies are discovered, notify Architect promptly.

B. Engage a **land surveyor and/or professional engineer** experienced in laying out the Work, using the following accepted surveying practices:

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish limits on use of Project site.
3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
4. Inform installers of lines and levels to which they must comply.
5. Check the location, level and plumb, of every major element as the Work progresses.
6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

B. Benchmarks: Establish and maintain a minimum of **two** permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

D. Final Property Survey: Engage a **land surveyor and/or professional engineer** to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by **land surveyor and/or professional engineer**, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.

3.5 INSTALLATION

A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.

2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
4. Maintain minimum headroom clearance of **96 inches (2440 mm)** in occupied spaces and **90 inches (2300 mm)** in unoccupied spaces, unless otherwise indicated on Drawings.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure satisfactory results as judged by Architect. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations, so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy of type expected for Project.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on-site and placement in permanent locations.

F. Tools and Equipment: Select tools or equipment that minimize production of excessive noise levels.

G. Templates: Obtain and distribute to the parties involved templates for Work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions with manufacturer.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed Work are not indicated, arrange joints for the best visual effect, as judged by Architect. Fit exposed connections together to form hairline joints.

3.6 CUTTING AND PATCHING

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of Work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements in Section 011000 "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to **prevent** interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. **Concrete and Masonry**: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as practicable, as judged by Architect. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
b. Restore damaged pipe covering to its original condition.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch, corner to corner of wall and edge to edge of ceiling. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 COORDINATION OF OWNER'S PORTION OF THE WORK

A. Site Access: Provide access to Project site for Owner's construction personnel **and Owner's separate contractors**.

1. Provide temporary facilities required for Owner-furnished, Contractor-installed products.
2. Refer to Section 011000 "Summary" for other requirements for Owner-furnished, Contractor-installed products

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel **and Owner's separate contractors**.

1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.

3.8 PROGRESS CLEANING

A. Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.

2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, in accordance with regulations.

    a. Use containers intended for holding waste materials of type to be stored.

4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where Work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces in accordance with written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in **Section 015000 "Temporary Facilities and Controls." Section 017419 "Construction Waste Management and Disposal."**]

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.9 STARTING AND ADJUSTING

A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 019113 "General Commissioning Requirements."

B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.10 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

C. Comply with manufacturer's written instructions for temperature and relative humidity.

3.11 CORRECTION OF THE WORK

A. Repair or remove and replace damaged, defective, or nonconforming Work. Restore damaged substrates and finishes.

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.

C. Restore permanent facilities used during construction to their specified condition.

D. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

E. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

F. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:
   1. Disposing of nonhazardous **demolition and construction** waste.

B. Related Requirements:

1.2 DEFINITIONS

A. Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building, structure, and site improvement materials resulting from demolition operations.

C. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction, or designated spoil areas on Owner's property.

1.3 ACTION SUBMITTALS

A. Waste Management Plan: Submit plan within 14 days of date established for **commencement of the Work**.

1.4 WASTE MANAGEMENT PLAN

A. General: Transylvania County is waving all fees for disposing of Waste for this project. Contractor is responsible for hauling waste to the County Landfill. **Contractor is to provide a waste management plan according to requirements of Transylvania County.**

B. Waste Identification: Indicate anticipated types and quantities of **demolition and construction** waste generated by the Work as required by the County.

   1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
   2. Salvaged Materials for Sale: For materials that will be sold to individuals and
   3. Disposal, Handling and Transportation Procedures: Will be the responsibility of the County.

PART 2 - PRODUCTS

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan as required by the County.

B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.

C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged and recycled.
2. Comply with Section 015000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged or recycled, place waste materials from Project site in the container provided by the County.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Place debris in containers in a manner that will prevent spillage on adjacent surfaces and areas.

B. General: Except for items or materials to be salvaged or recycled, place waste materials in designated containers provided by the County.

C. Burning: Do not burn waste materials.

END OF SECTION 017419

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SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for Contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final Completion procedures.
3. List of incomplete items.
4. Submittal of Project warranties.
5. Final cleaning.

B. Related Requirements:

1. Section 017823 "Operation and Maintenance Data" for additional operation and maintenance manual requirements.
2. Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
3. Section 017900 "Demonstration and Training" for requirements to train Owner's maintenance personnel to adjust, operate, and maintain products, equipment, and systems.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of cleaning agent.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.3 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Field Report: For pest-control inspection.

1.4 SUBSTANTIAL COMPLETION PROCEDURES

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

B. Submittals Prior to Substantial Completion: Complete the following a minimum of **10** days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction, permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including Project Record Documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by **Architect**. Label with manufacturer's name and model number.
5. Submit testing, adjusting, and balancing records.
6. Submit sustainable design submittals not previously submitted.
7. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of **10** days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
6. Advise Owner of changeover in utility services.
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Complete final cleaning requirements.
10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of **14** days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1.5 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:

1. Submit a final Application for Payment in accordance with Section 012900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list will state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1.6 LIST OF INCOMPLETE ITEMS

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, **starting with exterior areas first and proceeding from lowest floor to highest floor**, listed by room or space number.
2. Organize items applying to each space by major element, including categories for ceilings, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:

    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Contractor.
    e. Page number.

4. Submit list of incomplete items in the following format:

    a. MS Excel Electronic File: Architect will return annotated file.
    b. PDF Electronic File: Architect[**, through Construction Manager,**] will return annotated file.
    c. Web-Based Project Software Upload: Utilize software feature for creating and updating list of incomplete items (punch list).

1.7 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

C. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

1. Submit **on digital media acceptable to Architect**.

D. Warranties in Paper Form:

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
2. Submit on digital media copy acceptable to Architect.

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

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

a. Clean Project site of rubbish, waste material, litter, and other foreign substances.

b. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
c. Remove debris and surface dust from limited-access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
d. Clean flooring, removing debris, dirt, and staining; clean in accordance with manufacturer's instructions.
e. Vacuum and mop concrete.
f. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean in accordance with manufacturer's instructions if visible soil or stains remain.
g. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
h. Remove labels that are not permanent.
i. Wipe surfaces of mechanical and electrical equipment[**, elevator equipment,**] and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
j. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
k. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
l. Clean ducts, blowers, and coils **if units were operated without filters during construction or that display contamination with particulate matter on inspection**.

m. Clean luminaires, lamps, globes, and reflectors to function with full efficiency.
n. Clean strainers.
o. Leave Project clean and ready for occupancy.

C. Pest Control: Comply with pest control requirements in Section 015000 "Temporary Facilities and Controls." Prepare written report.

D. Construction Waste Disposal: Comply with waste-disposal requirements in **Section 015000 "Temporary Facilities and Controls." Section 017419 "Construction Waste Management and Disposal."**

3.2 CORRECTION OF THE WORK

A. Complete repair and restoration operations required by "Correction of the Work" Article in Section 017300 "Execution" before requesting inspection for determination of Substantial Completion.

END OF SECTION 017700

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SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record specifications.
3. Record Product Data.

B. Related Requirements:

1. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.2 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit **one** set(s) of marked-up record prints.
2. Number of Copies: Submit copies of Record Drawings as follows:

a. Initial Submittal:
1) Submit PDF electronic files of scanned record prints and **one** set(s) of file prints.
2) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

b. Final Submittal:

1) Submit **one** paper-copy set(s) of marked-up record prints.
2) Submit Record Digital Data Files and **three** set(s) of Record Digital Data File plots.
3) Plot each drawing file, whether or not changes and additional information were recorded.

B. Record Specifications: Submit **annotated PDF electronic files and two paper copies** of Project's Specifications, including addenda and Contract modifications.

C. Record Product Data: Submit **annotated PDF electronic files and directories** of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

1.3 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation, where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

    a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    b. Accurately record information in an acceptable drawing technique.
    c. Record data as soon as possible after obtaining it.
    d. Record and check the markup before enclosing concealed installations.
    e. Cross-reference record prints to corresponding photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:

    a. Dimensional changes to Drawings.
    b. Revisions to details shown on Drawings.
    c. Depths of foundations.
    d. Locations and depths of underground utilities.
    e. Revisions to routing of piping and conduits.
    f. Revisions to electrical circuitry.
    g. Actual equipment locations.
    h. Duct size and routing.
    i. Locations of concealed internal utilities.
    j. Changes made by Change Order or [**Construction**] [**Work**] Change Directive.
    k. Details not on the original Contract Drawings.
    l. Field records for variable and concealed conditions.
    m. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record prints with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

1.4 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation, where installation varies from that indicated in Specifications, addenda, and Contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
3. Note related Change Orders**, Record Product Data,** and Record Drawings where applicable.

B. Format: Submit record specifications as **annotated PDF electronic file and two paper copies**.

1.5 RECORD PRODUCT DATA

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and revisions to Project Record Documents as they occur; do not wait until end of Project.

B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders**, Record Specifications,** and Record Drawings where applicable.

C. Format: Submit Record Product Data as **annotated PDF electronic file of scanned PDF electronic file(s) of marked-up paper copy of Product Data**.

1. Include Record Product Data directory organized by Specification Section number and title, electronically linked to each item of Record Product Data.

1.6 MAINTENANCE OF RECORD DOCUMENTS

A. Maintenance of Record Documents: Store Record Documents in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 017839

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SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of this Section Includes:

1. Demolition and removal of selected portions of exterior or interior of building or structure and site elements.
2. Removal and salvage of existing items for delivery to Owner and removal of existing items for reinstallation.

B. Related Requirements:

1. Section 011000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Section 017300 "Execution" for cutting and patching procedures.
3. Section 013516 "Alteration Project Procedures" for general protection and work procedures for alteration projects.

1.2 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.3 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at **Project site**.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.
6. Review and finalize protection requirements.
7. Review procedures for **noise control and dust control**.
8. Review storage, protection, and accounting for items to be removed for salvage or reinstallation.

1.4 INFORMATIONAL SUBMITTALS

A. Survey of Existing Conditions: Submit topographic survey required to confirm positive water drainage of new concrete as well as grade that has been disturbed.

1.5 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

1.6 FIELD CONDITIONS

A. Owner will occupy the existing building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials:

1. It is not expected that hazardous materials will be encountered in the Work.

a. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

E. On-site sale of removed items or materials is not permitted.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Survey of condition of building as work proceeds to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations. Bring such condition to the Owner/Arch immediately upon discovery.

3.2 PREPARATION

A. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

B. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location[**and cleaned**] and reinstalled in their original locations after selective demolition operations are complete.

3.3 UTILITY SERVICES AND BUILDING SYSTEMS

A. Existing Services/Systems to Remain: Maintain utilities and building systems and equipment to remain and protect against damage during selective demolition operations.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utilities and building systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated utilities when requested by Contractor.
2. If disconnection of utilities and building systems will affect adjacent occupied parts of the building, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to those parts of the building.
3. Demolish and remove existing building systems, equipment, and components indicated on Drawings to be removed.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    c. Equipment to Be Removed: Disconnect and cap services and remove equipment and components.

4. Abandon existing building systems, equipment, and components indicated on Drawings to be abandoned in place.

    a. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
    b. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

5. Remove and reinstall/salvage existing building systems, equipment, and components indicated on drawings to be removed and reinstalled or removed and salvaged:

a. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment and components; when appropriate, reinstall, reconnect, and make equipment operational.
b. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and components and deliver to Owner.

3.4 SALVAGE/REINSTALL

A. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area **on-site**.
5. Protect items from damage during transport and storage.

B. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

3.5 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
4. Maintain fire watch during and for at least 4 hours after flame-cutting operations.
5. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. Dispose of demolition waste materials in container provided by the County

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
4. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

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SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concrete standards.
2. Concrete materials.
3. Admixtures.
4. Floor and slab treatments.
5. Curing materials.
6. Accessories.
7. Repair materials.
8. Concrete mixture materials.
9. Concrete mixing.

B. Related Requirements:
1. Section 312000 "Earth Moving" for drainage fill under slabs-on-ground.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product data.

B. Design Mixtures: For each concrete mixture, include the following:

1. Mixture identification.
2. Compressive strength at 28 days or other age as specified.
3. Compressive strength required at stages of construction.
4. Durability exposure classes for Exposure Categories F, S, W, and C.
5. Maximum w/cm ratio.
6. Slump or slump flow limit.
7. Air content.
8. Nominal maximum aggregate size.
9. Steel-fiber reinforcement content.
10. Intended placement method.
11. Submit adjustments to design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant changes.

C. Shop Drawings:

1. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

1.4 INFORMATIONAL SUBMITTALS

A. Testing Agency: Include documentation indicating compliance with ASTM E329 or ASTM C1077 and copies of applicable ACI certificates for testing technicians or ACI Concrete Construction Special Inspector - MH, ASCC.

B. Material certificates.

C. Material test reports.

D. Floor surface flatness and levelness measurements report, indicating compliance with specified tolerances in accordance with ACI 117 and in compliance with ASTM E1155 (ASTM E1155M).

E. Research reports.

F. Preconstruction test reports.

G. Field quality-control reports.

H. Minutes of preinstallation conference.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified Installer who employs Project personnel qualified as an ACI-certified Concrete Flatwork Associate and Concrete Flatwork Finisher and a supervisor who is a certified ACI Advanced Concrete Flatwork Finisher/Technician or an ACI Concrete Flatwork Finisher with experience installing and finishing concrete.

1. Post-Installed Concrete Anchors Installers: ACI-certified Adhesive Anchor Installer.

B. Laboratory Testing Agency Qualifications: A testing agency qualified in accordance with ASTM C1077 and ASTM E329 for testing that performs duties on behalf of the Architect/Engineer.

C. Field Quality-Control Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.

1.6 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to furnish replacement sheet vapor retarder/termite barrier material and accessories for sheet vapor retarder/ termite barrier and accessories that do not comply with requirements or that fail to resist penetration by termites within specified warranty period.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CONCRETE STANDARDS

A. ACI Publications: Comply with ACI 301 (ACI 301M) unless modified by requirements in the Contract Documents.

2.2 CONCRETE MATERIALS

A. Cementitious Materials:

1. Portland Cement: ASTM C150/C150M, Type I
2. Pozzolans: ASTM C618, Class C, F, or N.
3. Slag Cement: ASTM C989/C989M, Grade 100 or 120.
4. Ground Glass Pozzolan: ASTM C1866/C1866M, Type GS or GE.
5. Silica Fume: ASTM C1240.

B. Normal-Weight Aggregates:

1. Coarse Aggregate: ASTM C33/C33M,
2. Maximum Coarse-Aggregate Size: 3/4 inch (19 mm) nominal.
3. Fine Aggregate: ASTM C33/C33M.
4. Recycled Aggregate: Provide documentation of characteristics of recycled aggregate and mechanical properties and durability of proposed concrete, which incorporates recycled aggregate to conform to appliable requirements for the class of concrete.
5. Alkali-Silica Reaction: Comply with one of the following for each aggregate used:

    a. Expansion Result of Aggregate: Not more than 0.04 percent at one year when tested in accordance with ASTM C1293.
    b. Expansion Results of Aggregate and Cementitious Materials in Combination: Not more than 0.10 percent at an age of 16 days when tested in accordance with ASTM C1567. Do not use this option with fly ash with an alkali content greater than 4.0 percent. Submit supporting data for each aggregate showing expansion in excess of 0.10 percent when tested in accordance with ASTM C1260.

2.3 ADMIXTURES

A. Air-Entraining Admixture: ASTM C260/C260M.

B. Chemical Admixtures: Do not use calcium chloride or admixtures containing calcium chloride..

1. Water-Reducing Admixture: ASTM C494/C494M, Type A.
2. Retarding Admixture: ASTM C494/C494M, Type B.
3. Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
5. High-Range, Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type G.

6. Admixtures with special properties, with documentation of claimed performance enhancement, ASTM C494/C494M, Type S.

7.

2.4 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.

C. Moisture-Retaining Cover: ASTM C171, polyethylene film burlap-polyethylene sheet.

1. Color:

a. Ambient Temperature Below 50 deg F (10 deg C): Black.
b. Ambient Temperature between 50 and 85 deg F (10 and 29 deg C): Any color.
c. Ambient Temperature Above 85 deg F (29 deg C): White.

D. Curing Paper: wide paper, consisting of two layers of fibered kraft paper laminated with double coating of asphalt.

E. Water: Potable water that does not cause staining of the surface.

F. Clear, Waterborne, Membrane-Forming, Curing and Sealing Compound: ASTM C1315, Type 1, Class A.

2.5 ACCESSORIES

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber.

B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 in accordance with ASTM D2240.

2.6 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch (3 mm) and that can be feathered at edges to match adjacent floor elevations.

2.7 CONCRETE MIXTURE MATERIALS

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, in accordance with ACI 301 (ACI 301M).

1. Use a qualified testing agency for preparing and reporting proposed mixture designs, based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland or hydraulic cement in concrete assigned to Exposure Class F3 as follows:

1. Fly Ash or Other Pozzolans: 25 percent by mass.
2. Slag Cement: 50 percent by mass.
3. Silica Fume: 10 percent by mass.
4. Total of Fly Ash or Other Pozzolans, Slag Cement, and Silica Fume: 50 percent by mass, with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.
5. Total of Fly Ash or Other Pozzolans and Silica Fume: 35 percent by mass with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.

C. Admixtures: Use admixtures in accordance with manufacturer's written instructions.

2.8 CONCRETE MIXTURE CLASS TYPES

A. Class A: Normal-weight concrete used for footings, grade beams, and tie beams.
1. Minimum Compressive Strength: 3500 psi (20.7 MPa) at 28 days.
2. Maximum w/cm Ratio: 0.50 .
3. Slump Limit: 5 inches (125 mm), plus or minus 1-1/2 inches (40 mm), plus or minus 1-1/2 inches (40 mm) for concrete.
4.

B. Class B: Normal-weight concrete used for foundation walls.
1. Minimum Compressive Strength: 3500 psi (20.7 MPa 28 days.
2. Maximum w/cm Ratio: 0.50.
3. Slump Limit: 5 inches (125 mm), plus or minus 1.5 inches (40 mm) .

C. Class C: Normal-weight concrete used for exterior slabs-on-ground.

1. Exposure Class: ACI 318
2. Minimum Compressive Strength 3500 psi (20.7 MPa 28 days.
3. Maximum w/cm Ratio : 0.45.
4. 5 inches (125 mm), plus or minus 1.5 inches (40 mm).
5. Air Content:

a. Exposure Class F1: 5.0 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4 inch nominal maximum aggregated size.

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2.9 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94/C94M and furnish delivery ticket.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Before placing concrete, verify that installation of concrete forms, accessories, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Do not proceed until unsatisfactory conditions have been corrected.

3.2 TOLERANCES

A. Comply with ACI 117 (ACI 117M).

3.3 INSTALLATION OF EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining Work that is attached to or supported by cast-in-place concrete.

3.4 INSTALLATION OF VAPOR RETARDERS

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder in accordance with ASTM E1643 and manufacturer's written instructions.

B. Bituminous Vapor Retarders: Place, protect, and repair bituminous vapor retarder in accordance with manufacturer's written instructions.

3.5 INSTALLATION OF CAST-IN-PLACE CONCRETE

A. Before placing concrete, verify that installation of formwork, reinforcement, embedded items, and vapor retarder is complete and that required inspections are completed.

B. Notify Architect and testing and inspection agencies 24 hours prior to commencement of concrete placement.

C. Water addition in transit or at the Project site must be in accordance with ASTM C94/C94M and must not exceed the permitted amount indicated on the concrete delivery ticket.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.

E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

3.6 INSTALLATION OF JOINTS

A. Construct joints true to line, with faces perpendicular to surface plane of concrete.

B. Construction Joints: Coordinate with floor slab pattern and concrete placement sequence.

1. Install so strength and appearance of concrete are not impaired, at locations indicated on Drawings or as approved by Architect.
2. Place joints perpendicular to main reinforcement.

a. Continue reinforcement across construction joints unless otherwise indicated.

3. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch (3-mm-) wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random cracks.

C. Isolation Joints in Slabs-on-Ground: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

3.7 APPLICATION OF FINISHING FLOORS AND SLABS

A. Trowel Finish:

1. After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel.
2. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance.
3. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
4. Do not add water to concrete surface. Use of an approved finishing aid is acceptable.
5. Do not apply troweled finish to concrete, which has a total air content greater than 3 percent.

a. Slabs on Ground:

1) Specified overall values of flatness, F_F 25; and of levelness, F_L 20; with minimum local values of flatness, F_F 17; and of levelness, F_L 15.

B. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and locations indicated on Drawings.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with a fiber-bristle broom perpendicular to main traffic route.
2. Coordinate required final finish with Architect before application.

3.8 INSTALLATION OF MISCELLANEOUS CONCRETE ITEMS

A. Filling in:

1. Fill in holes and openings left in concrete structures after Work of other trades is in place unless otherwise indicated.

2. Mix, place, and cure concrete, as specified, to match color and texture with in-place construction exposed to view.
3. Provide other miscellaneous concrete filling indicated or required to complete the Work.

3.9 APPLICATION OF CONCRETE CURING

A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

1. Comply with ACI 301 (ACI 301M) for cold weather protection during curing.
2. Comply with ACI 301 (ACI 301M) and ACI 305.1 (ACI 305.1M) for hot-weather protection during curing.

3. Maintain moisture loss no more than 0.2 lb/sq. ft. x h (1 kg/sq. m x h), calculated in accordance with ACI 305R, before and during finishing operations.

B. Curing Unformed Surfaces: Comply with ACI 308.1 (ACI 308.1M) as follows:

1. Begin curing after finishing concrete.
2. Interior Concrete Floors:

a. Floors to Receive Floor Coverings Specified in Other Sections: Contractor has option of the following:

1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.

a) Lap edges and ends of absorptive cover not less than 12 inches (300 mm).
b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.

2) Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive.

a) Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
b) Cure for not less than seven days.

3) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following not in cold weather:

a) Water.
b) Continuous water-fog spray.

3.10 INSTALLATION OF JOINT FILLING

A. Prepare, clean, and install joint filler in accordance with manufacturer's written instructions.

3.11 INSTALLATION OF CONCRETE SURFACE REPAIRS

A. Defective Concrete:

1. Repair and patch defective areas when approved by Architect.
2. Remove and replace concrete that cannot be repaired and patched to meet specification requirements.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water for handling and placing.

C. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

D. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.12 FIELD QUALITY CONTROL

A. Special Inspections: Contractor to engage an inspector to perform field tests and inspections and prepare testing and inspection reports.

B. Testing Agency: Owner will engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.

1. Testing agency to be responsible for providing curing facility for initial curing of strength test specimens on-site and verifying that test specimens are cured in accordance with standard curing requirements in ASTM C31/C31M.
2. Testing agency to immediately report to Architect, Contractor, and concrete manufacturer any failure of Work to comply with Contract Documents.
3. Testing agency to report results of tests and inspections, in writing, to Owner, Architect, Contractor, and concrete manufacturer within 48 hours of inspections and tests.

C. Delivery Tickets: Comply with ASTM C94/C94M.

D. Inspections:
1. Verification of use of required design mixture.
2. Concrete placement, including conveying and depositing.
3. Curing procedures and maintenance of curing temperature.
4. Verification of concrete strength before removal of shores and forms from beams and slabs.
5. Batch Plant Inspections: On a random basis, as determined by Architect.

E. Concrete Tests: Testing of composite samples of fresh concrete obtained in accordance with ASTM C 172/C 172M to be performed in accordance with the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 150 cu. yd. (114 cu. m) or fraction thereof.

    a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing is to be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C143/C143M:

    a. One test at point of delivery for each composite sample, but not less than one test for each day's pour of each concrete mixture.
    b. Perform additional tests as needed.

3. Air Content: ASTM C231/C231M pressure method, for normal-weight concrete;

    a. One test for each composite sample when strength test specimens are cast, but not less than one test for each day's pour of each concrete mixture.

4. Concrete Temperature: ASTM C1064/C1064M:

    a. One test hourly when air temperature is 40 deg F (4.4 deg C) and below or 80 deg F (27 deg C) and above, and one test for each composite sample when strength test specimens are cast.

5. Concrete Density: ASTM C138/C138M:

    a. One test for each composite sample when strength test specimens are cast.

6. Compression Test Specimens: ASTM C31/C31M:

    a. Cast and standard cure two sets of four 6 inches (150 mm) by 12-inches (300 mm) cylindrical specimens for each composite sample.
    b. Cast, and field cure **three** standard cylindrical specimens for each composite sample.

7. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests of standard cured cylinders equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa) if specified compressive strength is 5000 psi (34.5 MPa), or no compressive strength test value is less than 10 percent of specified compressive strength if specified compressive strength is greater than 5000 psi (34.5 MPa).
8. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
9. Additional Tests:

    a. Testing and inspecting agency to make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.

b. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Architect.

1) Acceptance criteria for concrete strength to be in accordance with ACI 301 (ACI 301M), Section 1.7.6.3.

10. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
11. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

3.13 PROTECTION

A. Protect concrete surfaces.

B. Protect from petroleum stains.

C. Prohibit vehicles from interior concrete slabs.

D. Prohibit placement of steel items on concrete surfaces.

END OF SECTION 033000

.

SECTION 033600 - STAMPED CONCRETE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Stamped Concrete.

1.2 RELATED REQUIREMENTS

A. Section 033000 – Cast-in-Place Concrete.

1.3 REFERENCE STANDARDS

A. ASTM C 309 – Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

B. ASTM C 979 – Standard Specification for Pigments for Integrally Colored Concrete.

1.4 SUBMITTALS

A. Comply with Section 013300 – Submittal Procedures.

B. Product Data: Submit manufacturer's product data, including preparation and application instructions.

C. Samples: Submit manufacturer's samples of standard colors.

D. Manufacturer's Certification: Submit manufacturer's certification that materials comply with specified requirements and are suitable for intended application.

E. Applicator's Project References: Submit applicator's list of successfully completed stamped concrete projects, including project name and location, name of architect, and type and quantity of materials applied.

1.5 QUALITY ASSURANCE

A. Applicator's Qualifications:
   1. Applicator regularly engaged, for preceding 5 years, in application of stamped concrete of similar type to that specified.
   2. Employ persons trained for application of stamped concrete.

B. Mock-ups:
   1. Construct Mock-ups of Stamped Concrete:
      a. Use same materials and methods for use in the Work.
      b. Location: Determined by Architect.

c. Minimum Size: 4 feet by 4 feet.

2. Receive approval of mock-ups by Architect for patterns, colors, textures, finishing, curing, cleaning, sealing, special effects, and workmanship before application of stamped concrete.
3. Approved Mock-ups:
   a. Standard for patterns, colors, textures, finishing, curing, sealing, special effects, and workmanship of stamped concrete.
   b. Retain through completion of Work for use as quality standard.

C. Pre-application Meeting:
1. Convene pre-application meeting before start of application of stamped concrete.
2. Require attendance of parties directly affecting work of this section, including:
   a. Contractor.
   b. Architect.
   c. Applicator.
   d. Manufacturer's representative.
3. Review:
   a. Mock-ups.
   b. Materials.
   c. Preparation.
   d. Application.
   e. Finishing.
   f. Curing.
   g. Cleaning.
   h. Sealing.
   i. Protection.
   j. Coordination with other work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Acceptance Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Storage and Handling Requirements:
1. Store and handle materials in accordance with manufacturer's instructions.
2. Keep materials in manufacturer's original, unopened containers and packaging until application.
3. Store materials in clean, dry area indoors.
4. Store materials out of direct sunlight.
5. Keep materials from freezing.
6. Protect materials during storage, handling, and application to prevent contamination or damage.

1.7 AMBIENT CONDITIONS

A. Apply materials when air and surface temperatures are between 55 degrees F (13 degrees C) and 80 degrees F (27 degrees C).

B. Do not apply materials when rain, snow, or excessive moisture is expected during application or within 24 hours after application.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Basis of Design is Brickform, 11061 Jersey Boulevard, Rancho Cucamonga, California 91730. Toll Free 800-483-9628. Phone 909-484-3399. Fax 909-484-3318. Website www.brickform.com. E-mail info@brickform.com.
Other manufacturers may be considered if substitution requests are in accordance with specification procedures/submittals and meet this specification.

2.2 MATERIALS

A. Liquid Integral Concrete Color: Brickform “Liquid Color”.

1. Compliance: ASTM C 979.
2. Color: To be determined from manufactures full range of colors..

B. Dry Integral Concrete Color: Brickform “Powdered Color”.

1. Compliance: ASTM C 979.
2. Color: To be determined from manufactures full range of colors

D. Colored Bond Breaker/Antiquing Release Agent: Brickform “Antique Release”.

1. Color: To be determined from manufactures full range of colors
   a. Application Rate: As recommended by the manufacturer for color and texture selected.

E. Colorless Bond Breaker: Brickform “Liquid Release”.

F. Stamping Mats: Brickform “Creative Image Mats”.

1. Model Number: To be determined from manufacturers 19 standard patterns.
2. Pattern: TBD.

G. Curing Compound:
1. Clear, non-yellowing, non-staining, breathable, UV stable.
2. Compliance: ASTM C 309.
3. Compatible with colored concrete.

H. Concrete Cleaner: Brickform “Antique Release/Efflorescence Remover”.
1. Biodegradable.

I. Sealer:
1. Low-Sheen Sealer with Traction Grip: Brickform “Safety-Seal”.
   a. Slip-resistant, UV-resistant, lacquer-based, acrylic, clear sealer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine surfaces to receive stamped concrete.

B. Notify Architect of conditions that would adversely affect application or subsequent use.

C. Do not begin preparation or application until unacceptable conditions are corrected.

3.2 PREPARATION

A. Protection of In-Place Conditions: Protect adjacent surfaces, areas, adjoining walls, and landscaping from contact with stamped concrete materials.

B. Preparation of Subgrade:
1. Ensure subgrade is uniformly graded, compacted, and moistened.
2. Ensure subgrade is free of standing water.
3. Do not place concrete over soft, frozen, or muddy subgrade.

C. Concrete:

1. Specified in Section 033000, unless otherwise specified in this section.
2. Slump: Maximum 4 inches.
4. Calcium Chloride: Do not use calcium chloride or admixtures containing calcium chloride.
5 Fine and Course Aggregates:
   a. Non-reactive.
   b. Free of deleterious material.

3.3 APPLICATION

A. Apply stamped concrete materials in accordance with manufacturer’s instructions at locations indicated on the Drawings.

B. Concrete Topping and Hardener:
1. Apply concrete topping and hardener in accordance with manufacturer’s instructions.
2. Apply concrete topping and hardener to give complete and uniform coverage to concrete.
3. Ensure uniform color results.

C. Colorless Bond Breaker:
1. Apply colorless bond breaker in accordance with manufacturer’s instructions to bottom of stamping mats and on concrete surface, when concrete has reached plastic stage desirable for imprinting.
2. Do not trowel or mix colorless bond breaker into plastic concrete surface.

D. Stamping Mats:
1. Press stamping mats in accordance with manufacturer’s instructions into concrete that has reached plastic stage desirable for imprinting.

2. Use stamping mats to create patterns in concrete as indicated on the Drawings.

E. Approved Mock-ups: Match approved mock-ups for patterns, colors, textures, finishing, curing, cleaning, sealing, special effects, and workmanship.

3.4 CURING

A. Cure concrete in accordance with manufacturer's instructions.

B. Apply curing compound in accordance with manufacturer's instructions.

C. Do not cure concrete using materials or methods harmful to concrete surface, including:
1. Low-pressure or high-pressure steam.
2. Burlap.
3. Plastic sheeting.
4. Membrane paper.
5. Water misting.
6. Sodium-silicone-type hardeners.

3.5 CLEANING

A. Clean concrete in accordance with manufacturer's instructions.

B. Apply concrete cleaner in accordance with manufacturer's instructions to remove:
1. Excess colored bond breaker/antiquing release agent.
2. Efflorescence.
3. Cement scale.

C. Apply concrete cleaner before sealing concrete surface.

3.6 SEALING

A. Seal concrete surfaces in accordance with manufacturer's instructions.

B. Apply sealer to clean and dry concrete surfaces in accordance with manufacturer's instructions after concrete has cured a minimum of 28 days.

C. Apply sealer uniformly over entire stamped concrete surface.

D. Do not allow traffic on finished sealed surfaces for the following periods after application:
1. Foot Traffic: Minimum 24 hours.
2. Heavy Traffic: Minimum 72 hours.

3.7 PROTECTION

A. Exterior Surfaces: Protect applied stamped concrete to ensure that, except for normal weathering, concrete will be without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 042200 - CONCRETE UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concrete masonry units.

1.2 DEFINITIONS

A. CMU(s): Concrete masonry unit(s).

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For reinforcing steel. Detail bending, lap lengths, and placement of unit masonry reinforcing bars. Comply with ACI 315.

1.4 INFORMATIONAL SUBMITTALS

A. Material Certificates: For each type and size of product. For masonry units, include **data on material properties**.

B. Mix Designs: For each type of mortar[**and grout**]. Include description of type and proportions of ingredients.

1. Include test reports for mortar mixes required to comply with property specification. Test in accordance with ASTM C109/C109M for compressive strength, ASTM C1506 for water retention, and ASTM C91/C91M for air content.
2. Include test reports, in accordance with ASTM C1019, for grout mixes required to comply with compressive strength requirement.

1.5 FIELD CONDITIONS

A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 UNIT MASONRY, GENERAL

A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.

2.2 CONCRETE MASONRY UNITS

A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.

1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.

B. CMUs: ASTM C90.

1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of **2150 psi (14.8 MPa)**.
2. Density Classification: **Normal weight**.

2.3 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C150/C150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

B. Hydrated Lime: ASTM C207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.

D. Masonry Cement: ASTM C91/C91M.

E. Aggregate for Mortar: ASTM C144.

1. White-Mortar Aggregates: Natural white sand or crushed white stone.

F. Aggregate for Grout: ASTM C404.

G. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C494/C494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

H. Water: Potable.

2.4 REINFORCEMENT

A. Uncoated-Steel Reinforcing Bars: ASTM A615/A615M or ASTM A996/A996M, Grade 60 (Grade 420).

B. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and to hold reinforcing bars in center of cells. Units are formed from 0.148-inch (3.77-mm) steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.

C. Masonry-Joint Reinforcement, General: ASTM A951/A951M.
1. Exterior Walls: **Hot-dip galvanized carbon** steel.
2. Wire Size for Side Rods: **0.148-inch (3.77-mm)** diameter.
3. Wire Size for Cross Rods: **0.148-inch (3.77-mm)** diameter.
4. Spacing of Cross Rods: Not more than 8 inches (407 mm) o.c.
5. Provide in lengths of not less than 10 feet (3 m).

2.5 TIES AND ANCHORS

A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:

1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A82/A82M, with ASTM A153/A153M, Class B-2 coating.
2. Steel Sheet, Galvanized after Fabrication: ASTM A1008/A1008M, Commercial Steel, with ASTM A153/A153M, Class B coating.

B. Rigid Anchors: Fabricate from steel bars 1-1/2 inches (38 mm) wide by 1/4 inch (6.35 mm) thick by 24 inches (610 mm) long, with ends turned up 2 inches (51 mm) or with cross pins unless otherwise indicated.

1. Corrosion Protection: **Hot-dip galvanized to comply with ASTM A153/A153M**.

2.6 EMBEDDED FLASHING MATERIALS

A. Flexible Flashing: Use the following unless otherwise indicated:

1. EPDM Flashing: Sheet flashing product made from ethylene-propylene-diene terpolymer, complying with ASTM D4637/D4637M, 0.040 inch (1.0 mm) thick.

2.7 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from **urethane or PVC**.

B. Bond-Breaker Strips: Asphalt-saturated felt complying with ASTM D226/D226M, Type I (No. 15 asphalt felt).

2.8 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.
2. Use **portland cement-lime or masonry cement** mortar unless otherwise indicated.
3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.

B. Mortar for Unit Masonry: Comply with ASTM C270, **Proportion** Specification. Provide the following types of mortar for applications stated unless another type is indicated.
1. For exterior, above-grade, load-bearing and nonload-bearing walls and parapet walls; for interior load-bearing walls; for interior nonload-bearing partitions; and for other applications where another type is not indicated, use Type N.

C. Grout for Unit Masonry: Comply with ASTM C476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

3.2 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch (12 mm) or minus 1/4 inch (6 mm).
2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch (12 mm).
3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch (6 mm) in a story height or 1/2 inch (12 mm) total.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 feet (6 mm in 3 m), or 1/2-inch (12-mm) maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2-inch (12-mm) maximum.
3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-mm) maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2-inch (12-mm) maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-mm) maximum.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm).
2. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch (9 mm) or minus 1/4 inch (6 mm).
3. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm).

3.3 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

C. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below, and rod mortar or grout into core.

D. Fill cores in hollow CMUs with grout 24 inches (600 mm) under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

3.4 MORTAR BEDDING AND JOINTING

A. Lay hollow CMUs as follows:

1. Bed face shells in mortar and make head joints of depth equal to bed joints.
2. Bed webs in mortar in all courses of piers, columns, and pilasters.
3. Bed webs in mortar in grouted masonry, including starting course on footings.
4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.

B. Lay solid CMUs with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

C. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

3.5 MASONRY-JOINT REINFORCEMENT

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch (16 mm) on exterior side of walls, 1/2 inch (13 mm) elsewhere. Lap reinforcement a minimum of 6 inches (150 mm).
1. Space reinforcement not more than 8 inches (203 mm) o.c. in foundation walls and parapet walls.

B. Provide continuity at wall intersections by using prefabricated T-shaped units.

C. Provide continuity at corners by using prefabricated L-shaped units.

3.6 FLASHING

A. General: Install embedded flashing at ledges and other obstructions to downward flow of water in wall where indicated.

B. Install flashing as follows unless otherwise indicated:

3.7 REINFORCED UNIT MASONRY

A. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.

B. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

1. Comply with requirements in TMS 602/ACI 530.1/ASCE 6 for cleanouts and for grout placement, including minimum grout space and maximum pour height.

3.8 REPAIRING, POINTING, AND CLEANING

A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

B. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes.
2. Clean concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.

3.9 MASONRY WASTE DISPOSAL

1. Do not dispose of masonry waste as fill.

B. Masonry Waste Recycling: Return broken CMUs not used as fill to manufacturer for recycling.

C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 042200

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SECTION 044313.13 - ANCHORED STONE MASONRY VENEER

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Stone masonry anchored to unit masonry backup.

1.2 ACTION SUBMITTALS

A. Product Data: For each variety of stone, stone accessory, and manufactured product.

B. Samples:

   1. For each stone type indicated.
   2. For each color of mortar required.

1.3 FIELD CONDITIONS

A. Protection of Stone Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work.

B. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

   1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and above and will remain so until masonry has dried.

C. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 LIMESTONE

A. Material Standard: Comply with ASTM C568/C568M.

B. Varieties and Sources: Subject to compliance with requirements intended to match existing:

2.2 MORTAR MATERIALS

A. Portland Cement: ASTM C150/C150M, Type I or Type II, except Type III may be used for cold-weather construction; natural color or white cement may be used as required to produce mortar color indicated.

1. Low-Alkali Cement: Not more than 0.60 percent total alkali when tested according to ASTM C114.

B. Hydrated Lime: ASTM C207, Type S.

C. Masonry Cement: ASTM C91/C91M.

D. Aggregate: ASTM C144 and as follows:

1. For pointing mortar, use aggregate graded with 100 percent passing No. 16 (1.18-mm) sieve.

E. Water: Potable.

2.3 VENEER ANCHORS

A. Materials:

1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A1064/A1064M; with ASTM A153/A153M, Class B-2.
2. Hot-Dip Galvanized-Steel Sheet: ASTM A1008/A1008M, cold-rolled, carbon-steel sheet, hot-dip galvanized after fabrication to comply with ASTM A153/A153M, Class B-2.

B. Size: Sufficient to extend at least halfway, but not less than 1-1/2 inches (38 mm), through stone masonry and with at least a 5/8-inch (16-mm) cover on exterior face.

C. Wire Veneer Anchors: Wire ties formed from W1.7 or 0.148-inch- (3.8-mm-) diameter, **hot-dip galvanized** steel wire.

2.4 EMBEDDED FLASHING MATERIALS

A. Flexible Flashing: For flashing unexposed to the exterior, use[**one of**] the following unless otherwise indicated:

1. Rubberized-Asphalt Flashing: Composite flashing product consisting of a pliable, adhesive, rubberized-asphalt compound, bonded to a high-density, cross-laminated, polyethylene film to produce an overall thickness of not less than **0.030 inch (0.76 mm)**.

2.5 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness required for 3/4” control joint and compatible with sealant.

B. Asphalt Dampproofing: **Cut-back asphalt complying with ASTM D4479/D4479M, Type I or asphalt emulsion complying with ASTM D1227, Type III or Type IV**

C. Weep/Vent Products: Use[**one of**] the following unless otherwise indicated:
1. Round Plastic Tubing: Medium-density polyethylene, 3/8-inch (10-mm) OD by thickness of stone masonry.

2.6 FABRICATION

A. **Cut, Split or Select** stone as required to produce pieces of thickness, size, and shape to match existing, including details and pattern.

1. Shape stone to be laid in required range with **sawed and/or split** beds to match existing.

B. Thickness of Stone: Provide thickness to match existing, but not less than the following:

1. Thickness: 4 inches to 5 inches plus or minus **1/2 inch (13 mm)**. **Thickness does not include projection of pitched faces. Intent is to match existing.**

C. Finish exposed stone faces and edges to comply with requirements indicated for finish and to match approved samples.

1. Finish: to match existing Library Building.
2. Finish for Sills: [**Smooth**] [**Sand rubbed**] [**Split face with sand-rubbed washes**] [**Rock face (pitched face) with sand-rubbed washes**] [**Rock face (pitched face) with tooled (boasted) washes**].
3. Finish for Copings: **Smooth concrete coping/capping at column bases**. Provide sample for approval.

a. Finish exposed ends of copings same as front and back faces.

2.7 MORTAR MIXES

A. General: Do not use admixtures unless otherwise indicated.

1. Do not use calcium chloride.
2. Use **portland cement-lime or masonry cement** mortar with intent to match existing.
3. Mixing Pointing Mortar: Thoroughly mix cementitious and aggregate materials together before adding water. Then mix again, adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. Maintain mortar in this dampened condition for one to two hours. Add remaining water in small portions until mortar reaches required consistency. Use mortar within 30 minutes of final mixing; do not retemper or use partially hardened material.

B. Mortar for Stone Masonry: Comply with ASTM C270, Proportion Specification.

1. Mortar for Setting Stone: **Type N**.
2. Mortar for Pointing Stone: **Type N**.

C. Pigmented Mortar: Use colored cement product as required to match existing.

PART 3 - EXECUTION

3.1 PREPARATION

A. Accurately mark stud centerlines on face of weather-resistant sheathing paper before beginning stone installation.

B. Coat unit masonry backup with asphalt dampproofing.

3.2 INSTALLATION OF STONE MASONRY

A. Perform necessary field cutting and trimming as stone is set.

1. Use power saws to cut stone that is fabricated with saw-cut surfaces. Cut lines straight and true, with edges eased slightly to prevent snipping.
2. Use hammer and chisel to split stone that is fabricated with split surfaces. Make edges straight and true, matching similar surfaces that were shop or quarry fabricated.
3. Pitch face at field-split edges as needed to match stones that are not field split.

B. Sort stone before it is placed in wall to remove stone that does not comply with requirements relating to aesthetic effects, physical properties, or fabrication, or that is otherwise unsuitable for intended use.

C. Arrange stones in range with course heights to lengths, and uniform joint widths, with offset between vertical joints as required to match existing.

D. Arrange stones with color and size variations uniformly dispersed for an evenly blended appearance.

E. Maintain uniform joint widths except for variations due to different stone sizes and where minor variations are required to maintain bond alignment to match existing.

F. Provide sealant joints of widths and at locations indicated.

1. Keep sealant joints free of mortar and other rigid materials.

G. Install embedded flashing **and weep holes** at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.
1. Cut flexible flashing flush with wall face after completing masonry wall construction.

H. Place weep holes and vents in joints where moisture may accumulate, including at base of cavity walls, above shelf angles, and at flashing.

1. Use **round plastic tubing** to form weep holes.
2. Space weep holes **16 inches (400 mm)** o.c.

3.3 CONSTRUCTION TOLERANCES

A. Variation from Plumb: For vertical lines and surfaces, do not exceed 3/8 inch in 20 feet (10 mm in 6 m),.

3.4 INSTALLATION OF ANCHORED STONE MASONRY

A. Anchor stone masonry to unit masonry with **corrugated-metal or individual wire** veneer anchors unless otherwise indicated. Embed anchors in unit masonry mortar joints or grouted cells at a distance of at least one-half of unit masonry thickness.

B. Embed veneer anchors in mortar joints of stone masonry at least halfway, but not less than 1-1/2 inches (38 mm), through stone masonry and with at least a 5/8-inch (16-mm) cover on exterior face.

C. Space anchors to provide not less than one anchor per 2 sq. ft. (0.2 sq. m) of wall area. Install additional anchors within 12 inches (300 mm) of openings, sealant joints, and perimeter at intervals not exceeding 12 inches (300 mm).

D. Set stone in full bed of mortar with full head joints unless otherwise indicated. Build anchors into mortar joints as stone is set.

E. Provide **1-inch (25-mm)** cavity between stone masonry and backup construction unless otherwise indicated. Keep cavity free of mortar droppings and debris.

1. Slope beds toward cavity to minimize mortar protrusions into cavity.
2. Do not attempt to trowel or remove mortar fins protruding into cavity.

F. Rake out joints for pointing with mortar to depth required to match existing before setting mortar has hardened. Rake joints to uniform depths with square bottoms and clean sides.

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 in layers not more than 3/8 inch (10 mm) deep until a uniform depth is formed. Intent is to match existing.

B. Point stone joints by placing and compacting pointing mortar in layers of not more than 3/8 inch (10 mm) deep. Compact each layer thoroughly and allow to it become thumbprint hard before applying next layer. Intent is to match existing.

C. Tool joints, when pointing mortar is thumbprint hard, with a smooth jointing tool to produce the following joint profile:

1. Joint Profile: To match existing.

3.6 ADJUSTING AND CLEANING

A. In-Progress Cleaning: Clean stone masonry as work progresses. Remove mortar fins and smears before tooling joints.

B. Final Cleaning: After mortar is thoroughly set and cured, clean stone masonry 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 Architect's approval of sample cleaning before cleaning stone masonry.
3. Clean stone masonry by bucket and brush hand-cleaning method described in BIA Technical Note No. 20, Revised II, using job-mixed detergent solution.

3.7 EXCESS MATERIALS AND WASTE

A. Disposal as Fill Material: Properly dispose of masonry waste, including mortar and excess or soil-contaminated sand.

1. Do not dispose of masonry waste as fill.

END OF SECTION 044313.13

APPENDIX "A"

Preliminary Subsurface Exploration
Transylvania County Library
Amphitheater Canopy
Brevard, Transylvania County,
North Carolina
S&ME Project No. 23410062

PREPARED FOR:

Transylvania County Library Foundation
212 South Gaston Street
Brevard, North Carolina 28712

PREPARED BY:

S&ME, Inc.
44 Buck Shoals Road
Arden, North Carolina 28704

September 5, 2023

September 5, 2023

Transylvania County Library Foundation
212 South Gaston Street
Brevard, North Carolina 28712

Attention: Ms. Rishara Finsel

Reference: **Preliminary Subsurface Exploration**
Transylvania County Library Amphitheater Canopy
Brevard, Transylvania County, North Carolina
S&ME Project No. 23410062
NC PE Firm License No. F-0176

Ms. Finsel,

S&ME, Inc. has completed the preliminary subsurface exploration and geotechnical engineering evaluation for the proposed Amphitheater Canopy in Brevard, North Carolina. This work was performed in general accordance with S&ME Proposal No. 23410062 dated May 26, 2023, and Agreement for Services (S&ME Form AS-071) executed on June 21, 2023. The purpose of the subsurface exploration was to help determine site subsurface conditions and to evaluate these conditions relative to foundation support for the proposed Amphitheater Canopy and slab-on-grade for the proposed stage area. The following report presents a brief description of the proposed project, the exploration procedures, the results, and our preliminary geotechnical recommendations regarding the above considerations. Once the project is further advanced, with loads and foundation type available, we can refine our recommendations for the final report.

We appreciate the opportunity to be of service to Transylvania County Library Foundation on this project. If you have any questions concerning the information presented or if we can be of further assistance, please contact us.

Sincerely,

S&ME, Inc.

Michael Hager, P.G.
Project Engineer

NORTH CAROLINA PROFESSIONAL SEAL 028091 ENGINEER MICHAEL G. REVIS

Michael Revis, P.E.
Principal Engineer

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Appendices

1.0 Project Information

The report information contained herein is based on the following:

- A phone call from Ms. Rishara Finsel with the Transylvania County Library to Mr. Joseph Laps with S&ME and subsequent email on May 10, 2023, discussing the referenced project and providing the conceptual design and layout for the proposed amphitheater canopy.
- An email from Mr. John Koury, AIA with May Collaborative to Mr. Joseph Laps with S&ME on May 16, 2023, providing base design criteria pertaining to structural loading.
- A review of Google Earth™ and Transylvania County Aerial imagery.
- A site visit by Mr. Joseph Laps with S&ME on July 12, 2019.
- A subsurface investigation performed by S&ME on August 10, 2023.
- A phone call between Mr. Jeff Hasley with the canopy vendor, Hasley & Associates, and Michael Hager with S&ME on September 1, 2023, discussing the typical preferred foundation types for the canopy system.

From the above information, we understand the Transylvania County Library Foundation plans to construct a new amphitheater canopy, a secondary canopy and supporting concrete slab stage to the west of the existing seating areas. We also understand that a new access/perimeter concrete driveway is to be constructed. These plans include demolishing a portion of the existing access/perimeter concrete driveway. The proposed amphitheater canopy will be in the northeast corner of the site.

Conceptual drawings indicate a maximum height of approximately 29 feet. The approximate dimensions of the canopy (length/width) are 60 feet by 50 feet with a 2-part roof system consisting of a primary arched roof and supporting secondary arched roof as well.

Structural loading was not available at the time this report was prepared. However, talking with the manufacturer, the structure will incorporate predominately steel construction framing and roofing supported on shallow spread foundations, shallow drilled pier foundations or some type of deep foundation element based on subsurface conditions, loading and performance criteria, and slab-on-grade. Based on experience with similar structures, we anticipate column loads will be on the order of up to 50 kips (compression and/or uplift). We also anticipate the structure will be at or near the existing grade with minimal (<2 feet) site grading.

2.0 Exploration and Testing

The field exploration included a visual site reconnaissance by an S&ME representative and performance of three soil test borings (B-1 through B-3). The borings ranged in depth from 25 to 39.7 feet below the ground surface.

The boring locations were established in the field by our personnel by estimating distances from existing site features identified on the provided conceptual drawings (see Figure 2 in Appendix II). The boring locations are shown on the Boring Location Plan (Figure 1) in Appendix I. Because precise survey techniques were not used, the indicated locations should be considered approximate.

The borings were performed utilizing a track-mounted drill rig and advanced using hollow stem auger techniques. Split-spoon samples and standard penetration resistance values (SPT N-values) were obtained at selected intervals using an automatic hammer.

The samples obtained during the exploration were transported to our laboratory where they were visually and manually classified by a Geotechnical Professional. The visual and manual classification was estimated based on the Unified Soil Classification System (USCS) and our experience with similar soil conditions. The results of classification and field testing are presented on the individual Boring Logs included in Appendix III. Boring locations (latitude and longitude) and ground surface elevations shown on the boring logs were estimated utilizing Google Earth and should be considered approximate.

3.0 Site and Subsurface Conditions

3.1 Surface Features

The site is located at the existing Transylvania County Library property in Brevard, North Carolina. The proposed construction area is within the existing amphitheater grounds and currently consists of a concrete stage area, concrete benches, a concrete access/ perimeter driveway, and maintained grass with some landscaped areas of shrubs and large trees.

The site is generally level, with a slight downward slope from southeast to northwest, with about 1-foot of topographic relief occurring across the proposed construction area. The existing seating area to the northeast rises above the stage level approximately 10 to 15 feet.

3.2 Area Geology

Table 3-1 – Site Geology

Site Geology	
Physiographic Province	Piedmont near the contact with the Blue Ridge
Geologic Formation	Rocks of the Brevard Fault Zone
Primary and Secondary Soil/Rock Types	Clay, Silt, Sand/Phyllonitic-Schist

Based on USGS North Carolina Geologic Map

The topography and relief of the Piedmont Province have developed from differential weathering of the igneous and metamorphic rock. Because of the continued chemical and physical weathering, the rocks in the Piedmont Province are now generally covered with a mantle of soil that has weathered in place from the parent bedrock. These soils have variable thicknesses and are referred to as residuum or residual soils. The residuum is typically finer grained and has higher clay content near the surface because of the advanced weathering. Similarly, the soils typically become coarser grained with increasing depth because of decreased weathering. As the degree of weathering decreases, the residual soils generally retain the overall appearance, texture, gradation, and foliations of the parent rock.

The boundary between the residual soil and the underlying bedrock is not sharply defined. Generally, a transition zone consisting of very hard soil and soft rock appropriately classified as "partially weathered rock" (also known as Intermediate Geomaterials or IGM as denoted on the Boring Logs) is found. Partially weathered rock is defined, for engineering purposes, as residual material with standard penetration resistance values of at least 50 blows per 6 inches. Weathering is facilitated by fractures, joints, and the presence of less resistant rock types. Consequently, the profile of the partially weathered rock (as well as hard rock) is quite irregular and erratic, even over relatively short horizontal distances. Also, it is not unusual to find lenses and boulders of hard rock and zones of partially weathered rock within the soil mantle, well above the general bedrock level.

The natural geological profile of portions of the site have been modified/disturbed by past grading activities that have resulted in disturbance of soils and the placement of fill. Please keep in mind fill soils can vary in composition and consistency, and the engineering characteristics of these soils can be difficult to predict. Although there is no specific correlation between the degree of compaction of existing fill and the results of standard penetration testing, a qualitative assessment of existing fill can often be made based on visual observation of the fill materials sampled in the borings and the general magnitude of the standard penetration test values.

3.3 Subsurface Conditions

The following is a brief and general description of subsurface conditions encountered at the site. More detailed information is provided on the individual Boring Logs included in Appendix III.

3.3.1 Surface Materials

A layer of organic-laden topsoil at the ground surface approximately 2 inches thick was encountered in boring B-1. Topsoil thickness will vary throughout the site and could be thicker or thinner between the borings.

3.3.2 Existing Fill

Boring B-2 encountered existing fill soils to a depth of about 5½ feet below the surface. The sampled existing fill consisted of sandy silt with gravel (USCS group symbol of ML). The fill exhibited standard penetration resistance values (N-values) ranging from 5 to 13 blows per foot (bpf), indicating a firm to stiff consistency or an estimated low to moderate degree of compaction.

Please note that fill soils should be anticipated in unexplored areas between our boring locations because of previous site grading and development. The depth and composition of fill in unexplored areas will vary and could be deeper and/or erratically compacted. Additionally, fill soils generally tend to become wet due to rainwater runoff infiltrating these soils and becoming trapped or "perched" above layers of more consistent residual soils. In addition, the upper residual soils near the fill/residuum interface can be moist or wet as well.

3.3.3 Residuum

Residual soils common to the Piedmont were encountered below the existing fill in boring B-2, and surface materials in the remaining borings. The residual soils were generally comprised of silt with sand (ML) and sandy silt (ML). Much of the residuum contained trace amounts of rock fragments. The residual soils were classified as moist to wet. The SPT N-values in the silts with sand ranged from 0 to 9 bpf, indicating a very soft to firm consistency. The SPT N-values in the sandy silts ranged from 14 to 47 bpf, indicating a stiff to hard consistency. Borings B-2 and B-3 were terminated in the residual soils at depths of 25 and 30 feet, respectively.

3.3.4 Partially Weathered Rock

Boring B-1 encountered partially weathered rock (PWR) at a depth of 38.7 feet below the surface. The PWR was generally classified as very hard sandy silt (SM) with an SPT N-value of 50 blows per 2 inches of penetration (50/2"). The boring was terminated in PWR at a depth of 39.5 feet.

3.3.5 Subsurface Water

Subsurface was encountered in each of the borings at the time of boring (TOB). Subsurface water was measured between 4.6 feet and 11 feet below the surface in each boring upon completion of the day's drilling activities. It should be noted that subsurface water levels will fluctuate during the year, due to such things as seasonal variations, precipitation, nearby creek/river levels, and construction activity in the area.

3.3.6 Laboratory Testing

Atterberg limits tests, grain size analysis, and natural moisture contents were performed on selected site samples and the results are summarized on the Summary of Laboratory Test Data sheet and individual laboratory data reports included in Appendix IV.

4.0 Preliminary Conclusions and Opinions

The following preliminary conclusions and opinions are based upon our understanding of the proposed construction and results of the exploration as discussed in Sections 1.0 and 3.0. Given that the project is in the preliminary stages, with structural loads not yet determined, they should be considered preliminary. Once the design is advanced and loads are provided, we will be happy to review and provide final design level recommendations considering the new information. If during construction, subsurface conditions encountered are different from those reported, S&ME should be notified and these recommendations must be re-evaluated to make the appropriate revisions. In addition, as the design progresses or requirements change, we would be pleased to expand or provide additional recommendations as needed for the selected structure type, structural loads, and grading considerations.

The upper subsurface soils at the site generally consist of firm to stiff consistency existing fill and soft to firm consistency residual soils, which are generally adaptable for the proposed canopy/stage construction. Given that the canopy design will most likely be controlled by uplift loading, canopy columns could be supported using conventional shallow spread footings or helical piers if the design footing sizes are too large. The following sections include preliminary design opinions for shallow spread footings and helical piers for column support, and

slabs-on-grade. If other support methods, such as drilled piers or micropiles are considered, we can provide additional information during the final report.

4.1 Spread Footings

After proper site preparation and necessary undercutting, foundations for the canopy columns may be designed as conventional spread footings bearing in evaluated and approved residual soils and/or well-compacted structural fill. Based on the boring data, maximum column load of 50 kips, and assuming the recommendations provided in Sections 5.1 and 5.3 are properly implemented, a uniform net maximum allowable bearing pressure of 1,500 psf is available for foundation design. For short duration loads such as wind and seismic, this pressure may be increased by 25 percent; however, this will result in a reduced factor of safety of about 2.3.

Uplift loading on footings may be resisted by footing embedment, such as the sum of the column dead load, foundation weight, and weight of soil vertically above the foundation area. (A moist soil unit weight of 115 pounds per cubic foot (pcf) may be used for design for well compacted fill). Lateral forces can be resisted through a combination of friction along the footing bottom and lateral earth pressure. (See Table 4-1 for design earth pressure coefficients.)

The foundations should bear at least 30 inches below grade so they will not be adversely affected by frost penetration and to develop the design bearing pressure. Isolated column footings should not be less than 36 inches wide. These recommendations are made to help prevent a "localized" or "punching" shear failure condition which could exist with very narrow footings.

4.1.1 Engineering Evaluation

All foundation excavation bottoms should be carefully evaluated by a representative of the Geotechnical Engineer prior to rebar and concrete placement. The evaluations should include shallow hand auger borings and dynamic cone penetrometer (DCP) tests in the footing bottoms as well as probing the footing bottoms. These evaluations will help assess whether the individual footings are directly underlain by suitable bearing material.

Some footings could require lowering or undercutting to penetrate low consistency soils which went undetected during site preparation measures. Undercut footings can be backfilled with NCDOT Size No. 57 crushed stone compacted in one foot lifts with the backhoe bucket. Also, lean (2,000 psi) concrete or flowable fill (200 psi) can be used to backfill undercut footings. Some undercutting or lowering of footings should be anticipated.

4.1.2 Subsurface Water/Dewatering

Subsurface water was encountered as shallow as 4.6 feet in the explored areas of the site. Accordingly, excavations that extend to this depth could require dewatering, and footing bottom over excavation and stabilization. Keep in mind that subsurface water levels vary and could be shallower at the time of construction. So, the contractor should be prepared to dewater excavations if/when encountered.

4.2 Helical Piers

A foundation system for supporting the amphitheater canopy columns could consist of a deep foundation system such as helical piers. Helical piers would be designed by a specialty contractor, and likely extend through the upper lower consistency soils. However, the penetration depth would be based on the actual design uplift and compression loads.

4.3 Grade Slabs

Concrete grade slabs may be soil supported, provided the recommendations discussed in Sections 5.1, 5.3 and 5.4 are followed. We recommend a 6-inch thick layer of crushed stone be used to separate the floor slab from the subgrade soils. This layer will help provide uniform support for the floor slab and provide a working surface during wet weather. The crushed stone should consist of NCDOT aggregate base course (ABC) compacted to at least 100 percent of its standard Proctor maximum dry density. Based on the boring data, a modulus of subgrade reaction of 100 pounds per cubic inch (pci) may be used for floor slab design.

4.4 Earth Pressure Parameters

Lateral earth pressures to be resisted retaining walls and footings will be partially dependent upon the method of construction. Assuming that the walls are relatively rigid and structurally braced against rotation, they should be designed for a condition approaching the "at-rest" lateral pressure. However, in the event that the walls are free to deflect during backfilling, (about ½ to 1 inch for a 10-foot high wall) as for any exterior walls that are not restrained or rigidly braced, the "active" pressure conditions will be applicable for design. The following lateral earth pressure parameters are recommended for design. These parameters assume a level backfill, a frictionless wall, and no hydrostatic pressure.

Table 4-1 – Lateral Earth Pressure Parameters

Soil Strata	At-Rest Coefficient (K_O)	Active Coefficient (K_A)	Passive Coefficient (K_P)	Moist Unit Weight - γ_m (pcf)[1]	Friction Factor
Upper Fill/Residuum	0.56	0.39	2.5[2]	115	0.35
NCDOT No. 57 Backfill	0.41	0.26	3.9[2]	100	N/A

[1]pcf – pounds per cubic foot.
[2]Because of the lateral movement required to mobilize the full passive pressure, we suggest using a reduction factor of at least ½ for the passive earth pressure coefficient in design.

The recommended lateral earth pressure coefficients/parameters do not consider the development of hydrostatic pressure from such things as rainwater runoff or leaking utilities behind earth retaining wall structures. As such, positive wall drainage must be provided for all earth retaining structures. These drainage systems can be constructed of open-graded washed stone isolated from the soil backfill with a geosynthetic filter fabric and drained by perforated pipe, or several wall drainage products are made specifically for this application. Lateral

earth pressures arising from surcharge loading should be added to the above earth pressures to determine the total lateral pressure.

The soil backfill placed behind retaining walls should be compacted to a similar requirement recommended in Section 5.3. We caution that operating compaction equipment directly behind the retaining structures can create lateral earth pressures far in excess of those recommended for design. Therefore, bracing of the walls may be needed during backfilling.

4.5 Seismic Conditions

The North Carolina Building Code assigns a Seismic Site Class based on the type and thickness of overburden soil materials. Site Class values range from Class A for hard bedrock to Classes E and F for deep deposits of unsuitable or soft bearing strata. Using the boring data, our experience, and the N-value method described in the Building Code, it is our interpretation this site has a Seismic Site Class of **E**. There are no active earthquake fault zones within close proximity to the general area and thus the site vicinity is not known to be subject to concerns of any major geologic hazards such as: significant ground shaking, liquefaction, seismically induced slope failures, etc.

5.0 Site Grading Recommendations

5.1 Site Preparation

5.1.1 General

Site preparation and fill placement recommendations are for the proposed stage slab-on-grade and concrete pavement areas. These recommendations should extend at least 10 feet outside the structure limits and 5 feet outside pavement areas, where practical.

Site preparation should begin with demolition of existing site structures, including foundations and underground obstructions and utilities, followed by the removal of all unsuitable surface materials. This would include surface vegetation, mulch, organic-laden topsoil, bushes and shrubs, roots, unsuitable existing fill, and any unstable near-surface soils. The borings indicate the organic-laden topsoil to be about 2 inches thick; however, thicknesses will vary across the site. Any voids in the ground resulting from removal of these materials should be cleaned of loose soil and backfilled with well-compacted fill as described in Section 5.3.

5.1.2 Existing Fill

The majority of the existing fill encountered in the borings appears suitable for supporting the proposed canopy foundations and concrete grade slabs. But because of previous development, low-consistency fill may be present in areas that were not explored by our borings. Therefore, after removal of unsuitable near surface materials, the subgrade within structural areas should be carefully evaluated by proofrolling (discussed in Section 5.1.5) and/or or during foundation engineering evaluations (Section 4.1.1) to help determine the suitability of the existing fill soils. Some undercutting should be expected, especially during wet weather conditions.

5.1.3 Underground Utility Lines

Utility lines may be present throughout the site. For lines that lie within the footprint of the proposed building, we suggest they be relocated, and their trenches cleaned and properly backfilled. Our experience indicates that the backfill soils for existing utility lines could be poorly compacted. If any utility lines will remain below "green" areas or proposed pavement areas, we suggest that the trench backfill material be carefully evaluated to ensure suitability.

5.1.4 Silty Soils

A consideration with the soils at this site is that the majority of the subsurface soils have very high silt content. These soils can generally provide suitable structural support; however, they are very sensitive to moisture, especially during grading. This could require close moisture control, and compaction using both sheepsfoot and pneumatic tire roller type compactors. This can be a significant consideration if grading and/or demolition is performed during unfavorable weather. Also, these types of soil tend to degrade quickly, especially when heavy equipment operates on the exposed subgrade during wet weather conditions. Depending on prevailing weather, drying these soils with disc harrows or mixing crushed stone with them could be needed.

5.1.5 Proofrolling

At multiple stages during grading (following site preparation, excavation to the design subgrade levels, and after any necessary undercutting), the exposed subgrade should be thoroughly proofrolled with a heavily-loaded, tandem-axle dump truck or similar rubber-tired equipment under the observation of a Geotechnical Engineer or his representative. Proofrolling will help reveal the presence of unstable or otherwise unsuitable surface materials. Areas that are unstable should be undercut as recommended by the Geotechnical Professional and backfilled as discussed in Section 5.3. Because of the existing fill and relatively low consistency residual silt soils on site, proofrolling is very important at this site.

Depending on the results of the proofrolling, backhoe excavated test pits could be needed to further evaluate the suitability of the subsurface soils. These test pits should be performed outside of the foundation areas.

5.1.6 Site Drainage

Grading activities for demolition and development typically result in areas of soil subgrade being exposed for extended periods with little to no topographic relief to drain surface water runoff. It is important the grading contractor protect the exposed soils from becoming wet or saturated during inclement weather. Positive site drainage should be maintained during all operations, including the initial stripping of the site and after excavation to subgrade levels. This may include surface ditches around the perimeter, internal ditching and in some cases French drains. Failure to provide positive site drainage can result in extensive and costly repairs to the exposed subgrade, as well as construction delays.

5.2 Excavation

Based on the boring data, excavation for the project is anticipated to primarily extend through low to moderate consistency fill and residual soils. These materials can normally be excavated by routine earthmoving equipment. That is, mass excavation can be accomplished by a bulldozer, moderately heavy front end loader, or bulldozer pushed scraper. Local excavation for shallow utility trenches and foundations can be accomplished by a heavy backhoe or tracked excavator.

While PWR encountered in our borings appears to be well below planned excavation depths, please keep in mind rock in a weathered, boulder, and massive form varies very erratically in depth and location in the Piedmont Geologic Province, especially near sources of water. Accordingly, such materials could be encountered at shallow depths between or near the boring locations.

5.2.1 Excavation Regulations

All excavations should be sloped or shored in accordance with local, state, and federal regulations, including OSHA (29 CFR Part 1926) excavation trench safety standards. The contractor is solely responsible for site safety. This information is provided only as a service and under no circumstances should S&ME be assumed to be responsible for construction site safety.

5.3 Fill Placement and Compaction

After excavation and undercutting, areas requiring fill placement should be raised to their design subgrade configuration with soil free of deleterious materials. Any rock fragments within the new fill should be less than 4 inches in diameter. The fill should be uniformly spread in 6- to 8-inch thick loose lifts and be compacted to at least 95 percent of the soil's maximum dry density, as determined by a laboratory standard Proctor compaction test (ASTM D698). The moisture content should be controlled at plus to minus 3 percent of optimum; however, a slight increase in optimum moisture could be allowable if the minimum compacted density is achieved and subgrade is stable. Closer moisture control could be needed with parts of the more silty soils. The contractor should select the equipment to obtain these compaction requirements. Our experience indicates sheepsfoot compactors along with heavy rubber tired equipment could be needed.

Fill placement should be monitored by a qualified Materials Technician working under the direction of the Geotechnical Engineer. In addition to this evaluation, the Technician should perform a sufficient amount of in-place field density tests to confirm the required degree of compaction is being attained.

5.3.1 Use of Excavated Soils as Fill

The sampled fill and residual soils appear generally adaptable for use as well-compacted structural fill with proper moisture adjustment. Some segregation of organic matter could be needed. Unsuitable soils will most likely need to be wasted nearby or placed in non-structural "green" areas. The exploration indicates the in-situ moisture content of site soils were near or above optimum for compaction at the time the exploration was performed. However, the moisture content of these soils (especially existing fill) will fluctuate with prevailing weather conditions prior to and during site grading. (This is particularly true for the near surface soils and soils near the

subsurface water levels.) If the soils are stockpiled, they should be protected from precipitation. Moisture adjustment (wetting or drying) could be required to achieve the recommended degree of compaction.

5.3.2 Use of Off-Site Borrow Materials as Fill

Imported fill used for site grading (if needed) should consist of a clean material (free of organics and debris), have a maximum particle size no greater than 4 inches, and be of low to moderately low plasticity soil (Liquid Limit less than 50, Plasticity Index less than 25), with a standard Proctor maximum dry density of at least 100 pounds per cubic foot. A Geotechnical Professional should evaluate these soils to determine their suitability prior to grading.

5.4 Subgrade Repair and Improvement Methods

The exposed subgrade soil of both excavation and fill areas can deteriorate when exposed to construction activity and environmental changes such as freezing, erosion, softening from ponded rainwater, and rutting from construction equipment. We recommend the exposed subgrade surfaces that have deteriorated be properly repaired by scarifying and recompacting immediately prior to construction. If this has to be performed during wet weather conditions, it would be worthwhile to consider undercutting the deteriorated soil and replacing it with compacted crushed stone.

6.0 Limitations of Report

This preliminary report has been prepared in accordance with generally accepted geotechnical engineering practice for specific application to this project. The preliminary conclusions and opinions contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other representation or warranty, either express or implied, is made.

We relied on project information given to us to develop our conclusions and opinions. Once final design level structural loading information is available, we should be notified so that we can modify our recommendations based on this new information. S&ME should be retained to review the final plans and specifications to confirm that earthwork, foundation, and other recommendations are properly interpreted and implemented. The recommendations in this report are contingent on S&ME's review of final plans and specifications followed by our observation and monitoring of earthwork and foundation construction activities

Our preliminary conclusions and opinions are based on limited data from a field exploration program. Subsurface conditions can vary widely between explored areas. Some variations may not become evident until construction. If conditions are encountered which appear different than those described in our report, we should be notified. This report should not be construed to represent subsurface conditions for the entire site.

Unless specifically noted otherwise, our field exploration program did not include an assessment of regulatory compliance, environmental conditions or pollutants, or presence of any biological materials (mold, fungi, bacteria). If there is a concern about these items, other studies should be performed. S&ME can provide a proposal and perform these services if requested.

BUILT FOR VERSATILITY

Important Information About Your Geotechnical Engineering Report

Variations in subsurface conditions can be a principal cause of construction delays, cost overruns and claims. The following information is provided to assist you in understanding and managing the risk of these variations.

Geotechnical Findings Are Professional Opinions

Geotechnical engineers cannot specify material properties as other design engineers do. Geotechnical material properties have a far broader range on a given site than any manufactured construction material, and some geotechnical material properties may change over time because of exposure to air and water, or human activity.

Site exploration identifies subsurface conditions at the time of exploration and only at the points where subsurface tests are performed or samples obtained. Geotechnical engineers review field and laboratory data and then apply their judgment to render professional opinions about site subsurface conditions. Their recommendations rely upon these professional opinions. Variations in the vertical and lateral extent of subsurface materials may be encountered during construction that significantly impact construction schedules, methods and material volumes. While higher levels of subsurface exploration can mitigate the risk of encountering unanticipated subsurface conditions, no level of subsurface exploration can eliminate this risk.

Scope of Geotechnical Services

Professional geotechnical engineering judgment is required to develop a geotechnical exploration scope to obtain information necessary to support design and construction. A number of unique project factors are considered in developing the scope of geotechnical services, such as the exploration objective; the location, type, size and weight of the proposed structure; proposed site grades and improvements; the construction schedule and sequence; and the site geology.

Geotechnical engineers apply their experience with construction methods, subsurface conditions and exploration methods to develop the exploration scope. The scope of each exploration is unique based on available project and site information. Incomplete project information or constraints on the scope of exploration increases the risk of variations in subsurface conditions not being identified and addressed in the geotechnical report.

Services Are Performed for Specific Projects

Because the scope of each geotechnical exploration is unique, each geotechnical report is unique. Subsurface conditions are explored and recommendations are made for a specific project. Subsurface information and recommendations may not be adequate for other uses. Changes in a proposed structure location, foundation loads, grades, schedule, etc. may require additional geotechnical exploration, analyses, and consultation. The geotechnical engineer should be consulted to determine if additional services are required in response to changes in proposed construction, location, loads, grades, schedule, etc.

Geo-Environmental Issues

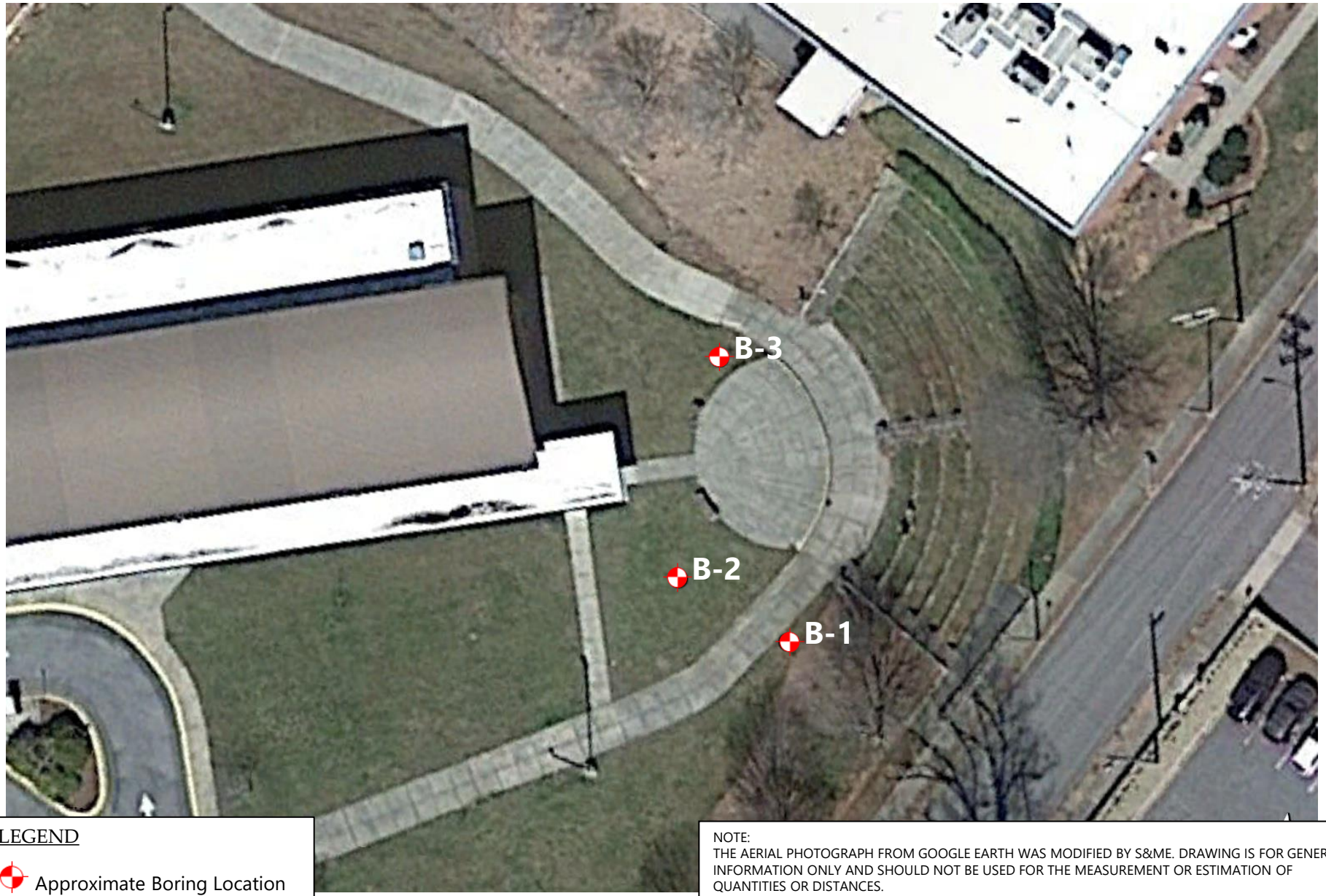
The equipment, techniques, and personnel used to perform a geo-environmental study differ significantly from those used for a geotechnical exploration. Indications of environmental contamination may be encountered incidental to performance of a geotechnical exploration but go unrecognized. Determination of the presence, type or extent of environmental contamination is beyond the scope of a geotechnical exploration.

Geotechnical Recommendations Are Not Final

Recommendations are developed based on the geotechnical engineer's understanding of the proposed construction and professional opinion of site subsurface conditions. Observations and tests must be performed during construction to confirm subsurface conditions exposed by construction excavations are consistent with those assumed in development of recommendations. It is advisable to retain the geotechnical engineer that performed the exploration and developed the geotechnical recommendations to conduct tests and observations during construction. This may reduce the risk that variations in subsurface conditions will not be addressed as recommended in the geotechnical report.

Appendices

Appendix I – Boring Location Plan



LEGEND

Approximate Boring Location

NOTE:
THE AERIAL PHOTOGRAPH FROM GOOGLE EARTH WAS MODIFIED BY S&ME. DRAWING IS FOR GENERAL INFORMATION ONLY AND SHOULD NOT BE USED FOR THE MEASUREMENT OR ESTIMATION OF QUANTITIES OR DISTANCES.

BORING LOCATION PLAN

Transylvania County Library Amphitheater Canopy
212 South Gaston Street
Brevard, NC 28712

SCALE: NOT TO SCALE

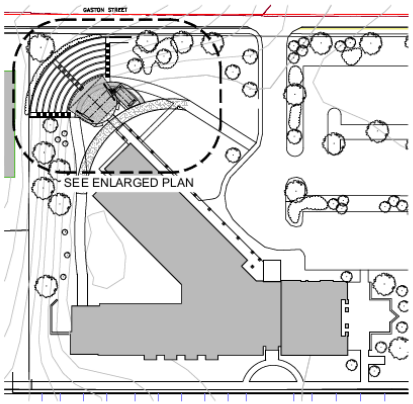
DATE: 09/05/2023

PROJECT NUMBER 23410062

FIGURE NO. 1

Appendix II – Conceptual Site Plan

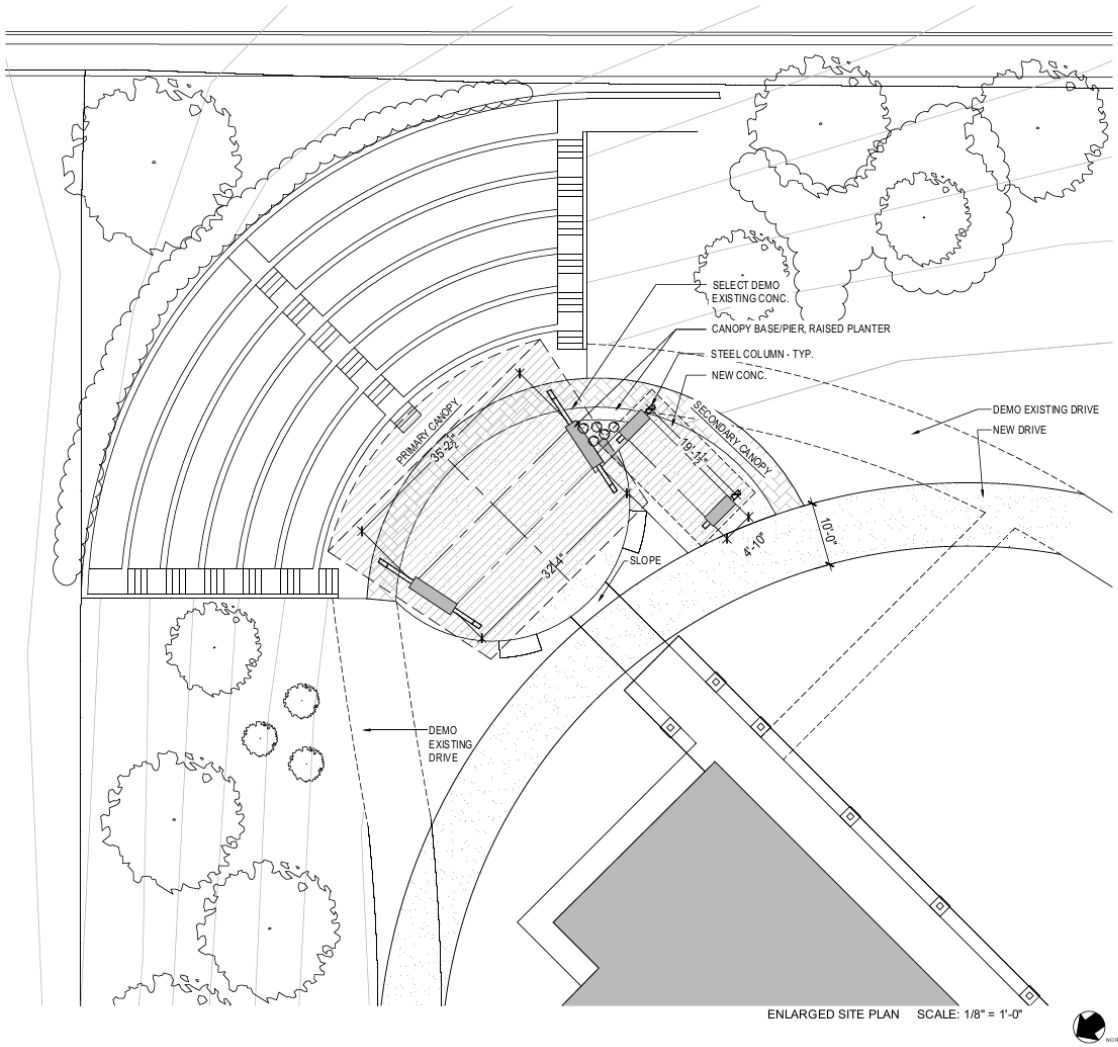
TRANSYLVANIA COUNTY LIBRARY AMPHITHEATER CONCEPTUAL DESIGN



KEY PLAN


AMPHITHEATER - EXISTING


AMPHITHEATER - EXISTING



CONCEPTUAL SITE PLAN

09.21.22

MAY COLLABORATIVE ARCHITECTURE | PLANNING

CONCEPTUAL SITE PLAN

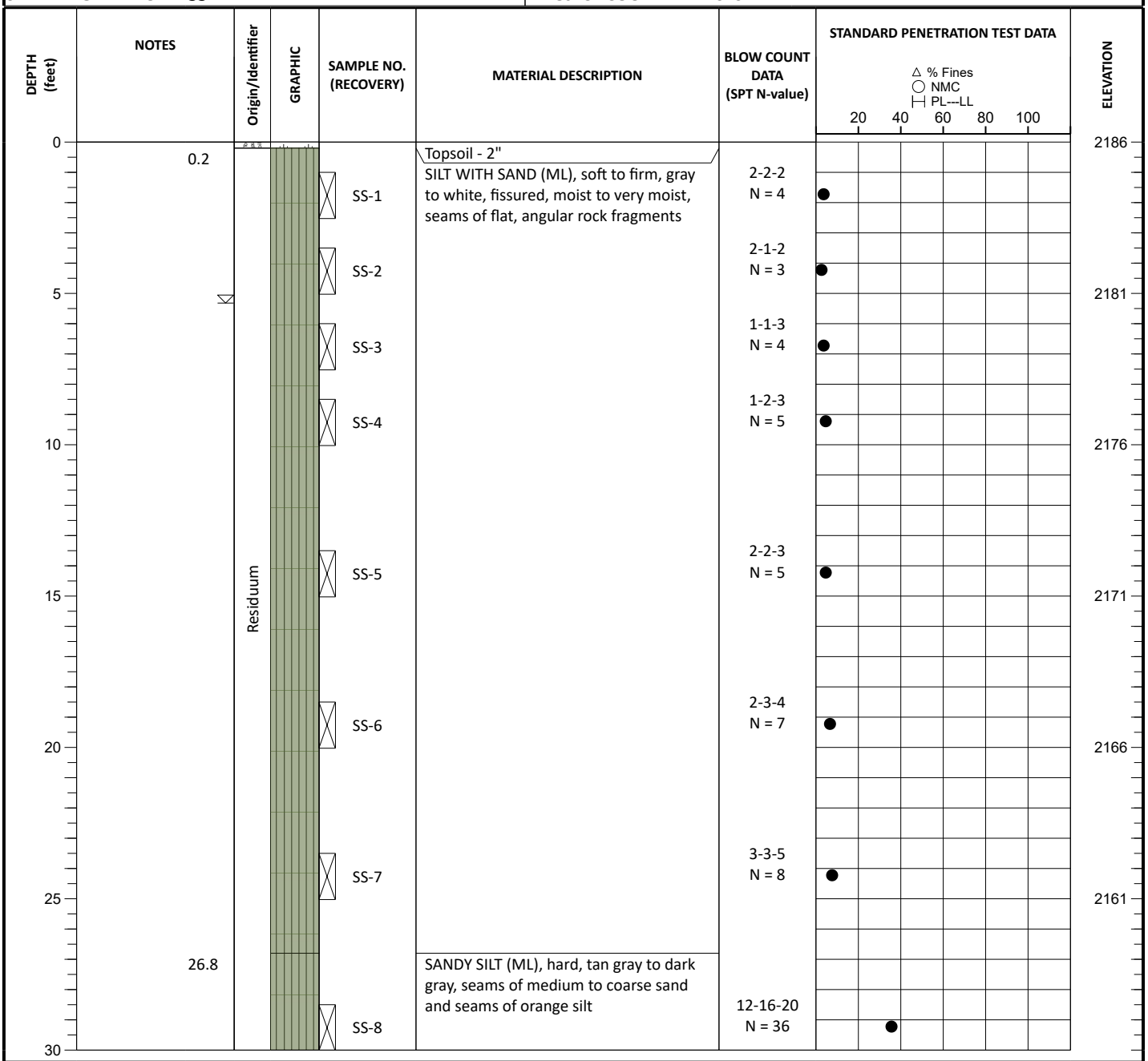
Transylvania County Library Amphitheater Canopy
212 South Gaston Street
Brevard, NC 28712

SCALE: NOT TO SCALE
DATE: 09/05/2023
PROJECT NUMBER 23410062

FIGURE NO. 2

Appendix III – Soil Test Boring Data

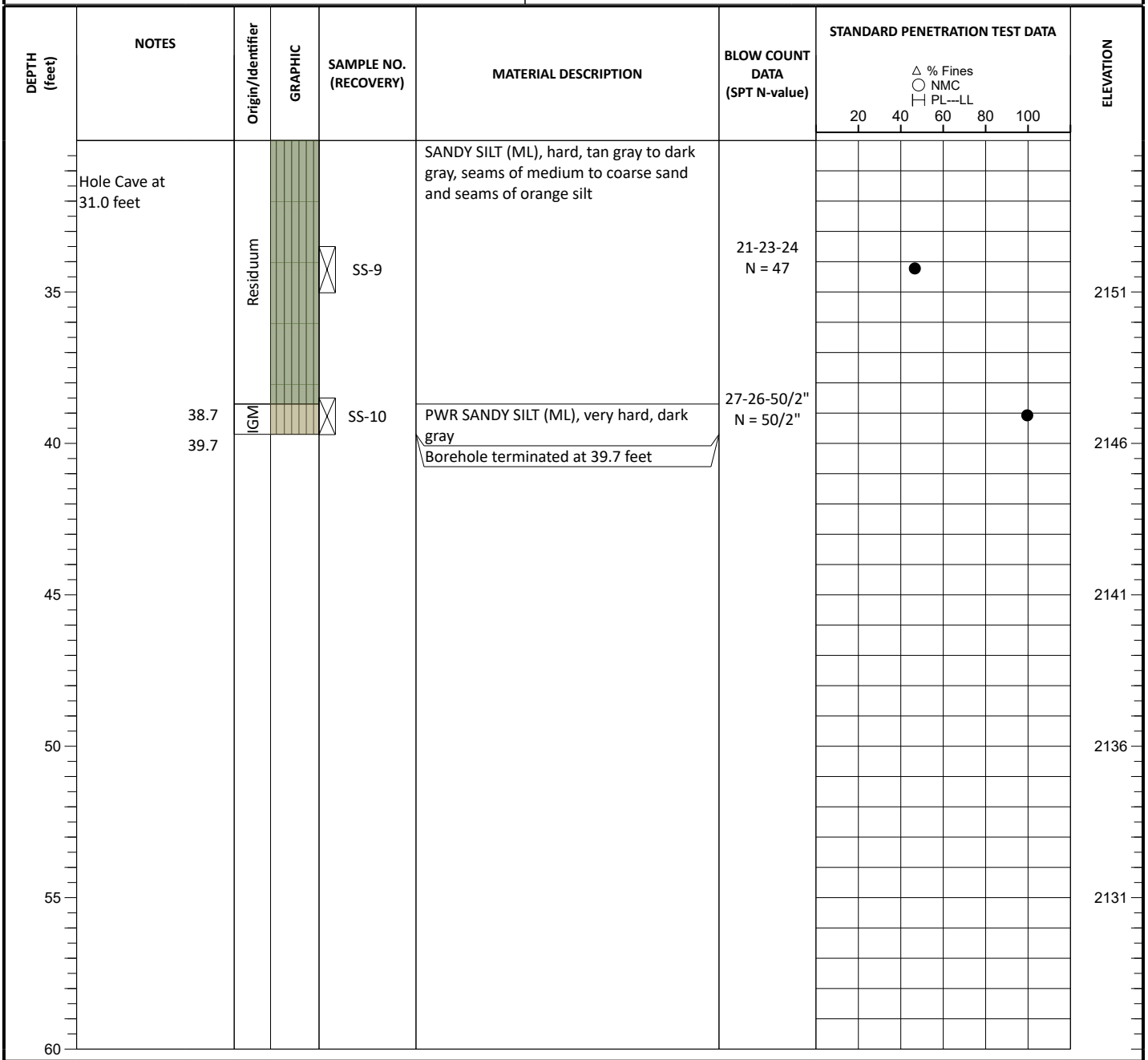
PROJECT:	Transylvania County Library Amphitheater Canopy Brevard, NC S&ME Project No. 23410062	BORING LOG: B-1 *Sheet 1 of 2*
DATE DRILLED: 08/10/2023	**ELEVATION:** 2186 ft	**NOTES:** Elevations and coordinates estimated from Google Earth and should be considered approximate.
DRILL RIG: D-50	**DATUM:** NAVD88	
DRILLER: Jordan Evnironmental, LLC	**BORING DEPTH:** 39.7 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Soil Cuttings	
DRILLING METHOD: 3-1/4" HSA	**LOGGED BY:** Mac Hager	**LATITUDE:** 35.230863 **LONGITUDE:** -82.734764
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane North Carolina FIPS 3200 Feet	



GROUNDWATER		DATE	DEPTH (FT)	REMARKS
ATD	▽	08/10/2023	5.2	at 6 hours
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), AR = Auger Refusal

PROJECT:	Transylvania County Library Amphitheater Canopy Brevard, NC S&ME Project No. 23410062	BORING LOG: B-1 *Sheet 2 of 2*
DATE DRILLED: 08/10/2023	**ELEVATION:** 2186 ft	**NOTES:** Elevations and coordinates estimated from Google Earth and should be considered approximate.
DRILL RIG: D-50	**DATUM:** NAVD88	
DRILLER: Jordan Evnironmental, LLC	**BORING DEPTH:** 39.7 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Soil Cuttings	
DRILLING METHOD: 3-1/4" HSA	**LOGGED BY:** Mac Hager	**LATITUDE:** 35.230863 **LONGITUDE:** -82.734764
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane North Carolina FIPS 3200 Feet	



GROUNDWATER		DATE	DEPTH (FT)	REMARKS
ATD	▽	08/10/2023	5.2	at 6 hours
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), AR = Auger Refusal

PROJECT:	**Transylvania County Library Amphitheater Canopy** **Brevard, NC** **S&ME Project No. 23410062**	**BORING LOG: B-2** *Sheet 1 of 1*

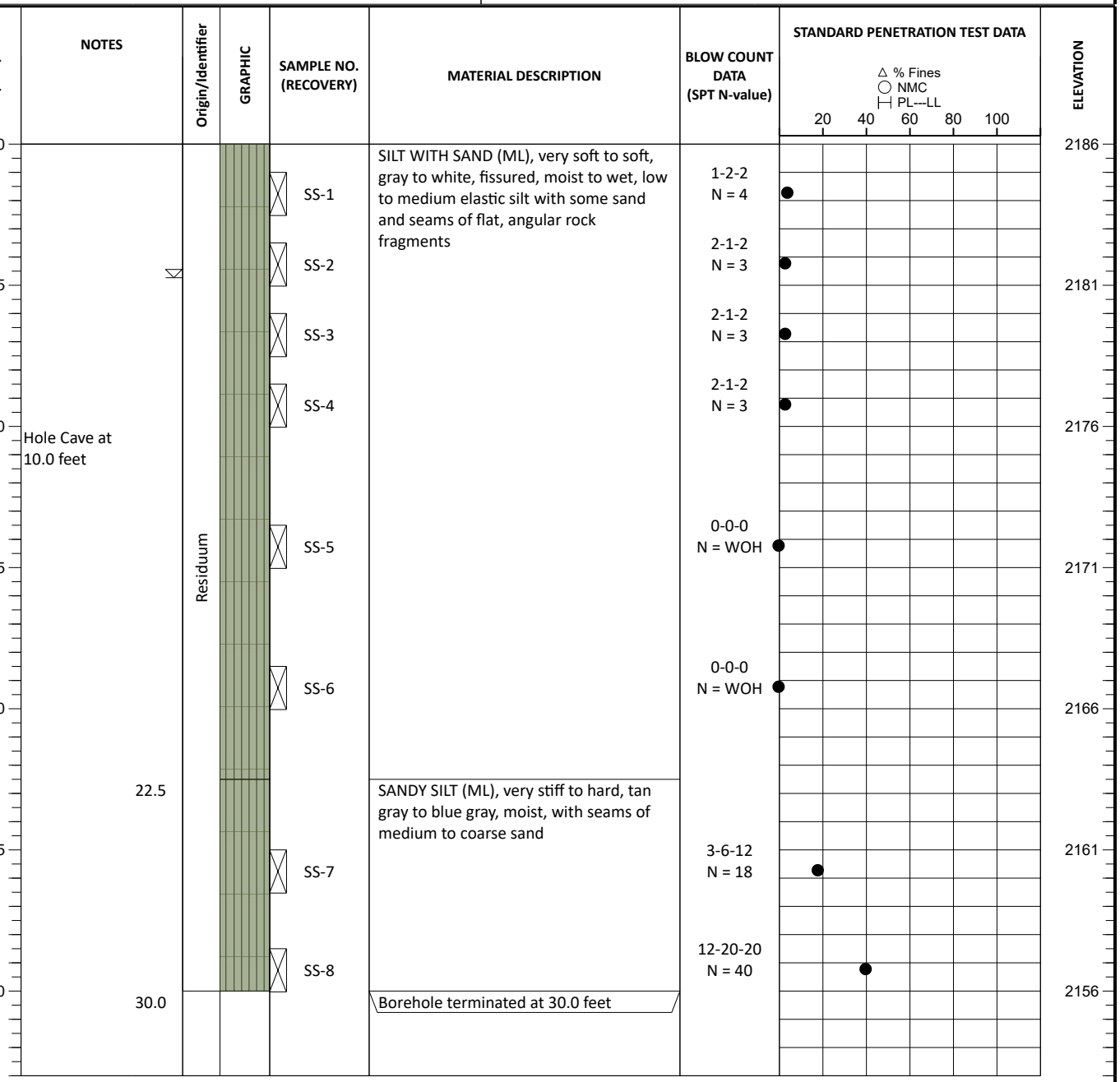
DATE DRILLED: 08/10/2023	**ELEVATION:** 2186 ft	**NOTES:** Elevations and coordinates estimated from Google Earth and should be considered approximate.
DRILL RIG: D-50	**DATUM:** NAVD88	
DRILLER: Jordan Evnironmental, LLC	**BORING DEPTH:** 25.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Soil Cuttings	
DRILLING METHOD: 3-1/4" HSA	**LOGGED BY:** Mac Hager	**LATITUDE:** 35.230863 **LONGITUDE:** -82.734764
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane North Carolina FIPS 3200 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80 100)	ELEVATION
0		Fill		SS-1	SANDY SILT WITH GRAVEL (ML), firm to stiff, dark brown to orange, fine grained, moist	6-6-7 N = 13		2186
				SS-2		6-3-2 N = 5		
5				SS-3	SILT WITH SAND (ML), firm to stiff, gray to white, fissured, moist, low to medium elastic silt with trace fine to medium sand and seams of flat, angular rock fragments	2-3-3 N = 6		2181
	5.5			SS-4		2-2-3 N = 5		
10		Residuum						2176
				SS-5		2-3-4 N = 7		
15								2171
				SS-6		4-4-5 N = 9		
20								2166
	21.8				SANDY SILT (ML), stiff, brown orange to dark gray, fine grained, moist			
	Hole Cave at 23.5 feet			SS-7		4-5-9 N = 14		
25	25.0				Borehole terminated at 25.0 feet			2161
30								

GROUNDWATER		DATE	DEPTH (FT)	REMARKS
ATD	▽	08/10/2023	11.3	at 4.5 hours
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), AR = Auger Refusal

PROJECT:	Transylvania County Library Amphitheater Canopy Brevard, NC S&ME Project No. 23410062	BORING LOG: B-3 *Sheet 1 of 1*
DATE DRILLED: 08/10/2023	**ELEVATION:** 2186 ft	**NOTES:** Elevations and coordinates estimated from Google Earth and should be considered approximate.
DRILL RIG: D-50	**DATUM:** NAVD88	
DRILLER: Jordan Evnironmental, LLC	**BORING DEPTH:** 30.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Soil Cuttings	
DRILLING METHOD: 3-1/4" HSA	**LOGGED BY:** Mac Hager	**LATITUDE:** 35.230863 **LONGITUDE:** -82.734764
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane North Carolina FIPS 3200 Feet	



GROUNDWATER		DATE	DEPTH (FT)	REMARKS
ATD	▽	08/10/2023	4.6	at 3.5 hours
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), AR = Auger Refusal

Appendix IV - Laboratory Test Data

44 Buck Shoals Rd, Suite C-3
Arden, North Carolina 28704
828-687-9080

SUMMARY OF LABORATORY TEST DATA

Transylvania County Library Amphitheater Canopy
Brevard, North Carolina
S&ME Project No. 23410062

Boring Number	Sample ID	Sample Depth (feet)	USCS Symbol	Percent Finer #200 Sieve (%)	Natural Moisture Content (%)	Atterberg Limits		
						LL (%)	PL (%)	PI (%)
B-1	SS-2	3.5 - 5.0	ML	54.1	42.9	NP	NP	NP
B-1	SS-9	33.5 - 35.0	ML	42.7	17.4			
B-2	SS-2	3.5 - 5.0	ML	64.5	21.6			
B-2	SS-6	18.5 - 20.0	ML	63.6	36.5	39	30	9
B-3	SS-2	3.5 - 5.0	ML	70.6	39.6	36	30	9

Notes:
USCS = Unified Soil Classification System
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
NP = Not Plastic

Form No: TR-D2216-T265-1
Revision No. 1
Revision Date: 08/16/17

LABORATORY DETERMINATION OF WATER CONTENT

ASTM D 2216 ☑ *AASHTO T 265* ☐

S&ME, Inc. - Asheville: 44 Buck Shoals Road, Unit C3, Arden, NC 28704

Project #:	23410062	Report Date:	8/31/2023
Project Name:	Transylvania County Library Amphitheater Canopy	Test Date(s):	8/21-22/2023
Client Name:	Transylvania County Library Foundation		
Client Address:	212S. Gaston St. Brevard, NC 28712		
Sample by:	G. Miller	Sample Date(s):	8/10/2023
Sampling Method:	Slpit Spoon	Drill Rig :	-

Method: **A (1%)** ☐ **B (0.1%)** ☑ Balance ID. 10193 Calibration Date: 1/4/2023 Oven ID. 10172 Calibration Date: 1/10/2023

Boring No.	Sample No.	Sample Depth	Tare #	Tare Weight	Tare Wt.+ Wet Wt	Tare Wt. + Dry Wt	Water Weight	Percent Moisture	Note
		ft.		grams	grams	grams	grams	%	
B-1	SS-2	3.5-5.0	A1	44.75	193.59	148.90	44.69	42.9%	
B-1	SS-9	33.5-35	A2	49.00	198.88	176.69	22.19	17.4%	
B-2	SS-2	3.5-5	A3	56.25	222.96	193.32	29.64	21.6%	
B-2	SS-6	18.5-20	A4	56.09	210.86	169.44	41.42	36.5%	
B-3	SS-2	3.5-5	A5	48.94	201.22	158.00	43.22	39.6%	

Notes / Deviations / References

ASTM D 2216: Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

Robert Davies		QA Supervisor	8/31/2023
Technical Responsibility	*Signature*	*Position*	*Date*

Form No: TR-D1140-1
Revision No. 1
Revision Date: 8/2/17

MATERIAL FINER THAN THE #200 SIEVE

ASTM D1140

S&ME, Inc. - Asheville: 44 Buck Shoals Road, Unit C3, Arden, NC 28704

Project #:	23410062	Report Date:	8/31/2023
Project Name:	Transylvania County Library Amphitheater Canopy	Test Date(s):	8/21-23/2023
Client Name:	Transylvania County Library Foundation		
Client Address:	212S. Gaston St. Brevard, NC 28712		
Sample by:	G. Miller	Sample Dates:	8/10/2023
Sampling Method:	Split Spoon	Drill Rig :	-

Method; A ☐ **B** ☑ Soaked ☑ Soak Time 2 hrs.

Boring #	Sample #	Sample Depth	Tare #	Tare Weight	Tare Wt.+ Wet Wt	Tare Wt. + Dry Wt	Tare Wt. + Dry Wt. after Wash	% Passing #200
		ft.		grams	grams	grams	grams	%
B-1	SS-2	3.5-5	B1	691.07	839.910	795.22	738.88	**54.1%**
B-1	SS-9	33.5-35	B2	397.59	547.470	525.28	470.77	**42.7%**
B-2	SS-2	3.5-5	B3	438.20	604.91	575.27	486.81	**64.5%**
B-2	SS-6	18.5-20	B4	894.87	1049.64	1008.22	936.17	**63.6%**
B-3	SS-2	3.5-5	B5	978.41	1130.69	1087.48	1010.47	**70.6%**

Balance ID. *10193* *Calibration Date:* *1/4/2023* *#200 Sieve* *02599* *Calibration Date:* *6/23/2023*

Notes / Deviations / References: ASTM D1140: Amount of Material in Soil Finer Than the No. 200 (75-um)) Sieve

Curtis D.			
Technician Name	*Signature*	*Certification Type/No.*	*Date*
Robert Davies	Robert Davies	QA Supervisor	8/31/2023
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D4318-T89-90
Revision No. 1
Revision Date: 7/26/17

LIQUID LIMIT, PLASTIC LIMIT, & PLASTIC INDEX

ASTM D 4318 ☒ *AASHTO T 89* ☐ *AASHTO T 90* ☐

S&ME, Inc. - Asheville: 44 Buck Shoals Road, Unit C3, Arden, NC 28704

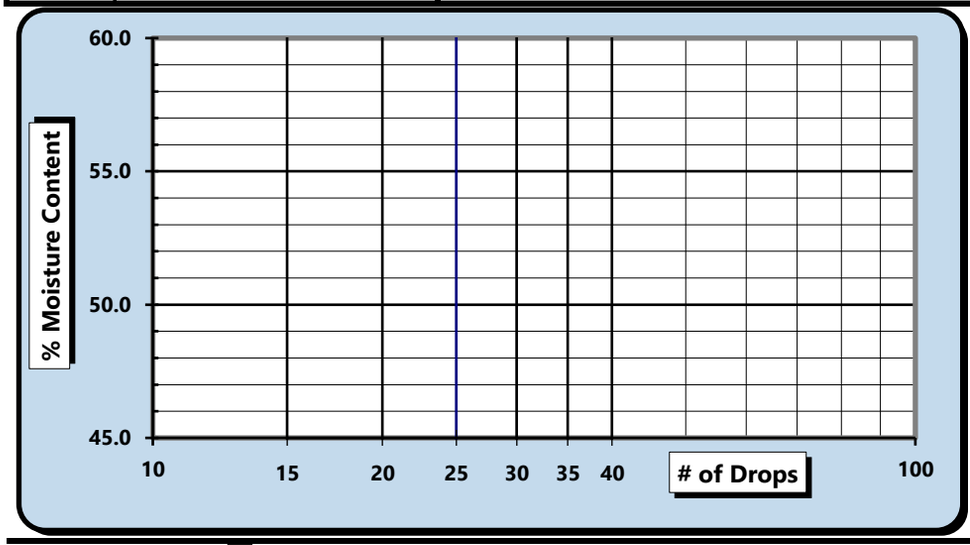
Project #:	23410062	Report Date:	8/31/2023
Project Name:	Transylvania County Library Amphitheater Canopy	Test Date(s)	8/21-22/2023
Client Name:	Transylvania County Library Foundation		
Client Address:	212S. Gaston St. Brevard, NC 28712		

Boring No:	B-1	Log No:	SS-2	Sample Date:	8/10/2023
Location:	See Boring Location Map	Type:	Slpit Spoon	Depth:	3.5' to 5.0'

Sample Description: Silt with Sand (ML): White, with Fine Sands

Type and Specification	*S&ME ID #*	*Cal Date:*	*Type and Specification*	*S&ME ID #*	*Cal Date:*
Balance (0.01 g)	10193	1/4/2023	Grooving tool	2401	7/13/2023
LL Apparatus	2901	1/23/2023			
Oven	10172	1/10/2023			

Pan #		Liquid Limit						Plastic Limit		
	Tare #:									
A	Tare Weight									
B	Wet Soil Weight + A									
C	Dry Soil Weight + A									
D	Water Weight (B-C)									
E	Dry Soil Weight (C-A)									
F	% Moisture (D/E)*100									
N	# OF DROPS							*Moisture Contents determined by ASTM D 2216*		
LL	LL = **F** * FACTOR									
Ave.	*Average*									



One Point Liquid Limit			
N	**Factor**	**N**	**Factor**
20	0.974	26	1.005
21	0.979	27	1.009
22	0.985	28	1.014
23	0.99	29	1.018
24	0.995	30	1.022
25	1.000		

NP, Non-Plastic ☒

Liquid Limit	**NP**
Plastic Limit	**NP**
Plastic Index	**NP**
Group Symbol	

Multipoint Method ☑
One-point Method ☐

Wet Preparation ☐ Dry Preparation ☑ Air Dried ☐ Estimate the % Retained on the #40 Sieve: 4.0%

Notes / Deviations / References: % Passing #200 Sieve: 54.1%

ASTM D 4318: Liquid Limit, Plastic Limit, & Plastic Index of Soils

Robert Davies		QA Supervisor	8/31/2023
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D4318-T89-90
Revision No. 1
Revision Date: 7/26/17

LIQUID LIMIT, PLASTIC LIMIT, & PLASTIC INDEX

ASTM D 4318 ☒ *AASHTO T 89* ☐ *AASHTO T 90* ☐

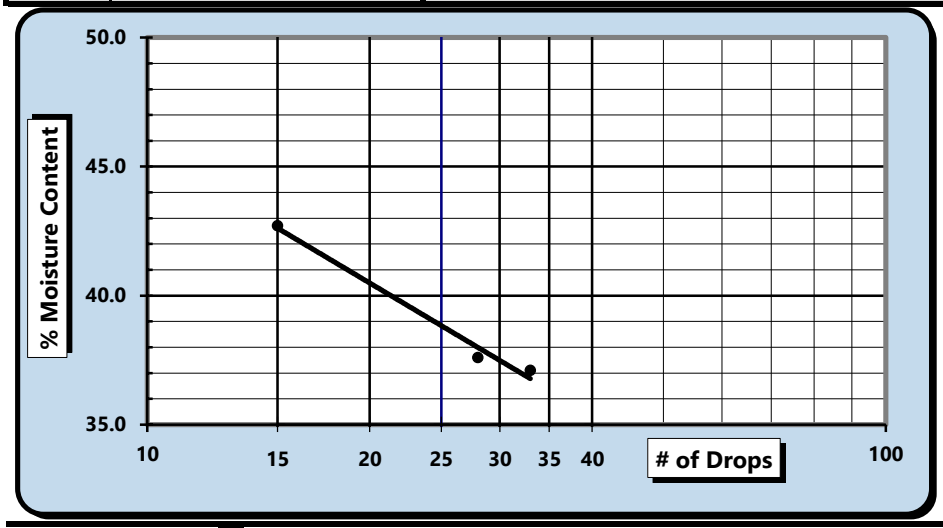
S&ME, Inc. - Asheville: 44 Buck Shoals Road, Unit C3, Arden, NC 28704

Project #:	23410062	Report Date:	8/31/2023
Project Name:	Transylvania County Library Amphitheater Canopy	Test Date(s)	8/21-22/2023
Client Name:	Transylvania County Library Foundation		
Client Address:	212S. Gaston St. Brevard, NC 28712		

Boring No:	B-2	Log No:	SS-6	Sample Date:	8/10/2023
Location:	See Boring Location Map	Type:	Slpit Spoon	Depth:	18.5' to 20.0'
Sample Description:	Silt w/ Sand (ML): White, with Fine Sands				

Type and Specification	*S&ME ID #*	*Cal Date:*	*Type and Specification*	*S&ME ID #*	*Cal Date:*
Balance (0.01 g)	10193	1/4/2023	Grooving tool	2401	7/13/2023
LL Apparatus	2901	1/23/2023			
Oven	10172	1/10/2023			

Pan #		Liquid Limit						Plastic Limit		
	Tare #:	J1	J2	J3				J4	J5	
A	Tare Weight	13.95	13.92	13.85				13.85	13.97	
B	Wet Soil Weight + A	17.31	17.87	17.93				19.14	19.51	
C	Dry Soil Weight + A	16.40	16.79	16.71				17.93	18.25	
D	Water Weight (B-C)	0.91	1.08	1.22				1.21	1.26	
E	Dry Soil Weight (C-A)	2.45	2.87	2.86				4.08	4.28	
F	% Moisture (D/E)*100	37.1%	37.6%	42.7%				29.7%	29.4%	
N	# OF DROPS	33	28	15				*Moisture Contents determined by ASTM D 2216*		
LL	LL = **F** * FACTOR	**37.9%**	**38.1%**	**40.6%**						
Ave.	*Average*	**38.9%**						29.6%		



One Point Liquid Limit			
N	**Factor**	**N**	**Factor**
20	0.974	26	1.005
21	0.979	27	1.009
22	0.985	28	1.014
23	0.99	29	1.018
24	0.995	30	1.022
25	1.000		

NP, Non-Plastic ☐

Liquid Limit	**39**
Plastic Limit	**30**
Plastic Index	**9**
Group Symbol	**ML**

Multipoint Method ☑
One-point Method ☐

Wet Preparation ☐ Dry Preparation ☑ Air Dried ☐ Estimate the % Retained on the #40 Sieve: 3.0%

Notes / Deviations / References: % Passing #200 Sieve: 63.6%

ASTM D 4318: Liquid Limit, Plastic Limit, & Plastic Index of Soils

Robert Davies — *Technical Responsibility*
Signature
QA Supervisor — *Position*
8/31/2023 — *Date*

Form No. TR-D4318-T89-90
Revision No. 1
Revision Date: 7/26/17

LIQUID LIMIT, PLASTIC LIMIT, & PLASTIC INDEX

ASTM D 4318 ☒ *AASHTO T 89* ☐ *AASHTO T 90* ☐

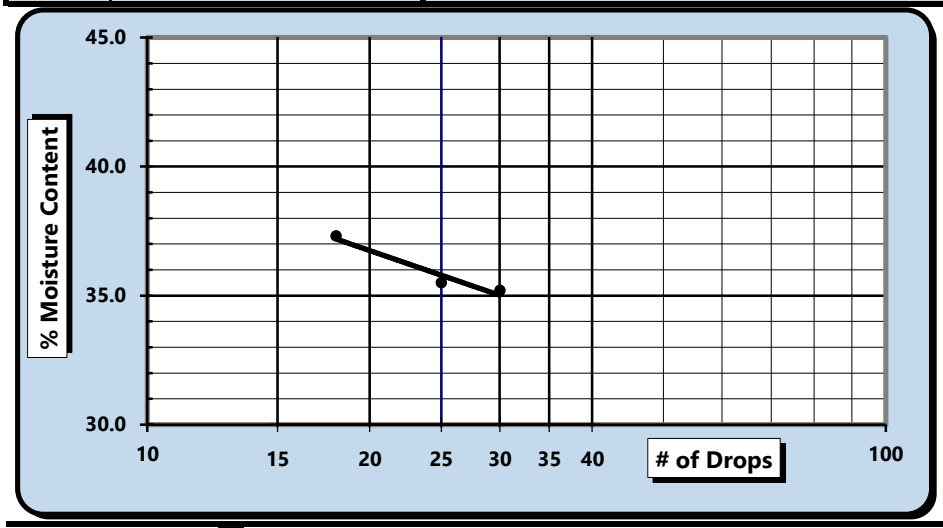
S&ME, Inc. - Asheville: 44 Buck Shoals Road, Unit C3, Arden, NC 28704

Project #:	23410062	Report Date:	8/31/2023
Project Name:	Transylvania County Library Amphitheater Canopy	Test Date(s)	8/21-22/2023
Client Name:	Transylvania County Library Foundation		
Client Address:	212S. Gaston St. Brevard, NC 28712		

Boring No:	B-3	Log No:	SS-2	Sample Date:	8/10/2023
Location:	See Boring Location Map	Type:	Slpit Spoon	Depth:	3.5' to 5.0'
Sample Description:	Silt w/ Sand (ML): White, with Fine Sands				

Type and Specification	*S&ME ID #*	*Cal Date:*	*Type and Specification*	*S&ME ID #*	*Cal Date:*
Balance (0.01 g)	10193	1/4/2023	Grooving tool	2401	7/13/2023
LL Apparatus	2901	1/23/2023			
Oven	10172	1/10/2023			

Pan #		Liquid Limit						Plastic Limit		
	Tare #:	R1	R2	R3				J4	J5	
A	Tare Weight	13.82	13.84	13.83				13.85	13.97	
B	Wet Soil Weight + A	17.78	17.92	17.99				19.14	19.51	
C	Dry Soil Weight + A	16.75	16.85	16.86				17.93	18.25	
D	Water Weight (B-C)	1.03	1.07	1.13				1.21	1.26	
E	Dry Soil Weight (C-A)	2.93	3.01	3.03				4.08	4.28	
F	% Moisture (D/E)*100	35.2%	35.5%	37.3%				29.7%	29.4%	
N	# OF DROPS	30	25	18				*Moisture Contents determined by ASTM D 2216*		
LL	LL = **F** * FACTOR	**36.0%**	**35.5%**	**36.0%**						
Ave.	*Average*	**35.8%**						29.6%		



One Point Liquid Limit			
N	**Factor**	**N**	**Factor**
20	0.974	26	1.005
21	0.979	27	1.009
22	0.985	28	1.014
23	0.99	29	1.018
24	0.995	30	1.022
25	1.000		

NP, Non-Plastic ☐

Liquid Limit	**36**
Plastic Limit	**30**
Plastic Index	**6**
Group Symbol	**ML**

Multipoint Method ☑
One-point Method ☐

Wet Preparation ☐ Dry Preparation ☑ Air Dried ☐ Estimate the % Retained on the #40 Sieve: 3.0%

Notes / Deviations / References: % Passing #200 Sieve: 70.6%

ASTM D 4318: Liquid Limit, Plastic Limit, & Plastic Index of Soils

Robert Davies — *Technical Responsibility*
Signature — *Signature*
QA Supervisor — *Position*
8/31/2023 — *Date*