

## DOCUMENT 01 11 10

### SUMMARY OF WORK

#### PART 1 - GENERAL

##### 1.1 SUMMARY

This Document includes a summary of the Work including:

- 1.1.1 Work covered by Contract Documents
- 1.1.2 Alternate Work
- 1.1.3 Work under other contracts
- 1.1.4 Future work
- 1.1.5 Work sequence (see also Document 01 12 16 (Work Sequence))
- 1.1.6 Cooperation of Design-Build Entity and coordination with other work
- 1.1.7 Maintenance
- 1.1.8 Occupancy requirements
- 1.1.9 Reference Standards
- 1.1.10 Products or services ordered in advance
- 1.1.11 County furnished products

##### 1.1.12 Related Documents:

- 1.1.12.1 Document 00 21 16 (Request for Qualifications - Instructions to Proposers)
- 1.1.12.2 Criteria Documents attached as Exhibits to the Project Manual
- 1.1.12.3 Document 00 52 00 (Agreement)
- 1.1.12.4 Document 01 11 14 (Summary of Work - Design Services, Preconstruction Activities, and Deliverables)
- 1.1.12.5 Document 01 21 00 (Allowances)

##### 1.2 WORK COVERED BY CONTRACT DOCUMENTS

- 1.2.1. The Scope of Work for the African American Wellness Hub Project ("Project") includes demolition and construction of new building. The Project delivery shall be by the Progressive Design-Build method. The base scope shall include programming, planning, design, preconstruction, construction, closeout, and delivery of a newly constructed building as specified in Scope of Work Summary in the County's Criteria Documents.

##### 1.3 ALTERNATE WORK – Not Used.

##### 1.4 FUTURE WORK – Not used.

##### 1.5 WORK SEQUENCE – Not used.

##### 1.6 COOPERATION OF DESIGN-BUILD ENTITY AND COORDINATION WITH OTHER WORK.

- 1.6.1 Should construction work, or work of any other nature, be underway by other forces or by other contractors within or adjacent to the limits of the Work at the time of execution of the Contract or should work be performed under the contracts listed in Paragraphs 1.3 and 1.4 above, Design-Build Entity shall cooperate with all such other contractors so that any delay or hindrance to their work will be avoided. The cost of such cooperation will be considered

as included in the Contract Price and no additional payment will be made, therefore. Design-Build Entity shall coordinate with such other contractors and forces as required by Document 00 72 53 (General Conditions).

- 1.6.2 County reserves the right to perform other or additional work, within or adjacent to the limits of the Work. Design-Build Entity shall coordinate with County as required by Document 00 72 53 (General Conditions). In the event that the performance of such other or additional work materially increases or decreases Design-Build Entity's costs, the Work and the amount to be paid therefore will be appropriately adjusted as determined by the County.
- 1.6.3 Design-Build Entity shall limit use of the Site for the Work and for construction operations to allow for:
  - 1.6.3.1 County's operations
  - 1.6.3.2 Facility Operations
  - 1.6.3.3 Work by other contractors and tenants
- 1.6.4 Design-Build Entity shall coordinate use of and access to the Site with other contractors, utilities, and County's forces, as required by Document 00 72 53 (General Conditions). County has final authority over coordination, use of premises, and access to the Site.
- 1.6.5 Design-Build Entity shall cooperate with County and others who may occupy or begin work on Site and inside any building thereon prior to completion of Work of this Contract.
- 1.6.6 Design-Build Entity shall cooperate with contractors for other area work, not included in Contract, but which may take place during construction period.
- 1.6.7 Design-Build Entity, and all design Subconsultants and Subcontractors shall participate in a one (1) day partnering session with County, at such time and date as shall be reasonably requested by County.
- 1.6.8 Any work to be performed outside of Design-Build Entity's work area or outside of the normal work hours will require coordination with the County via a Method of Procedures Process ("MOP"). MOPs must be submitted at least 72 hours prior to the proposed start of work.

## 1.7 MAINTENANCE

Cost of maintenance of systems and equipment prior to Final Completion, as defined Document 01 42 00 (References and Definitions) and 00 65 36 (Project Warranty and Correction Guarantee), is included in the Contract Price and no additional payment will be made therefor.

## 1.8 OCCUPANCY REQUIREMENTS

- 1.8.1 Whenever, in the opinion of County, Work or any part thereof is in a condition suitable for use, and the best interest of County requires such use, County may take Beneficial Occupancy of and connect to, open for public use, or use the Work or such part thereof pursuant to Paragraph 13.25 (Beneficial Occupancy) of Document 00 72 53 (General Conditions). In such case, the County will inspect the Work or part thereof, and issue a Certificate of Beneficial Occupancy for that part of Work.
- 1.8.2 Prior to date of Final Acceptance of the Work by County, all necessary repairs or renewals in Work or part thereof so used, not due to ordinary wear and tear, but due to defective design, materials, or workmanship or to operations of Design-Build Entity, shall remain the

responsibility and be made at the expense of Design-Build Entity, as required in Document 00 72 53 (General Conditions).

- 1.8.3 Use by County of Work or part thereof as contemplated by this Document shall in no case be construed as constituting acceptance of Work or any part thereof. Such use shall neither relieve Design-Build Entity of any responsibilities under Contract, nor act as waiver by County of any of the requirements thereof.
- 1.8.4 County may specify in the Contract Documents that portions of the Work, including electrical and mechanical systems or separate structures, shall be completed on milestone dates prior to the Final Completion of all of the Work. Design-Build Entity shall notify County in writing when Design-Build Entity considers any such part of the Work ready for its intended use and complete and request County to issue a Certificate of Completion for that part of the Work.

## **PART 2 - PRODUCTS**

### **2.1 REFERENCE STANDARDS**

- 2.1.1 For products specified by association or trade standards, comply with requirements of standards, except where more rigid requirements are Specified or are required by applicable codes.

### **2.2 PRODUCTS OR SERVICES ORDERED IN ADVANCE**

- 2.2.1 County furnished products listed in Paragraph 2.3 below will be procured under separate contracts and provided by County or vendor to Design-Build Entity for installation under the terms of Paragraph 1.6 above. Design-Build Entity to provide utility service and stub out connections as necessary for the installation of County furnished products.

#### **2.2.2 FF&E Planning Service, Procurement, and Installation**

2.2.2.1 Design-Build Entity shall provide FF&E Planning services. Design-Build Entity's FF&E planner shall meet with the County and its end-users to assess the County's FF&E needs. Design-Build Entity shall specify all FF&E, including all necessary related elements including, but not limited to, anchorages and connections to building systems required to meet the County's FF&E needs. It will be the responsibility of Design-Build Entity to procure any FF&E specified by Design-Build Entity. Project FF&E shall be installed by Design-Build Entity, or its vendor as is indicated in the Scope of Work.

2.2.2.2 All FF&E and incidental items' seismic anchorages shall be provided and installed by Design-Build Entity. Design-Build Entity must review all FF&E and incidental item product information as well as Regulatory Agency requirements in order to determine adequate anchorages.

- 2.2.3 Design-Build Entity shall provide all Interior Design services for the Project. This includes, but is not limited to, the selection of Regulatory approved materials.

### **2.3 County Furnished Products:**

- 2.3.1 None.

**PART 3 - EXECUTION**

3.1 All Work to be completed in the time specified in Document 00 52 00 (Agreement).

**Appendix to Summary Of Work (Document 01 11 10)**

**Site Logistics Map**



**DOCUMENT 01 11 14**

**SUMMARY OF WORK - DESIGN SERVICES, PRECONSTRUCTION ACTIVITIES, AND DELIVERABLES**

PART 1 - GENERAL

1.1 SUMMARY

This Document includes a summary of Work including:

- 1.1.1 Design Services
- 1.1.2 Qualifications and Proposal
- 1.1.3 Design Development Documents
- 1.1.4 Construction Documents
- 1.1.5 Permits
- 1.1.6 Construction
- 1.1.7 Operation/Project Closeout

1.2 DESIGN SERVICES

1.2.1 Summary of Design and Technical Requirements

- 1.2.1.1 Design-Build Entity shall provide all programming, design, coordination, and preconstruction services needed to program, develop, and complete the Schematic Design documents, Design Development documents, and the final Construction Documents necessary to permit, construct, commission, and deliver to County the Project in compliance with the Criteria Documents.

The Criteria Documents outline the County's intent for the Project. The Design-Build Team will be required to program, meet the quality, functionality, and adjacencies, materials and finishes, overall character and aesthetics, sustainability and energy efficiency, durability, and security Specified.

Design-Build Entity shall evolve and improve upon the characteristics outlined above. Design-Build Entity may propose alternative systems, configurations, materials, and delivery strategies, subject to County's approval, as long as they meet or exceed the performance and characteristics established by the same element in the Criteria Documents.

- 1.2.1.2 The Criteria Documents set forth the County's minimum design and construction intent for the Project that the Design-Build Entity shall meet in preparing Design Deliverables and performing the Construction Work of the Project. Design-Build Entity shall prepare designs to meet these requirements and submit Design Deliverables as described in these requirements. The requirements of this Document 01 11 14 are intended to supplement the requirements of the Criteria Documents and clarify the manner in which they are achieved.

Design-Build Entity is to provide a design build solution for a fully functional condition that is consistent with the level of quality, durability, maintainability, and performance reflected in the overall Facility, area, system, similar project

condition, or industry standard demonstrated in other similar facilities in the region at no additional charge to County.

1.2.1.3 Design-Build Entity shall submit designs and deliverables for each incremental package, in accordance with the Contract Documents:

- 1.2.1.3.1 Concept Design (100%),
- 1.2.1.3.2 Schematic Design (100%),
- 1.2.1.3.3 Design Development (60%),
- 1.2.1.3.4 Design Development (100%),
- 1.2.1.3.5 Construction Documents (50%),
- 1.2.1.3.6 Construction Documents (90%),
- 1.2.1.3.7 Construction Documents (100)%

If the Project has separate Phases as defined in Document 00 21 16 (Request for Qualifications and Proposals - Instructions to Proposers), deliverables shall align with these Phases. Design-Build Entity may create incremental Bid Packages for major building components or activities to optimize scheduling or permitting. Design-Build Entity is responsible for meeting the County, Regulatory Agency, and all Authorities Having Jurisdiction requirements at 100% Construction Documents.

1.2.1.4 Unless specifically and expressly limited, Design-Build Entity Work shall include all design, engineering, coordination, management, procurement, abatement, demolition, inspection, testing, commissioning, quality control, and construction necessary to complete the Project.

1.2.1.5 Ensure that design and construction administration are coordinated with the requirements of Document 01 81 13 (Sustainable Design Requirements), and Document 01 91 13 (General Commissioning Requirements).

1.2.2 Summary of Work

1.2.2.1 Unless specifically excluded from the Contract, Design-Build Entity shall provide to County all professional architectural and engineering services necessary to perform Design-Build Entity's obligations under the Contract Documents and to complete the Project including, but not limited to, the requirements of the Criteria Documents.

1.2.2.2 Design-Build Entity shall perform the Work using the persons and Subconsultants listed in Design-Build Entity's Qualification Questionnaire and its response to the Request for Qualifications and Proposals of Design-Build Entities. Design-Build Entity may substitute personnel or Subconsultants only upon the County's written consent, which is in County's discretion but will not be unreasonably withheld.

- 1.2.2.3 Design-Build Entity and its Subconsultants shall make an independent assessment of the accuracy of the information provided by the County concerning existing conditions (including but not limited to existing utilities and structures and tie-ins to existing facilities) and the adequacy of available design information/technical reports. Design-Build Entity shall rely on the results of its own independent investigations and not on information provided by County. Design-Build Entity shall conduct such further investigations of existing conditions as are necessary for Design-Build Entity to perform the Work and shall advise County of any further design or other services necessary to complete the Project.
- 1.2.2.4 Design-Build Entity's design shall provide that all finish surfaces, fixtures, and equipment are readily and safely accessible for maintenance, repair or replacement by ladders, power lifts, cat walks, and other reasonable access devices or equipment without exceeding clearances or the design loads of the floors, roofs, ceilings, and that such access is in conformance with Cal OSHA requirements. All Drawings and Specifications in the Construction Documents, structural and electrical design calculations, site data, cost estimates, and any other deliverable required by State or Federal law shall comply with Legal Requirements, including necessary tie-ins, applicable to the Project and the Work, including, but not limited to, those listed in the Contract Documents, all environmental, energy conservation, energy tie-in, and disabled access requirements, regulations, and standards of the applicable fire protection agencies, fire and life safety agency, and other AHJs.
- 1.2.2.5 County shall have the right (but not the duty) to review Design-Build Entity's design Work, whether performed by Design-Build Entity or a Subconsultant of any tier, and whether in a final or preliminary form, to determine progress and conformance to the requirements of the Contract Documents. In the event the County should ever dispute the conformance of any design Work (at any stage) with the intent of the Contract Documents, then the County's determination shall control and the Design-Build Entity and/or its Subconsultants shall perform the disputed design Work to completion in accord with the County's determination. The Design-Build Entity shall, however, retain its rights as described in Document 00 72 53 (General Conditions) regarding Claims and disputes, and Design-Build Entity may under those procedures and in its name, advance any claim of a Subconsultant of any tier.
- 1.2.2.6 If applicable, all Work associated with the abatement of hazardous materials is the responsibility of the Design-Build Entity.
- 1.2.2.6.1 Design-Build Entity's Subconsultant shall develop design documents to outline the requirements and design for abatement of hazardous materials.
- 1.2.2.6.2 The Design-Build Entity shall employ a certified industrial hygienist to perform and monitor the Work. Refer to Documents 01 88 19 (Asbestos Removal Performance Requirements), 01 88 22 (Soil Remediation Requirements), and 01 88 25 (Miscellaneous Hazardous Materials Performance Requirements) for additional information.

1.2.2.7 All Work associated with permanent and interim wayfinding is the responsibility of the Design-Build Entity.

1.2.2.7.1 The Design-Build Entity's wayfinding and signage Subconsultant ("Wayfinding and Signage Subconsultant") will work closely with the County to develop intuitive wayfinding designs that meet the needs of the occupants, public, users, and staff of the Facility. The Wayfinding and Signage Subconsultant shall address the following items while developing their design:

- a. Branding – Coordinate the graphics and wayfinding to integrate with the overall branding strategy of the user organization of the Facility.
- b. Changeability – Design must allow for cost-effective modification as the needs of the Facility change over time. Signage should be specified so that the County can easily update signage on Site.
- c. Durability and Maintenance – Signage and wayfinding materials must be extremely durable and easily maintainable. In addition, materials must meet any Specified sustainability requirements.
- d. Coordination – Signage and wayfinding shall be coordinated with other disciplines such as architecture, interior design, and lighting design to ensure a clear, legible, coordinated, and integrated wayfinding design.
- e. Sign Quality Hierarchy – Signage and wayfinding shall appropriately address the public and service areas of the facility.
- f. Code Compliance.

1.2.2.7.2 Permanent Wayfinding – Products may include, but are not limited to, the following:

- a. Exterior and Site wayfinding that identifies the Facility, main entry, vehicular access, pedestrian access, property boundaries, and directions on surrounding City streets.
- b. Parking area signage that identifies access to the Facility, pay station locations, and parking limitations or restrictions.
- c. Interior wayfinding that identifies the Facility, department identification, room identification, and staff specific signage.
- d. Enhanced environmental graphics that consider appropriate application of electronic media, interactive technologies, public artwork, and architectural solutions to address wayfinding challenges.

1.2.2.7.3 Interim Wayfinding – Products may include, but are not limited to, the following:

- a. Exterior and site wayfinding that identifies the Design-Build Entity's construction office, construction/delivery entry, vehicular access, pedestrian access, restricted zones, safety issues, and other Site restrictions.
- b. Parking area signage that identifies access to the Facility, pay station locations, and parking limitations.
- c. Interior wayfinding that identifies the Facility identity, department identification, room identification, and staff specific signage.

1.2.2.7.4 The Wayfinding and Signage Subconsultant will submit its design for permanent and interim wayfinding to the County in accordance with the provisions of this Document.

1.2.2.8 Design-Build Entity Interior Design Services.

1.2.2.8.1 All equipment and incidental items of seismic anchorages shall be designed, provided, and installed by the Design-Build Entity. Design-Build Entity must review all equipment and incidental item product information as well as regulatory requirements in order to determine adequate anchorages.

1.2.2.8.2 The Design-Build Entity shall provide all Interior Design services for the Project. Design-Build Entity's interior designer shall meet with the County General Services Agency to assess the County's interior design needs, e.g., furniture design and placement, color selection of fabrics, and finish materials. Design-Build Entity shall specify all interior items, including all necessary related elements including, but not limited to, anchorages and connections to building systems, required to meet the County's interior design needs.

1.2.3 Coordination of Architectural and Engineering Subconsultants/Other Contractors

1.2.3.1 Design-Build Entity shall fully coordinate all architectural and engineering disciplines and Subconsultants involved in completing the Work, including but not limited to, all consultants employed by Subcontractors or suppliers. Design-Build Entity's Subconsultants of all tiers shall fully coordinate with Design-Build Entity and all architectural and engineering disciplines and Subconsultants involved in completing the Work.

1.2.3.1.1 Design-Build Entity shall require its Subconsultants to agree in their subcontracts to coordinate with Design-Build Entity and other Subconsultants.

1.2.3.1.2 See Document 01 31 19 (Project Meetings) for minimum meeting requirements.

#### 1.2.4 Project Master Schedule

- 1.2.4.1 Design-Build Entity shall complete all Work in accordance with Contract Time as defined in Document 00 52 00 (Agreement) and in accordance with all approved Master Project Schedule and updates thereto.
- 1.2.4.2 Design-Build Entity shall provide County with a Project Master Schedule, including Design and Construction schedules, outlining dates and time periods for the delivery of Design-Build Entity's services and requirements for information from the County for the performance of its services. The Project Master Schedule will include activities for completing the Project design documents (through release for construction), significant permitting and construction Milestones, construction Submittals and long lead item procurement, decision dates from County affecting schedule, and utility interruptions affecting facility operations. For more detailed information refer to Document 01 32 16 (Schedules and Reports).
- 1.2.4.3 The Project Master Schedule shall be updated monthly and shall meet the requirements of Document 01 32 16 (Schedules and Reports).
- 1.2.4.4 Design-Build Entity shall adjust and cause its retained Subconsultants and Subcontractors to adjust activities, personnel levels, and the sequence, duration, and relationship of services to be performed in a manner that will comply with the approved Project Master Schedule.

#### 1.2.5 Deliverables Required Under This Agreement – General

All deliverables required under this Agreement shall be submitted in full compliance with the Contract Documents and shall be submitted in accordance with this Document. In the event of a conflict between the electronic version and hard copy versions of Design-Build Entity's documents, the hardcopy shall govern.

Deliverables required under this Agreement shall be understood to be required separately for each Component of the Project where applicable.

Deficiencies in deliverables and modifications to conform to program requirements and modifications to achieve acceptability of deliverables to County shall be promptly addressed and performed as part of the Contract Sum.

### 1.3 QUALIFICATIONS AND PROPOSAL PHASE

#### 1.3.1 Qualifications and Proposal Packages:

By its submission of a Qualifications and Proposal Package, Design-Build Entity accepts design, construction, and fiscal responsibility for any and all of the information contained in County's Criteria Documents, unless expressly noted otherwise in its Qualifications and Proposal Package, or as subsequently modified and expressly approved in writing by the County during the proposal and/or design phase. This includes compliance with all County requirements, standards, and regulations as outlined in the RFQ/P and associated documents in the Project Manua and Criteria Documents.

Any deviations or exclusions from the Scope of Work Summary in the County's Criteria Documents must be clearly identified and justified in the Design-Build Entity's

Qualifications and Proposal Package, or as subsequently modified and expressly approved in writing by the County during the proposal and/or design phase. The Design-Build Entity is also responsible for ensuring that all design documents meet the regulatory and permitting requirements of Alameda County and all AHJ.

#### 1.4 SCHEMATIC DESIGN PHASE

##### 1.4.1 Period of Service

1.4.1.1 After reconciling the Design-Build Entity's proposed design and programming, and upon written authorization from County, the Design-Build Entity shall proceed with the Schematic Design Phase. The purpose of this phase is to obtain County approval for design revisions, refinements, and concept elaborations produced during the development of schematic documents before moving onto Construction Document Production. The Design-Build Entity may submit Schematic Design Documents incrementally by major building phases, components, or areas to facilitate scheduling and permitting efficiencies, provided the overall design concept is clear and adhered to.

1.4.1.2 The Design-Build Entity shall submit the required deliverables for the Schematic Design Phase, including preliminary design documents and a revised detailed estimate and cost breakdown of total Project costs, within the stipulated period required in the Project Master Schedule.

1.4.1.3 At the outset of this phase, the Design-Build Entity shall disclose in writing any deviations from the County Minimum Requirements and/or propose any innovative, unique, proprietary, or sole source design features, obtaining express written approval from the County. The County retains full discretion to disapprove such features.

##### 1.4.2 Schematic Design Documents

The Design-Build Entity shall prepare Schematic Design Documents that emphasize narrative descriptions and conceptual clarity over detailed drawings. These documents shall include:

###### 1.4.2.1 General

1.4.2.1.1 Space Utilization Narrative: A detailed narrative describing the use of space, including a comparison of both gross and assignable floor areas to the program area requirements established in the Criteria Documents. This narrative should include any assumptions and methodologies used in space planning.

1.4.2.1.2 Design Intent Narrative: A comprehensive narrative explaining the overall design intent, including any significant changes from the Criteria Documents and their impact. This should cover architectural style, material choices, and any innovative or unique design elements.

1.4.2.1.3 Sustainability Plan Update: An updated narrative on the Design-Build Entity's Plan to Achieve Green Building Criteria, as outlined in Document 01 81 13 (Sustainable Design Requirements). This update should include an overview of targeted LEED™ credits and strategies for achieving them.

1.4.2.1.4 Material and Finish Descriptions: A narrative description of proposed materials and finishes, including their types, colors, textures, and sustainability attributes. Include a color matrix and samples acceptable to the County's Representative.

#### 1.4.2.2 Architectural

1.4.4.2.1 Floor Plan Narrative: A narrative description of the proposed floor plans, detailing room locations, intended use, and spatial relationships. Include information about major fixed equipment and furnishings.

1.4.4.2.2 Site Plan Overview: A narrative description of the Site plan, including Site access, circulation, landscaping, grading, and paving concepts.

1.4.4.2.3 Building Sections and Elevations Narrative: A descriptive overview of building sections and elevations, explaining dimensional relationships, materials, and key component interactions.

1.4.4.2.4 Roof and Ceiling Systems: A narrative outlining the proposed roof system, including deck, insulation, and drainage techniques, as well as typical ceiling systems, including lighting, HVAC components, and access panels.

#### 1.4.2.3 Structural

1.4.2.3.1 Structural Design Narrative: A narrative describing the structural design, including the types of structural systems proposed, major structural elements, and how they integrate with the architectural design.

1.4.2.3.2 Foundation Systems: A detailed description of the proposed foundation systems, including fill requirements, pile types, soil pressure considerations, water table impacts, and seismic considerations.

#### 1.4.2.4 Mechanical/Plumbing

1.4.2.4.1 Mechanical Systems Narrative: A narrative describing the proposed mechanical systems, including heating and cooling load calculations, major equipment types, and their integration with the overall design.

1.4.2.4.2 Plumbing Systems: A description of the proposed plumbing systems, including major components, pipe runs, and their interface with structural and architectural elements.

#### 1.4.2.5 Electrical

1.4.2.5.1 Electrical Systems Narrative: A comprehensive narrative detailing the design criteria for electrical systems, including lighting, power distribution, and any specialized electrical requirements.

1.4.2.5.2 Lighting and Equipment: A description of the proposed lighting systems, types and quantities of fixtures, and major electrical equipment, including their size and capacity.

1.4.2.6 Civil

1.4.2.6.1 Civil Engineering Narrative: A narrative description of the on-site and off-site utility systems, including sewer, electrical, water, storm drain, and fire water. Include pipe sizes, materials, and installation details.

1.4.2.6.2 Site Improvements: A detailed description of proposed roadways, parking, and storm drainage improvements, including any significant design features or considerations.

1.4.4.7 Landscape

1.4.4.7.1 Landscape Design Narrative: A narrative describing the landscape design, including hardscape elements, plant selections, ground cover, and irrigation strategies.

1.4.4.7.2 Sustainability Features: A description of how the landscape design supports sustainability goals, including water conservation and native plantings.

1.5 DESIGN DEVELOPMENT PHASE

1.5.1 Period of Service.

1.5.1.1 After reconciliation of the Design-Build Entity's proposed Schematic Design Documents and programming with the Criteria Documents, and upon written authorization from the County, Design-Build Entity shall proceed with the performance of the services called for in the Design Development Phase. The intent of the Design-Build Entity's Design Development Documents submittal is to obtain County approval for design revisions, refinements, and concept elaborations produced by the Design-Build Entity in Design Development Documents prior to preparation of Construction Documents. Design-Build Entity may elect to submit Design Development Documents incrementally by major building phases, Components, or areas to facilitate economy of schedule, provided the overall design concept is clear and adhered to.

1.5.1.2 Design-Build Entity shall submit the deliverables required by the Design Development Phase including preliminary design documents and a revised detailed estimate and cost breakdown of Direct Costs and Indirect Costs of the Construction Work within the stipulated period required in the Project Master Schedule.

1.5.1.3 Design-Build Entity shall at the outset of this Phase make full written disclosure to County, and obtain County's express written approval of, any deviations from the County Minimum Requirements and/or proposed innovative, unique, proprietary, or sole source design features. County retains full discretion to disapprove such features.

1.5.2 Lifecycle and Alternates

1.5.2.1 See Document 01 81 13 (Sustainable Design Requirements).

1.5.3 General Scope of Project and Final Design Criteria.

1.5.3.1 After consultation with County and on the basis of Criteria Documents, Design-Build Entity shall determine the general scope, extent and character of the Project and establish final design criteria. Design-Build Entity shall participate in or initiate periodic reviews or workshops as necessary with the County's Representative, County departmental and Facility stakeholders, and their consultants during the Design Development Phase. See Document 01 31 19 (Project Meetings) for minimum meeting requirements.

1.5.4 Design Development Documents. Design-Build Entity shall prepare Design Development Documents consisting of final design criteria, preliminary Drawings, outline Specifications and written descriptions of the Project, BIM Model, and as appropriate with renderings and models. These Design Development Documents shall include, but are not limited to:

1.5.4.1 General

1.5.4.1.1 A tabulation of both gross and assignable floor areas as proposed by the Design-Build Entity showing a comparison to the program area requirements established in the Criteria Documents. Such tabulation shall be submitted in both written and electronic format. Room Data Files shall be on USB 3.0 Flash Drive in either Microsoft Excel spreadsheets or Microsoft Access database files. It is encouraged that floor area tabulation files be linked to Revit and AutoCAD Drawing files to ensure accuracy through final design stages.

1.5.4.1.2 Design-Build Entity shall provide a narrative that clearly delineates any changes to the documents that impact program or performance requirements and describes the full impact of the change. Strike through and bold text in Technical Specifications is not an acceptable method of identification.

1.5.4.1.3 Design-Build Entity shall provide an update to the Design-Build Entity's Plan to Achieve Green Building Criteria outlined in Document 01 81 13 (Sustainable Design Requirements) including updated LEED™ Project Checklists identifying which credits will be achieved.

1.5.4.1.4 Design-Build Entity shall provide to County's Representative for County approval two copies of a color matrix, samples of types and size acceptable to the County's Representative of textures and finishes of all materials in the Work at the Project.

1.5.4.2 Architectural

1.5.4.2.1 Scaled, dimensioned floor plans with final room locations including all openings.

- 1.5.4.2.2 Demolition plans with locations of temporary fire rated walls needed to perform demolition.
- 1.5.4.2.3 1/8" scale building sections and elevations showing dimensional relationships, materials, and component relationships.
- 1.5.4.2.4 Identification of fixed equipment to be installed in the Facility.
- 1.5.4.2.5 Site plan completely drawn with beginning notes and dimensions, including grading and paving.
- 1.5.4.2.6 Preliminary development of typical major details, wall sections, and large-scale blow-ups.
- 1.5.4.2.7 Legend showing symbols used on Drawings.
- 1.5.4.2.8 Floor plans identifying location of fixed equipment, quantity and sizes of County provided major movable equipment, and furniture.
- 1.5.4.2.9 Outline Specification for architectural, structural, mechanical, electrical, civil, and landscape manuals, systems, and equipment.
- 1.5.4.2.10 Typical reflected ceiling development including, as applicable, ceiling grid and heights, showing:
  - (a) Light fixtures
  - (b) Ceiling registers or diffusers
  - (c) Access panels
- 1.5.4.2.11 Identify proposed roof system, deck, insulation system and drainage techniques.
- 1.5.4.2.12 Finish, door, and window schedules.

1.5.5 Structural

- 1.5.5.1 Structural Drawing with all major members located and sized.
- 1.5.5.2 Establish revised building and floor elevations.
- 1.5.5.3 Outline Specifications.
- 1.5.5.4 Identify foundation system(s) including fill requirements and piles, with associated soil pressure, water table, and seismic center.

1.5.6 Mechanical/Plumbing

- 1.5.6.1 Heating and cooling load calculations and major duct or pipe runs sized to interface with structural work.
- 1.5.6.2 Major mechanical equipment scheduled indicating size and capacity.

- 1.5.6.3 Ductwork and piping substantially located and sized.
- 1.5.6.4 Devices in ceiling located.
- 1.5.6.5 Legend showing symbols used on drawings.
- 1.5.6.6 Outline Specifications indicating quality level and manufacturer of equipment and fixtures.
- 1.5.7 Electrical
  - 1.5.7.1 Written design criteria for electrical systems.
  - 1.5.7.2 All lighting fixtures located and scheduled showing all types and quantities of fixtures to be used, including proposed lighting levels for each usable space.
  - 1.5.7.3 All major electrical equipment scheduled indicating size and capacity.
  - 1.5.7.4 Complete electrical distribution including a one-line diagram indicating final location of switchboards, communications, controls (high and low voltage), motor control centers, panels, transformers, and emergency generators, if required.
  - 1.5.7.5 Legend showing all symbols used on drawings.
  - 1.5.7.6 Outline Specifications indicating quality level and manufacturer.
- 1.5.8 Civil
  - 1.5.8.1 Further refinement of Qualifications and Proposal Package documents of On-Site and Off-Site utility systems for sewer, electrical, water, storm drain, and fire water. Includes, without limitation, pipe sizes, materials, invert elevation location, and installation details.
  - 1.5.8.2 Further refinement of Qualifications and Proposal Package documents of roadways, parking, and storm drainage improvements. Includes details and large-scale Drawings of curb and gutter, manhole, trust blocks, paved parking, and roadway sections.
  - 1.5.8.3 Outline Specifications indicating quality level and manufacturer.
- 1.5.9 Landscape
  - 1.5.9.1 Further refinement of Qualifications and Proposal Package concepts including coordination of hardscape, landscape planting, ground cover, and irrigation main distribution lines.
  - 1.5.9.2 Outline Specifications indicating quality level and manufacturer.
- 1.5.10 Attend Required Meetings. Design-Build Entity shall attend meetings with the community, representatives of the County and its designated consultants, the EIR consultant (if any),

Facility staff, and appropriate AHJ and provide information and diagrams to further develop the documents to meet the County and Facility requirements (“User Group Meetings”). The Design-Build Entity shall document these User Group Meetings with agendas and meeting minutes that may be used to obtain County approval of the design. The Design-Build Entity shall attend User Group Meetings to fully describe the Work of the Project when the Design Development Phase is complete.

- 1.5.11 Deliverables. Contractor shall provide four (4) hard copies and one (1) PDF generated copy of the same for review by the County at the sixty percent (60%) and the one hundred percent (100%) Design Development documents.
- 1.5.12 Review of the Final Design by County. Design-Build Entity shall submit final design to County. The final design shall be accompanied by a narrative outlining any changes to the design that have an impact to aesthetics or performance requirements. Specifications shall track changes made to the Specifications and shall cloud changes to the Drawings. Design-Build Entity shall participate and cooperate fully in a review of the Final Design review by County and any consultants engaged by County. Design-Build Entity shall make full written disclosure to County and obtain County’s express written approval of any proposed innovative, unique, proprietary, or sole source design features.
- 1.5.13 Constructability Review. The County may conduct a Peer Review including a constructability review of the Design Development documents upon the Design-Build Entity’s completion of its sixty percent (60%) and one hundred percent (100%) Design Development documents. Constructability Review Comments will be recorded by the County in a spreadsheet format. The Design-Build Entity will utilize the spreadsheet format to provide written responses to County reviewer comments that identify how issues will be resolved by the Design-Build Entity. If a Phased Plan Review is utilized by the Design-Build Entity, a review of each Submittal package may be performed by the County concurrent with the Design-Build Entity’s submittal to the Regulatory Agency.

Cost Estimate. The Design-Build Entity shall submit to the County an updated cost estimate at one hundred percent (100%) Design Development documents as part of the Final GMP Proposal and identify cost changes since the Initial GMP (providing four (4) hard copies and one (1) PDF generated copy of the same). This estimate shall consist of unit costs applied to the Element Level (Level 3 National Institute of Standards and Technology Unifomat II Classification) items and quantities of work. This estimate shall be organized in a format acceptable to the County. The County will use this estimate for cost reconciliation and design Change Order reviews.

## 1.6 CONSTRUCTION DOCUMENTS PHASE

### 1.6.1 Period of Service

- 1.6.1.1 Upon County’s approval of the Final GMP Proposal, Design-Build Entity shall proceed with the performance of the design services called for in the Construction Documents Phase. The intent of the Design-Build Entity’s Construction Documents submittal is to obtain County approval for any further design revisions, refinements, and concept elaborations produced by the Design-Build Entity during validation and design workshops prior to permitting and commencement of Construction Work. Design-Build Entity may elect to submit Construction Documents incrementally by major building phases,

Components, or areas to facilitate economy of schedule provided overall design concept is maintained, clear, and adhered to.

1.6.1.2 Design-Build Entity shall submit the Design Deliverables required by the Construction Documents Phase, including design documents and identification of any significant cost, scope, or delivery strategy adjustments within the stipulated period required in the Project Master Schedule.

1.6.1.3 Design-Build Entity shall, at the outset of this Phase, make full written disclosure to County and obtain County's express written approval of any deviations from the County Minimum Requirements Specified in the Criteria Documents and/or proposed innovative, unique, proprietary, or sole source design features. County retains full discretion to disapprove such features.

1.6.2 General

1.6.2.1 Design-Build Entity shall prepare Construction Documents consisting of one hundred percent (100%) Drawings, Specifications, schedules, calculations, and written descriptions of the Work of the Project, BIM, finish boards, and renderings to fully deliver the Project.

1.6.2.2 Design-Build Entity shall provide a narrative that clearly delineates any changes to design documents previously approved by County that impact program or performance requirements and describes the full impact of the change. Strike through and bold text in Technical Specifications is not an acceptable method of identification.

1.6.2.3 Design-Build Entity shall provide an update to the Design-Build Entity's Plan to Achieve Green Building Criteria outlined in Document 01 81 13 (Sustainable Design Requirements), including updated LEED™ Project Checklists identifying which credits will be achieved.

1.6.2.4 Design-Build Entity shall provide an update to the room data sheets.

1.6.2.5 See paragraph 1.5 of Document 01 81 13 (Sustainable Design Requirements).

1.6.3 Construction Documents. Design-Build Entity shall prepare final completed Construction Documents to show the work to be furnished and performed by Design-Build Entity. Construction Documents shall set forth in detail the requirements for all Construction Work to be performed by Design-Build Entity. Construction Documents shall not supersede the Contract Documents where the Contract Documents contain a more stringent requirement. At a minimum, Construction Documents shall include the following:

1.6.3.1

- (a) Complete Specifications for all Work.
- (b) Complete, live, functional, electronic copy of the BIM model.
- (c) LEED™ Checklist for each Component identifying each credit targeted by the Design-Build Entity to achieve proposed certification level compliance.

1.6.3.2 Site / Civil

- (a) Construction Site Logistics and Staging Plan including temporary fencing, gates, access, worker parking, layout, storage, staging, job trailers, fire department access, temporary utilities, and security. Provide for each phase of Work. There may not be space within the project boundaries for a Field Office and this may be located off-site if allowable per the County.
- (b) Site Demolition Plan.
- (c) Site Plan (includes Project boundaries, building orientation, parking lot layouts, signage, service entrances, stormwater management, utility services, curbing, walks, bollards, retaining walls, roadways, and site furniture and equipment).
- (d) Site Paving, Grading, Drainage Plan.
- (e) Site utilities plans, including storm sewer, sanitary sewer, electrical service, data/communications, domestic water, fire water, and gas.
- (f) Stormwater Pollution Prevention Plan (“SWPPP”).

1.6.3.3 Landscaping

- (a) Landscape Drawings including hardscape areas, site fixtures, furniture, and equipment, fencing and planters.
- (b) Planting Drawings and details (including kind, size and type trees, shrubs, and ground covering).
- (c) Irrigation Drawings and details.

1.6.3.4 Architectural

- (a) General Project Information including Project locations, Project participants, abbreviations, symbols and materials legend, Project data, document organization, and Table of Contents.
- (b) Life Safety and Code Compliance information and Drawings.
- (c) Demolition Drawings with locations and types of temporary walls needed to perform demolition and finish details of any existing building components to remain.
- (d) Floor plans, reflected ceiling plans, elevations, and sections.
- (e) Wall sections.
- (f) Interior elevations.
- (g) Millwork and casework details.
- (h) Partition types.
- (i) Stair and elevator sections and details.
- (j) Furniture Drawings identifying location of fixed equipment, quantity, and sizes of County provided major movable equipment and furniture.
- (k) Furniture, Fixture, and Equipment (“FF&E”) schedule.
- (l) Architectural details and enlarged Drawings and elevations.

- (m) Finish, door, and hardware schedules completed, including all details.
- (n) Fixed equipment details.

1.6.3.5 Interior Design

- (a) Finish Drawings and room finish schedules.
- (b) Finish Details including definition of all patterns, layouts, transitions, and special conditions.
- (c) Furniture plans.
- (d) Design-Build Entity shall provide to County Representative for County approval two (2) copies of a color palette and samples of types and size acceptable to the County Representative of textures and finishes of all materials (interior and exterior) in the Work of the Project.

1.6.3.6 Food Service Equipment

- (a) Equipment List.
- (b) Equipment Locations.
- (c) Points of connections to utilities.
- (d) Sections and Details.

1.6.3.7 Signage

- (a) Drawings, schedules, and details.
- (b) Structural general notes, legends, codes, and calculations.
- (c) Structural foundation and framing Drawings.
- (d) Sections and details.
- (e) Schedules.

1.6.3.8 Mechanical

- (a) Mechanical Drawings, general notes, codes, legends, and calculations.
- (b) Large scale mechanical details.
- (c) Mechanical schedules for equipment.
- (d) Mechanical schematic for environmental cooling and exhaust equipment.
- (e) Energy conservation calculations and report necessary for compliance with California Title 24 energy requirements.
- (f) Controls diagram.
- (g) Plumbing riser diagrams.
- (h) Fixture schedules.

1.6.3.9 Electrical

- (a) Electrical Drawings, general notes, codes, legends, and calculations.
- (b) Site lighting and power plan.
- (c) Building lighting and power plan showing all switching and controls.
- (d) Fixture schedule and lighting details.
- (e) Distribution information on power consuming equipment, including lighting, power, signal, and communication device(s) branch wiring.
- (f) All electrical equipment schedules.
- (g) Special system components Drawings.
- (h) Electrical load calculations.

1.6.3.10 Fire Alarm

- (a) Drawings, details, riser diagrams.

1.6.3.11 Fire Protection

- (a) Drawings, details, riser diagrams.

1.6.3.12 Information Technology

- (a) Audio/Video Drawings, details, diagrams, schedules, and legends.
- (b) Access control Drawings, details, diagrams, schedules, and legends.
- (c) Security/Camera Drawings, details, diagrams, schedules, and legends.
- (d) Enlarged IT/Communication rooms layouts.

1.6.4 Lead or Attend Required Meetings. Lead or attend User Group Meetings and provide information and diagrams to fully describe the Project.

1.6.5 Deliverables: Contractor shall submit four (4) full-size hard copies, one (1) half-size, five (5) Specifications, and four (4) electronic PDF generated copies of both the Drawings and Specifications on USB drives of the Construction Documents for review at the fifty percent (50%), ninety percent (90%) and one hundred percent (100%) Construction Documents Phases.

1.6.6 Specifications shall be prepared in conformance with the most current of the Edition Master Format of the Construction Specification Institute.

1.6.7 Design-Build Entity shall have complete responsibility to secure timely review and approval by all Authorities Having Jurisdiction (“AHJ”). It is the intent of the County to work in close coordination to assist the Design-Build Entity in the Regulatory Agency plan review process to support a timely review and approval process schedule.

1.6.8 The same architectural and engineering team (and team personnel) that prepared the Design Deliverables previously submitted to AHJ shall complete the Construction Documents.

- 1.6.9 Compliance with Codes, Regulations and Requirements. Prepare Construction Documents in full compliance with the Contract Documents and Legal Requirements applicable to the Work.
- 1.6.10 Special features. Make full written disclosure to County and obtain County's express written approval of any proposed innovative, unique, proprietary, or sole source design features.
- 1.6.11 Warranty. Design-Build Entity warrants to County that the final design, as expressed in the Construction Documents:
  - 1.6.11.1 Will be constructible, workable, serviceable, and within the Design-Build Entity's detailed estimate of costs and schedule and the Final GMP;
  - 1.6.11.2 Will comply in all respects with the requirements of the Contract Documents;
  - 1.6.11.3 Will not call for the use of hazardous or banned materials; and
  - 1.6.11.4 Will fully comply with Legal Requirements applicable to the Work.
- 1.6.12 Constructability Review. The County may conduct a Peer Review and constructability review of the and 90% Construction Documents upon the Design-Build Entity's completion of its 90% Construction Documents. Constructability Reviews shall be provided via a collaborative online review tool such as a Bluebeam Revu Session or similar tool approved by the County and initiated by the Design-Build Entity. The Design-Build Entity will utilize the software to provide written responses to reviewer comments that identify how issues will be resolved by the Design-Build Entity. If a Phased Plan Review is utilized by the Design-Build Entity, a review of each design submittal package may be performed by the County concurrent with the Design-Build Entity's submittal to the Regulatory Agency.

## 1.7 PERMIT PHASE

- 1.7.1 Upon County's written acceptance of Design-Build Entity's Construction Documents for technical divisions or other portions of the Work as Design-Build Entity and County may agree, Design-Build Entity may proceed with the Permit Phase.
- 1.7.2 Design-Build Entity shall submit the Construction Documents to the AHJ and Regulatory Agency within the stipulated period required in the Project Master Schedule.
- 1.7.3 Attend Required Meetings. Attend regular preliminary development, final submittal, and back-check meetings with representatives of the County and its designated consultants, the facility users, Regulatory Agency and AHJ to facilitate the issuance of a permit for construction.
- 1.7.4 Deliverables. Upon approval of any permitting or increment design package, Contractor shall submit one (1) live electronic spreadsheet or PDF generated copy of the plan check comments received from the Regulatory Agency and the Design-Build Entity's responses to the comments.
- 1.7.5 The same architectural and engineering team (and team personnel) that prepared the Design Deliverables submitted to AHJ shall obtain the permit for construction.

## 1.8 CONSTRUCTION PHASE

- 1.8.1 Upon County's issuance of a Construction Notice to Proceed, and approved construction permit from the Regulatory Agency, Design-Build Entity may commence the Construction Work indicated. County acknowledges permitting increments will be pursued at the discretion of the Design-Build Entity.
- 1.8.2 General Administration of Construction. Design-Build Entity's architectural, design, and engineering Subconsultants, including the certified industrial hygienist, shall make regular visits to the Site at times and intervals appropriate to the various stages of construction as necessary to ensure that Construction Work conforms to the final design of the Construction Documents as approved. Site visits shall occur no less than every week during any period in which the construction activities affecting the Work of each designer's scope of services are in progress. Site visits shall be performed by the designer of record or their duly designated licensed representative. Designers of Record shall produce reports from all of their Site visits. Copies of reports generated from visits by all of the above shall be provided to the County within one (1) week of the Site visit.
- 1.8.3 Quality Control and Reporting. Design-Build Entity's architectural, design, and engineering Subconsultants, including the certified industrial hygienist, shall participate fully in Design-Build Entity's required quality control program and shall have a duty to advise Design-Build Entity and County in writing of any observations of Defective work, work not in conformance with Construction Documents, and lack of progress consistent with the Construction Schedule of Work in areas associated with their services.
- 1.8.4 Design-Build Entity's architectural, design, and engineering Subconsultants, including the certified industrial hygienist, shall establish and maintain to the satisfaction of County, a quality control computer database. The Design-Build Entity's database shall maintain complete and accurate records regarding its activities related to fulfilling the quality control requirements of the Project. Design-Build Entity shall make such database available to County at all reasonable times and turn over the database in both hard and electronic format to County upon Final Completion or termination of Design-Build Entity's performance of the Contract.
- 1.8.5 Together with County, Design-Build Entity and Design-Build Entity's architectural, design, and engineering Subconsultants, including the certified industrial hygienist, shall visit the Project to observe any apparent Defects in the Construction Work, correct such deficiencies, and supply information as needed regarding replacement, correction, or diminished value of Defective work.
- 1.8.6 Design-Build Entity shall provide to County for County's approval two (2) copies of a color schedule and samples of types and size acceptable to the County of final selected textures and finishes of all materials in the Work at the Project.

## 1.9 OPERATION/PROJECT CLOSEOUT PHASE

- 1.9.1 Operation/Closeout. During the Operation/Closeout Phase, Design-Build Entity and Design-Build Entity's architectural, design, and engineering Subconsultants shall, when requested by County, provide all necessary architectural, design, and engineering services, including services of its architectural, design, and engineering Subconsultants, for:
- 1.9.1.1 Refining, adjusting, and correcting any equipment or systems.

- 1.9.1.2 Startup, Testing, and placing in operation all equipment and systems. See Document 01 91 13 (General Commissioning Requirements).
- 1.9.1.3 Completion of Punch List work and observation of any apparent Defects in the completed Construction Work, correction of such deficiencies, and supplying information as needed regarding replacement, correction, or diminished value of Defective work.
- 1.9.1.4 Training County's staff to operate and maintain all equipment and systems. All trainings will be video recorded and a digital copy provided to the County.
- 1.9.1.5 Develop systems and procedures for control of the maintenance of and record keeping for key systems identified in Document 00 65 36 (Project Warranty and Correction Guarantee) for the manufacturer(s) warranty period(s) and the correction period of the Project specified in Paragraph 9.3.3 of Document 00 72 53 (General Conditions).
- 1.9.1.6 Preparation and provision of complete and final electronic PDF Record Document sets and four (4) sets of full-size reproducible record prints of all Drawings and Specifications (including deferred submittals) showing those changes made during the construction process, based on the marked-up As-Built prints, RFIs, Drawings, and other data.

#### 1.10 DESIGN-BUILD ENTITY'S OBLIGATION FOR FINISHED CONSTRUCTION

- 1.10.1 County's right to review Design-Build Entity's design including, but not limited to, Construction Documents, Shop Drawings, Samples and submittals, as specified in the Contract Documents, shall not relieve Design-Build Entity of its responsibility for a complete design and construction complying with the requirements of the Contract Documents; but rather, such review shall be in furtherance of the County's monitoring and accepting the design as developed and issued by the Design-Build Entity, consistent with the Contract Documents. Design-Build Entity's responsibility to design and construct the Project in conformance with the Contract Documents including, but not limited to, the applicable performance standard and any fully executed Change Orders, shall be absolute. Such duty may not be altered or diminished by any action other than a signed Change Order.
- 1.10.2 AutoCAD, Revit, and Other Electronic Data. Provide all electronic files of all Construction Documents drawings and models including as-bid, as-built, permit application, and all Record Drawings, on USB drive or portable hard drive. Provide live AutoCAD drawings, if requested. Prepare electronic record sets and sets of reproducible record prints or Drawings showing those changes made during the construction process. Electronic data shall conform to County requirements for compatibility with County equipment and software.

PRODUCTS - Not used.

EXECUTION - Not used.

END OF DOCUMENT

## DOCUMENT 01 14 00

### WORK RESTRICTIONS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

1.1.1 Prior to the start of the Construction Work of the Project, Design-Build Entity shall prepare a Construction Logistics and Traffic Control Plan and must obtain approval from the County for any and all necessary arrangements for worker parking, routing equipment, and material to the job location. In addition, Design-Build Entity shall become familiar with applicable County and AHJ policies and procedures specific to the Site and comply with the following for the duration of the Project. Design-Build Entity's Quality Control Manager shall designate a person responsible for assuring the implementation of environmental controls needed for environmental control and mitigation.

1.1.2 Related Documents include the following:

- 1.1.2.1 Document 01 11 10 (Summary of Work)
- 1.1.2.2 Document 01 41 00 (Regulatory Requirements)
- 1.1.2.3 Document 01 31 00 (Project Management and Coordination)
- 1.1.2.4 Document 01 45 00 (Quality Control and Assurance)
- 1.1.2.5 Document 01 50 00 (Temporary Facilities and Controls)
- 1.1.2.6 Document 01 52 00 (Construction Facilities for Design-Build Entity and County Use)
- 1.1.2.7 Document 01 55 26 (Traffic Control)

##### 1.2 SUBMITTALS

Per Document 01 33 00 (Submittal Procedures).

##### 1.3 UTILITY INTERRUPTIONS AND PRIOR NOTIFICATION

Shutdown or interruption of water, sewer, electrical services, natural gas, communications, or any utility system requires written notice a minimum of fifteen (15) Business Days in advance. Design-Build Entity is not authorized to interrupt utility services without this advance notification and the prior written approval of the County.

##### 1.4 ENVIRONMENTAL CONTROLS

1.4.1 Noise: All Work shall be performed with a minimum of noise or disruption to normal activities in the surrounding areas. If County indicates a problem due to construction, the activity may be stopped until the County Representative is contacted and satisfactory arrangements are determined. Design-Build Entity will give thirty (30) Days' notice for any Work to be done outside the hours of 7:00am to 9:00pm on weekdays and 8:30 am to 6 pm on weekends. The following noise control procedures shall be employed:

- 1.4.1.1 For Work in or adjacent to existing occupied and operating facilities, the maximum increase in noise shall be limited to approximately 15db over ambient and shall not exceed regulatory standards for noise.
  - 1.4.1.2 The On-Site construction superintendent shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process shall be established prior to Construction Work commencement that will allow for resolution of noise problems that cannot be immediately solved by the Project supervisor.
  - 1.4.1.3 All noise-producing project equipment and vehicles using internal combustion engines shall be equipped with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.
  - 1.4.1.4 All mobile or fixed noise-producing equipment used on the Project, which is regulated for noise output by a local, state, or federal agency, shall comply with such regulation while in the course of Project activity.
  - 1.4.1.5 Electrically powered equipment instead of pneumatic or internal combustion powered equipment shall be used, where feasible and needed to control excessive noise.
  - 1.4.1.6 Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.
  - 1.4.1.7 Construction Site and access road speed limits shall be established and enforced during the duration of Construction Work.
  - 1.4.1.8 The hours of material transport shall be restricted to the periods and days permitted by both the Contract and local noise or other applicable ordinance.
  - 1.4.1.9 The use of noise producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only.
  - 1.4.1.10 No Project related public address or music system shall be audible at any adjacent noise-sensitive receptor.
- 1.4.2 Dust: Dust control is a critical activity. Design-Build Entity shall prepare a submittal that identifies source air pollution and related pollution reduction measures. The following dust control measures shall be employed:
- 1.4.2.1 Implement fugitive dust control measures as provided in Bay Area Air Quality Management District ("BAAQMD").
  - 1.4.2.2 Develop a staging area, vehicle, and truck routes, and ensure all applicable control measures are established for each workday.
  - 1.4.2.3 Dust control measures shall be implemented by Design-Build Entity as necessary to contain dust within the construction site.

- 1.4.2.4 If necessary, install a water misting system along fence perimeter or any other necessary area to prevent fugitive dust from creating a nuisance to the public or adjacent County staff or operations.
  - 1.4.2.5 Control fugitive dust at active soil grading/excavation areas using water in a manner that would not impact soil compaction. Continuous wet-down may be required in the area of construction activity.
  - 1.4.2.6 Use ground-covering such as mulch, wood chips, straws, hydro-seeding, surfactants, or plastic sheeting to cover inactive exposed areas to minimize fugitive dust.
  - 1.4.2.7 Provide drainage for erosion control measures.
  - 1.4.2.8 Use sandbags, as necessary, along site perimeter to keep soil On-Site.
  - 1.4.2.9 Provide gravel entryway into construction site entrance to reduce/eliminate mud and sediment carried Off-Site by vehicles.
  - 1.4.2.10 Cover top of haul trucks to eliminate wind-blown fugitive dust and debris.
  - 1.4.2.11 Schedule haul trucks and material delivery trucks to prevent traffic congestion and reduce impacts on the normal operation of adjacent facilities. Set up truck queuing area and have staff communicate via cell phone for efficiency and less traffic.
  - 1.4.2.12 As necessary, use street sweepers along travel routes in general vicinity of Project area.
  - 1.4.2.13 All vehicle routes are to be watered for dust control. All existing roadway and parking surfaces impacted by construction activity are to be swept and kept free of debris and dust. All areas within the construction Site are to be broom swept as required to keep dust and debris to a minimum.
  - 1.4.2.14 Limit the number of haul trucks On-Site and establish a haul route. Install a gravel or base road On-Site for loading trucks.
  - 1.4.2.15 All stockpiles shall be kept moist throughout the day to minimize particulate matter emissions. Wet down stockpiles on a regular basis including prior to end of workday.
  - 1.4.2.16 Haul roads shall be paved, lined with gravel or base material, or kept moist to minimize particulate matter emissions.
  - 1.4.2.17 Where practical, use paddle-wheel scrapers instead of traditional scrapers to minimize fugitive dust and reduce exhaust emissions.
  - 1.4.2.18 Handling of soil shall be kept to a minimum.
- 1.4.3 **Odors:** When odors are a concern, arrangements shall be made by Design-Build Entity for their containment or control. Where this is not feasible, specific arrangements should be made to minimize the disturbance of normal activities. Where controllable, fumes and odors shall not be allowed to migrate to occupied areas.

- 1.4.3.1 Place On-Site portable toilets away from building air intakes, windows, and entryways.
- 1.4.3.2 Reduce the use of diesel fuel powered equipment and use equipment with alternative fuel whenever practical to minimize diesel exhaust emissions.
- 1.4.3.3 Turn off equipment when not in use for long periods of time. No idling of diesel-fueled equipment for durations longer than five minutes when within one hundred (100) feet of any low-level air intake or building opening (doors and windows).
- 1.4.4 Vibrations: To the extent practicable, the impact of vibration shall be limited. If vibration becomes an impact to County operations, Design-Build Entity shall stop operations, reschedule, and/or implement the following with the approval of the County Representative:
  - 1.4.4.1 Route heavily loaded trucks and equipment away from the most sensitive facilities if possible.
  - 1.4.4.2 Sequence demolition, earthmoving, and ground-impacting operations so as not to occur in the same time period, to the extent practicable. The total vibration level produced could be less when each vibration source operates separately.
  - 1.4.4.3 Select demolition methods not involving impact, where practicable.
  - 1.4.4.4 Avoid vibratory rollers and packers near vibration-sensitive areas.
- 1.4.5 Environmental Mitigation Measures: Pursuant to § 21000 et seq. of the Public Resource Code, a Notice of Exemption from California Environmental Quality Act ("CEQA") requirements has been granted and adopted for this Project.
- 1.5 SALVAGE AND DISPOSAL
  - 1.5.1 Construction debris, or material that has no redeemable value, is to be placed in Design-Build Entity-furnished refuse bins for safe and legal removal from the Site.
- 1.6 PARKING
  - 1.6.1 The primary parking and construction storage areas shall be designated on Design-Build Entity's Construction Logistics plan.
  - 1.6.2 Design-Build Entity and related construction personnel shall park in authorized parking areas only.
- 1.7 SANITARY
  - 1.7.1 Design-Build Entity shall provide temporary toilet facilities inside the secured construction area.
  - 1.7.2 Sanitary Facilities shall be in accordance with OSHA regulations.
- 1.8 SMOKING AND TOBACCO
  - 1.8.1 Smoking is not permitted anywhere on the Site.
  - 1.8.2 Smoking is not permitted within the facilities under construction.

1.8.3 All ashes and cigarette butts must be deposited in approved receptors.

1.8.4 No chewing tobacco or spitting of tobacco is permitted anywhere on the Project Site.

## 1.9 ELEVATORS

New elevators constructed for the Project shall not be used by Design-Build Entity for construction related activities or deliveries without the permission of the County and protection of all new surfaces and finishes. Any damage to equipment or new materials shall be repaired or replaced to like new condition.

## 1.10 SECURITY

A list of emergency personnel and their contact phone numbers will be provided by Design-Build Entity.

## 1.11 SAFETY

### 1.11.1 General

1.11.1.1 Within fifteen (15) days after County issues the Notice to Proceed with Construction Work, submit a Safety Program that has been reviewed and approved by an Industrial Hygienist certified by the American Board of Industrial Hygiene or a Certified Safety Professional. The Safety Program shall include the name, certification number, and certification seal of the Industrial Hygienist or Certified Safety Professional. Comply with the Safety Program and all applicable federal, state, and local regulation codes, rules, laws, and ordinances.

### 1.11.1.2 Safety Program components:

1.11.1.2.1 Injury and Illness Prevention Program ("IIPP"): Conforming to the General Industrial Safety Orders (CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 3203), and the California Labor Code (§ 6401.7)

1.11.1.2.2 Site-Specific Safety and Health Plan ("SSHP"): Describing health and safety procedures that shall be implemented during the Work in order to ensure safety of the public and those performing the Work. Follow the guidelines for a SSHP listed in CCR Title 8, Division 1, Chapter 4, Subchapter 7, § 5192, Item (b)(4) f.

1.11.1.2.3 Not Used

1.11.1.2.4 Designate one of Design-Build Entity's staff as "Site Safety Officer" whose duties shall include the responsibility for enforcing the environmental protection provisions of the Contract Documents including safety and health, the requirements of the Occupational Safety and Health Act, and other applicable federal, state, and local standards. Submit for review by Owner Design-Build Entity's intended traffic flow plan, security plan, program for temporary structures, housecleaning plan, and environmental safety and health plan. After review by Owner, the implementation, any revisions to any safety plans due to changing site conditions, and enforcement of these plans shall become the

responsibility of the Site Safety Officer. Any changes in the plans shall be requested by Design-Build Entity through the Site Safety Officer.

- 1.11.1.3 Clean up, remove, and properly dispose of any/all debris, materials, tools, or other related work items in any occupied areas or other areas of the Construction Work Site which are adjacent to the security fencing of the facility each day.
- 1.11.1.4 Do not drape cords across corridors. All cords must be attached to the ceiling or taped to the floor (use tape with non-marring adhesive).
- 1.11.1.5 Design-Build Entity shall be responsible to supply, install, maintain, and remove any additional security fencing, barricades, lighting, and other security measures as required to protect and control the Site.

1.11.2 Safety equipment and consideration should include, but are not limited to:

- 1.11.2.1 Anyone known to be under the influence of alcohol or drugs shall be dismissed from the Project at once and not be allowed to return.
- 1.11.2.2 Offensive language is not permitted in any area where it may be overheard by the public, staff, or visitors.
- 1.11.2.3 Provide adequate emergency first aid equipment.
- 1.11.2.4 Post location and emergency phone numbers for local medical care and fire departments.
- 1.11.2.5 Monitor safe ladder usage.
- 1.11.2.6 Provide exhaust controls for equipment.
- 1.11.2.7 Monitor noise levels and establish safe limitations.
- 1.11.2.8 Ensure adequate ventilation for air contaminants.
- 1.11.2.9 Insist on personal protective equipment, such as hard hats, safety shoes, and eye, ear, and face protection equipment, and proper gloves as appropriate. Design-Build Entity shall supply sufficient hard hats, safety glasses, safety vests, ear protection, and gloves to properly equip job site visitors.
- 1.11.2.10 Safety nets, belts, and lifelines shall be used, as appropriate.
- 1.11.2.11 Provide adequate emergency fire protection equipment.
- 1.11.2.12 Provide safe storage for all flammable and combustible materials.
- 1.11.2.13 Train workers on safe and proper use of hand power tools and electrical drop cords.
- 1.11.2.14 Operation of cranes, derricks, lifts, and hoists should be in accordance with manufacturer's recommendations and appropriate ANSI and Cal/OSHA regulations.

- 1.11.2.15 All construction operations and personnel are subject to Cal/OSHA and ACMC Environmental Health & Safety regulations.
- 1.11.2.16 Provide adequate barricades and safety lighting at all open trenches adjacent to public access (must accommodate proper warning for the visually impaired).
- 1.11.2.17 Properly fence entire confines of Project Site so as to avoid public access or unauthorized personnel.
- 1.11.2.18 All wall, floor, and ceiling penetrations shall be sealed to maintain fire and smoke ratings in accordance with CBC, NFPA 99 and Life Safety Code.
- 1.11.2.19 All emergency exit passages must be maintained free of obstructions.
- 1.11.2.20 Insist on constant and continuous safety practices.

1.11.3 Fire Prevention During Welding, Cutting, and Other Hot Work

- 1.11.3.1 All hot work shall be in accordance with OSHA requirements, specifically those identified in Standard 1910.252
- 1.11.3.2 Hot work includes welding, soldering, heat treating, grinding, metal cutting, thawing pipe, powder-driven fasteners, hot riveting, and similar applications producing a spark, flame, or heat.
- 1.11.3.3 Hot work being done for extended durations shall be performed in a designated area that is approved for hot work by the Site Safety Officer.
- 1.11.3.4 Design-Build Entity shall ensure that only approved apparatus, such as torches, manifolds, regulators, or pressure-reducing valves, and acetylene generators, are used.
- 1.11.3.5 Design-Build Entity shall ensure that all individuals involved in hot work are:
  - 1.11.3.5.1 Trained in the safe operation of their equipment and the safe use of the process.
  - 1.11.3.5.2 Aware of the inherent risks involved and understand the emergency procedures in the event of a fire.
  - 1.11.3.5.3 Aware if any special risks, such as flammable materials or hazardous conditions at the hot work site.

1.11.4 Project Inspector

- 1.11.4.1 Provision of inspectors by the State, if any, by the County, if any, or by the Regulatory Agency pursuant to provisions of this Document shall be subject to following:
  - 1.11.4.1.1 Design-Build Entity shall allow inspectors full access to the Project at all times Work is in progress.
  - 1.11.4.1.2 Design-Build Entity shall not take any direction, approvals, or disapprovals from inspectors.

1.11.4.1.3 Design-Build Entity shall not rely on inspectors to ensure Work is completed in accordance with Contract Documents.

1.11.4.2 Acts or omissions of any inspector (including, without limitation, inspector's failure to observe or report deficiencies in Design-Build Entity's Work) shall not relieve Design-Build Entity from its responsibility to complete Work in accordance with Contract Documents.

PRODUCTS - Not used.

EXECUTION - Not used.

END OF DOCUMENT

## DOCUMENT 01 12 16

### WORK SEQUENCE

#### PART 1 - GENERAL

##### 1.1 SUMMARY

1.1.1 This Document discusses the phasing and sequencing of staging and mobilization, site preparation, construction, and project completion components of the Project.

1.1.2 Related Documents include the following:

1.1.2.1 Document 01 11 10 (Summary of Work)

1.1.2.2 Document 01 11 14 (Summary of Work - Design Services, Preconstruction Activities, and Deliverables)

1.1.2.3 Document 01 32 16 (Schedules and Reports)

##### 1.2 PHASES

1.2.1 The Project has been organized into two (2) Phases to award the Contract to Design-Build Entity at the earliest feasible stage of the Project, facilitate and expedite completion of the design and preconstruction Work within the Project Master Schedule, and thereafter establish a Final GMP for the Work.

1.2.1.1 Project Components: Each of the Project Components identified in the Scope of Work shall be considered an integral part of the Project. Work associated with completion of each Component shall progress as needed to achieve on-time completion of the Project as a whole.

##### 1.3 PHASING AND SEQUENCING

1.3.1 Design-Build Entity shall be responsible for developing the detailed plan for phasing and sequencing of the design, preconstruction, permitting, Subcontractor bidding, Final GMP Proposal, and construction for completion of the Work.

1.3.2 Design-Build Entity may improve upon the Milestone and completion dates as part of its effort to provide Best Value to the County.

1.3.2.1 Regulatory Agency Review Durations during Design: Design-Build Entity shall consider the Regulatory Agency review durations identified elsewhere in the Project or Scope of Work as minimum durations. Design-Build Entity shall confer with permitting and approval AHJs to validate current review durations for the Project and the Design Deliverables. Design-Build Entity shall have the responsibility to package and submit complete and coordinated documents to the permitting or Regulatory Agency, or AHJ, as applicable.

##### 1.4 PROJECT MILESTONE SCHEDULE

1.4.1 Issue Notice to Proceed (Initial Design and Preconstruction, through Acceptance of Final GMP) – **August 25, 2025**.

1.4.2 Substantial Completion – **Sixty (60) months** from Notice to Proceed with Initial Design and Preconstruction.

PRODUCTS - Not used.

EXECUTION - Not used.

END OF DOCUMENT

**DOCUMENT 01 21 00**

**ALLOWANCES**

PART 1 - GENERAL

1.1 SUMMARY

Certain items are specified in the Contract Documents by Allowances. These Allowances have been established to defer selection of actual materials, equipment, or activities to a later date when additional information is available for evaluation. Each Allowance is for a lump sum. The Allowances are for the following Components of the Scopes of Work, as further defined in the budget cost plan, included in the Criteria Documents. The Design-Build Entity shall include these Allowances in Document 00 42 53 (Proposal Form) that will become part of the Initial GMP/Contract Sum for the Project:

1. Foundations	\$422,550
2. Basement Construction	\$328,320
3. Superstructure	\$1,873,069
4. Enclosure	\$1,895,088
5. Roofing	\$250,230
6. Interior Construction	\$1,011,524
7. Stairs	\$790,000
8. Interior Finishes	\$1,211,115
9. Conveying	\$335,000
10. Plumbing	\$330,806
11. HVAC	\$1,213,552
12. Fire Protection	\$177,530
13. Electrical	\$1,909,007
14. Equipment	\$327,530
15. Furnishing	\$1,051,398
16. Site Preparation	\$313,178
17. Site Improvement	\$100,250
18. Site Mechanical Utilities	\$100,000
19. Site Electrical Utilities	\$50,000
20. Design Contingency	\$1,369,015
21. Cost Escalation to Midpoint of Construction	\$1,707,949

See paragraph 1.4 below for a complete description of each Allowance.

Include in the Contract Sum all Allowances stated in the Contract Documents. Items covered by Allowances shall be supplied for such amounts and by such persons or firms as County Representative may approve.

Related Documents include the following:

Document 00 52 00 (Agreement) for establishing line item GMP amounts for Allowances for the incremental Final GMP for such Work Component Allowances and payment of Allowance amounts.

## 1.2 DESIGN OF ALLOWANCE ITEMS

All Design Services, Coordination, Management and Deliverables as described in Document 01 11 14 (Summary of Work – Design Services and Deliverables) associated with the Allowance items (“Design Costs”) are included in the Contract Sum and are not to be included in the Allowance amount stated in paragraph 1.1 (Summary) above. All Indirect Costs multipliers are excluded and are separate from the Allowance items. Allowance items are considered direct cost of work only.

## 1.3 PRICING OF ALLOWANCE ITEMS

Pricing of Allowance items shall be the sum of labor costs, material costs, equipment rental costs, specialist costs, delivery, installation, and all other actual Direct Costs (excluding Design Costs) plus Indirect Costs multipliers overhead and profit as allowed in Document 00 52 00 (Agreement). The Design Builder will provide three (3) competitive bids for the work performed by Subcontractors for Allowance items, unless otherwise mutually agreed upon with the County, or if a subcontractor was designated in Document 00 21 16 (RFQ/P Instructions to Proposers).

## 1.4 SCHEDULE OF ALLOWANCES

Allowance 1: Foundations – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Foundations include shoring of adjacent buildings as required to allow installation of reinforced concrete wall and column footings and grade beams; elevator pit; and a reinforced 5” concrete slab on grade with sand/gravel underlayment and vapor barrier.

Allowance 2: Basement Construction – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Basement construction includes 12” thick reinforced basement retaining walls with waterproofing and drainage.

Allowance 3: Superstructure – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Superstructure includes floor and roof construction consisting of structural steel columns, braced frames, and beams along with 20# metal deck with 3” of lightweight concrete fill in conjunction with miscellaneous metals and rough carpentry.

Allowance 4: Enclosure – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Exterior enclosure includes exterior walls consisting of steel studs, furring the inside face of the basement, exterior building insulation, gypsum board to inside face of exterior wall that is taped and sanded, applied exterior finishes, entrance canopy, trim and fascia components, and building signage. Exterior windows include aluminum framed and insulated windows systems and storefronts. Exterior doors include an allowance for ten (10) doors.

Allowance 5: Roofing – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Roofing includes roof coverings which include roof insulation, membrane roofing, standing seam metal roof, flashing and sheetmetal, as well as caulking and sealants. There is an allowance for one (1) roof access hatch and ladder.

Allowance 6: Interior Construction – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Interior construction includes interior partitions consisting of 4”-6” metal stud framing, acoustic batt insulation in the partitions, gypsum board sheathing that is taped and sanded, interior glazing and operable partitions along with interior doors. Additionally, code required signage, directional signage and graphics, toilet partitions and accessories, and miscellaneous fittings are also included.

Allowance 7: Stairs – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Stairs include monument lobby stairs that are finished including the railing system along with interior and exterior access stairs that are also finished and contains a railing system.

Allowance 8: Interior Finishes – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Interior Finishes include ceramic tile, acoustic panels, FRP panels and paint for wall finishes, flooring finishes including base, and ceiling finishes consisting of paint to exposed structure, painted gypsum board, acoustic ceilings grid and panels, fascia, and acoustic clouds.

Allowance 9: Conveying – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Conveying includes a MRL electric elevator with 5 stops.

Allowance 10: Plumbing – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Plumbing includes plumbing fixtures, sanitary waste piping, vent piping, service piping, water treatment and storage, surface and rainwater drainage, and miscellaneous plumbing.

Allowance 11: HVAC – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: HVAC includes piping, valves, and insulations along with air handling equipment, air distribution and return, diffusers, registers, gills, controls and instrumentation, system test and balancing, unit ventilation, and other miscellaneous HVAC equipment.

Allowance 12: Fire Protection – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Fire Protection includes an automatic wet sprinkler system.

Allowance 13: Electrical – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Electrical includes electrical service and distribution, power generation and storage, machine and equipment connections, user convenience power, lighting and branch wiring, LED fixtures and controls, telecommunications, fire alarm and security systems, audiovisual systems, and miscellaneous electrical.

Allowance 14: Equipment – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Equipment includes institutional equipment such as food services equipment and other miscellaneous items.

Allowance 15: Furnishing – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Furnishings include fixed furnishings, movable furnishings and movable equipment. Fixed furnishings include manual windows shades and fixed casework. Movable furnishings include items such as tables, chairs,

office furniture and the like. Movable equipment consists of audiovisual equipment, breakroom equipment, and breakroom appliances.

Allowance 16: Site Preparation – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Site Preparation includes site demolitions and clearing, demolition and removal of the existing building, earthwork activities including erosion control, and hazardous materials disposal.

Allowance 17: Site Improvements – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Site Improvements include pedestrian paving, sidewalk replacement, and site development including site signage and accessories.

Allowance 18: Site Mechanical Utilities – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Site Mechanical Utilities includes and allowance to tie the building into the public mechanical utilities.

Allowance 19: Site Electrical Utilities – This Allowance shall cover Direct Costs for the following scope of work as identified in the Budget Cost Plan in the Criteria Documents: Site Electrical Utilities includes and allowance to tie the building into the main electrical utilities.

Allowance 20: Design Contingency – This Allowance is a percentage of the construction cost that is used to offset the uncertainties that are only seen once the design is fully developed.

Allowance 21: Cost Escalation to Midpoint of Construction – This Allowance is a percentage of the construction cost that is used to offset the increase in project costs for labor, equipment, and materials due to price changes over time to the midpoint of construction.

END OF DOCUMENT



**SUBSTITUTION NO.**

**SUBSTITUTION REVIEW FORM A**

Date of Request from Design-Build Entity: \_\_\_\_\_ Date County Response due to Design-Build Entity: \_\_\_\_\_

Subject: \_\_\_\_\_

PRODUCT INFORMATION		
DESCRIPTION	SPECIFIED PRODUCT	REQUESTED SUBSTITUTION
Spec Section No.		
Title		
Generic Name used in Contract Documents		
Proprietary Name		
Model No. and Similar Designation		
Manufacturer's Name and Address		
Supplier's Name and Address		
Installer's Name and Address		
Projected Delivery Date		
Schedule ID Number		
Items require early submittal approval for scheduled delivery date		

**CONDITION:**

*County will consider Design-Build Entity's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, County will return requests without action, except to record noncompliance with these requirements:*

- Requested substitution offers County a substantial advantage in cost, time, energy conservation, and other benefits.
- Requested substitution is consistent with the Contract Documents and will produce required results.



**SUBSTITUTION NO.**

- The substitute request is fully documented and properly submitted.
- 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.

**One or more of the following conditions must be satisfied:**

- The Specified product or method of construction cannot be provided within the Contract Time. The request for substitution will not be considered if the product or method cannot be provided due to Design-Build Entity’s failure to pursue the Work promptly or coordinate activities properly.
- The Specified product or method of construction cannot receive necessary approval by a governing authority and the requested substitution can be approved.
- The Specified product or method of construction cannot be provided in a manner that is compatible with other materials and where Design-Build Entity certifies that the substitution will overcome the incompatibility.
- The Specified product or method of construction cannot be coordinated with other materials, and where Design-Build Entity certifies that the proposed substitution can be coordinated.
- The Specified product or method of construction cannot provide a warranty required by the Contract Documents and where Design-Build Entity certifies that the proposed substitution can provide the required warranty.
- The Specified product or material has been discontinued or is no longer available.
- The proposed substitution exceeds minimum requirements of the Contract Documents.

**REASON FOR SUBSTITUTION:**

**COORDINATION INFORMATION:**



**SUBSTITUTION NO.**

<b>PRODUCT COMPARISON:</b>

<b>SIMILAR INSTALLATIONS:</b>

<b>LEED:</b>

**ATTACHMENTS:**

- Product Data, including drawings and descriptions of products and fabrication and installation procedures.
- Samples, where applicable or requested.
- Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
- Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to County's Representative.
- Detailed comparison of Design-Build Entity's Contract Schedule using proposed substitution with products Specified for the Work, including effect on the overall Contract Time. If a Specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.



**SUBSTITUTION NO.**

Cost information, including a proposal of change, if any, in the Contract Sum.

**Response By**

\_\_\_\_\_  
Construction Manager Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
County Signature

\_\_\_\_\_  
Date

DOCUMENT 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 GENERAL

Only Design-Build Entity or the County may initiate changes in the Work or Modifications or deviations from Contract Documents.

1.1.1 Design-Build Entity may initiate changes by submitting a Design Request for Information ("DRFI"), Notice of Concealed or Unknown Conditions, Notice of Hazardous Waste Conditions, or Notice of Regulatory Agency Field Change Directive.

1.1.1.1 DRFIs shall be submitted to seek clarification of or request changes in the Contract Documents.

1.1.1.2 Notices of Concealed or Unknown Conditions shall be submitted in accordance with Paragraph 13.4 of Document 00 72 53 (General Conditions).

1.1.1.3 Notices of Hazardous Waste or Materials Conditions shall be submitted in accordance with Paragraph 13.5 of Document 00 72 53 (General Conditions).

1.1.1.4 Notices of Regulatory Agency Field Change Directives shall be submitted when the permitting Regulatory Agency directs in the field a change in design previously approved by the Regulatory Agency, which change is not the result of Design-Build Entity's design error or omission or Defective work.

1.1.2 The County, Regulatory Agencies, or AHJ may initiate additional instructions or interpretations, or order minor changes not involving adjustment of the Contract Sum or Contract Time by issuing a Supplemental Instruction, which may revise, add, or subtract from the Work or Criteria Documents ("Supplemental Instruction").

1.1.3 The County may initiate changes in the Work involving changes to the Contract Sum or Contract Time by issuing Requests for Cost Proposals ("RFCPs") to Design-Build Entity. Such RFCPs will identify the general scope of changes in the Work and will request from Design-Build Entity a quotation of changes in Contract Sum and Contract Time.

1.1.4 The County may also, by Construction Change Directive ("CCD"), order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, with the Contract Sum and Contract Time being adjusted accordingly. A CCD shall be used in the absence of total agreement on the terms of a Change Order and may, upon notice, consist of a Change Order executed by the County only.

1.2 PROCEDURES

1.2.1 Cost Proposal and Procedures: Whenever Design-Build Entity is required in this Document to prepare a cost proposal, and whenever Design-Build Entity is entitled to submit a cost proposal and elects to do so, Design-Build Entity shall prepare and submit to the County for consideration a cost proposal identifying and summarizing each of the time and cost components and individual Fixed Percentage Rates for Indirect Costs allowed by the Contract in a form substantially similar to that attached at the end of this Document ("Cost Proposal"). All Cost Proposals must contain a complete description of the scope of work with an associated breakdown of all actual, current costs of credits, deducts, and extras,

and itemized materials, equipment, labor, services, and taxes. All Subcontractor Work shall be so indicated. Individual entries on the Cost Proposal form shall be determined as provided in Paragraphs 1.3 and 1.4 of this Document.

After receipt of a complete Cost Proposal with a detailed breakdown, the County will act promptly thereon.

1.2.1.1 If the County accepts a Cost Proposal, the County will prepare a Change Order for the County and Design-Build Entity signatures.

1.2.1.2 If Cost Proposal is not acceptable to the County because it does not agree with cost and/or time included in Cost Proposal, the County will submit in a response what it believes to be a reasonable cost and/or time adjustment, if any. Except as otherwise provided in this Document, Design-Build Entity shall have seven (7) Days to respond to the County with a revised Cost Proposal.

1.2.1.3 When necessity to proceed with a change does not allow the County sufficient time to conduct a complete review of a Cost Proposal (or revised Cost Proposal), the County may issue a CCD in accordance with 1.2.4 below.

1.2.2 Design Request for Information ("DRFI"): Whenever Design-Build Entity requires information regarding the Project or Contract Documents, or receives a request for information from a Subcontractor, Design-Build Entity may prepare and deliver a DRFI to the County. Design-Build Entity shall use DRFI format as approved by the County. Design-Build Entity must submit time critical DRFIs at least thirty (30) Days before the scheduled start date of the affected Work activity. Design-Build Entity shall reference each DRFI to an activity of the Construction Schedule and shall note time criticality of the DRFI, indicating time within which a response is required. Design-Build Entity's failure to submit time critical DRFIs, failure to reference DRFI to an activity on the Construction Schedule, or failure to note time criticality on the DRFI shall constitute Design-Build Entity's waiver of any claim for time delay or interruption to the Work resulting from any delay in County responding to the DRFI.

1.2.2.1 The County will respond within seven (7) Days from receipt of DRFI with a written response to Design-Build Entity. Design-Build Entity shall distribute response to all appropriate Subcontractors and Subconsultants.

1.2.2.2 If Design-Build Entity is satisfied with the response and does not request a change in Contract Sum or Contract Time, then the response shall be executed as part of the Work without a Change Order.

1.2.2.3 If Design-Build Entity believes the response is incomplete, Design-Build Entity shall issue another DRFI (with the same DRFI number with the designation ".01" indicating that it is a follow-up DRFI) to the County clarifying original DRFI. Additionally, the County may return a DRFI requesting additional information should the original DRFI be inadequate in describing the requested information or Project condition.

1.2.2.4 If Design-Build Entity believes that the response results in change in Contract Sum or Contract Time, Design-Build Entity shall notify the County in writing within seven (7) Days after receiving the response. If the County disagrees with Design-Build Entity, County shall give written notice of its disagreement and County issues a Disputed Work Directive to continue performance of the disputed item of Work, then Design-Build Entity may give notice of intent to submit a Claim as described in Article 12 of Document 00 72 53 (General

Conditions) and submit its Claim within thirty (30) Days. If the County agrees with Design-Build Entity, then Design-Build Entity must submit a Cost Proposal within seven (7) Days of receiving the County's agreement.

Design-Build Entity's failure to deliver either the foregoing notice and Claim or Cost Proposal by the respective deadlines stated in the foregoing statements shall result in waiver of the right to file a Cost Proposal or Claim unless Design-Build Entity can demonstrate that cost and time impacts of the County's response could not have been determined until after commencement of the change in Work.

1.2.3 Supplemental Instruction: The County may issue Supplemental Instructions to Design-Build Entity.

1.2.3.1 If Design-Build Entity is satisfied with Supplemental Instruction and does not request change in Contract Sum or Contract Time, then Supplemental Instruction shall be executed without a Change Order.

1.2.3.2 If Design-Build Entity believes that Supplemental Instruction results in change in Contract Sum or Contract Time, then Design-Build Entity must notify the County in writing within seven (7) Days after receiving the Supplemental Instruction and submit a Cost Proposal to the County within twenty-one (21) Days of receiving the Supplemental Instruction.

1.2.4 Construction Change Directives: If at any time the County believes in good faith that a timely Change Order will not be agreed upon using the foregoing procedures, the County may issue a CCD with its recommended cost and/or time adjustment. Upon receipt of a CCD, Design-Build Entity shall promptly proceed with the change of Work involved and concurrently respond to the County's CCD within ten (10) Days.

1.2.4.1 Design-Build Entity's response must be any one of following:

1.2.4.1.1 Return CCD signed, indicating agreement of Design-Build Entity therewith, including adjustment in Contract Sum and Contract Time or the method for determining them.

1.2.4.1.2 Submit a (revised if applicable) Cost Proposal with supporting documentation (if applicable, reference original Cost Proposal number followed by the designation .01, .02, etc. for each revision).

1.2.4.1.3 Give notice of intent to submit a Claim as described in the General Conditions and submit its Claim within thirty (30) Days.

1.2.4.2 If the CCD provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

1.2.4.2.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation.

1.2.4.2.2 Unit prices stated in the Contract Documents or subsequently agreed upon.

1.2.4.2.3 Cost to be determined in a manner agreed.

- 1.2.4.2.4 County directs Design-Build Entity to perform the work as “Force Account.” Upon receiving a Force Account directive, Design-Build Entity shall diligently perform the work by utilizing the time and materials method. Daily time and verification of all labor hours and materials shall be submitted and approved by the County.
    - 1.2.4.3 CCD signed by Design-Build Entity indicates the agreement of Design-Build Entity therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.
    - 1.2.4.4 If Design-Build Entity does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the County on the basis of reasonable expenditures and savings of those performing the Work attributable to the change including, and, in case of an increase in the Contract Sum, along with the application of the Fixed Percentage Rates for Indirect Costs (General Conditions Costs (in case of time extension), Overhead & Profit, Bonds, and Insurance). If the parties still do not agree on the price for a CCD, Design-Build Entity may file a Claim in accordance with the General Conditions within thirty (30) Days after submitting a notice of intent to file a Claim as provided in Paragraph 1.2.4.1.3. Design-Build Entity shall keep and present, in such form as the County may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Paragraph shall be limited to those provided in Paragraphs 1.3 and 1.4 of this Document 01 26 00 (Contract Modification Procedures).
    - 1.2.4.5 Pending final determination of cost to the County, amounts not in dispute may be included in Applications for Payment. The amount of credit to be allowed by Design-Build Entity to the County for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the County. When both additions and credits covering related Work or substitutions are involved in a change, the amount for Overhead & Profit, Bonds, and Insurance shall be figured on the basis of net increase, if any, with respect to that change based on the Fixed Percentage Rates For Indirect Costs included in the Contract.
- 1.2.5 County Requested Cost Proposal: Design-Build Entity shall furnish a Cost Proposal within seven (7) Days of the County’s RFCP. Upon approval of Cost Proposal, the County will issue a Change Order directing Design-Build Entity to proceed with extra Work. If the parties do not agree on the price for an RFCP, the County may issue a CCD, or a Unilateral Change Order in accordance with Document 00 72 53 (General Conditions). Design-Build Entity shall perform the changed Work notwithstanding any claims or disagreements of any nature.
- 1.2.6 Differing, Concealed, or Unknown Site Conditions: Design-Build Entity shall submit a Notice of Differing Site Conditions, Concealed, or Unknown Conditions to resolve problems regarding unknown differing Site conditions encountered in the execution of the Work pursuant to the General Conditions, which shall govern over conflicting provisions in this Document 01 26 00. Design-Build Entity shall furnish Notice within seven (7) Business Days of discovery of the differing condition. If the County determines that a change in Contract Sum or Contract Time is justified, the County will issue an RFCP or CCD.
- 1.2.7 Hazardous Waste Conditions: Design-Build Entity shall submit a Notice of Hazardous Waste Conditions to resolve problems regarding hazardous materials encountered in the

execution of the Work pursuant to the General Conditions, which shall govern over conflicting provisions in this Document 01 26 00. Design-Build Entity shall furnish written notice within 24 hours of discovery of the hazardous materials. If the County determines that a change in Contract Sum or Contract Time is justified, the County will issue an RFCP or CCD.

- 1.2.8 Compensation of Design Fees: For Change Orders resulting from County requested changes or changes resulting from differing or unknown conditions, which require changes to the design set forth in the Construction Documents, Design-Build Entity shall be compensated at the same Fixed Percentage Rate for Phase II included in Design-Build Entity's Proposal and set forth in Article 8 of the Agreement, except as otherwise provided in Section 1.3.1 below.

### 1.3 COST DETERMINATION

- 1.3.1 Total cost of extra Work or of Work omitted shall be the sum of labor costs, material costs, equipment rental costs, specialist costs, and all other direct and actual costs as defined herein plus Fixed Percentage Rates for Indirect Costs as allowed by the Agreement. This limit applies in all cases of claims for changes and extra Work, whether calculating Cost Proposals, Change Orders or CCDs, or calculating Contract Claims of all types. Design-Build Entity may recover no other costs arising out of or connected with the performance of changes and extra Work, of any nature. No special, incidental, or consequential damages may be claimed or recovered against the County, its representatives, or agents, including but not limited to claims arising from breach of Contract, negligence, or strict liability, except as applicable public contracting statutes may specify such recovery. Design-Build Entity agrees that the Fixed Percentage Rates For Indirect Costs for "General Conditions Costs" and Construction Overhead and Profit, the lump sum amounts for Phase I Design & Preconstruction Services, and fixed percentage rates for Phase II Remaining Design, Preconstruction Services, & Construction Administration (without duplication of General Conditions Costs ) through Closeout will not increase or decrease due to changes in the Direct Costs of the Work occurring during Phase I or Phase II, unless such increases or decreases result from unknown Site conditions inconsistent with the information included in the Criteria Documents, or significant County-directed changes to the Criteria Documents or to County-approved and permitted Construction Documents. Any changes to the foregoing Fixed Percentage Rates and lump sum amounts will occur only pursuant to Change Orders issued in accordance with the Contract Documents.

- 1.3.2 Overhead and Profit: "Overhead and Profit" shall be as defined in Document 01 42 00 (References and Definitions) under Indirect Costs.

- 1.3.2.1 Overhead and Profit on Design-Build Entity self-performed labor for changes and extra Work shall be based on the Fixed Percentage Rates for Indirect Costs established in Document 00 52 00 (Agreement).

- 1.3.2.2 Overhead and Profit on Design-Build Entity procured materials for extra Work shall be based on Fixed Percentage Rates For Indirect Costs established in Document 00 52 00 (Agreement).

- 1.3.2.3 Overhead and Profit on Design-Build Entity procured equipment rental for extra Work shall be based on Fixed Percentage Rates for Indirect Costs established in Document 00 52 00 (Agreement).

- 1.3.2.4 When extra Work is performed by a first tier Subcontractor, Design-Build Entity shall receive Overhead and Profit on Subcontractor's total Direct Costs of extra Work (not including Subcontractor markup) based on the Fixed Percentage

Rates For Indirect Costs established in Document 00 52 00 (Agreement). First tier Subcontractor's markup on its Work shall not exceed fifteen percent (15%).

- 1.3.2.5 When extra Work is performed by a lower tier Subcontractor, Design-Build Entity shall receive Overhead and Profit on the lower tier Subcontractor's total Direct Costs of extra Work (not including Subcontractor markup) based on the Fixed Percentage Rates For Indirect Costs established in Document 00 52 00 (Agreement). Design-Build Entity and first tier Subcontractors and lower tier Subcontractors shall divide the fifteen percent (15%) markup as mutually agreed.
- 1.3.2.6 Notwithstanding the foregoing, in no case shall the total markup for Overhead and Profit of Design-Build Entity and Subcontractors on any changes or extra Work exceed twenty percent (20%) of the Direct Costs, notwithstanding the actual number of Subcontractor tiers performing such changes and extra Work.
- 1.3.2.7 On Cost Proposals covering both increases and decreases in the Contract Sum, Overhead and Profit shall be allowed on the net increase only as determined in this Paragraph 1.3. When the net difference is a cost reduction, no percentage for Overhead and Profit shall be applied, but rather the net Direct Cost change only shall be applied as a deduction to the Contract Sum and Final GMP.
- 1.3.2.8 Design-Build Entity's Construction Overhead and Profit, General Conditions Costs, Insurance, and Bonds costs shall be compensated using the Fixed Percentage Rates For Indirect Costs Specified in Document 00 52 00 (Agreement) and shall be applied to Direct Costs of Construction Work. The Fixed Percentage Rate For Indirect Costs for General Conditions Costs includes but is not limited to all costs as defined in Document 01 42 00 (References and Definitions). See also Paragraph 8.9 of Document 00 52 00 (Agreement). .

1.3.3 Taxes:

- 1.3.3.1 All state sales tax, use tax, and County taxes shall be included.
- 1.3.3.2 Federal and excise tax shall not be included.
- 1.3.3.3 No other taxes shall be included.

1.3.4 County-Operated Equipment: When County-operated equipment is used to perform extra Work, Design-Build Entity will be paid for operator as follows:

- 1.3.4.1 Payment for equipment will be made in accordance with Paragraph 1.4.3 below.
- 1.3.4.2 Payment for cost of labor will be made at no more than rates of such labor established by collective bargaining agreements for type of worker and location of Work, whether or not owner-operator is actually covered by such an agreement.

1.3.5 Accord and Satisfaction: Every Change Order, accepted CCD, and Contract Modification shall constitute a full accord and satisfaction, and shall be a full compromise, settlement of all adjustments to the Contract Sum and Contract Time, and release and waiver of all

Design-Build Entity (and if applicable, Subcontractor) damages and claims for additional time, money, or other relief arising directly or indirectly from or relating to the subject matter of the change including, without limitation, compensation for any and all delay, extended or additional field and home office overhead, disruption, acceleration, inefficiencies, lost labor or equipment productivity, differing site conditions, construction interferences, and other extraordinary or consequential damages, impacts of all types, cumulative impacts, inefficiency, overtime, (hereinafter called "Impacts"), on the overall Work under the Contract and any other type of damage or claim. Design-Build Entity may elect to reserve its rights to disputed claims in stated amounts arising from or relating to the changed Work at the time it signs a Change Order or Contract Modification, or approves a CCD, but must do so expressly in writing delivered concurrently with the executed Change Order, Contract Modification, or approved CCD, and must also submit a Claim for the reserved disputed items in stated amounts pursuant to the Article 12 of Document 00 72 53 (General Conditions) no later than thirty (30) Days after Design-Build Entity's first written notice of its intent to reserve rights.

#### 1.4 COST BREAKDOWN

1.4.1 Labor: Design-Build Entity will be paid cost of labor for workers (including forepersons only when authorized by the County) used in actual and direct performance of extra Work. Design-Build Entity shall provide hourly wage rate breakdowns for all forces prior to acceptance by the County of any Change Orders and/or adjustments. Labor rates, whether the employer is Design-Build Entity, Subcontractor, or other forces, will be the sum of following:

1.4.1.1 Actual Wages: Actual straight time wages paid shall include any employer payments to or on behalf of workers for health and welfare, pension, vacation, and similar purposes. Overtime wages must be specifically authorized in writing by the County.

1.4.1.2 Labor Surcharge: Payments imposed by local, county, state, and federal laws and ordinances, and other payments made to, or on behalf of, workers, other than actual wages as defined in paragraph 1.4.1.1 above, such as taxes and insurance.

1.4.1.3 Upon receipt of the Notice to Proceed with Construction Work, Design-Build Entity shall submit a list of Labor Rates for all staff and trade positions that will be utilized on Project for County review and approval. The approved Labor Rates will be utilized for all Project Change Orders.

1.4.2 Material: Only materials furnished by Design-Build Entity and necessarily used in performance of changes and extra Work will be paid for. Cost of such materials will be cost, including sales tax, transportation, and delivery charges, to purchaser (Design-Build Entity, Subcontractor or other forces) from supplier thereof, except as the following are applicable:

1.4.2.1 If cash or trade discount by actual supplier is offered or available to purchaser, it shall be credited to the County notwithstanding fact that such discount may not have been taken.

1.4.2.2 For materials salvaged upon completion of extra Work, salvage value of materials shall be deducted from cost, less discounts, of materials.

1.4.2.3 If cost of a material is excessive, then cost of material shall be deemed to be lowest reasonably available wholesale price at which material is available in

quantities delivered to Site, less any discounts as provided in Paragraph 1.4.2.1 above.

1.4.3 Equipment Rental: For equipment owned by Design-Build Entity or its Subcontractor, payment will be made at rental rates listed for equipment in California Department of Transportation official equipment rental rate schedule which is in effect on date upon which extra Work is accomplished and which schedule is incorporated herein by reference as though fully set forth herein. If there is no applicable rate for an item of equipment, then payment shall be made for utilization of equipment owned by Design-Build Entity or Subcontractor at rental rate listed in the most recent edition of the Association of Equipment Distributors ("AED") book. For rented equipment, payment will be made based on actual rental invoices. Equipment used on extra Work shall be of proper size and type. If, however, equipment of unwarranted size or type and cost is used, cost of use of equipment shall be calculated at rental rate for equipment of proper size and type, as determined by the County. Rental rates paid shall be deemed to cover cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, and all incidentals. Unless otherwise specified, manufacturer's ratings, and manufacturer-approved modifications shall be used to classify equipment for determination of applicable rental rates. Individual pieces of equipment or tools not listed in said publication and having a replacement value of \$500 or less, whether or not consumed by use, shall be considered to be small tools. Rental time will not be allowed while equipment is inoperative due to breakdowns.

1.4.3.1 For equipment on Site, rental time to be paid for equipment shall be time equipment is in operation on extra Work being performed or on standby as approved by the County. The following shall be used in computing rental time of equipment:

1.4.3.1.1 When hourly rates are listed, less than thirty (30) minutes of operation shall be considered to be one-half (1/2) hour of operation.

1.4.3.1.2 When daily rates are listed, less than four (4) hours of operation shall be considered to be one-half (1/2) day of operation.

1.4.3.2 For equipment that must be brought to Site to be used exclusively on extra Work or changes, cost of transporting equipment to Site and its return to its original location shall be determined as follows:

1.4.3.2.1 The County will pay for costs of loading and unloading equipment.

1.4.3.2.2 Cost of transporting equipment in low bed trailers shall not exceed hourly rates charged by established haulers.

1.4.3.2.3 Cost of transporting equipment shall not exceed applicable minimum established rates of California Public Utilities Commission.

1.4.3.2.4 The County will not make any payment for transporting and loading and unloading equipment if equipment is used on Work in any other way than upon extra Work.

1.4.3.3 Rental period may begin at time equipment is unloaded at Site of extra Work and terminate at end of the performance of the extra Work or day on which the County directs Design-Build Entity to discontinue use of equipment, whichever

first occurs. Excluding Saturdays, Sundays, and the County's legal holidays, unless equipment is used to perform extra Work on such days, rental time to be paid per day shall be four (4) hours for zero (0) hours of operation, six (6) hours for four (4) hours of operation, and eight (8) hours for eight (8) hours of operation, time being prorated between these parameters. Hours to be paid for equipment that is operated less than eight (8) hours due to breakdowns shall not exceed eight (8) less number of hours equipment is inoperative due to breakdowns.

1.4.3.4 Work Performed by Special Forces or Other Special Services: When the County and Design-Build Entity, by agreement, determine that special service or item of extra Work cannot be performed by Design-Build Entity or any Subcontractors, service or extra Work item may be performed by specialist. Invoices for service or item of extra Work on basis of current market price thereof may be accepted without complete itemization of labor, material, and equipment rental costs when it is impracticable and not in accordance with established practice of special service industry to provide complete itemization. In those instances, wherein Design-Build Entity is required to perform extra Work necessitating a fabrication or machining process in a fabrication or machine shop facility away from Site, charges for that portion of extra Work performed in such facility may, by agreement, be accepted as a specialist billing. The County must be notified in advance of all Off-Site Work. In lieu of Overhead and Profit provided in Paragraph 1.3.2 above, fifteen percent (15%) will be added to specialist invoice price, after deduction of any cash or trade discount offered or available, whether or not such discount may have been taken.

1.4.4 Costs Excluded From Pricing Changes and Extra Work: Costs for pricing changes and extra Work shall not include any Indirect Costs as defined in Document 01 42 00 (References and Definitions) except as provided in Section 1.3 above.

## 1.5 FORCE ACCOUNT WORK

1.5.1 If it is impracticable because of the nature of Work, or for any other reason, to fix an increase or decrease in price definitely in advance, Design-Build Entity may be directed to proceed at a not to exceed ("NTE") maximum price. Subject to such limitation, such extra Work shall be paid for at actual necessary cost for Force Account Work or at the negotiated cost, as determined by the County. The cost for Force Account Work shall be determined pursuant to Paragraphs 1.3 and 1.4 above.

1.5.2 Force Account Work shall be used when it is not possible or practical to price out the changed Work prior to the start of that Work. In these cases, Force Account Work will be utilized during the pricing and negotiation phase of the change. Once negotiations have been concluded and a bilateral agreement has been reached, the tracking of the Work under Force Account is no longer necessary. Force Account Work shall also be used when negotiations between the County and Design-Build Entity have broken apart and a bilateral agreement on the value of the changed Work cannot be reached. The County may approve other uses of Force Account Work.

1.5.3 Whenever any Force-Account Work is in progress, definite price for which has not been agreed on in advance, Design-Build Entity shall report to the County each Business Day in writing in detail the amount and cost of labor and material used and any other expense incurred in Force Account Work on the preceding day, by using the Cost Proposal form attached hereto. No claim for compensation for Force Account Work will be allowed unless a cost incurred report shall have been made.

- 1.5.4 Whenever Force Account Work is in progress, definite price for which has not been agreed on in advance, Design-Build Entity shall report to the County when seventy-five percent (75%) of the NTE amount has been expended.
- 1.5.5 Force Account Work shall be paid as a change or extra Work under this Document 01 26 00 (Contract Modification Procedures). Methods of determining payment for Work and materials provided in this Paragraph 1.5 shall not apply to performance of Work or furnishings of material that, in judgment of the County, may properly be classified under items for which prices are otherwise established in Contract Documents.

1.6 GENERAL CONDITIONS COSTS DEFINED

The following constitutes charges that are deemed included in the Fixed Percentage Rate for Indirect Costs for General Conditions Costs as set forth in Document 01 42 00 (References and Definitions) (when the Modification results in a change in the Contract Time) for all Contract Modifications, including Force Account Work or CCD Work, whether incurred by Design-Build Entity, Subconsultants, Subcontractors, or suppliers, and Design-Build Entity shall not invoice or receive payment for these costs separately:

- 1.6.1 Drawings: field drawings, coordination drawings, Shop Drawings, etc., including submissions of drawings.
- 1.6.2 Routine field inspection of Work proposed.
- 1.6.3 Supervision and General Superintendence.
- 1.6.4 General administration and preparation of cost proposals, schedule analysis, Change Orders, and other supporting documentation as necessary.
- 1.6.5 Computer and data processing services.
- 1.6.6 Reproduction services.
- 1.6.7 Salaries of project managers, engineers, schedulers, estimators, superintendents, timekeepers, storekeepers, and clerical/administrative employees including accounting staff.
- 1.6.8 Janitorial services.
- 1.6.9 Small tools, incidentals, and consumables.
- 1.6.10 Temporary on-Site facilities:
  - 1.6.10.1 Offices and furnishings
  - 1.6.10.2 Telephones
  - 1.6.10.3 Computers, Servers, Internet, Copier and Scanner Equipment, and WiFi
  - 1.6.10.4 Security
  - 1.6.10.5 Plumbing, sewer
  - 1.6.10.6 Electrical: Power, lighting

- 1.6.10.7 Platforms
- 1.6.10.8 Fencing, etc.
- 1.6.10.9 Worker parking and/or shuttle services
- 1.6.10.10 Worker shade structures
- 1.6.10.11 Water
- 1.6.10.12 Gas
- 1.6.11 Procurement and use of vehicles and fuel used coincidentally in Work otherwise included in the Contract Documents
- 1.6.12 Surveying
- 1.6.13 Estimating
- 1.6.14 Protection of Work or existing conditions to remain.
- 1.6.15 Material and waste handling and disposal or recycling fees
- 1.6.16 Final cleanup
- 1.6.17 Other incidental Work
- 1.6.18 Related warranties

## 1.7 RECORDS AND CERTIFICATION

- 1.7.1 Force Account (cost reimbursement) charges shall be recorded daily and summarized in the Cost Proposal form attached hereto. Design-Build Entity or authorized representative shall complete, sign, and submit the forms to County each day. Design-Build Entity shall also provide with the form: the names and classifications of workers and hours worked by each; an itemization of all materials used; a list by size, type, and identification number of equipment and hours operated; and an indication of all Work performed by specialists.
- 1.7.2 No payment for Force Account Work shall be made until Design-Build Entity submits original invoices substantiating materials and specialists' charges.
- 1.7.3 The County shall have the right to audit all records in possession of Design-Build Entity relating to activities covered by Design-Build Entity's Work including, but not limited to, claims for Contract Modifications, including Force Account Work, CCD Work, and the Final GMP.
- 1.7.4 Further, the County will have right to audit, inspect, or copy all records maintained in connection with this Contract, including financial records, bidding records, in possession of Design-Build Entity relating to any transaction or activity occurring or arising out of, or by virtue of, the Contract. If Design-Build Entity is a joint venture, right of the County shall apply collaterally to same extent to records of joint venture sponsor, and of each individual joint venture member. This right shall be specifically enforceable, and any failure of Design-Build Entity to voluntarily comply shall be deemed an irrevocable waiver and release of all claims then pending that were or could have been subject to the Claims provisions in Document 00 72 53 (General Conditions).

## 1.8 REGULATORY AGENCY AND AHJ APPROVAL OF CHANGE ORDERS

1.8.1 Design-Build Entity shall be responsible for the submission and coordination of all Change Orders to both the authorities having jurisdiction (“AHJ”) and the Regulatory Agencies. Changes in the approved Drawings and Specifications for the Project shall be approved by both the Regulatory Agencies and the AHJ before proceeding with the Work. Submission to, and approval of AHJ and Regulatory Agencies for Change Orders to the Project shall not in any way invalidate or modify Document 00 72 53 (General Conditions), or any other provisions of the Contract Documents.

1.8.1.1 Change Orders submitted to the AHJ and Regulatory Agencies for review and approval shall state the reason for the change, show the related addition to or deduction from the current contract price, and shall be accompanied by supplementary plans, specifications, and other supporting documents, when necessary.

1.8.1.2 All Change Orders submitted to the AHJ and Regulatory Agencies shall be signed by the County Representative and Design-Build Entity, and approved by both the AHJ and Regulatory Agencies prior to performance of the work described in the Change Order, except under the following circumstances:

1.8.1.2.1 Emergency changes to the Work relating to the safety of persons at the construction site. These changes may be made immediately and shall be documented by subsequent Change Order(s).

1.8.1.2.2 To prevent undue delay, changes may be commenced following preliminary approval of an instruction bulletin or Supplemental Instruction by AHJ or Regulatory Agencies. Such changes shall be confirmed immediately by Change Order.

1.8.2 Impact of AHJ / Regulatory Agencies Review on Project Master Schedule. AHJ or Regulatory Agencies review of Change Orders is estimated to require from 40 to 80 days. During this review period, Design-Build Entity cannot proceed with the work that is the subject of the Change Order, except as noted above in Paragraphs 1.8.1.2.1 and 1.8.1.2.2. The responsibility for impacts to Design-Build Entity’s Project Master Schedule that are attributable to AHJ or Regulatory Agencies review of Change Orders shall be assigned as follows:

1.8.2.1 Design-Build Entity shall not be entitled to any extension of the Contract Time or additional compensation (including Compensable Delay) due to delays in the Contract Schedule caused by AHJ or Regulatory Agencies reviews.

PART 2 - PRODUCTS - Not used.

PART 3 - EXECUTION - Not used.

END OF DOCUMENT

COST PROPOSAL FORM FOLLOWS ON NEXT PAGE

**COST PROPOSAL (CP)**

---

**[Contract Number]**

**Cost Proposal Number:** \_\_\_\_\_

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

**In Response To:** \_\_\_\_\_

(RFCP #, RFI #, Supplemental Instruction, etc.)

**To: Construction Manager**

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

**Phone:** \_\_\_\_\_

**Email:** \_\_\_\_\_

**From: [Insert Design-Build Entity's Name/Address]**

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

**Brief description of change(s):** \_\_\_\_\_

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

ITEM DESCRIPTION	DESIGN-BUILD ENTITY	SUB 1	SUB 2	SUB 3	SUB 4	TOTAL
Material						
Direct Labor Cost						
Equipment						
Other (specify, such as Extended General Conditions markup, markup for construction Overhead and Profit, bonds, insurance, or special fees)						
Total Cost						
Taxes (No markup allowed on taxes)						
Subcontractor's Overhead & Profit (NTE 15% Labor & Materials)						
Design-Build Entity's Overhead & Profit for self-performed work (TBD%)						
Overhead & Profit to Design-Build Entity for Subcontractor's Work (TBD%). No markup on Subcontractor's markup						
Percent of total cost above not including any Overhead & Profit (Not to exceed TBD%)						
<b>GRAND TOTAL</b>						
*REQUESTED CHANGE IN CONTRACT TIME (DAYS)						
*ATTACH NOTICE AND ANALYSIS REQUIRED BY GENERAL CONDITIONS ARTICLE 15						

By Design-Build Entity:

Signature:

Date:

**DOCUMENT 01 29 00**

**PAYMENT PROCEDURES**

**PART 1 - GENERAL**

**1.1 SUMMARY**

1.1.1 This document describes requirements and procedures for determining amount of Work done and for obtaining payment for Work done.

1.1.2 Related Documents.

- 1.1.2.1 Document 01 11 10 (Summary of Work)
- 1.1.2.2 Document 01 11 14 (Summary of Work - Design Services, Preconstruction Activities, and Deliverables)
- 1.1.2.3 Document 01 26 00 (Contract Modification Procedures)
- 1.1.2.4 Document 01 32 16 (Schedules and Reports)
- 1.1.2.5 Document 01 33 00 (Submittal Procedures)
- 1.1.2.6 Document 01 77 00 (Closeout Procedures)
- 1.1.2.7 Document 00 52 00 (Agreement)
- 1.1.2.8 Document 00 72 53 (General Conditions)

**1.2 REFERENCES**

California Public Contract Code

**1.3 SCOPE OF WORK**

Work under the Contract Documents, or under any Final GMP Schedule of Values line item, Allowance, or alternate, shall include all design services, labor, materials, transport, handling, storage, supervision, administration, and all other items necessary for the satisfactory completion of Work, whether expressly Specified or shown.

**1.4 DETERMINATION OF QUANTITIES**

Quantity of Work to be paid for under any item for which a unit price is fixed in the Contract Documents shall be the number, as determined by County, of units of Work satisfactorily completed in accordance with Drawings and Specifications and as directed pursuant to Drawings and Specifications. Unless otherwise provided, determination of number of units of Work so completed will be based, as far as practicable, on actual measurement or count within prescribed or ordered limits, and no payment will be made for work done outside of limits. Measurements and computations will be made by methods as County may consider appropriate for class of work measured.

**1.5 SCOPE OF PAYMENT**

1.5.1 Except as otherwise expressly stipulated in Document 01 11 10 (Summary of Work), payment to Design-Build Entity at the unit price or other price fixed in the Contract for performing the Work required under any item, or (if the Contract is on a lump sum price basis) at the lump sum price fixed in the Contract for performing all Work required under the Contract, and as either may be adjusted pursuant to any approved Contract Modification, shall be full compensation for completing, in accordance with the Contract Documents, all design services and Work required under the item or under the Contract,

and for all expense incurred by Design-Build Entity for any purpose in connection with the performance and completion of said Work, including all incidental work necessary for completion of the Work.

- 1.5.2 The Contract Sum, whether Guaranteed Maximum Price, lump sum, unit price, or otherwise, shall be deemed to include all costs necessary to complete required Work.
- 1.5.3 Whenever it is specified herein that Design-Build Entity is to do Work or furnish materials of any class for which no price is fixed in the Contract Documents, it shall be understood that Design-Build Entity is to do such Work or furnish such materials without extra charge or allowance or direct payment of any sort, and that cost of doing Work or furnishing materials is to be included in its Final GMP Proposal price, unless it is expressly specified herein, in particular cases, that Work or material is to be paid for as a change or extra Work.
- 1.5.4 For the materials and equipment referenced in Document 01 11 10 (Summary of Work) as subject to payment prior to incorporation into the Work, where Design-Build Entity requests payment on the basis of such materials and equipment not incorporated in the Work, Design-Build Entity must satisfy the following conditions:
  - 1.5.4.1 The materials and/or equipment shall be delivered and suitably stored at the Site or at another local location agreed to in writing, for example, a mutually acceptable warehouse.
  - 1.5.4.2 Full title to the materials and/or equipment shall vest in County at the time of delivery to the Site, warehouse, or other storage location.
  - 1.5.4.3 Design-Build Entity shall obtain a negotiable warehouse receipt, endorsed over to County for materials and/or equipment stored in an Off-Site warehouse. Design-Build Entity will store said materials and/or equipment at a bonded warehouse and with appropriate insurance coverage at no additional cost to the County. No payment shall be made until such endorsed receipts are delivered to the County.
  - 1.5.4.4 Stockpiled materials and/or equipment shall be available for County's inspection, but County shall have no obligation to inspect them and its inspection or failure to inspect shall not relieve Design-Build Entity of any obligations under the Contract Documents. Materials and/or equipment shall be segregated and labeled or tagged to specifically identify these specific Project Contract Documents.
  - 1.5.4.5 After delivery of materials and/or equipment, if any inherent or acquired Defects are discovered, defective materials and/or equipment shall be removed and replaced with suitable materials and/or equipment at Design-Build Entity's expense.
  - 1.5.4.6 At its expense, Design-Build Entity shall insure the materials and/or equipment against theft, fire, vandalism, and malicious mischief, as well as any other coverages required under the Contract Documents.
  - 1.5.4.7 Design-Build Entity's Application for Payment shall be accompanied by a bill of sale, invoice, or other documentation warranting that County has received the materials and equipment free and clear of all liens and evidence that the materials and equipment are covered by appropriate property insurance and

other arrangements to protect County's interest therein, all of which must be satisfactory to County. Design-Build Entity's cost to obtain Builder's Risk "All Risk" insurance to indemnify the County for all damage to the Work for the risks Specified in Paragraph 7 of Document 00 73 16 (Insurance Requirements) may be included in the first application for payment. Design-Build Entity may invoice for the Performance Bond and Payment Bond premiums at the Fixed Percentage Rates For Indirect Costs Specified in the Agreement applied to the Initial GMP in the first application for payment after Contract award. This documentation shall include, but is not limited to, premium invoices, conditional releases of mechanics' liens, and stop payment notice rights from all those providing materials and equipment as to which the application for payment relates, as well as unconditional releases of the same from the same as to the previous applications for payment for which they have not already been provided.

## 1.6 BASIS OF PAYMENT

- 1.6.1 Unit Price Quantities: Will be based on actual measured quantities at fixed unit prices, including labor, materials, equipment, and incidentals, verified by the County's Representative, with adjustments documented through Change Orders, as necessary.
- 1.6.2 Lump Sum: When estimated quantity for specific portion of Work is not indicated and unit is designated as lump sum, payment will be on a lump sum basis for Work satisfactorily completed in accordance with Drawings and Specifications.
- 1.6.3 Allowances: Allowance items not converted to lump sum amounts in incremental Final GMP Proposals accepted by County will be paid for as provided for in Document 00 52 00 (Agreement) and Document 01 21 00 (Allowances).

## 1.7 PROGRESS PAYMENTS

- 1.7.1 Unless otherwise requested by Design-Build Entity and agreed to by County, progress payments will be made monthly.
- 1.7.2 Schedule of Values.
  - 1.7.2.1 Within the time frame set in the Agreement, Design-Build Entity shall submit a detailed breakdown/Schedule of Values for payment, for (1) authorized Phase I Work, and (2) as part of each incremental Final GMP Proposal accepted by County, by scheduled Work items and/or activities, including coordination responsibilities and Project Record Document responsibilities. The Project Master Schedule shall serve as the basis for developing the Schedule of Values. Design-Build Entity shall furnish such breakdown of the total Contract Sum for design and preconstruction services and Construction Work, respectively, Parts A and B, by assigning dollar values (cost estimates) to each applicable Progress Master Schedule network activity, which cumulative sum equals the total Contract Sum, including Change Orders. The format and detail of the breakdown shall correspond directly with the Project Master Schedule and as directed by County to facilitate and clarify future progress payments to Design-Build Entity for Direct Costs of the Work under the Contract Documents. This breakdown shall be referred to as the Schedule of Values. See also Short-Term CMP Schedule in Paragraph 1.5 of Document 01 32 16 (Schedules and Reports).

- 1.7.2.2 Design-Build Entity's Indirect Costs of Construction Overhead and Profit, Insurance Policy Premiums (excluding Design-build Entity's cost of Builder's Risk "All Risk" insurance), Payment and Construction Performance Bond Premiums, and General Conditions Costs shall be billed at Fixed Percentage Rates for Indirect Costs established in Design-Build Entity's Proposal and set forth in Article 8 of the Agreement (Document 00 52 00) to be applied to incurred Direct Costs of the Work through Project duration, except as otherwise provided in the Contract Documents.
- 1.7.2.3 County will review the breakdown in conjunction with the Project Master Schedule to ensure that the dollar amounts of this Schedule of Values are, in fact, fair market cost allocations, and properly balanced, for the Work items listed. County may request Design-Build Entity provide copies of actual invoices, subcontracts, or Subcontractor schedules of values to substantiate cumulative values for the Project Master Schedule network activities. Upon favorable review by County, this Schedule of Values will be accepted for use by County. County shall be the sole judge of fair market cost allocations.
- 1.7.2.4 Any attempt to increase the cost of early activities, i.e., "front loading," will be rejected by County, resulting in a complete reallocation of monies until such "front loading" is corrected.

1.7.3 Applications for Payment

- 1.7.3.1 Unless otherwise agreed, Design-Build Entity shall submit to the County, during the final week of each one-month payment period, an electronic and hardcopy draft application for payment projected through the end of the payment period.

The County and Design-Build Entity shall meet to review the draft application for payment for the purpose of determining that the application for payment is a "proper" payment request, accurately reflecting the consensus of the value of Work completed and submitted with the documents required by the Contract Documents. An application for payment shall be deemed "proper" only if it is submitted on the properly completed County forms and accompanied by the documentation described herein. Design-Build Entity shall revise and resubmit application for payment to include agreed upon percentages complete.

- 1.7.3.2 Unless otherwise agreed, Design-Build Entity shall submit to County, on or before the first (1st) day of each payment period five (5) copies of the revised application for payment for the cost of the Work put in place during the previous one-month payment period. Such applications for progress payments shall be based upon Schedule of Values prices of all labor and materials incorporated in the Work up until midnight of the last day of that one-month period, less the aggregate of previous payments. If Design-Build Entity is late submitting its application for payment, that application for payment may be processed at any time during the succeeding one-month period, resulting in processing of Design-Build Entity's application for payment being delayed for more than a day-for-day basis.
- 1.7.3.3 Applications for payment may include, but are not necessarily limited to the following:

- 1.7.3.3.1 Material, equipment, and labor incorporated into the Work, less any previous payments for the same.
- 1.7.3.3.2 Up to one hundred percent (100%) of the cost of major equipment identified in Paragraph 1.5.4 above, if purchased and delivered to the Site or stored Off-Site, as may be approved by County.
- 1.7.3.3.3 Up to one hundred percent (100%) of the cost of materials identified in Paragraph 1.5.4 above specifically fabricated for the Project that are not yet incorporated into the Work, as may be approved by County.
- 1.7.3.4 Design-Build Entity shall, at the time any application for payment is submitted, certify in writing the accuracy of the application for payment and that Design-Build Entity has fulfilled all scheduling requirements of Document 00 72 53 (General Conditions) and Document 01 32 16 (Schedules and Reports), including updates and revisions, including updated As-Built documents to reflect current conditions. The certification shall be executed by a responsible officer for Design-Build Entity.
- 1.7.3.5 No progress payment will be processed prior to County receiving all requested, acceptable schedule updates, Site Safety Health Plan ("SSHP") and Safety Plan updates, and acceptable verified As-Built information.
- 1.7.3.6 Each application for payment shall be organized to provide amounts due for Work related to each major Phase of work. The level of detail shall be consistent with the latest cost loaded schedule update as approved by the County. If amounts due are allocated between the work Phases based on a formula, the formula must be provided to and approved by County before Design-Build Entity submits the application for payment.
- 1.7.3.7 Each application for payment shall list each Change Order executed prior to date of submission, including the Change Order Number and a description of the Work activities, consistent with the descriptions of original Work activities. Design-Build Entity shall submit a monthly Change Order status log to County with their application for payment .
- 1.7.3.8 If County requires substantiating data, Design-Build Entity shall submit information requested by County, with cover letter identifying Project, application for payment number and date, and detailed list of enclosures. Design-Build Entity shall submit one (1) copy of substantiating data and cover letter for each copy of application for payment submitted.
- 1.7.3.9 Monthly progress payments shall be made, based on total value of activities completed or partially completed, as determined by County with participation of Design-Build Entity and based upon approved activity costs. Accumulated retention will be shown as a separate item in the payment summary. If Design-Build Entity fails or refuses to participate in construction progress evaluation with County, Design-Build Entity shall not receive current payment until Design-Build Entity has participated fully in providing construction progress information and schedule update information for County.
- 1.7.3.10 Legal title to all Work shall pass to and vest in County as Work is performed, and title to all materials and equipment shall pass to and vest in County when

such materials and equipment are delivered to the Site or as soon as title passes from the vendor or supplier thereof. Design-Build Entity shall keep the Site and all materials and equipment free and clear of all liens, stop payment notices, and charges arising out of performance of the Contract Documents, and shall indemnify, defend, and hold harmless all those indemnified pursuant to the General Conditions from the claims, suits, actions, losses, and liabilities described therein, including those which are a result of any breach of this responsibility and shall defend any claim or suit brought against any party required to be indemnified hereunder based upon any such claim of title or lien.

- 1.7.3.11 Design-Build Entity shall promptly pay each Consultant, Subconsultant, and Subcontractor the amount to which each is entitled, and shall, by an appropriate agreement with each Consultant, Subconsultant, and Subcontractor, require each to make payments to its respective Subconsultants and Subcontractors in a similar manner. Design-Build Entity shall submit on its behalf, and on behalf of each Subcontractor or consultant for which payment is being requested, a conditional release of statutory payment remedies in statutory form for the Work which is the subject of each progress application for payment and an unconditional release of and other statutory payment remedies in statutory form for the immediately preceding progress payment as to the Work of each. If the unconditional release of and other statutory payment remedies for the amount paid for the immediately preceding month is not reasonably available, it shall be submitted with the next progress application for payment, such that it is submitted no more than two (2) months after the date on which the conditional release of and other statutory payment remedies was submitted for the amount paid.

#### 1.7.4 Progress Payments

- 1.7.4.1 Upon receiving Design-Build Entity's application for payment, County will review the application for payment and make necessary adjustments to the percent of completion of each activity. One (1) copy will be returned to Design-Build Entity with a description of adjustments made. All parties will update percentage of completion values in the same manner, i.e., express value of an accumulated percentage of completion to date.
- 1.7.4.2 The application for payment may be reviewed by County for the purpose of determining that the application for payment is a proper application for payment, and shall be rejected, revised, or approved by County pursuant to the cost breakdown prepared in accordance with this Document.
- 1.7.4.3 If it is determined that the payment application is not a proper application for payment suitable for payment, County shall return it to Design-Build Entity as soon as practicable, but no later than seven (7) Days after receipt, together with a document setting forth in writing the reasons why the application for payment is not proper. If County determines that portions of the application for payment is not proper or not due under the Contract Documents, then County may approve the other portions of the application for payment, and in the case of disputed items or Defective work not remedied, may withhold up to one hundred fifty percent (150%) of the disputed amount from the progress payment.
- 1.7.4.4 Approval of all or any part of an application for payment may be withheld, or payment may be withheld on account of, any of the following:

- 1.7.4.4.1. The application for payment fails to adequately demonstrate that the Work for which payment is requested has been performed in accordance with the Contract Documents and with required approvals.
- 1.7.4.4.2. There is Defective work that is not remedied (County may withhold up to one hundred fifty percent (150%) of the value of the Defective work).
- 1.7.4.4.3. County has received stop payment notices (County may withhold up to one hundred fifty percent (150%) of the value of any stop payment notices).
- 1.7.4.4.4. Deficient Design Work.
- 1.7.4.4.5. Failure to keep the Site clean and safe to the satisfaction of County.
- 1.7.4.4.6. Failure to timely indemnify, defend, or hold harmless County.
- 1.7.4.4.7. Failure to pay any royalty, license, or similar fees.
- 1.7.4.4.8. Design-Build Entity is otherwise in breach, default, or in substantial violation of any provision of the Contract Documents.
- 1.7.4.4.9. Failure of Design-Build Entity to make timely payments due Subconsultants, Subcontractors, or suppliers.
- 1.7.4.4.10. Damage to County or Separate Contractor for which Design-Build Entity is responsible.
- 1.7.4.4.11. Reasonable evidence the Work will not be completed within the Contract Time and/or the unpaid balance of the Contract Sum will not be adequate to cover County's damages for the anticipated delay.
- 1.7.4.4.12. Failure of Design-Build Entity to maintain and update As-Builts and the project Site Specific Health Plan.
- 1.7.4.4.13. Failure of Design-Build Entity to submit schedules or their updates as required by the Contract Documents.
- 1.7.4.4.14. Failure to provide conditional or unconditional releases from Subcontractor or supplier.
- 1.7.4.4.15. Performance of Work by Design-Build Entity without properly processed Shop Drawings.
- 1.7.4.4.16. Liquidated damages assessed in accordance with the Contract Documents.
- 1.7.4.4.17. Failure to comply with any Labor Code provision or the skilled and trained workforce requirements, applicable to the Project.
- 1.7.4.4.18. Failure of Design-Build Entity to submit, on a timely basis, all closeout documentation in a manner and form that is proper, sufficient, and reasonably acceptable to County. Failure to achieve Final Completion of the Project.
- 1.7.4.4.19. Any other failure of Design-Build Entity to perform its obligations under the Contract Documents.

- 1.7.4.5 Pursuant to Public Contract Code § 20104.50, if County fails to make any progress payment within thirty (30) Days after receipt of an undisputed and properly submitted application for payment from Design-Build Entity, County shall pay interest to Design-Build Entity equivalent to the legal rates set forth in subdivision (a) of Code of Civil Procedure § 685.010. The thirty (30) Day period shall be reduced by the number of days by which County exceeds the seven (7) Day return requirement set forth herein.
- 1.7.4.6 As soon as practicable after approval of each application for progress payment, County will pay to Design-Build Entity in manner provided by law, an amount equal to ninety-five percent (95%) of County's estimate, or a lesser amount if so provided in Contract Documents, and County shall retain the amount so withheld as retention, provided that payments may at any time be withheld if Work is not proceeding in accordance with the Contract Documents, Design-Build Entity is not complying with requirements of the Contract Documents, to comply with stop payment notices, or to offset liquidated damages accruing or expected.
- 1.7.4.7 Retention will not be reduced if Design-Build Entity is behind schedule. If retention is reduced at any point during performance of the Work and Design-Build Entity subsequently falls behind schedule, retention may be raised back to original percentage specified in Paragraphs 1.7.4.5 and 1.7.4.6 of this Document.
- 1.7.4.8 Before any progress payment or final payment is made, Design-Build Entity may be required to submit satisfactory evidence that Design-Build Entity is not delinquent in payments to employees, Subcontractors, suppliers, or creditors for labor and materials incorporated into Work.
- 1.7.4.9 County reserves and shall have the right to withhold payment for any equipment and/or specifically fabricated material(s) that, in the sole judgment of County, is not adequately and properly protected against weather and/or damage, prior to or following incorporation into the Work.
- 1.7.4.10 Granting of progress payment or payments by County, or receipt thereof by Design-Build Entity, shall not be understood as constituting in any sense acceptance of Work or of any portion thereof, and shall in no way lessen liability of Design-Build Entity to replace unsatisfactory work or material, though unsatisfactory character of work or material may have been apparent or detected at time payment was made.
- 1.7.4.11 When County shall charge a sum of money against Design-Build Entity under any provision of the Contract Documents, amount of charge shall be deducted and retained by County from amount of next succeeding progress payment or from any other monies due or that may become due Design-Build Entity under the Contract Documents. If, on completion or termination of the Contract Documents, such monies due Design-Build Entity are found insufficient to cover County's charges against it, County shall have right to recover balance from Design-Build Entity or Sureties.

## 1.8 SUBSTITUTION OF SECURITIES IN LIEU OF RETENTION

Pursuant to provisions of Public Contract Code § 22300, incorporated herein by reference, substitution of securities for any monies withheld under the Contract Documents to ensure performance is permitted under the following conditions:

- 1.8.1 At request and expense of Design-Build Entity, securities listed in Government Code § 16430, bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by Design-Build Entity and County which are equivalent to the amount withheld under retention provisions of the Contract Documents, shall be deposited with County or with a state or federally chartered bank in California, as the escrow agent, who shall then pay such monies to Design-Build Entity. Upon satisfactory completion of the Contract Documents, securities shall be returned to Design-Build Entity.
- 1.8.2 Alternatively, Design-Build Entity may request, and County shall make payment of retentions earned directly to the escrow agent at the expense of Design-Build Entity. At the expense of Design-Build Entity, Design-Build Entity may direct the investment of the payments into securities and Design-Build Entity shall receive the interest earned on the investments upon the same terms provided for in this Document for securities deposited by Design-Build Entity. Upon satisfactory completion of the Contract Documents, Design-Build Entity shall receive from escrow agent all securities, interest, and payments received by the escrow agent from County, pursuant to the terms of this Document. Design-Build Entity shall pay to each Subcontractor, not later than twenty (20) days after receipt of the payment, the respective amount of interest earned, net of costs attributed to retention withheld from each Subcontractor, on the amount of retention withheld to insure the performance of Design-Build Entity.
- 1.8.3 Design-Build Entity shall be beneficial owner of securities substituted for monies withheld and shall receive any interest thereon. Design-Build Entity shall submit any form W-9 or other required tax form.
- 1.8.4 Design-Build Entity shall enter into escrow agreement according to Document 00 54 28 (Escrow Agreement for Security Deposits in Lieu of Retention) as authorized under Public Contract Code § 22300, specifying amount of securities to be deposited, terms and conditions of conversion to cash in case of default of Design-Build Entity, and termination of escrow upon completion of the Contract Documents.

## 1.9 FINAL PAYMENT

- 1.9.1 After all required Work is completed in accordance with the Contract Documents, including delivery of all Record Documents, and within sixty (60) days following the County's acceptance of the Work and, in County's discretion, recordation of a Notice of Completion, County will pay to Design-Build Entity, in manner provided by law, the unpaid balance of Contract Sum due for completed Work, subject to the Final GMP, less sums as may be lawfully retained under any provisions of the Contract Documents or by law.
- 1.9.2 Design-Build Entity shall submit a final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.
- 1.9.3 Prior progress payments shall be subject to correction in the final payment. County's determination of amount due as final payment shall be final and conclusive evidence of amount of Work performed by Design-Build Entity under the Contract Documents and shall be full measure of compensation to be received by Design-Build Entity.
- 1.9.4 Design-Build Entity and each assignee under an assignment in effect at time of final payment shall execute and deliver at time of final payment and as a condition precedent to final payment, Document 00 65 19.13 (Agreement and Release of Any and All Claims), discharging County, its officers, agents, employees, and consultants of and from liabilities, obligations, and claims arising under the Contract Documents.

1.10 EFFECT OF PAYMENT

Payment will be made by County, based on County's observations at the Site and the data comprising the application for payment. Payment will not be a representation that County has:

- 1.10.1 Made exhaustive or continuous On-Site inspections to check the quality or quantity of Work;
- 1.10.2 Reviewed construction means, methods, techniques, sequences, or procedures;
- 1.10.3 Reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by County to substantiate Design-Build Entity's right to payment; or
- 1.10.4 Made an examination to ascertain how or for what purpose Design-Build Entity has used money previously paid on account of the Contract Sum.

PART 2 - PRODUCTS - Not used.

PART 3 - EXECUTION - Not used.

END OF DOCUMENT

## DOCUMENT 01 31 00

### PROJECT MANAGEMENT AND COORDINATION

#### PART 1 - GENERAL

##### 1.1 SUMMARY

1.1.1 This Document describes requirements for job site administration, including:

- 1.1.1.1 County's Project Manager
- 1.1.1.2 Design-Build Entity's Project Management Team
- 1.1.1.3 Web-Based Project Management Software

1.1.2 Related Documents.

- 1.1.2.1 Document 01 11 10 (Summary of Work)
- 1.1.2.2 Document 01 11 14 (Summary of Work – Design Services, Preconstruction Activities, and Deliverables)
- 1.1.2.3 Document 01 32 16 (Schedules and Reports)
- 1.1.2.4 Document 01 33 00 (Submittal Procedures)
- 1.1.2.5 Document 01 78 39 (Project Record Documents)
- 1.1.2.6 Document 01 79 00 (Demonstration and Training)

##### 1.2 COUNTY'S MANAGEMENT TEAM

1.2.1 The County has designated a Project/Construction Manager to represent County in carrying out the duties of County. The County may delegate all or a portion of the Project Manager's duties to a Construction Manager or other County Representative, which shall then perform all or a portion of the Project Manager's duties specified herein.

1.2.2 Functions of the Project Manager include, but are not limited to, the following:

- 1.2.2.1 The Project/Construction Manager functions as the primary County Representative, communicating with Design-Build Entity in all matters concerning the Contract, including monitoring Design-Build Entity's performance in all respects to ascertain that the Work is performed in accordance with all the requirements of the Contract.
- 1.2.2.2 The Project/Construction Manager is the focal point of contact with Design-Build Entity regarding clarification of discrepancies and resolution of questions of fact that arise during performance of the Work under the Contract. The Project Manager also performs this role with regard to all Regulatory Agency, AHJ, and utility construction interfaces with the Work under this Contract.
- 1.2.2.3 Design-Build Entity is required by the Contract to provide formal notice of any and all potential claims arising during the performance of the Work. The Project/Construction Manager will administer the processing and resolution of any such claims in accordance with the requirements of the Contract.
- 1.2.2.4 All contractual correspondence, including submittals, shall be directed and processed through the Project/Construction Manager unless otherwise specifically directed in the Contract. Any required or requested interface

between Design-Build Entity and County, the Project Manager, User Groups, County Consultants, or any other representative of County, will be coordinated by the Project/Construction Manager.

### 1.3 DESIGN-BUILD ENTITY'S PROJECT MANAGEMENT TEAM

1.3.1 Design-Build Entity shall staff the Project with a management team qualified and experienced in construction of a public works project of this value, nature, and complexity. This team shall possess the competency, skills and authority specified in the General Conditions.

1.3.1.1 Design-Build Entity shall submit to County, prior to Notice to Proceed, the names, detailed project experience, references, and proposed project position for each team member. Team members shall have appropriate experience in the proposed position.

1.3.1.2 Design-Build Entity shall not replace members of Design-Build Entity's management team without prior written approval of the County. If, during the course of the Project, Design-Build Entity finds it necessary to replace a member of the Project Management Team, the name, qualifications, and experience of the proposed replacement shall be similar to or greater than those of the departed member and shall be submitted to County for approval.

1.3.2 The Project Management Team shall be composed of members with the necessary skills and be sufficient in number to handle all duties normal to a project of this scale and complexity. Special attention shall be given to the responsibilities for safety, coordination, estimating, and scheduling.

1.3.3 Design-Build Entity shall provide an adequately sized staff to properly manage the Project in accordance with the Project Master Schedule.

### 1.4 WEB-BASED PROJECT MANAGEMENT SOFTWARE

#### 1.4.1 General Project Management Software Objectives

1.4.1.1 Design-Build Entity shall provide and implement project management software for Design-Build Entity's Project Management Team, the County's Project Manager, Construction Manager, and any designated consultants, to utilize in tracking and managing the Project. Design-Build Entity is to propose a project management software for County acceptance. The software shall not be proprietary and will have the ability to turn over all the project documents and their metadata contained within the software for project record in a standard file format that is usable by the County at the conclusion of the Project.

1.4.1.2 Use of this project management software will not replace or change any contractual responsibilities of the construction team members.

1.4.1.3 Each Project team member of Design-Build Entity: Superintendent(s), Project Engineer(s), Scheduler, and Project Manager, etc. shall have access to the Internet and an Internet e-mail address to communicate with various Project team members.

#### 1.4.2 Software and Hardware Requirements

1.4.2.1 Design-Build Entity is required to provide at both the field office and home office location from where this Project is managed computer hardware and software that meet the requirements of the project management software.

Design-Build Entity is required to purchase the project management software and full access thereto. Design-Build Entity will provide the County with eight (8) user licenses to use the project management software for the duration of the Project including the warranty period.

1.4.2.2 Design-Build Entity shall provide the County with project management software training (if required) for up to eight (8) staff members. Any required training will take place prior to the initial Notice to Proceed and will be held in a location acceptable to the County.

1.4.2.3 Design-Build Entity will notify the County of the administrator or other authorized representative for this project management software for this Project.

1.4.2.4 Design-Build Entity shall provide Internet access to the County representative through an Internet service provider of its choice and at Design-Build Entity's cost.

#### 1.4.3 System Management and Use

1.4.3.1 Design-Build Entity's Project Manager or Representative will administer the project management software user account. This person will be available to assist the County with technical support required from the project management software company, e.g., addition of users to the system, technical issues.

1.4.3.2 All costs associated with using this system, including computer hardware and internet service for Design-Build Entity, is the responsibility of Design-Build Entity.

1.4.3.3 The County encourages Design-Build Entity to utilize the project management software for communicating with its Subconsultants and Subcontractors. Design-Build Entity shall inform all Subconsultants and Subcontractors of the purpose of the project management system and how it can assist them in obtaining information for the Project.

#### 1.4.4 Communication Process

1.4.4.1 The County Representative will outline and detail project communication protocols and coordination procedures at the initial Project team meeting.

1.4.4.2 Most Project communication will take place through email or in the project management system by creating and distributing documents directly within the system, or by entering manually in the system dates and descriptions of items to track over time. All documents requiring formal signatures will be printed and their hard copies signed and distributed.

1.4.4.3 The official submittal log will be maintained within the project management system. Design-Build Entity will use the project management transmittal format for each submittal transmittal; however, Design-Build Entity will distribute samples, Shop Drawings, etc. in the traditional manner, outside the system. The project management system will be used to track and expedite processing of these items.

1.4.4.4 Design-Build Entity will be required to maintain all current Drawings within the project management system. Design-Build Entity will be able to control administration of the drawings, which includes but is not limited to: the ability to create a custom folder structure; folder-level permissions; auto-notifications for certain events (e.g., delete, check out) using the project management messaging system and the user's email address; auto-detection and uploading

of a Drawing's reference files; detailed history for a document, including revisions and access logs; check-in and check-out capabilities; view and markup.

1.4.4.5 Design-Build Entity will be required to utilize modules including but not limited to: daily reports; meeting minutes; punch lists; requests for information; submittals; substitution requests; change items; cost events; and County change orders within the project management system. Design-Build Entity is required to use a digital camera in order to photograph or video-document existing conditions and job progress and upload the associated images taken on a weekly basis to the project management internet site. Each daily report required under Document 01 32 16 (Schedules and Reports) should be accompanied by daily progress photos. Costs for digital imaging equipment and file storage is the responsibility of Design-Build Entity.

#### 1.4.5 Archiving

Design-Build Entity will provide, at its cost and expense, backups (on USB drives or otherwise) of documents in the project management software to the County on a quarterly basis. In the event of any dispute as to which items are the true and correct project records, items contained on the backups will control.

PRODUCTS - Not used.

EXECUTION - Not used.

END OF DOCUMENT

## DOCUMENT 01 31 19

### PROJECT MEETINGS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

1.1.1 This Document describes the required project meetings for the Work of this Project. These meetings include:

- 1.1.1.1 Design and Preconstruction Conferences
- 1.1.1.2 Coordination Meetings
- 1.1.1.3 Progress Meetings
- 1.1.1.4 Scheduling Meetings
- 1.1.1.5 Quality Control Meetings
- 1.1.1.6 Sustainability / LEED Meetings or Charettes
- 1.1.1.7 Regulatory Agency Preconstruction Meetings
- 1.1.1.8 User Group Meetings and Workshops
- 1.1.1.9 Special Meetings
- 1.1.1.10 Permitting Package Pre-submittal Compliance Review Meetings
- 1.1.1.11 Commissioning Coordination Meetings
- 1.1.1.12 Pre-installation Meetings
- 1.1.1.13 Safety Meetings
- 1.1.1.14 Pre-instruction conference

1.1.2 Related Documents.

- 1.1.2.1 Document 01 11 10 (Summary of Work)
- 1.1.2.2 Document 01 11 14 (Summary of Work - Design Services, Preconstruction Activities, and Deliverables)
- 1.1.2.3 Document 01 29 00 (Payment Procedures)
- 1.1.2.4 Document 01 32 16 (Schedules and Reports)
- 1.1.2.5 Document 01 33 00 (Submittal Procedures)
- 1.1.2.6 Document 01 81 13 (Sustainable Design Requirements)
- 1.1.2.7 Document 01 91 13 (General Commissioning Requirements)

##### 1.2 DESIGN & PRECONSTRUCTION CONFERENCE

1.2.1 Design-Build Entity will call for and administer Design and Preconstruction Conferences at times and places to be announced. A Design Conference will occur as soon after issuance of the Notice to Proceed – Design as can be reasonably scheduled. Preconstruction Conferences will be scheduled no later than thirty (30) days prior to the start of construction of each major Phase of Work including but not limited to the following:

- 1.2.1.1 Mobilization, Site Clearing, Grading, and make-ready underground utility work for the Project.
- 1.2.1.2 Each Project construction permit package established by Design-Build Entity (if more than one package).

1.2.2 Design-Build Entity, all design consultants and key Subconsultants, and major suppliers shall attend Design Conference(s). Agenda will include, without limitation, the following items:

- 1.2.2.1 Design-Build Entity and County Coordination and Meeting Procedures
- 1.2.2.2 Design-Build Entity's Design Coordination Plan with Subconsultants
- 1.2.2.3 Design-Build Entity's Initial Project Master Schedule, including Design and Construction Schedules
- 1.2.2.4 Design-Build Entity's Schedule of Values (including design activities)
- 1.2.2.5 Design-Build Entity's Schedule of Deliverables and Agency Submittals including proposed incremental permit packages for each building

1.2.3 Design-Build Entity, design consultants and design Subconsultants from the relevant disciplines, all Subcontractors, and all major suppliers associated with the upcoming portion of the Work being discussed shall attend the Preconstruction Conference(s). Agenda will include, without limitation, the following items:

- 1.2.3.1 Safety, Contractor's Injury, and Illness Prevention Program
- 1.2.3.2 Communication protocols
- 1.2.3.3 Schedules
- 1.2.3.4 Personnel and vehicle permit procedures
- 1.2.3.5 Use of premises
- 1.2.3.6 Location of Design-Build Entity's on site facilities
- 1.2.3.7 Security and Site Access
- 1.2.3.8 Housekeeping/Clean up
- 1.2.3.9 Design-Build Entity's Quality Control Program
- 1.2.3.10 Submittals
- 1.2.3.11 Inspection and testing procedures, On Site and Off Site
- 1.2.3.12 Utility shutdown procedures
- 1.2.3.13 Control and reference point survey procedures
- 1.2.3.14 Design-Build Entity's Updated Project Master Schedule, including Design and Construction Schedules
- 1.2.3.15 Design-Build Entity's Schedule of Values
- 1.2.3.16 Design-Build Entity's Schedule of Submittals

1.2.4 Design-Build Entity will record and distribute minutes of the conference. Attendees shall have five (5) Calendar Days to submit comments or additions to minutes. Minutes will constitute final memorialization of results of any conference.

### 1.3 COORDINATION MEETINGS

#### 1.3.1 Design Phase Coordination

- 1.3.1.1 County will be available to participate in Design Phase Coordination meetings or workshops as deemed necessary by Design-Build Entity.
- 1.3.1.2 Throughout the design phase, Design-Build Entity shall conduct at least monthly design coordination meetings with all consultants and Subconsultants employed by Design-Build Entity. Design-Build Entity shall invite the County or its representative to participate in all these meetings.
- 1.3.1.3 Design-Build Entity shall record and distribute minutes of the meetings including copies to the County.

### 1.3.2 Construction Phase Coordination

- 1.3.2.1 County will be available as necessary to participate in Construction Phase Coordination Meetings.
- 1.3.2.2 Design-Build Entity Construction Phase Coordination shall be integrated with Design-Build Entity's Quality Control Program, see Document 01 45 00 (Quality Control and Assurance).
- 1.3.2.3 Throughout the construction phase, Design-Build Entity shall conduct at least twice-monthly Construction Phase Coordination Meetings with all Consultants and Subcontractors employed by Design-Build Entity. Design-Build Entity shall invite County or its representative to participate in these meetings. At a minimum, County will attend Design-Build Entity's Quality Control Meetings. County may elect to attend Subcontractor coordination meetings.
- 1.3.2.4 Design-Build Entity shall record and distribute minutes of the meetings including copies to the County.

## 1.4 PROGRESS MEETINGS

- 1.4.1 Design-Build Entity will schedule and administer Progress Meetings throughout the duration of Design and Construction Work. Progress meetings will be held weekly unless otherwise directed by County.
  - 1.4.1.1 Design Phase Progress Meetings shall be held at the offices of Design-Build Entity at the Project Site or at the Offices of the County as mutually agreed on in advance by Design-Build Entity and County.
  - 1.4.1.2 Construction Phase Meetings shall be held at Design-Build Entity's Site office unless otherwise agreed on in advance by Design-Build Entity and County.
  - 1.4.1.3 Design-Build Entity will prepare and distribute electronically a draft agenda for each Progress Meeting no later than forty-eight (48) hours prior to scheduled Progress Meeting. County shall review draft agenda and provide comments or proposed agenda revisions no later than twenty-four (24) hours prior to scheduled Progress meeting.
  - 1.4.1.4 County will preside at and conduct the meeting.
  - 1.4.1.5 Design-Build Entity will record and distribute minutes to the County, Inspectors, all other participants, and those affected by decisions made at the meeting, within three (3) Calendar Days after each meeting. Attendees shall have two (2) Calendar Days to submit comments or additions to the minutes. Minutes will constitute final memorialization of results of meeting.

## 1.5 SCHEDULING MEETINGS

### 1.5.1 Initial Schedule Review

- 1.5.1.1 Design-Build Entity shall meet with the County and conduct initial review of Design-Build Entity's draft Project Master Schedule, including Design

Schedule and Construction Schedule, Shop Drawings and Sample Submittals, and Schedule of Values within ten (10) days of the initial Notice to Proceed.

- 1.5.1.2 An authorized representative in Design-Build Entity's organization, designated in writing, who will be responsible for working and coordinating with County relative to preparation and maintenance of Progress Master Schedule, shall attend the initial review meeting.

#### 1.5.2 Schedule Update Meetings

- 1.5.2.1 Design-Build Entity will administer scheduling update meetings monthly. Details for Schedule Update Meetings shall conform to description provided in Document 01 32 16 (Schedules and Reports).

### 1.6 QUALITY CONTROL MEETINGS

- 1.6.1 Design-Build Entity shall conduct a minimum of twice-monthly Quality Control Meetings as part of Design-Build Entity's Quality Control Program, see Document 01 45 00 (Quality Control and Assurance).

- 1.6.2 Design-Build Entity's attendees at Quality Control Meetings shall at a minimum include:

- 1.6.2.1 Design-Build Entity's Quality Control Manager
- 1.6.2.2 Design-Build Entity's LEED Coordinator
- 1.6.2.3 Design-Build Entity's Commissioning Coordinator; as required
- 1.6.2.4 Design-Build Entity's Safety Officer
- 1.6.2.5 Subcontractors actively working On-Site or soon to mobilize
- 1.6.2.6 Representatives of manufacturers and fabricators; as required
- 1.6.2.7 Design-Build Entity's Architect
- 1.6.2.8 Subconsultant Engineers as activities dictate

- 1.6.3 County's attendees at Quality Control Meetings shall at a minimum include:

- 1.6.3.1 County's Representatives
- 1.6.3.2 Inspector of Record or Special Inspectors
- 1.6.3.3 Members of the User Groups, County facility maintenance and operations staff, when deemed necessary
- 1.6.3.4 Building Inspectors when deemed necessary

- 1.6.4 Quality Control Meeting agenda shall include at a minimum:

- 1.6.4.1 Submittal Review, including approval status and schedule
  - 1.6.4.1.1 Product Data and Material Safety Data Sheets ("MSDS")
  - 1.6.4.1.2 Shop Drawings & Coordination Documents
  - 1.6.4.1.3 Substitutions and Modifications Request
  - 1.6.4.1.4 Manufacture's Installation Requirements & Instructions
  - 1.6.4.1.5 Manufacture's Operating Requirements & Instructions
- 1.6.4.2 Distribution of Testing and Inspection Reports
- 1.6.4.3 Review of In-progress Activities for compliance and timeliness.

- 1.6.4.4 Coordination of Upcoming Testing, Inspection, and Observation Procedures & Requirements
- 1.6.4.5 Summary of activity successes, deficiencies, and corrective measures

## 1.7 LEED Meetings

- 1.7.1 Design-Build Entity's LEED consultant will schedule and administer LEED Meetings throughout the duration of Design. LEED meetings will be held monthly unless otherwise directed by County.
  - 1.7.1.1 LEED Meetings shall be held at Design-Build Entity's Site office or at the Office of the County as is mutually agreed on in advance by Design-Build Entity and County to be most advantageous for progressing the Work.
  - 1.7.1.2 Design-Build Entity's LEED consultant will prepare a draft agenda and distribute it to the County four (4) Calendar Days in advance of meeting.
  - 1.7.1.3 Design-Build Entity's LEED consultant will preside at and conduct the meeting.
  - 1.7.1.4 Design-Build Entity's LEED consultant will record and distribute minutes to the County and all other participants, and those affected by decisions made at meeting, within three (3) Calendar Days after each meeting. Attendees shall have two (2) Calendar Days to submit comments or additions to the minutes. Minutes will constitute final memorialization of results of meeting.

## 1.8 Regulatory Agency Preconstruction Meeting

- 1.8.1 A Preconstruction Meeting will be held with representatives from the Regulatory Agency(ies) at least thirty (30) days prior to the start of construction of any phase or increment of the Work.
- 1.8.2 Attendees at the Regulatory Agency Preconstruction Meeting shall at a minimum include:
  - 1.8.2.1 Regulatory Agency representatives
  - 1.8.2.2 County Representatives
  - 1.8.2.3 Architect/Engineer of Record (meeting presider)
  - 1.8.2.4 Design-Build Entity's Design Manager, Project Manager, Quality Control Manager, field engineer(s), Superintendent(s)
  - 1.8.2.5 Major Subcontractors as appropriate to the scope of work being permitted including Rebar, metal stud, MEP, structural steel, elevator, masonry, etc.
  - 1.8.2.6 Others as determined by the County Representative or requested by the Regulatory Agency
- 1.8.3 Regulatory Agency Preconstruction Meeting agenda, which shall be prepared by Design-Build Entity Architect of Record, shall include at a minimum:
  - 1.8.3.1 Introduction/designation of key personnel and their duties.
  - 1.8.3.2 Procedures to be followed during performance of the Work.
  - 1.8.3.3 Procedures for Regulatory Agency field visits.
  - 1.8.3.4 Procedures for processing Field Orders and Change Orders.
  - 1.8.3.5 Procedures for RFIs and Instructional Bulletins.

- 1.8.3.6 Procedures for testing and inspecting.
- 1.8.3.7 Documentation requirements.

## 1.9 USER GROUP MEETINGS

- 1.9.1 Design-Build Entity will attend meetings with the Users, Key Stakeholders, and the County to develop and complete the design.

## 1.10 SPECIAL MEETINGS

- 1.10.1 Preparatory Meetings as activities dictate for Testing, Inspection, and Observation.
- 1.10.2 Ad Hoc Meetings as directed by County.

## 1.11 Permitting Package Pre-submittal Compliance Review Meetings

- 1.11.1 Design-Build Entity shall participate in pre-submittal review sessions with County Consultants performing code compliance reviews prior to submittal of each permit package to the Regulatory Agency.
- 1.11.2 Review sessions shall include initial document reviews, back-checks, and comment/issue resolution.
- 1.11.3 Design-Build Entity attendees at the review sessions shall include, at a minimum, the design manager, the AOR, EOR, and other design Subconsultants for disciplines associated with the package under review.

## 1.12 Commissioning Coordination Meetings

- 1.12.1 Commissioning Meetings as called for in Document 01 91 13 (General Commissioning Requirements) and per approved Commissioning Plan and Schedule.
  - 1.12.1.1 Pre-Commissioning Planning
  - 1.12.1.2 Commissioning Plan Review
  - 1.12.1.3 Commissioning Scheduling and Procedures
  - 1.12.1.4 Regular Commissioning coordination and status update

## 1.13 Pre-installation Meetings

- 1.13.1 Design-Build Entity shall conduct a system specific Pre-installation Meeting for each of the major components of the Project at least one (1) week prior to the responsible subcontractor arriving on site to begin work.
- 1.13.2 Agenda, which shall be prepared by Design-Build Entity, shall include at a minimum:
  - 1.13.2.1 Review of any outstanding certifications, documentation, MSDS, or submittals needed from the Subcontractor prior to commencing work.
  - 1.13.2.2 Subcontractor acknowledgement of Project Site Safety Plan, site access, and restrictions for deliveries, work limits, worker parking, etc.
  - 1.13.2.3 Verification of work scope consistent with all current Construction Documents, addenda, RFIs, Change Orders, approved Submittals, and Permits.

- 1.13.2.4 Review of installation schedule in conformance with Master Schedule.
- 1.13.2.5 Coordination needed with any other trades and building inspectors.
- 1.13.2.6 Any special issues associated with the scope of work.

1.14 Safety Meetings

1.14.1 Design-Build Entity shall conduct regular Safety Meetings per approved Safety Plan.

1.14.2 In the event County institutes an OCIP program, County's OCIP representative shall attend regularly scheduled Safety Meetings.

1.15 Pre-instruction Conference

1.15.1 Design-Build Entity shall conduct the Pre-instruction Conference with County staff to review methods and procedures related to required demonstration and training as outlined in Document 01 79 00 (Demonstration and Training).

PRODUCTS - Not used.

EXECUTION - Not used.

END OF DOCUMENT

**DOCUMENT 01 32 16**  
**SCHEDULES AND REPORTS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

1.1.1 Related Documents:

1.1.1.1 Document 01 11 14 (Summary of Work – Design Services, Preconstruction Activities, and Deliverables)

1.1.1.2 Document 01 33 00 (Submittal Procedures)

1.1.2 Design-Build Entity shall perform scheduling of Work under these Contract Documents in accordance with requirements of this Document 01 32 16 (Schedules and Reports).

1.1.2.1 Development of any schedule, cost, and resource loading of the Project Master Schedule, monthly applications for payment and Project status reporting requirements of the Contract Documents shall employ scheduling as required in this Document 01 32 16 (Schedules and Reports).

1.1.2.2 Project Master Schedule, including Design Schedule and Construction Schedule, shall be time-scaled, cost, and crew size loaded. Monthly Schedule Updates shall be time-scaled and crew size loaded.

1.1.2.3 All Schedules shall be in Primavera® (latest edition) computer software format compatible with County's or County's Construction Manager's existing computer software format.

1.1.2.4 All Schedules shall be submitted prior to the dates identified in Document 01 33 00 (Submittal Procedures).

1.1.3 Design-Build Entity's obligations under Paragraph 1.1.2 of this Document 01 32 16 (Schedules and Reports) are hereby deemed material obligations. Nothing in Paragraph 1.1.2 or the lack of an express statement that any other Contract Documents' provision is or is not material shall be considered in determining whether any such other provision is material.

1.1.4 Scheduling Consultant Qualifications: Design-Build Team shall include a specialist in Critical Path Method ("CPM") scheduling and reporting acceptable to the County with experience performing scheduling required. Retain or employ an experienced specialist in CPM scheduling and reporting, with a minimum of five (5) years' experience in scheduling work of similar nature, scope, and value, and capable of satisfying the requirements described herein. This ("Scheduler") is to provide planning, evaluation, reporting, and delay analysis using CPM scheduling. Neither Design-Build Entity's Project Manager nor Superintendent may also be the Scheduler.

1.1.4.1 Within the first three (3) days of Contract Time, submit for review and acceptance by the County Construction Manager the résumé of scheduling personnel retained or employed by Design-Build Entity. The résumé shall include projects of similar nature, scope and value, and the Scheduler's role/job title on each listed project; a phone or in-person interview of the proposed Scheduler may be required. The County Construction Manager has the right to reject a Scheduler based upon a lack of experience as required by

this Document or based on a lack of performance and timeliness of schedule submittals on past projects. If the County Construction Manager does not accept the submitted Scheduler, submit another résumé within seven (7) days of notice from the County Construction Manager. The County Construction Manager, at any time during the performance of the Work, may request that the Scheduler be replaced if the County Construction Manager determines that the Scheduler's work is unsatisfactory. In this instance, submit another résumé within seven (7) days of notice from the County Construction Manager. If Design-Build Entity wants to replace the Scheduler, the new scheduler's résumé shall be submitted to the County Construction Manager for acceptance or rejection. The Scheduler must be accepted by the County Construction Manager prior to starting any Work. Any delays due to the lack of an accepted Scheduler shall be deemed inexcusable.

1.1.4.2 Meetings: Scheduler shall attend the Preconstruction Scheduling Conference(s), and all meetings related to alleged delays and time impact.

1.1.5 Transmit each item under form approved by County or following Document 01 33 00 (Submittal Procedures).

1.1.5.1 Identify Project with the County Contract number, and name of Design-Build Entity.

1.1.5.2 Provide space for Design-Build Entity's approval stamp and County's review stamps.

## 1.2 DEFINITIONS

1.2.1 Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Except for Milestone Activities, activities included in the schedule consume time and resources.

1.2.1.1 Critical Activity: An activity that, if delayed, would result in the delay to the overall completion.

1.2.1.2 Predecessor Activity: An activity that precedes another activity in the network.

1.2.1.3 Successor Activity: An activity that follows another activity in the network.

1.2.2 Activity Codes: Values assigned to schedule activities to organize the schedule into groups for reporting and analysis. Examples include Responsibility, Building, and Site Area.

1.2.3 Calendar: Defines the week for different activities within the CPM schedule. Examples of calendars include 5-day week minus holidays, 7-day week, and 6-day week. Different calendar types may be used in the CPM schedule.

1.2.4 Constraint: In the CPM schedule, a constraint is used to affect the float, duration, or date of an activity.

1.2.5 CPM: Critical path method, which is a method of planning and scheduling a project where activities are arranged based on activity relationships.

1.2.5.1 CPM Network: A sequence of inner-connected activities. Network calculations determine the Critical (Longest) Path and when activities can be performed.

- 1.2.6 Crew Size Loading: Each field work activity is assigned a value that accurately reflects Design-Build Entity's average field labor crew size. CPM Schedules for this Contract shall be crew size loaded.
- 1.2.7 Critical (Longest) Path: The network of schedule activities that establishes the minimum overall Project duration.
- 1.2.8 Data Date: The date used as the starting point for schedule calculations. For baseline CPM schedules, the Data Date is the first date of Contract Time. For monthly updates, the Data Date is the first workday of the month.
- 1.2.9 Delay: An interruption of planned work.
- 1.2.10 Milestone: The starting or ending point of an activity or linked series of activities. A milestone in the schedule contains zero duration.
  - 1.2.10.1 Key Milestone: A major event. A Key Milestone includes but is not limited to the following: Notice to Proceed, Substantial Completion, Phase Start Date, and Phase Finish Date. The County Construction Manager may direct Design-Build Entity to add additional Key Milestones.
  - 1.2.10.2 Contractual Milestone: A milestone tied to Liquidated Damages. Substantial Completion is both a Key and Contractual Milestones
- 1.2.11 Float: The measure of time (days) that starting and completing an activity can be delayed before impacting a subsequent planned activity.
  - 1.2.11.1 Free Float: The amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
  - 1.2.11.2 Total Float: The amount of time by which a part of the Work may be delayed from its early dates before it delays project completion.
  - 1.2.11.3 Contract Float: The amount of time between Design-Build Entity's anticipated dates for early completion of the Work, or specified part, and the corresponding Contract Time.
  - 1.2.11.4 Project Float: See definition in Paragraph 1.3.3.3 below.
  - 1.2.11.5 Ownership of Float: Total Float and Contract Float belong to the Project and are not for the exclusive benefit of any party. Total Float and Contract Float are jointly owned and are resources available to the County or Design-Build Entity on a first-come-first-served-basis for the benefit of the Project. Design-Build Entity and the County shall notify the other of any intent to utilize Project Float. The County Construction Manager shall monitor Float to determine if any Float erosion is for the benefit of the Project.
  - 1.2.11.6 Float Manipulation: Utilizing unrealistic or inflated durations, imposed dates, artificial logic and/or lags, preferential logic, date constraints, and others that results in an impact to Float. Do not manipulate Float. Instead, add detail within the schedule to mitigate the use of Float Manipulation. Provide a detailed written explanation in the Baseline Narrative for items seen as potential Float Manipulation if directed by County Construction Manager. After a review of the Baseline Schedule and the detailed written explanation, any

such actions ultimately seen as Float Manipulation by the County Construction Manager may result in direction for a Baseline revision and re-submittal.

- 1.2.12 Lag: An adjustment of time or delay between logically tied CPM schedule activities to ensure proper sequencing and resource availability by allowing for necessary pauses, such as curing time for materials, or waiting time for external approvals.
- 1.2.13 Near-Critical Activity: A non-critical activity with a Total Float value within fifteen (15) workdays of the Critical (Longest) Path.
- 1.2.14 P6: Oracle Primavera Professional Project Management software, an industry standard CPM scheduling application.
- 1.2.15 Percent Complete: The portion of an activity that is complete based on the measurement of Work accomplished. Percent completes are ultimately decided by the County Construction Manager.
- 1.2.16 Relationships: Logic ties between activities within the CPM schedule.
- 1.2.17 Target Schedule: A different version of the CPM schedule that can be used as a basis for comparison against another CPM schedule.
- 1.2.18 TIA: Time Impact Analysis

### 1.3 GENERAL SCHEDULE REQUIREMENTS

- 1.3.1 Schedules: Design-Build Entity shall submit an operating electronic version of an original, plus hardcopy versions, of the following schedules to the County:
  - 1.3.1.1 Proposed Project Master Schedule as included in Design-Build Entity's Qualifications and Proposal Package for the Request for Qualifications and Proposals as outlined in Article 18 of Document 00 21 16 (Request for Qualifications and Proposals - Instructions to Proposers). The Proposed Project Master Schedule shall be in accordance with the requirements outlined in Paragraph 1.4 below. The accepted Proposed Project Master Schedule shall serve as the basis for preparing the Project Master Schedule.
  - 1.3.1.2 Schedule of Submittals, as required by Document 01 33 00 (Submittal Procedures), including submittals of Shop Drawings, product data, and Samples. Once approved by the County, the Schedule of Submittals shall be incorporated into the Project Master Schedule. All submittals shall be forwarded to the County by the date indicated on the approved Schedule of Submittals incorporated into the approved Project Master Schedule, unless an earlier date is necessary to maintain the Project Master Schedule, in which case those submittals shall be forwarded to the County so as not to delay the Project Master Schedule.
  - 1.3.1.3 Project Master Schedule as required by Documents 01 11 14 (Summary of Work - Design Services, Preconstruction Activities, and Deliverables) and Paragraph 1.5 below.
  - 1.3.1.4 Design Schedule as required in Paragraph 1.6 below.
  - 1.3.1.5 Construction Schedule as required in Paragraph 1.7 below.

- 1.3.2 Acceptance Procedures for “Baseline” Project Master Schedule:
- 1.3.2.1 Submittal of the Project Master Schedule, including Design Schedule and Construction Schedule, shall adhere to the schedule submittal process outlined in Document 01 33 00 (Submittal Procedures).
  - 1.3.2.2 Original Project Master Schedule including Design Schedule shall be reviewed at the Design Conference. Within seven (7) Days after the Design Conference, the County will review and either accept the Project Master Schedule or reject and provide comments, suggested changes, and revisions that must be addressed by Design-Build Entity to the satisfaction of the County. Design-Build Entity shall correct and resubmit the Schedule within seven (7) Days.
  - 1.3.2.3 Within seven (7) Days of receipt of revised Project Master Schedule including Design Schedule, the County will either accept the Project Master Schedule or reject and request further information and justification. Design-Build Entity shall, within three (3) Days, provide County with a complete written narrative response to the County’s request discussing how the baseline resubmittal addresses each of the contract conformance deficiencies noted in the original submittals.
  - 1.3.2.4 Detailed Project Master Schedule including Design and Construction Schedule shall be reviewed at Design & Preconstruction Conference outlined in Document 01 31 19 (Project Meetings).  
  
Within seven (7) Days after the Design & Preconstruction Conference, the County will review and either accept the Project Master Schedule or reject and provide comments, suggested changes, and revisions that must be addressed by Design-Build Entity to the satisfaction of the County. Design-Build Entity shall correct and resubmit the Project Master Schedule within seven (7) Days.
  - 1.3.2.5 Within seven (7) Days of receipt of revised Project Master Schedule including detailed Construction Schedule, the County will either accept the Project Master Schedule or reject and request further information and justification. Design-Build Entity shall, within three (3) Days, provide County with a complete written narrative response to the County’s request discussing how the baseline resubmittal addresses each of the contract conformance deficiencies noted in the original submittals.
- 1.3.3 Completion Time: Overall time of completion and time of completion for each Milestone shown on Project Master Schedule shall adhere to times in Document 00 52 00 (Agreement). Notwithstanding any Modification to the Contract Time, Design-Build Entity may otherwise choose to work to an earlier (advanced) schedule, but should it choose to do so:
- 1.3.3.1 County is not required to accept such an earlier (advanced) schedule, i.e., one that shows early completion dates for the Contract Times.
  - 1.3.3.2 Design-Build Entity shall not be entitled to extra compensation in the event Design-Build Entity completes its Work, for whatever reason, beyond completion dates shown in such an earlier (advanced) schedule but within the Contract Times.
  - 1.3.3.3 A schedule showing the Work completed in less than the Contract Times shall be considered to have Project Float. The “Project Float” is the time between

the scheduled completion of the Work and the Contract Time for completion of the Work. Project Float is a resource available to both County and Design-Build Entity.

- 1.3.4 Float Ownership: Neither County nor Design-Build Entity owns Float. The Project owns the Float. As such, liability for delay of any component of the Project rests with the party whose unexcused delay, last in time, actually causes delay to any component of the Project.
- 1.3.4.1 For example, if Party A incurs unexcused delay and uses some, but not all of the Float and Party B later incurs unexcused delay and uses the remainder of the Float as well as additional time beyond the Float, Party B shall be liable for the delay that represents a delay of the Project.
- 1.3.4.2 Party A would not be responsible for the delay since it did not consume all the Float and additional Float remained; therefore, the Project component completion was unaffected by Party A.
- 1.3.5 The Project Master Schedule shall be the basis for evaluating job progress, payment requests, and time extension requests. Responsibility for developing the Project Master Schedule and monitoring actual progress rests with Design-Build Entity.
- 1.3.6 Failure of the Project Master Schedule to include any element of the Work or any inaccuracy in the Project Master Schedule will not relieve Design-Build Entity from responsibility for accomplishing the Work in accordance with the Contract Documents. The County's acceptance of the Project Master Schedule shall be for its use in monitoring and evaluating job progress, payment requests, and time extension requests, and shall not, in any manner, impose a duty of care upon County, or act to relieve Design-Build Entity of its responsibility for means and methods of design and construction.
- 1.3.7 Regulatory Agency and AHJ Review Durations: Design-Build Entity shall consider the necessary Regulatory Agency and Authority(ies) Having Jurisdiction ("AHJ") review durations to be a minimum of eight (8) weeks. Design-Build Entity shall have the responsibility to package and submit complete and coordinated documents to both the Regulatory Agency and AHJ. If, for reasons unrelated to either the quality, completeness, or coordination of Design-Build Entity's Regulatory Agency or AHJ submittal, or the County's review thereof, and solely within the State's or Regulatory Agency's control, the Regulatory Agency or AHJ is unable to review Design-Build Entity's complete and coordinated documents within the review durations published in Design-Build Entity's approved schedule, or in the absence of an approved schedule, within the eight (8) week minimum Regulatory Agency review durations, the Contract Time will be extended on a day-for-day basis to the extent Design-Build Entity demonstrates any such "Regulatory Agency review delay" alone has delayed the Project's critical path. Unless otherwise mutually agreed to by the parties, when such an extension is granted pursuant to this Paragraph 1.3.7, Design-Build Entity shall be entitled to fifty percent (50%) of any cost adjustments to the Contract Sum attributable to the adjustment in Contract Time that may be allowed under Document 00 72 53 (General Conditions).
- 1.3.8 Notwithstanding the provisions of Paragraph 1.3.7 above, the County Representative will perform a general completeness review concurrent with the Peer Review and Constructability Review described in Paragraph 1.4.13 of Document 01 11 14 (Summary of Work - Design Services, Preconstruction Activities, and Deliverables). The purpose of such a review by the County is to assist Design-Build Entity in Design-Build Entity's verification that the Regulatory Agency or AHJ Submittal Document is sufficiently complete to allow for meaningful review by the Regulatory Agency or AHJ. If the Regulatory Agency

or AHJ does not accept the Submittal document for review solely because it is incomplete, Design-Build Entity shall not be entitled to any cost adjustments to the Contract Sum attributable to the adjustment in Contract Time that may be allowed under Document 00 72 53 (General Conditions). The parameters for Regulatory Agency or AHJ submittal documents completeness will be defined during the development of the Regulatory Agency or AHJ phased plan review process and initial Regulatory Agency or AHJ preliminary plan review submittal.

- 1.3.9 Design-Build Entity shall specifically include in all schedules any mitigation measures identified in Document 01 14 00 (Work Restrictions) or as required by CEQA, specifically regarding use of Best Management Practices (“BMPs”) for water quality, traffic, noise, and air quality.

#### 1.4 PROPOSED PROJECT MASTER SCHEDULE

- 1.4.1 Design-Build Entity shall submit the Proposed Project Master Schedule as part of the Technical Design & Construction Expertise section of the Qualifications and Proposals submission in response to the requirements specified in Document 00 21 16 (Request for Qualifications and Proposals – Instructions to Proposers). The Proposed Project Master Schedule shall fit within and coordinate with the milestone and completion dates specified in the Milestone Schedule included in Document 01 12 16 (Work Sequence) including any and all design interfaces. Design-Build Entity may improve upon the milestone and completion dates as part of its effort to provide Best Value to the County.

- 1.4.2 Preparation: Indicate each significant Contract activity separately. Activities to be included in the Proposed Master Schedule will be as follows:

- 1.4.2.1 Detailed activities for Design of all Phases of the Project including but not limited to all Design Deliverables as required by Document 01 11 14 (Summary of Work - Design Services, Preconstruction Activities, and Deliverables), design coordination meetings, Regulatory Agency and AHJ reviews, Facilities Department review, other agency reviews, other third-party reviews, and incorporation of comments, through Regulatory Agency and AHJ Permit and approval of the Construction Drawings for individual Regulatory Agency and AHJ Projects. For non-Regulatory Agency related Project Work, all activities described in this paragraph, with the exception of Regulatory Agency related activities, shall be required in the Proposed Project Master Schedule.

- 1.4.2.2 Detailed submittal, review, and procurement activities for all critical and near-critical submittals for the Work.

- 1.4.2.3 Detailed plan for mobilization, execution of contracts, design as described in Document 01 11 14 (Summary of Work - Design Services, Preconstruction Activities, and Deliverables), submittals, procurement, and all Work that must be performed prior to the start of construction.

- 1.4.2.4 Summarize activities related to construction for the remainder of the Work. The remainder of the Work will include, but shall not be limited to, the following activities in reasonable detail, and indicating the probable critical path:

- 1.4.2.4.1 Critical lead times

- 1.4.2.4.2 Project Off-Site and On-Site underground utility work

- 1.4.2.4.3 Project site clearing, foundation, and structure activities

- 1.4.2.4.4 Project exterior skin and interior finishing activities
- 1.4.2.4.5 Project Site Work
- 1.4.2.4.6 Project Start Up, commissioning, and move-in activities
- 1.4.2.4.7 Project Alternate(s); Site preparation, underground utilities grading, foundation, and structure activities

1.5 PROJECT MASTER SCHEDULE / SHORT-TERM CPM SCHEDULE

1.5.1 The Project Master Schedule shall be submitted for approval within sixty (60) days of the initial Notice to Proceed.

1.5.2 Prepare and submit a Short-Term CPM Schedule submittal to the County Representative. The Short-Term CPM Schedule shall be submitted for approval within twenty-eight (28) days of the Notice to Proceed with Construction Work. The Short-Term CPM Schedule shall detail the plan for the first (90) days of Contract Time thereafter and shall be used to measure performance and determine progress payments until Design-Build Entity's Baseline CPM Schedule is accepted. Absent an approved Baseline CPM Schedule, County will require Design-Build Entity to substantiate monthly invoices by providing copies of Subcontractor/vendor invoices along with any applicable Subcontracts, quotes, schedules of values, purchase orders, or Lien waivers associated with the source of the pay requests. Use of the Short-Term CPM Schedule for progress payments shall not exceed ninety (90) days.

1.5.2.1 The County Construction Manager will notify Design-Build Entity that the Short-Term CPM Schedule submittal has been accepted, accepted as noted, or requires a revision and re-submittal within seven (7) days of receipt. At the County's Construction Manager's discretion, Design-Build Entity, its scheduler, and the County Construction Manager will have a Short-Term CPM Schedule Review Meeting to review and make any necessary adjustments. If a re-submittal is required, Design-Build Entity has five (5) days after the receipt of comments to submit a revision to the County's Construction Manager. The County Construction Manager will notify Design-Build Entity that the re-submittal has been accepted, accepted as noted, or requires a revision and re-submittal within five (5) days of receipt. At the County's Construction Manager's discretion, another Short-Term CPM Schedule Review Meeting may be required. The cycle of seven (7) days to prepare a re-submittal, and five (5) days for County Construction Manager review shall continue until the Short-Term CPM Schedule has been accepted. Because the cost-loaded Short-Term CPM Schedule is how progress payments are determined, no progress payments will occur until the County's Construction Manager accepts the Short-Term CPM Schedule.

1.5.2.2 Upon acceptance, the Short-Term CPM Schedule shall represent Design-Build Entity's plan for performance of the Work during the first ninety (90) days of Contract Time. The Short-Term CPM Schedule shall be incorporated into first ninety (90) days of Design-Build Entity's Baseline CPM Schedule. Submit to the County Construction Manager an update, for acceptance or rejection, of the Short-Term CPM Schedule each month, until the complete Baseline CPM Schedule is accepted. If a Short-Term CPM Schedule is accepted late in a month, Design-Build Entity is still required to submit a Monthly Schedule Update for the previous period (for example, if a Short-Term CPM Schedule is

accepted on January 26, Design-Build Entity is required to submit Monthly Schedule Update with a January 1 Data Date).

1.5.3 The Project Master Schedule shall adhere to times in Document 00 52 00 (Agreement) and Specified in the accepted Qualifications and Proposal Package Master Project Schedule. The Project Master Schedule will outline all dates and time periods for the delivery of all Design-Build Entity's services and requirements for information from the County for the performance of its services. Failure to include any work item required for performance of the Contract on the Project Master Schedule shall not excuse Design-Build Entity from completing all Work within applicable completion dates, regardless of County's approval of the schedule. The Project Master Schedule will include the following items, but not limited to:

1.5.3.1 Schedule for completing the Project design documents, including any deferred submittals (through release for construction); each required submittal and the times for submitting, reviewing, and processing such submittal, as specified in Document 01 11 14 (Summary of Work - Design Services, Preconstruction Activities, and Deliverables).

1.5.3.2 Preparation and processing of Construction Documents submittals.

1.5.3.3 Critical lead times for procurement of materials and equipment.

1.5.3.4 Significant construction Milestones (e.g., groundbreaking, completion of Site utilities, completion of foundation, completion of structural frame, completion of exterior shell, Substantial Completion, Testing & commissioning, licensing, move-in, Regulatory Agency Project completion dates, and similar Milestones unique to the Project).

1.5.3.5 Date for decisions from County on items affecting Design-Build Entity's schedule.

1.5.3.6 Utility interruptions, relocation, and connections affecting existing Facility operations.

1.5.4 The Project Master Schedule shall be updated on a monthly basis.

## 1.6 DESIGN SCHEDULE

1.6.1 The Design Schedule shall adhere to times in Document 00 52 00 (Agreement) and specified in the accepted Qualifications and Proposal Package Project Master Schedule. The Design Schedule shall include all activity details for completing the design of all Phases of the Project. Failure to include any work item required for performance of this Contract on the Schedule shall not excuse Design-Build Entity from completing all work within applicable completion dates, regardless of County's approval of the schedule. The Design Schedule shall include, but not be limited to the following:

1.6.1.1 Preparation and review of Design Deliverables and other critical design completion dates. Include all Design Deliverables as required by Document 01 11 14 (Summary of Work - Design Services, Preconstruction Activities, and Deliverables).

1.6.1.2 Design coordination meetings

- 1.6.1.3 Conference(s) with Regulatory Agency/AHJ, and Regulatory Agency/AHJ review times
  - 1.6.1.4 Dates for decision from County on designated items or orders affecting schedule
  - 1.6.1.5 Facility/User Group and County Staff review
  - 1.6.1.6 Other Regulatory Agencies, Utility Company, and Third-Party reviews
  - 1.6.1.7 Time for incorporation of comments
  - 1.6.1.8 Regulatory Agency and AHJ Permit
  - 1.6.1.9 Approval of the Construction Drawings for each Phase of construction
  - 1.6.2 Design-Build Entity shall resubmit original Schedule if requested by County.
  - 1.6.3 The Design Schedule shall be incorporated (merged) into the Project Master Schedule.
- 1.7 CONSTRUCTION SCHEDULE, BASELINE CPM
- 1.7.1 The Construction Schedule shall adhere to times in Document 00 52 00 (Agreement) and specified in the accepted Qualifications and Proposal Package Project Master Schedule. The Construction Schedule (original and updates) shall indicate all separate fabrication, procurement, and field construction activities required for completion of the Work. Failure to include any work item required for performance of this Contract on the Construction Schedule shall not excuse Design-Build Entity from completing all Work within applicable completion dates, regardless of County's approval of the Construction Schedule.
  - 1.7.2 Baseline Schedule: Prepare and submit a Baseline CPM Schedule that shows the breakdown of all Work into activities to the extent required to effectively plan and execute the Project, track, and report Work progress, effectively analyze time impacts, and show all logical relationships (ties) between activities. The County Construction Manager will accept, accept as noted, or direct Design-Build Entity to revise and re-submit the Baseline Schedule submittal. The County Construction Manager's Baseline Schedule review will be based on the County Construction Manager's evaluation of the Baseline Schedule's reasonableness and compliance with the Contract Documents. The approved Contract CPM Construction Schedule shall be the basis for monitoring Design-Build Entity's progress against Milestone dates and Contract Time, and the evaluation and reconciliation of extensions in Contract Time. The Baseline Schedule shall communicate and constitute Design-Build Entity's detailed intent for planning and executing the Work. Construct the Baseline Schedule based on the Contract Documents, including any addenda received during requests for qualifications and proposals. Coordinate with all Subcontractors when developing the Baseline Schedule.
    - 1.7.2.1 Time Frame: Extend schedule from the calendar date for commencement of the Work established in the Notice to Proceed to the calendar date for Substantial Completion based on the calendar day duration established in the Agreement. Contract Substantial Completion and Final Completion dates shall not be changed by submission of a schedule that shows an early (or late) completion date, unless specifically authorized by Change Order.
    - 1.7.2.2 Early Completion: If the County Construction Manager accepts an early completion schedule and the County does not revise the Contract Substantial

Completion date, the Baseline Schedule must first include a Float activity that fills the time between the early completion and the contractual Substantial Completion date. Design-Build Entity agrees to forego any compensation for extended Overhead and Profit and General Conditions Costs between early completion noted in the Baseline Schedule and the contractual Substantial Completion Date.

1.7.3 Activities in the Baseline Schedule shall comply with the following:

- 1.7.3.1 Activity Duration: Estimate the amount of time to start and complete each activity. Define fieldwork activities so no activity is longer than fifteen (15) workdays, unless specifically allowed by County Construction Manager.
- 1.7.3.2 Units of Time: Workdays shall be the default unit of time for an activity in the schedule. Indicate nonworking days and holidays incorporated into the schedule to correlate with the date for Substantial Completion and Contract Time.
- 1.7.3.3 Critical (Longest) Path: Critical (Longest) Path is to be easily identifiable. Any part of the Baseline Schedule's Critical (Longest) Path deemed unreasonable by the County Construction Manager may result in direction for a Baseline Schedule revision and re-submittal.
- 1.7.3.4 Percentage of Activities within Critical (Longest) Path: Plan the Work and provide for and allocate resources in the execution of the Work so that the proportion of incomplete schedule activities with total Float of fifteen (15) workdays or less within the Critical (Longest) Path shall not exceed twenty percent (20%) of all incomplete schedule activities, unless acceptance for a greater proportion is granted in writing by the County Construction Manager.
- 1.7.3.5 Procurement Cycle Activities: Procurement cycle activities include, but are not limited to, outreach, solicitation, subcontracting, submittals, Shop Drawing submittals, submittal reviews and approvals, purchasing, fabrication, and delivery. Unless waived in writing by the County Construction Manager, include detailed procurement cycle activities as separate activities in the Baseline Schedule for each Specification Section number. The detailed material and equipment procurement cycle activities shall conform to the Submittal Schedule and shall align with the Submittal Register. Procurement cycle activities shall be logically tied in the Baseline Schedule to the associated construction activities. Unless waived in writing by the County Construction Manager, include detailed procurement cycle activities as separate activities in the Baseline Schedule for each Specification Section number, with separate activities for the following:
  - 1.7.3.5.1 Outreach, Solicitation, and Subcontracting
  - 1.7.3.5.2 Submittal Preparation
  - 1.7.3.5.3 Submittal Review / Approval
  - 1.7.3.5.4 Procurement / Fabrication
  - 1.7.3.5.5 Delivery

Note: Design-Build Entity shall include the Specification Section, Work Breakdown Structure (“WBS”) code, or Activity Code number either within the activity’s identification number or the activity’s name/description.

- 1.7.3.6 Submittal Review Time: Include specified submittal review times in Baseline Schedule as defined in Document 01 33 00 (Submittal Procedures).
- 1.7.3.7 Relationships and CPM Network: CPM networks shall be closed, whereby every activity shall have, at a minimum, one predecessor and one successor relationship. The exceptions to this closed network rule are the network’s start and finish Milestones.
- 1.7.3.8 Constraints: Constraints shall be scrutinized and shall only be used to reflect contractually and/or environmentally imposed conditions. Add schedule activities and detail to mitigate the use of Constraints. Constraints are not permitted where an activity or logical relationship is appropriate, unless specifically accepted by the County Construction Manager. The County Construction Manager may direct Design-Build Entity to provide a detailed written explanation in the Baseline Narrative for any and all Constraints. After a review of the Baseline Schedule and the detailed written explanation, any Constraints ultimately deemed unreasonable by the County Construction Manager may result in direction for a Baseline revision and re-submittal.
- 1.7.3.9 Lags: Lags shall be scrutinized. Add schedule activities and detail to mitigate the use of Lags. The Construction Schedule must not include any negative Lags or finish-to-start relationships with positive Lag. Lags in start-to-start or finish-to-finish relationships must not exceed the duration of the predecessor or successor activity, respectively.
- 1.7.3.10 Schedule Settings: The setting in the CPM scheduling software shall be set so that the logic is retained when calculating the schedule. Critical activities shall be defined as Critical (Longest) Path. The “progress override” option shall not be utilized, unless directed otherwise by the County Construction Manager. Autocost, Resource, and Schedule calculation rules shall be set to the default settings. Default percent complete to be used is the duration percent complete.
- 1.7.3.11 Activity Detail: Field work activities shall not reflect a combining of Work located in separate buildings or site areas, Work corresponding to different Specifications or Unifomat Sections, Work performed by different Subcontractors, or rough and finish work of the same trade. The CPM Schedule shall include activities and appropriate time for temporary items (for example, scaffolding and concrete formwork), curing, testing, items that interface with work performed by others (for example, Owner Furnished Owner Installed items), Regulatory Agency approvals, permitting, City of Dublin and utility activities, physical checkout, Startup, mobilization, final cleaning, operational and maintenance manual preparation, equipment and systems training, cleanup, and contractor’s internal Punch List.
- 1.7.3.12 Activity Descriptions: Descriptions for schedule activities shall provide adequate detail that fully defines the activity, scope, and location. Notes shall be utilized to completely and clearly define each activity where the activity description itself is insufficient or would become overly lengthy.

- 1.7.3.13 Activity Coding: Activities shall be mapped to the Activity Code Format located at the end of this Document. Design-Build Entity may use WBS functionality in lieu of Activity Codes, or a combination of Activity Coding and WBS coding.
- 1.7.3.14 Milestones: Include Key Milestones and Contractual Milestones indicated in the Contract Documents in Schedule.
- 1.7.3.15 Negative Float: The Baseline Schedule shall not contain negative Float.
- 1.7.3.16 Weather: The Baseline Schedule shall include, during the period from the Notice to Proceed through the date of Substantial Completion, workdays for anticipated weather delays affecting the Critical (Longest) Path.
  - 1.7.3.16.1 Normal inclement weather conditions, also referred to as anticipated weather days, will be considered and included in the planning and scheduling of all Work influenced by high or low ambient temperatures, precipitation, and/or other conditions including wet conditions following rain, as well as conditions such as excessive heat and excessive winds to ensure completion of all Work within the Contract Time. Expected weather delays must be added as an activity to the back of the schedule and treated as weather Float. The use of this weather Float must be requested by Design-Build Entity and approved by the County Construction Manager in advance of adjusting the schedule.
  - 1.7.3.16.2 The total duration of the weather Float activity will be based on the normal weather conditions expected by the County per the following table:

Weather Table												
	Month											
Anticipated Weather Days	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		7	6	6	3	1	0	0	0	0	2	5

- 1.7.3.16.3 If the Contract Time starts or ends in the middle of a month, the weather allowance shall be prorated. For example, if mobilization starts on February 1 and Substantial Completion is November 20 of the same year, the weather allowance is twenty-one (21) workdays.
- 1.7.3.16.4 Unused weather allowance days may be used in succeeding months and will only become jointly owned Project Float if not used for weather days within sixty (60) days after the end of the month to which they are associated.
- 1.7.3.16.5 If the grand total of approved weather days exceeds the number allotted in the Contract, the number of weather days in excess are excusable and non-compensable.

- 1.7.3.16.6 Weather or the results of weather on non-scheduled workdays will not be considered. Reference documents shall include CPM schedules and Look Ahead schedules to determine scheduled workdays.
- 1.7.3.16.7 If Design-Build Entity considers weather or the results of weather as an impact to the Critical (Longest) Path and/or a Contract Milestone, Design-Build Entity has two (2) workdays from the date in question to provide written justification for the weather day request, describing the Primavera activity/activities impacted, as well as describing how over fifty percent (50%) of the Critical (Longest) Path work for the requested day was impacted. Describe work done to mitigate weather impact.
- 1.7.3.16.8 The County or the Construction Manager determines if a weather day has been incurred, and the Critical (Longest) Path and/or Contractual Milestone so affected. If Design-Build Entity does not provide written justification regarding weather impacts, the County Construction Manager can still determine if weather days have been incurred.
- 1.7.3.16.9 If weather impacts a Contract Milestone for a Phase that is not on the Critical (Longest) Path, the County Construction Manager may recommend County grant a Change Order extending the Contract Time for excusable and non-compensable relief for the number of days impacted by weather exceeding the anticipated weather days established above.
- 1.7.3.17 Average Crew Size:
  - 1.7.3.17.1 Assign an average crew size per day for each field work activity, using the "CREW" activity code per Activity Codes Dictionary at the end of this Document. Round amounts off to the nearest integer.
  - 1.7.3.17.2 Non-field work activities, curing, milestones, work done by others (for example, inspections by Special Inspectors, Owner Furnished Owner Installed items), and allowances shall be excluded from the average crew size requirement.
  - 1.7.3.17.3 Time Impact Analyses: Provide average crew size amounts to field work activities that are part of any Time Impact Analysis.
- 1.7.3.18 Work Restrictions: Include any work restrictions indicated in the Contract Documents and as follows in schedule and show how the sequence of the Work is affected.
  - 1.7.3.18.1 Work by County: Include a separate activity for each portion of the Work performed by the County, including Owner Furnished Contractor Installed ("OFCl") and Owner Furnished Owner Installed ("OFOl") items.
  - 1.7.3.18.2 County-Furnished Products: Include a separate activity for each product. Delivery dates indicated stipulate the earliest possible delivery date.

1.7.3.18.3 Work Restrictions: Show the effect of the following items on the schedule:

1.7.3.18.3.1.1 Coordination with existing construction

1.7.3.18.3.1.2 Limitations of continued occupancies

1.7.3.18.3.1.3 Partial occupancy before Substantial Completion

1.7.3.18.3.1.4 Use of premises and any Site-specific restrictions

1.7.4 All Design-Build Entity, Subcontractor, and assigned Design-Build Entity Work (including engineering and other professional services) shall be shown in a logical work sequence that demonstrates a coordinated plan of work for all Subcontractors. The intent is to provide a common basis of acceptance, understanding, and communication, as well as interface among all Subcontractors. Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Show dependencies and logic between activities so that the effect of progress (or lack of progress) on related activities and the overall schedule can be monitored. The list of activities shall include, but not be limited to, the following:

1.7.4.1 Significant construction Milestones including but not limited to:

1.7.4.1.1 Mobilization Completion

1.7.4.1.2 Off-Site Utility Work Completion

1.7.4.1.3 Site Demolition Completion

1.7.4.1.4 Building/Structure Demolition Completion

1.7.4.1.5 Earthwork And Underground Utility Site Work Completion

1.7.4.1.6 Foundation Completion

1.7.4.1.7 Structural Frame Completion

1.7.4.1.8 Envelope Completion

1.7.4.1.9 Plumbing Installation Completion

1.7.4.1.10 Fire Protection Installation Completion

1.7.4.1.11 HVAC Installation Completion

1.7.4.1.12 Security Electronics Completion

1.7.4.1.13 Low Voltage/Data/Comm Systems Completion

1.7.4.1.14 Electrical Installation Completion

1.7.4.1.15 Equipment Installation Complete

- 1.7.4.1.16 Equipment Commissioning and Testing
- 1.7.4.1.17 Substantial Completion
- 1.7.4.1.18 Final Completion
- 1.7.4.1.19 Demobilization
- 1.7.4.2 Date of request of designated working spaces, storage areas, access, and other facilities to be furnished by the County.
- 1.7.4.3 Dates for decision from County on designated items or orders affecting schedule.
- 1.7.4.4 Mock-up Construction: Show activities for all mock-ups identified in the Plans and Specifications.
- 1.7.4.5 Activities related to the delivery of Design-Build Entity and County-furnished equipment to be Design-Build Entity-installed per Contract shall be shown. Equipment requirements including, but not limited to, architecturally significant equipment, security equipment, communications equipment, HVAC equipment. Design-Build Entity shall include the latest date that County-furnished products are required to allow completion of the Work on schedule.
  - 1.7.4.5.1 The latest date that installation details must be provided to Design-Build Entity to avoid schedule delays.
  - 1.7.4.5.2 The latest delivery dates that will allow the Project to be completed according to schedule.
- 1.7.4.6 Utility interruptions, relocation, and connections.
- 1.7.4.7 Connecting to or penetrating existing structures.
- 1.7.4.8 Show the effect of the following factors on the Construction Schedule:
  - 1.7.4.8.1 Limitations of continued occupancies.
  - 1.7.4.8.2 Uninterruptible services.
  - 1.7.4.8.3 Use of premises restrictions.
  - 1.7.4.8.4 Environmental control.
- 1.7.4.9 Punch List Preparation. The duration for Design-Build Entity Punch List activities on the Critical Path established at Substantial Completion, including preparation and correction of all items, shall not be less than forty-five (45) days.
- 1.7.4.10 Work by County and/or by other contractors that may affect or be affected by Design-Build Entity's activities. Include a separate activity for each such contract, which may include, but are not limited to, utility companies, communications systems providers, equipment providers, and others.

- 1.7.4.11 Testing and Commissioning. Include sufficient time to comply with the requirements of the General Commissioning Requirements; and any regulatory requirements; and ensure completion of the Work within the Contract Time.
- 1.7.4.12 Licensing. Allow time for County's administrative procedures necessary for certification.
- 1.7.4.13 All regulatory agency approvals (e.g., Department, Fire Marshal, Public Works Agency, City, others).
- 1.7.4.14 Move-in.
- 1.7.5 Critical Path Activities. Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract Milestone dates. Show the critical path in red. For each activity, show early start, late start, early finish, late finish, durations measured in Days, total and available Float, resources, predecessor, and successor activities, planned workday/week for the activity, and scheduled/actual progress payments. A path with fifteen (15) workdays or less of Float shall be considered a "near critical path" and shown in a lighter shade of red.
- 1.7.6 Design-Build Entity shall meet with the County to review and discuss each Project Master Schedule update (i.e., original Construction Schedule for each Phase and each monthly update) within seven (7) Days after each Schedule has been submitted to County.
  - 1.7.6.1 County's review and comment on any Schedule shall be limited to Contract conformance (with sequencing, coordination, and Milestone requirements).
  - 1.7.6.2 Design-Build Entity shall make corrections to the Construction Schedule necessary to comply with Contract requirements and shall adjust Schedule to incorporate any missing information requested by County. Design-Build Entity shall resubmit any schedules if requested by County.
- 1.7.7 If Design-Build Entity is of the opinion that any of the Work included on its Schedule has been impacted such that there will be a delay to completion of any Phase of the Project, submit to County a written Time Impact Analysis ("TIA") in accordance with Paragraph 1.11 below. The TIA shall be based on the most current update of the Schedule.
- 1.7.8 A six (6) week "Look Ahead Schedule," detailed daily bar chart schedule shall be updated and issued weekly.
  - 1.7.8.1 Look Ahead Schedule shall cover a forty-nine (49) Day period, beginning with the week preceding the six (6) week detailed Look Ahead.
  - 1.7.8.2 Use the Project Master Schedule as the basis for generating the six (6) week look ahead schedule.
  - 1.7.8.3 Format:
    - 1.7.8.3.1 Provide bar chart using same logic as Project Master Schedule, with maximum fourteen (14) Day construction activity duration. Provide activity identification used on the accepted Project Master Schedule.
    - 1.7.8.3.2 Provide daily resource allocation for each trade.

- 1.7.8.3.3 Provide exact activity location for scheduled Work.
- 1.7.8.4 Provide information for each significant activity, with special care taken to describe scheduling and coordination with other contracts, Work by the County, and normal campus or facility operations/functions, including but not limited to utility shutdowns, road closures, etc.
- 1.7.8.5 Show the status of all outstanding and pending submittals including scheduled and actual submittal dates, the durations and expiration of submittal review periods, etc.
- 1.7.9 The Construction Schedule shall be incorporated (merged) into the Project Master Schedule.

## 1.8 MONTHLY SCHEDULE UPDATE SUBMITTALS

- 1.8.1 Following acceptance of Design-Build Entity's Project Master Schedule, including Design Schedule and Construction Schedule, Design-Build Entity shall monitor the progress of Work and update the Project Master Schedule each month to reflect actual progress on each activity and any anticipated changes to planned activities. Monthly Schedule Updates shall include the following:
  - 1.8.1.1 Design-Build Entity's estimated percentage complete for each activity in progress.
  - 1.8.1.2 Actual start/finish dates for all activities shown on initial Project Master Schedule with all subsequent approved additions.
  - 1.8.1.3 List of materials and/or equipment delivered for which Design-Build Entity is requesting payment and original invoice verifying cost.
  - 1.8.1.4 Identification of processing errors, if any, on the previous update reports.
  - 1.8.1.5 Resolution of any conflicts between actual Work progress and schedule logic when out-of-sequence activities develop because of actual construction progress. Design-Build Entity shall submit revisions to schedule logic to conform to current job status and directions, without changing original activity identification.
  - 1.8.1.6 Each update shall include a written narrative report (as specified in Paragraph 1.12.1 below) with the updated progress analysis.
  - 1.8.1.7 CPM Reports: Concurrent with CPM schedule, submit five (5) copies of each of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float.
    - 1.8.1.7.1 Provide printed report indicating actual versus planned resource loading for each trade and each activity. This report shall be provided on a monthly basis. Actual resource shall be accumulated in field by Design-Build Entity and shall be as noted on Design-Build Entity's daily reports. These reports will be basis for information provided in monthly printed reports. Explain all variances and mitigation measures.

- 1.8.1.7.2 A Predecessor / Successor Report: List of all activities showing associated predecessor / successor activities, their logical relationships, Free Float, Total Float, early start/early finish date.
- 1.8.1.7.3 Total Float Report: List of all activities sorted in ascending order of Total Float, and then early start/early finish date.
- 1.8.1.7.4 Earnings Report: Compilation of Design-Build Entity's earnings from Notice to Proceed until the most recent application for payment. Show all activities sorted and grouped by Project Phase and location. For each activity show the Activity ID, description, budgeted cost, percent completed as of the last update, percent completed to date, cost as of the previous period, cost this period, and cost-to-date.
- 1.8.1.7.5 Design-Build Entity shall submit any other type of report as deemed necessary by the County.
- 1.8.1.8 The updated Project Master Schedule shall accurately represent the as-built condition of all completed Work and the percentage remaining of all in-progress Work activities as of the date of the updated Project Master Schedule.
- 1.8.1.9 The updated Project Master Schedule shall incorporate all changes mutually agreed upon by Design-Build Entity and County during preceding periodic reviews, all changes resulting from Change Orders and Field Change Directives, and all remaining days of the inclement weather and regulatory review durations.
- 1.8.1.10 Design-Build Entity shall perform the Work in accordance with the updated Project Master Schedule. Design-Build Entity may change the Project Master Schedule to modify the order or sequence of accomplishing the Work only with the County's prior written agreement.
- 1.8.1.11 Within the first (1st) week of each month, the County will administer a monthly schedule update meeting. At or before the monthly schedule update meeting, Design-Build Entity shall submit a monthly updated schedule indicating activity status through the end of the previous month. Design-Build Entity shall include in the monthly updated schedule any proposed schedule revisions as outlined in Paragraph 1.9 below.
- 1.8.1.12 Procedures for review and acceptance of the monthly updated schedule are outlined in Paragraph 1.9 below.
- 1.8.1.13 No application for payment will be processed nor shall any progress payments become due until updated Project Master Schedules are accepted in writing by the County's Representative.
- 1.8.1.14 The accepted, updated Project Master Schedule shall be the contractual Project Master Schedule of record for the period it is current and shall be the basis for payment during that period.
- 1.8.1.15 Unless directed in writing by the County Construction Manager, the Monthly Schedule Update shall not be used to delete activities, add activities, or make

title changes, activity coding changes, Budgeted Cost changes, Average Crew Size changes, or logic changes.

1.8.1.15.1 If Design-Build Entity proposes to make activity additions/deletions and/or logic changes and/or duration changes within a Monthly Schedule Update, simultaneously submit two distinct Primavera schedules: (1) Monthly Schedule Update, showing progress in just-completed month, without proposed changes; and (2) Monthly Schedule Update, showing progress in just-completed month, with proposed changes.

1.8.1.15.2 Other activities in Schedule: The only activities to be added to the Monthly Schedule Updates are the following: approved Change Orders, Approved Time Impact Analysis, Approved Weather Days (One Activity per approved Weather date)

1.8.1.16 A USB drive containing the complete Primavera Project Planner data for the Project Master Schedule update, five (5) hard copies of computer-generated schedule, and reports will be furnished to the County's Representative for processing the application for payment. Design-Build Entity shall provide full access to electronic Primavera schedule files for the County.

## 1.9 MONTHLY SCHEDULE REVISIONS/UPDATES

1.9.1 The County will administer a monthly schedule update meeting to review and discuss each monthly updated schedule submittal.

1.9.1.1 Included with each monthly updated schedule submittal, Design-Build Entity shall submit any proposed schedule revisions to the County's Representative, including, but not limited to, the following:

1.9.1.1.1 Actual Start and/or Actual Finish Dates of activities that have started and/or have been completed;

1.9.1.1.2 Actual and anticipated duration changes including revisions due to inclement weather or regulatory agency review delays;

1.9.1.1.3 TIAs for Change Orders and Time Extension Requests;

1.9.1.1.4 Schedule diagrams showing resolution of conflicts between actual Work progress and schedule logic when out-of-sequence activities develop because of actual construction progress. Design-Build Entity shall submit revisions to schedule logic to conform to current job status and directions, without changing original activity identification;

1.9.1.1.5 Actual and anticipated Design-Build Entity delays;

1.9.1.1.6 A narrative report with the updated progress analysis, which shall include, but shall not be limited to, a description of problem areas, current and anticipated delay factors and their impacts, and explanations of corrective action taken and any proposed revisions for a Recovery Plan; and

- 1.9.1.1.7 Identification and removal of days associated with any activities no longer necessary to the Project due to design evolution, change in means and methods, or other similar changes agreed to in writing by the County. Costs and resources associated with these activities shall be redistributed to other related activities or credited back to the County via Change Order.
  - 1.9.1.2 These meetings are considered a critical component of the overall monthly schedule update submittal; accordingly, Design-Build Entity shall ensure that appropriate personnel from its organization attend. At a minimum, Design-Build Entity's General Superintendent and professional Scheduling Consultant shall attend these meetings.
  - 1.9.1.3 Monthly schedule update meetings will be scheduled for no less than four (4) hours duration.
- 1.9.2 Within seven (7) Days after the monthly schedule update meeting, the County will either accept the proposed schedule update as the new Project Master Schedule, or reject the proposed schedule update and provide comments, suggested changes, and revisions that must be addressed by Design-Build Entity to the satisfaction of the County. Design-Build Entity shall correct and resubmit the schedule update within seven (7) Days.
- 1.9.3 Neither the updating, changing, or revising of any report, curve, schedule, or narrative submitted to County by Design-Build Entity under this Contract, nor County's review or acceptance of any such report, curve, schedule, or narrative shall have the effect of amending or modifying, in any way, Contract Time, Milestone dates, or Design-Build Entity's obligations under the Contract.
- 1.9.4 For rejected schedule update resubmittals that the County considers close to resolution, the County may request further information and justification and Design-Build Entity shall, within three (3) Days, provide County with a complete written narrative response to the County's request discussing how the resubmittal addresses each of the remaining contract conformance deficiencies noted in the schedule update resubmittal.
- 1.9.5 If the County does not accept Design-Build Entity's schedule update resubmittal and Design-Build Entity disagrees with County's position, Design-Build Entity has seven (7) Days from receipt of County's letter rejecting the revision to provide a written narrative providing full justification and explanation for the revision. Design-Build Entity's failure to respond in writing within seven (7) Days of County's written rejection of a schedule revision shall constitute Design-Build Entity's acceptance of County's position, and Design-Build Entity thereby waives its rights to subsequently dispute or file a claim regarding the County's position. If Design-Build Entity files a timely response as provided in this paragraph, and the parties are still unable to agree, Design-Build Entity's sole right shall be to file a Claim as provided in Article 12 (Claims by Design-Build Entity) of Document 00 72 53 (General Conditions).

## 1.10 RECOVERY SCHEDULE

- 1.10.1 If the monthly schedule update or Look Ahead Schedule shows Project Final Completion date fourteen (14) Days beyond the Contract Time or any individual Milestone completion dates, Design-Build Entity shall within seven (7) Days, submit to County a Recovery Plan to recover the lost time. As part of this Recovery Plan submittal, Design-Build Entity shall provide a written narrative and a Recovery Schedule to recapture the lost time. The Recovery Plan consisting of a Recovery Schedule and written narrative shall propose revisions to the Contract Schedule for the next sixty (60)day period to show how Design-

Build Entity intends to bring the Work back on schedule. If the Recovery Schedule includes sequence changes, Design-Build Entity shall provide a schedule diagram comparing the original Design-Build Entity sequence to the revised sequence of the Work. The Recovery Schedule shall show the intended critical path, secure appropriate Subcontractor and supplier consent to the Recovery Schedule, provide a narrative to explain trade flow and construction flow changes, duration changes, added/deleted activities, critical path changes, and must identify all near critical paths and resource loading assumptions for major Subcontractors. The Recovery Plan shall also describe how the measures that Design-Build Entity intends to take to regain schedule compliance will be accomplished without additional cost to the County.

- 1.10.2 The Recovery Schedule shall not be incorporated into any monthly schedule update until County has accepted the Recovery Schedule in writing.
- 1.10.3 If County does not accept Design-Build Entity's Recovery Schedule, County and Design-Build Entity shall follow the procedures in Paragraphs 1.9.4 and 1.9.5 above.
- 1.10.4 At County's discretion, Design-Build Entity can be required to provide Subcontractor certifications for any Recovery Schedule affecting said Subcontractors.
- 1.10.5 Design-Build Entity shall provide supervision, labor, equipment, and materials, as necessary, to recover the lost time.
- 1.10.6 If Design-Build Entity believes that any portion of the delay addressed in the Recovery Schedule is due to circumstances entitling Design-Build Entity to additional time or money, it may seek a modification of the Contract Documents under Article 14 (Modifications of the Contract Documents) of Document 00 72 53 (General Conditions), or make a Claim for the same pursuant to Article 12 (Claims by Design-Build Entity) of Document 00 72 53, and other applicable provisions of the Contract Documents.

#### 1.11 TIME IMPACT ANALYSIS ("TIA") FOR CHANGE ORDERS, AND OTHER DELAYS

- 1.11.1 Any request for an adjustment of the Contract Time for completion submitted by Design-Build Entity for changes or alleged delays shall be accompanied by a complete TIA, which includes both a written narrative with a hardcopy and fully operational electronic copy of a schedule diagram depicting how the changed work affects other schedule activities. The schedule diagram shall show how Design-Build Entity proposes to incorporate the changed work in the schedule, and how it impacts the critical path on the most recently accepted schedule prior to the occurrence of the delay. Design-Build Entity is also responsible for requesting time extensions based on the TIA's impact on the critical path. The diagram must be tied to the main sequence of schedule activities to enable County to evaluate the impact of changed work to the scheduled critical path.
- 1.11.2 Design-Build Entity shall comply with the requirements of Paragraph 1.11 for all types of delays including, but not limited to, Design-Build Entity/Subcontractor delays, asserted County or third party caused delays, adverse weather delays, strikes, procurement delays, fabrication delays, etc.
- 1.11.3 Design-Build Entity shall be responsible for all costs associated with the preparation of TIAs, and the process of incorporating them into the current schedule update. Design-Build Entity shall provide County with a "live" electronic copy and five (5) hardcopies of each TIA. Design-Build Entity's TIAs must be based on the as-built critical path. The TIA shall also show the as-planned critical path.

- 1.11.4 Once agreement has been reached on a TIA, the Contract Time will be adjusted accordingly by Change Order. If agreement is not reached on a TIA, the Contract Time may be extended by the duration County allows by Unilateral Change Order, and Design-Build Entity may submit a Claim for additional time claimed by Design-Build Entity as provided in Document 00 72 53 (General Conditions).

## 1.12 TIME EXTENSIONS

- 1.12.1 Design-Build Entity is responsible for requesting Contract Time extensions for time impacts that, in the opinion of Design-Build Entity, impact the critical path of the current schedule update. Notice of time impacts shall be given in accordance with Document 00 72 53 (General Conditions).
- 1.12.2 Where an event for which either Design-Build Entity or County is responsible impacts the projected Contract Time, Design-Build Entity shall provide a written mitigation plan, including a schedule diagram, which explains how the impact will be mitigated (e.g., increase crew size, overtime, etc.). Design-Build Entity shall also include a detailed cost breakdown of the labor, equipment, and material Design-Build Entity would expend to mitigate the delay. Design-Build Entity shall submit its mitigation plan to County within seven (7) Days from the date of discovery of said impact. Design-Build Entity is responsible for the cost to prepare the mitigation plan.
- 1.12.3 Design-Build Entity's failure to request time, provide TIA, or provide the required mitigation plan will result in Design-Build Entity waiving its right to a time extension and cost to mitigate the delay.
- 1.12.4 Design-Build Entity shall be responsible to provide timely and proper notice to the County of all impacts that could result in Contract Time extensions and shall comply with requirements as specified in Paragraph 15.4 of Document 00 72 53 (General Conditions).
- 1.12.5 No time will be granted under the Contract Documents for cumulative effect of impacts or changes after a Contract Modification has been issued for the event giving rise to the change.
- 1.12.6 County will not be obligated to consider any time extension request unless all requirements of the Contract Documents are complied with.
- 1.12.7 Failure of Design-Build Entity to perform in accordance with the current schedule update shall not be excused by submittal of time extension requests.

## 1.13 PROJECT STATUS REPORTING

- 1.13.1 Monthly. In addition to submittal requirements for scheduling identified in this Document 01 32 16 (Schedules and Reports), provide a monthly Project status report (i.e., written narrative report) to be submitted in conjunction with each Schedule as specified herein in electronic and hardcopy. Written status reports shall include:
  - 1.13.1.1 Status of major Project components (percent complete, amount of time ahead or behind schedule) and an explanation of how Project will be brought back on schedule if delays have occurred.
  - 1.13.1.2 Progress made on critical activities indicated on each Schedule, including inspections.

- 1.13.1.3 Explanations for any lack of work on critical path activities planned to be performed during last month.
  - 1.13.1.4 Explanations for any schedule changes, including changes to logic or to activity durations.
  - 1.13.1.5 List of critical activities scheduled to be performed during the next month.
  - 1.13.1.6 Status of major material and equipment procurement.
  - 1.13.1.7 Description of problem areas, current and anticipated delaying factors and their impacts, and an explanation of corrective action taken.
  - 1.13.1.8 Any proposed revisions for a Recovery Plan.
  - 1.13.1.9 Design-Build Entity shall produce additional status reports as requested by County at no additional cost.
  - 1.13.1.10 Status reports, and the information contained therein, shall not be construed as claims, notice of claims, notice of delay, or requests for changes or compensation.
- 1.13.2 Daily Construction Reports: At the close of each workday provide County with report (on Design-Build Entity's County-approved form) of a description of Work activities by location for the previous workday including the following:
- 1.13.2.1 List of Subcontractors at Project and their associated scheduled activities.
  - 1.13.2.2 List of separate contractors at Project Site.
  - 1.13.2.3 List of visitors to Project Site.
  - 1.13.2.4 Count of personnel by company at Project Site.
  - 1.13.2.5 Equipment at Project Site.
  - 1.13.2.6 Material deliveries.
  - 1.13.2.7 High and low temperatures and general weather conditions.
  - 1.13.2.8 Rainfall, if any.
  - 1.13.2.9 Total number of inclement weather days to date.
  - 1.13.2.10 Accidents, Near Misses and other Safety issues.
  - 1.13.2.11 Meetings and significant decisions.
  - 1.13.2.12 Unusual events (refer to special reports).
  - 1.13.2.13 Stoppages, delays, shortages, and losses.
  - 1.13.2.14 Meter readings and similar recordings.

- 1.13.2.15 Inspections.
  - 1.13.2.16 Emergency procedures.
  - 1.13.2.17 Orders and requests of authorities having jurisdiction.
  - 1.13.2.18 Cost Proposal Requests submitted.
  - 1.13.2.19 Change Orders received and implemented.
  - 1.13.2.20 Services connected and disconnected.
  - 1.13.2.21 Equipment or system tests and startups.
  - 1.13.2.22 Partial Beneficial Completions and occupancies.
  - 1.13.2.23 Substantial Completions authorized.
  - 1.13.2.24 Results of construction monitoring activities including, at a minimum:
    - 1.13.2.24.1 Noise control
    - 1.13.2.24.2 Dust control
    - 1.13.2.24.3 Stormwater control
  - 1.13.2.25 Any major Off Site construction or fabrication.
- 1.13.3 Material Location Reports: At weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored on the Project Site. The list shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project Site.
- 1.13.4 Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Include a detailed description of the differing conditions, together with recommendations for mitigating measures or changes or proposed changes to the Construction Documents.
- 1.13.5 Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project Site, whether or not related directly to the Work, prepare and submit an Incident Report. List chain of events, date, and time of initiating event as well as subsequent activities, persons involved, response by Design-Build Entity's personnel, evaluation of results or effects, and similar pertinent information. Advise County in advance when these events are known or predictable. Incident Reports shall be numbered sequentially and shall be submitted within three (3) Days of occurrence.

ACTIVITY CODES FORMAT (REQUIRED)

Code	Description
BID	PROPOSAL LINE-ITEM NUMBER Note: Align with Proposal Form / Line Items
PHAS	PROJECT PHASE Key Milestones and Summaries Design General Conditions Allowances Preconstruction Mobilization Construction Testing Commissioning Completion and Closeout  Note: Include any Work Phases, Sequences, etc. called out in Project Manual and Qualifications and Proposal Package
PCKG	WORK PACKAGE Major Milestones and Summaries Submittal / Procure / Fabricate / Deliver On Site Work Off Site Work Building Work Sitework Other Allowances
AREA	BUILDING / SITE AREA Key Milestones and Summaries Submittal Prepare & Submit Submittal Review & Approval Procurement & Fabrication Delivery Building (Name) Site Work  Note: Create additional codes as needed or determined by the County CM.
CREW	AVERAGE CREW SIZE PER DAY
RESP	RESPONSIBILITY County Criteria / Design Architect of Record General Contractor  Survey Demolition Abatement Relocation

Concrete  
 Masonry  
 Structural Steel  
 Metals  
 Carpentry  
 Roofing  
 Openings  
 Finishes  
 Specialties  
 Furniture & Equipment  
 Special Construction  
 Conveying Equipment  
 Fire Suppression  
 Plumbing  
 Heating Ventilating & Air Conditioning  
 Automation  
 Electrical  
 Communications  
 Electronic Safety & Security  
 Earthwork  
 Exterior Improvement  
 Utilities  
 City of Dublin  
 Pacific Gas & Electric  
 Commissioning Agent (CxA)

Note: May substitute generic trade with subcontractor name; Add other Responsibility code values as needed or determined by the County Construction Manager. If there is a subcontractor substitution, new subcontractor must be incorporated into this Activity Code.

UNIF	UNIFORMAT
A1010	Standard Foundations
A1020	Special Foundations
A1030	Slab-On-Grade
A2010	Basement Excavation
A2020	Basement Walls
B1010	Superstructure – Floor Construction
B1020	Superstructure – Roof Construction
B2010	Exterior Walls
B2020	Exterior Windows
B2030	Exterior Doors
B3010	Roof Coverings
B3020	Roof Openings
C1010	Interior Construction – Partitions
C1020	Interior Doors
C1030	Interior Construction – Fittings
C2010	Stair Construction
C2020	Stair Finishes
C3010	Wall Finishes
C3020	Floor Finishes
C3030	Ceiling Finishes
D1010	Elevators & Lifts
D1020	Escalators & Moving Walks
D1090	Other Conveying Systems

UNIF	UNIFORMAT	
	D2010	Plumbing Fixtures
	D2020	Domestic Water Distribution
	D2030	Sanitary Waste
	D2040	Rainwater Drainage
	D2090	Other Plumbing Systems
	D3010	HVAC – Energy Supply
	D3020	Heat Generating Systems
	D3030	Cooling Generating Systems
	D3040	HVAC – Distribution Systems
	D3050	Terminal & Package Units
	D3060	Controls & Instrumentation
	D3070	Systems Testing & Balancing
	D3090	Other HVAC Systems & Equipment
	D4010	Fire Protection – Sprinklers
	D4020	Fire Protection – Standpipes
	D4030	Fire Protection Specialties
	D4090	Other Fire Protection Systems
	D5010	Electrical Service & Distribution
	D5020	Lighting and Branch Wiring
	D5030	Electrical – Communications & Security
	D5090	Other Electrical Systems
	D8020	Technology Electrical Infrastructure
	D8021	Structured Cabling
	D8022	Low Voltage – Main Distribution Frames
	D8023	Wireless LAN Systems
	D8024	Multimedia Technology Systems
	D8041	Intrusion Detection and Access Control
	D8042	Video Surveillance and Control Systems
	D8060	Local Sound Systems
	D8061	VoIP Systems
	D8062	Campus-Wide Emergency Communications
	D8063	Clock and Bell Systems
	D8064	Video Communications / CATV Systems
	E1010	Commercial Equipment
	E1020	Institutional Equipment
	E1030	Vehicular Equipment
	E2010	Fixed Furnishings
	E2020	Moveable Furnishings
	F1010	Special Structures
	F1020	Integrated Construction
	F1030	Special Construction
	F1040	Special Facilities
	F1050	Special Controls and Instrumentation
	F2010	Building Elements Demolition
	F2020	Hazardous Components Abatement
	G1010	Site Clearing
	G1020	Site Demolition and Relocation
	G1030	Earthwork
	G1040	Hazardous Earth Remediation
	G2010	Roads
	G2020	Parking Lots
	G2030	Pedestrian Paving
	G2040	Site Development
	G2050	Landscaping

UNIF	UNIFORMAT	
G3010		Water Supply
G3020		Sanitary Sewer
G3030		Storm Sewer
G3040		Heating Distribution
G3050		Cooling System
G3060		Fuel Distribution
G3090		Other Site Mechanical Utilities
G4010		Electrical Distribution
G4020		Site Lighting
G4030		Site Communications and Security
G4090		Other Site Electrical Utilities
G9010		Service Tunnels
G9090		Other Site Systems
Z1010		Administration
Z1020		Quality Requirements
Z1030		Temporary Facilities
Z1040		Project Closeout
Z1050		Permit, Insurance and Bonds
Z9999		Allowances

Note: Only use Z9999 if an Allowance cannot be coded to a single Uniformat Level 3 code.

PART 2 - PRODUCTS - Not used.

PART 3 - EXECUTION - Not used.

END OF DOCUMENT

**DOCUMENT 01 32 33**

**PHOTOGRAPHIC DOCUMENTATION**

**PART 1 - GENERAL**

**1.1 SUMMARY**

1.1.1 This Document includes administrative and procedural requirements for the following:

1.1.1.1 Preconstruction photographs.

1.1.1.2 Periodic (Monthly) Construction photographs.

1.1.1.3 Final Completion Construction photographs.

1.1.2 Related Documents include the following:

1.1.2.1 Document 01 33 00 (Submittal Procedures)

1.1.2.2 Document 01 73 32 (Selective Demolition)

1.1.2.3 Document 01 77 00 (Closeout Procedures)

1.1.2.4 Document 01 79 00 (Demonstration and Training)

**1.2 SUBMITTALS**

1.2.1 Qualification Data: For photographer.

1.2.2 Key Plan: Submit key plan of the Project component with notation of at least four (4) vantage points marked for location, elevation and direction of each photograph. Include same label information as corresponding set of photographs.

A. Construction Phase Photographs: Submit digital copies of each photographic view within seven (7) Days of taking photographs. Digital images shall include time stamps and geolocation information within the image of the photograph.

B. Identification: Within the file name of the image, provide the following information:

1.2.2.1.1 Name of Project.

1.2.2.1.2 Date photograph was taken.

1.2.2.1.3 Unique sequential identifier.

C. Submit a complete set of digital image electronic  
a Project Record Document on USB flash drive or portable  
drive. Submit images that have same aspect ratio as the sensor,  
uncropped.

files as  
hard

**1.3 QUALITY ASSURANCE**

- 1.3.1 Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.

## 1.4 COORDINATION

- 1.4.1 Auxiliary Services: Cooperate with photographer and provide auxiliary services requested, including access to Project Site and use of temporary facilities, including temporary lighting required to produce clear, well-lit photographs without obscuring shadows.

## 1.5 USAGE RIGHTS

- 1.5.1 Obtain and transfer copyright usage rights from photographer to County for unlimited reproduction of photographic documentation.

## PART 2 - PRODUCTS

### 2.1 PHOTOGRAPHIC MEDIA

- 2.1.1 Digital Images: Provide images on USB or hard drive in uncompressed TIFF format, produced by a digital camera with minimum sensor size of 16.0 megapixels, and at an image resolution of not less than 1024 by 768 pixels and suitable for enlargement to a minimum of 16 x 20 inches.

## PART 3 - EXECUTION

### 3.1 CONSTRUCTION PHOTOGRAPHS

- 3.1.1 Photographer: Engage a qualified commercial photographer to take construction photographs.
- 3.1.2 General: Utilizing fixed-wing aircraft, helicopter, or drone, take aerial photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work from at least three (3) vantage points. Photographs with blurry or out-of-focus areas will not be accepted.
  - 3.1.2.1 Maintain key plan with each set of construction photographs that identifies each photographic location.
- 3.1.3 Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
  - 3.1.3.1 Date and Time: Include date and time in filename for each image.
  - 3.1.3.2 Field Office Images: Maintain one set of images on file in the field office at Project Site, available at all times for reference. Identify images same as for those submitted to County.
- 3.1.4 Preconstruction Photographs: Before commencement of Design-Build Entity mobilization or make-ready work take color, digital, aerial videos of the Project Site and surrounding properties, including existing adjacent streets and parking areas to be utilized during construction. Provide copies of all videos to the County Construction Manager on two (2) separate Flash drives prior to mobilization or commencement of any make ready-work.

- 3.1.5 Periodic Construction Photographs: Take sets of aerial photographs monthly, coinciding with the cutoff date associated with each Application for Payment. To the extent possible, utilize the same vantage points to show status of construction and progress since last photographs were taken.
  
- 3.1.6 Final Completion Construction Photographs: Take six (6) aerial color photographs and six (6) interior color photographs and six (6) exterior color photographs after date of Substantial Completion for submission as Project Record Documents. County shall select three (3) desired vantage points and Design Build Entity shall provide three (3) copies of each at minimum of 16 x 20 inches, matted and professionally framed and suitable public display.
  - 3.1.6.1 Do not include date stamp.

END OF DOCUMENT

## DOCUMENT 01 33 00

### SUBMITTAL PROCEDURES

#### PART 1 - GENERAL

##### 1.1 SUMMARY

Design-Build Entity and County will jointly develop a list of submittals and Shop Drawings that are to be submitted to the County for review. Upon completion of the list, Design-Build Entity will provide County with a preliminary schedule of Shop Drawings and submittals, which will list each submittal in order by specification section and the times for submitting, reviewing, and processing each such submittal.

1.1.1 This Document describes general requirements for submittals for the Construction Phase of the Work:

- 1.1.1.1 Procedures
- 1.1.1.2 Schedule of Shop Drawing and Sample Submittals
- 1.1.1.3 Safety Plan
- 1.1.1.4 Progress Schedule
- 1.1.1.5 Product Data
- 1.1.1.6 Shop Drawings
- 1.1.1.7 Samples
- 1.1.1.8 Quality Control Submittals
  - 1.1.1.8.1 Engineering Data
  - 1.1.1.8.2 Test Reports
  - 1.1.1.8.3 Certificates
  - 1.1.1.8.4 Manufacturers' Instructions
- 1.1.1.9 Operation and Maintenance Manuals
- 1.1.1.10 Computer Programs
- 1.1.1.11 Project Record Documents

1.1.2 For Design Deliverable Requirements, see Document 01 11 14 (Summary of Work - Design Services, Preconstruction Activities, and Deliverables). Submittals as described in this Document refer only to the Construction Phase of Work with the exception of Progress Schedules and Reports which is applicable throughout both Design and Construction Phases.

##### 1.2 PROCEDURES

1.2.1 Provide submittals electronically via web-based project management system furnished by the County's Construction Manager. Some submittals shall also be provided in hard copy, at the County's request, such as Shop Drawings, Samples, Color Charts, Operation and Maintenance Manuals, Computer Programs, and Project Record Documents.

1.2.2 Transmit each item with a standard letter of transmittal in form approved by County, addressed to County Representative. Assign an identifying number to each submittal, including the Specification or Project Manual section to which the submittal applies. Utilize a system of tracking the submittal revision (e.g., .00 for the original submittal, .01 for the first revision, .02 for the second revision, etc.)

1.2.3 Identify Design-Build Entity, Subcontractor, major supplier, pertinent Drawing sheet and detail number, and Specification section number as appropriate. Identify type of submittal (Shop Drawings, product data, calculations, warranty, Sample, etc.). Provide space for Architect, engineer, and County review stamps.

- 1.2.4 Where manufacturers' standard drawings or data sheets are used, they shall be marked clearly to show those portions of the data that are applicable to this Project.
- 1.2.5 Submit Shop Drawings, Samples, product data, and other submittals (collectively, "submittals") to County for review in accordance with accepted Schedule of Submittals. It is the intent that during the Construction Phase routing of submittals to the County is for informational purposes of coordination and communication to the County Representatives except where such submittals represent deviations or substitutions from the approved construction documents then requiring County's review and approval. County reserves the right to request clarification and reconsideration by Design-Build Entity and Architect or Engineer when County disagrees with Architect's action on the submittal or feels further consideration or interpretation is warranted.
- 1.2.6 The data shown on all submittals shall be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show County the materials and equipment that Design-Build Entity proposes to provide and to enable County to review the information for the limited purposes specified below. Samples shall be identified clearly as to material, supplier, and pertinent data such as catalog numbers, the use for which it is intended, and otherwise as County may require to enable County to review the submittal. The quantity of each sample to be submitted will be as indicated in the Specification Sections.
- 1.2.7 During their review, the Architect may request clarification or interpretation from the County prior to taking action on the submittal.
- 1.2.8 At the time of each submission, Design-Build Entity shall give County specific written notice of all variations, if any, that the submittal may have from the requirements of the approved Contract Documents or approved Construction Documents, and the reasons therefore. This written notice shall be in a written communication separate from the submittal. In addition, Design-Build Entity shall cause a specific notation to be made on each submittal for the County's review and approval of each such variation.
- 1.2.9 Submittal coordination and verification is the responsibility of Design-Build Entity. Before submitting, Design-Build Entity shall have determined and verified:
  - 1.2.9.1 All field measurements (where possible), quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
  - 1.2.9.2 All materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
  - 1.2.9.3 All information relative to Design-Build Entity's sole responsibilities of design and means, methods, techniques, sequences, procedures of construction, and safety precautions and programs incident thereto.
- 1.2.10 Design-Build Entity also shall have reviewed and coordinated each submittal with other submittals and with the requirements of the Work and the Contract Documents.
- 1.2.11 Design-Build Entity's submittal to County will constitute Design-Build Entity's representation that it has satisfied its obligations under the Contract Documents, and as set forth immediately above, with respect to Design-Build Entity's review and approval of that submittal.

- 1.2.12 Submittals received from sources other than Design-Build Entity will be returned to Design-Build Entity without County's review.
- 1.2.13 Designation of work "by others", if shown in submittals prepared by a Subcontractor, Subconsultant, or supplier, shall mean that work will be the responsibility of Design-Build Entity or another Subcontractor rather than the Subcontractor, Subconsultant, or supplier who has provided the submittals.
- 1.2.14 Prior to submitting to County, each of Design-Build Entity's submittals will have been reviewed by the Architect of Record and any other designer or engineer having responsibility for the relevant discipline covering the scope of Work reflected in the submittal and it shall be marked from each of them with actions defined as follows:
  - 1.2.14.1 NO EXCEPTIONS TAKEN - Accepted subject to its compatibility with future submittals and additional partial submittals for portions of the Work not covered in this submittal. Does not constitute approval or deletion of specified or required items not shown on the submittal.
  - 1.2.14.2 MAKE CORRECTIONS NOTED (NO RESUBMISSIONS REQUIRED) - Same as NO EXCEPTIONS TAKEN as described above, except that minor corrections as noted shall be made by Design-Build Entity and verified by the Architect of Record.
  - 1.2.14.3 REVISE AND RESUBMIT - Rejected because of major inconsistencies or errors which shall be resolved or corrected by Design-Build Entity prior to subsequent review by Architect and County.
  - 1.2.14.4 REJECTED - RESUBMIT - Submitted material is incomplete, illegible, or does not conform to Drawings and Specifications in major respect, e.g., wrong size, model, capacity, or material.
  - 1.2.14.5 NOT REVIEWED - Submitted material is acknowledged by the Architect as being informational or "for the record" submittal, has not been reviewed, and is being returned to be acted upon by Design-Build Entity without review by Architect. NOT REVIEWED shall not be interpreted as Architect's acceptance or approval of the information presented in the submittal. Submittals possessing the NOT REVIEWED stamp by the Architect that later are found to contain data that is in conflict with the Contract Documents, if requested by the County shall be revised by Design-Build Entity to reflect the required corrections and shall be resubmitted by Design-Build Entity.
- 1.2.15 It shall be Design-Build Entity's responsibility to copy, conform, and distribute reviewed submittals in sufficient numbers for Design-Build Entity's files, County files, Subcontractors, and vendors.
- 1.2.16 After Architect's review of a submittal, revise and resubmit as required. Identify changes made since previous submittal.
  - 1.2.16.1 Design-Build Entity shall not begin fabrication or work that is dependent upon a submittal until Design-Build Entity has received a response from the Architect that does not include a requirement for re-submittal.
  - 1.2.16.2 Normally, submittals will be processed and returned to Design-Build Entity within fifteen (15) Business Days of receipt and shall be processed by the Architect so as not to delay Design-Build Entity's performance.

1.2.17 Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report any inability to comply with submittals.

### 1.3 SCHEDULE OF SHOP DRAWING AND SAMPLE SUBMITTALS

1.3.1 Submit preliminary Schedule of Submittals for County approval. Submit final and accepted Schedule of Submittals no later than thirty (60) Days following one hundred percent (100%) Construction Document approval of any Phase or increment package.

1.3.2 The Schedule of Submittals will be used by County to schedule activities relating to review of submittals that may need County approval. County will need to review and act upon any Shop Drawing or submittal that constitutes substitution of products, systems, or other deviation from approved Construction Documents. The Schedule of Submittals shall indicate a spreading out of submittals and early submittals of long lead-time items and of items requiring extensive review.

1.3.3 The Schedule of Submittals shall be reviewed by County and shall be revised and resubmitted until accepted by County.

### 1.4 SAFETY PROGRAM

1.4.1 Submit electronic copy and two (2) hard copies of a Safety Program specific to this Contract to County no later than fifteen (15) Days after Notice to Proceed ("NTP") with Construction Work. Reference Document 01 14 00 (Work Restrictions).

1.4.2 One (1) copy of the reviewed Safety Plan will be returned to Design-Build Entity. Design-Build Entity shall incorporate any comments from the County's review of the Safety Program, into a final Safety Program document that shall be submitted to the County as follows: one (1) electronic file and two (2) bound hard copies.

1.4.3 No On Site work shall be started until Safety Plan has been reviewed and accepted by County. Acceptance of the Safety Plan shall not affect Design-Build Entity's responsibility for maintaining a safe working place and instituting safety programs in connection with the Project. Neither the County nor any of its representatives assume any responsibility for Design-Build Entity's safety-related obligations. Design-Build Entity shall have sole responsibility for safety on and off the Site.

1.4.4 In the event that County institutes an OCIP Program, Design-Build Entity's Safety Plan must meet approval of the County's OCIP Administrator.

### 1.5 PROJECT MASTER SCHEDULE

See Document 01 32 16 (Schedules and Reports) for schedule and report requirements.

### 1.6 PRODUCT DATA

1.6.1 Within thirty (60) Days after County's approval of completed Construction Documents for either entire Project or each accepted Phase or increment of Work as may be defined by Design-Build Entity, submit one (1) electronic version of complete list of major products proposed for use, with name of the manufacturer, trade name, and model number of each product.

1.6.2 For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

- 1.6.3 Tabulate products by Specification section number.
- 1.6.4 Supplemental Data: Submit one (1) electronic version, marked to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to the Project.
- 1.6.5 Provide copies for Project Record Documents described in Document 01 77 00 (Closeout Procedures).

## 1.7 SHOP DRAWINGS

- 1.7.1 Minimum Sheet Size: 8-1/2 inches by 11 inches. All others: Multiples of 8-1/2 inches by 11 inches, 34 inches by 44 inches maximum. All project submittals will include an approved project cover sheet for Design-Build Entity, A/E, and County stamps.
- 1.7.2 Submit the number of copies which Design-Build Entity requires, plus one (1) electronic version and two (2) copies which will be retained by County and the Construction Manager.
- 1.7.3 The original will be marked with County's review comments and returned to Design-Build Entity when required as outlined in Paragraph 1.2 above.
- 1.7.4 Mark each copy to identify applicable products, models, options, and other data; supplement manufacturers' standard data to provide information unique to the Work.
- 1.7.5 Include manufacturers' installation instructions when required by Specification section.

## 1.8 SAMPLES

- 1.8.1 Submit full range of manufacturers' standard colors, textures, and patterns when County's selection is required as outlined in Paragraph 1.2 above.
- 1.8.2 Submit samples to illustrate functional and aesthetic characteristics of each product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing work.
- 1.8.3 Include identification on each sample, giving full information.
- 1.8.4 Submit two (2) samples unless otherwise specified.
- 1.8.5 Sizes: Unless otherwise specified, provide the following:
  - 1.8.5.1 Paint Chips: Manufacturers' standard
  - 1.8.5.2 Flat or Sheet Products: Minimum 6 inches square, maximum 12 inches square
  - 1.8.5.3 Linear Products: Minimum 6 inches, maximum 12 inches long
  - 1.8.5.4 Bulk Products: Minimum 1 pint, maximum 1 gallon

## 1.9 QUALITY CONTROL SUBMITTALS

- 1.9.1 Design Data:
  - 1.9.1.1 Indicate that the design data conforms to or exceeds the requirements of the Contract Documents.
  - 1.9.1.2 Submit supporting reference data, affidavits, and certifications as appropriate.

1.9.1.3 Identify conflicts with test reports, certificates, manufacturer's instructions, or specific aspect(s) of the Contract Documents.

1.9.2 Test Reports:

1.9.2.1 Indicate that the material or product conforms to or exceeds specified requirements.

1.9.2.2 Reports may be from recent or previous tests on material or product but must be acceptable to County. Comply with requirements of each individual Specification.

1.9.3 Certificates:

1.9.3.1 Indicate that the material or product conforms to or exceeds specified requirements.

1.9.3.2 Submit supporting reference data, affidavits, and certifications as appropriate.

1.9.3.3 Certificates may be recent or from previous test results on material or product but must be acceptable to County.

1.9.4 Manufacturers' Instructions:

1.9.4.1 Include manufacturers' printed instructions for delivery, storage, assembly, installation, startup, adjusting, and finishing.

1.9.4.2 Identify conflicts between manufacturers' instructions and Contract Documents.

1.10 OPERATION AND MAINTENANCE MANUALS

Refer to Document 01 78 23 (Operation and Maintenance Data) for Operation and Maintenance Manual submittal requirements.

1.11 COMPUTER PROGRAMS

When any equipment requires operation by computer programs, submit a copy of the program on appropriate USB drive plus all user manuals and guides for operating the programs and making changes in the programs for upgrading and expanding the databases. Programs must be Microsoft Windows compatible, or in a form otherwise acceptable to County. Provide required licenses to County at no additional cost.

1.12 PROJECT RECORD DOCUMENTS

Refer to submittal requirements in Document 01 78 39 (Project Record Documents).

1.13 DELAY OF SUBMITTALS

Delay of Submittals by Design-Build Entity is considered avoidable delay. Liquidated damages incurred because of late Submittals will be assessed to Design-Build Entity.

PART 2 - PRODUCTS - Not used.

PART 3 - EXECUTION - Not used.

END OF DOCUMENT

## DOCUMENT 01 41 00

### REGULATORY REQUIREMENTS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- 1.1.1 This Document includes regulatory requirements applicable to the Contract Documents.
- 1.1.2 Specific reference in the specifications to codes and regulations or requirements of regulatory agencies shall mean the latest printed edition of each adopted by the regulatory agency in effect at the date of submission to Regulatory Agency for plan review even if an earlier version was used in development of, and/or specified elsewhere in, the Project Manual or Scope of Work Documents.
- 1.1.3 Should any conditions develop not covered by the Contract Documents wherein the finished work will not comply with current codes, a Supplemental Instruction or Bulletin detailing and specifying the required work shall be submitted to and approved by the County before proceeding with the Work.

##### 1.2 REFERENCES TO REGULATORY REQUIREMENTS

- 1.2.1 Codes, laws, ordinances, rules, and regulations referred to shall have full force and effect as though printed in full in these specifications. Codes, laws, ordinances, rules, and regulations are not furnished to Design-Build Entity since Design-Build Entity is assumed to be familiar with their requirements. The listing herein of applicable codes, laws, and regulations for hazardous waste abatement work in the Contract Documents is supplied to Design-Build Entity as a courtesy and shall not limit Design-Build Entity's responsibility for complying with all applicable laws, regulations, or ordinances having application to the Work. Where conflict among the requirements or with these specifications exists, the most stringent requirements shall be used.
- 1.2.2 Conform to referenced codes, laws, ordinances, rules, and regulations.
- 1.2.3 Precedence:
  - 1.2.3.1 Where specified requirements differ from the requirements of applicable codes, ordinances and standards, the more stringent requirements shall take precedence.
  - 1.2.3.2 Where the Drawings, Plans, or Specifications require or describe products or execution of better quality, higher quantity, higher standard, or greater size than required by applicable codes, ordinances, and standards, the Drawings, Plans, and Specifications shall take precedence so long as such increase is legal.
  - 1.2.3.3 Where no requirements are identified in the Drawings, Plans, or Specifications, comply with all requirements of applicable codes, ordinances, and standards of governing Authorities Having Jurisdiction.

### 1.3 CODES

1.3.1 Codes which apply to the Contract Documents include, but are not limited to, the following:

- 1.3.1.1 California Building Code (Title 15, Part 2, Title 24, C.C.R., including, without means of limitation, §§ 16A, 102A.23, 308, 420A, 504-506, 904.2.6, 1019, and 1604)
- 1.3.1.2 California Electrical Code (Part 5, Title 24, C.C.R.)
- 1.3.1.3 California Mechanical Code (Part 3, Title 24, C.C.R.)
- 1.3.1.4 California Plumbing Code (Part 4, Title 24, C.C.R.)
- 1.3.1.5 California Elevator Safety Regulations (Part 7, Title 24, C.C.R.)
- 1.3.1.6 International Building Code
- 1.3.1.7 Uniform Plumbing Code
- 1.3.1.8 Uniform Mechanical Code
- 1.3.1.9 National Electrical Code
- 1.3.1.10 California Energy Code
- 1.3.1.11 California Fire Code

### 1.4 LAWS, ORDINANCES, RULES, AND REGULATIONS

1.4.1 During prosecution of Work to be done under the Contract Documents, comply with applicable laws, ordinances, rules, and regulations, including, but not limited to, the following:

#### 1.4.2 Federal

- 1.4.2.1 Americans With Disabilities Act of 1990 ADA
- 1.4.2.2 29 CFR, Section 1910.1001, Asbestos
- 1.4.2.3 40 CFR, Subpart M, National Emission Standards for Asbestos
- 1.4.2.4 Executive Order 11246
- 1.4.2.5 Federal Endangered Species Act
- 1.4.2.6 Clean Water Act
- 1.4.2.7 Federal Occupational Safety & Health Administration Act

#### 1.4.3 State of California

- 1.4.3.1 California Code of Regulations, Titles 5, 8, 12, 13, 15, 17, 19, 20, 21, 22, 23 24 and 25
- 1.4.3.2 California Public Contract Code
- 1.4.3.3 California Health and Safety Code
- 1.4.3.4 California Government Code
- 1.4.3.5 California Labor Code
- 1.4.3.6 California Civil Code
- 1.4.3.7 California Code of Civil Procedure
- 1.4.3.8 CPUC General Order 95, Rules for Overhead Electric Line Construction
- 1.4.3.9 CPUC General Order 128, Rules for Construction of Underground Electric Supply and Communications Systems
- 1.4.3.10 California Occupational Safety and Health Administration (Cal OSHA)
- 1.4.3.11 Occupational Safety and Health Administration (OSHA): Hazard Communications Standards
- 1.4.3.12 California Endangered Species Act
- 1.4.3.13 Water Code
- 1.4.3.14 Fish and Game Code

1.4.4 Local Agencies:

- 1.4.4.1 Bay Area Air Quality Management District
- 1.4.4.2 County of Alameda Public Work Agency
- 1.4.4.3 City of Oakland Fire Department

1.4.5 Other Requirements:

- 1.4.5.1 National Fire Protection Association (NFPA): Pamphlet 101, Life Safety (2018).
- 1.4.5.2 The following NFPA Standards apply:

	NFPA Standard	Edition
1	Installation of Sprinkler Systems	2022
2	Installation of Standpipes and Hose Systems	2022 (with CA amendments)
3	Installation of Centrifugal Fire Pumps	2022
4	Installation of Private Fire Service Mains	2022 (with CA amendments)
5	Bulk Oxygen Systems	
6	National Fire Alarm Code (as amended)	
7	Fire Doors and Fire Windows	2022
8	Smoke Control Systems	2022

- 1.4.5.3 Design-Build Entity shall comply with Standard Specifications such as California Standard Specification, ASTM, ANSI, AASHTO, AISC, Commercial or Industry Standards, Federal Specifications, NFPA, NEMA, AWWA, UL, and the like.
- 1.4.5.4 References on the Drawings, Plans, or in the Specifications to “code” or “building code” not otherwise identified shall mean the codes specified in this Document, together with all additions, amendments, changes, and interpretations adopted by code authorities of the jurisdiction.

1.4.6 Design-Build Entity shall provide the County copies of, or access to, any of the foregoing items listed in this Paragraph 1.4 for the duration of the Project within twenty-four (24) hours of any request.

1.4.7 It shall be understood that manufacturers, producers, and their agents of materials are required either to have such specifications available for reference or to be fully familiar with their requirements as pertains to their project or material.

1.4.8 Other Applicable Laws, Ordinances, and Regulations:

- 1.4.8.1 Work shall be accomplished in conformance with all applicable laws, ordinances, rules and regulations of Federal, State, and local governmental agencies and jurisdictions having authority over the Project.
- 1.4.8.2 Work shall be accomplished in conformance with all rules and regulations of public utilities and utility districts.
- 1.4.8.3 Where such laws, ordinances, rules, and regulations require more care or greater time to accomplish Work, or require better quality, higher standards, or greater size of products, Work shall be accomplished in conformance to

such requirements with no change to the Contract Time and Contract Sum, except where changes in laws, ordinances, rules, and regulations occur subsequent to the time of Qualifications and Proposal submittal.

1.4.9 Change Orders and Claims:

1.4.9.1 The Public Contract Code, including but not limited to § 7105(d)(2), and Government Code § 930.2 et seq., apply to all contract procedures for changes, time extensions, change orders (time or compensation), and claims. Federal law [*United States v. Joseph A. Holpuch Co.*, 328 US 234 (1946)] shall supplement but not supersede California law on these requirements.

1.4.9.2 Any change, waiver, or omission to implement contract change order and claim procedures shall have no legal effect unless expressly permitted in a fully executed change order approved by County and approved in writing by the County Counsel.

1.5 REGULATORY AGENCY/AUTHORITY HAVING JURISDICTION

1.5.1 Alameda County Department Public Works (“PWA”) is the Agency Having Jurisdiction (“AHJ”) over general project design and construction for On Site Work as it relates to applicable building codes. PWA will also have jurisdiction over any storm water management work. City of Dublin is the regulatory authority having jurisdiction over Project design and construction of Off Site improvements.

1.5.2 The City of Oakland Fire Department is the AHJ over matters pertaining to fire codes and life-safety issues.

1.5.3 The Alameda County Public Health Department is the agency having jurisdiction over kitchen and food service matters.

1.5.4 AHJ will designate an inspector or inspectors for Project who shall be allowed access to Project Site at any time, upon obtaining site clearance from the County.

1.5.5 AJH will require verified report forms to be filed during construction as required by the Testing, Inspection, and Observation Program established by Design-Build Entity’s Architect of Record and approved by AJH. Separate verified reports are required from Architect, each Consultant, Project Inspector, and Contractor.

1.5.6 AJH will require Building Permits for Project Components.

1.5.7 AJH will require material changes to the Project documented by RFI, Supplemental Instruction, or Change Orders stamped by the AOR or EOR to be submitted and approved prior to construction.

1.5.8 AJH will require a Licensed Contractors’ Declaration and a Worker’s Compensation Declaration.

1.6 DEFERRED APPROVAL

Where noted in Technical Specification sections, certain items of material may require Regulatory Agency and AHJ deferred approval pending submittal of shop drawings. It is the County’s intent to minimize the number of deferred submittals for this Project. For these items, Design-Build Entity shall submit details and structural calculations for anchorage and any other design documents or

calculations to comply with State of California Code of Regulations Title 24, including Table 16-B. Calculations shall be made by an Engineer registered in the State of California.

## 1.7 CONFLICTS

1.7.1 Between referenced regulatory requirements: Comply with the one establishing the more stringent requirement.

1.7.2 Between referenced regulatory requirements and the Contract Documents: Comply with the one establishing the more stringent requirement.

## 1.8 REQUIRED PROVISIONS ON CONTRACT CLAIM RESOLUTION

1.8.1 The Public Contracts Code specifies required provisions on resolving contract claims less than \$375,000, which are set forth below, and constitute a part of the Contract Documents.

1.8.1.1 For the purposes of this Document 01 41 00 (Regulatory Requirements), "Claim" means a separate demand by Design-Build Entity of \$375,000 or less for (1) a time extension; (2) payment or money or damages arising from work done by or on behalf of Design-Build Entity arising under the Contract Documents and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to; or (3) an amount the payment of which is disputed by the County. In order to qualify as a Claim, the written demand must state that it is a claim submitted under Article 12 (Claims by Design-Build Entity) of Document 00 72 53 (General Conditions) and be submitted in compliance with all of the requirements thereof. Separate claims, which total more than \$375,000, do not qualify as a "separate demand of \$375,000 or less", as referenced above, and are not subject to this Document.

1.8.1.2 A voucher, invoice, Application for Payment, or other routine or authorized form of request for payment is not a Claim under the Contract Documents. If such request is disputed as to liability or amount, then the disputed portion of the submission may be converted to a Claim under the Contract Documents by submitting a separate Claim in compliance with Contract Documents Claim submission requirements.

1.8.1.3 CAUTION: This section does not apply to tort claims and nothing in this Document is intended nor shall be construed to change the time periods for filing tort claims or actions specified by Chapter 1 and Chapter 2 of Part 3 of Division 3.6 of Title 1 of the Government Code.

### 1.8.2 PROCEDURE

1.8.2.1 The Claim must be in writing, submitted in compliance with all requirements of Article 12 (Claims by Design-Build Entity) of Document 00 72 53 (General Conditions) including, but not limited to, the time prescribed by and including the documents necessary to substantiate the Claim, pursuant to Paragraph 12.4. Claims must be filed on or before the day of final payment. Nothing in this Document is intended to extend the time limit or supersede notice requirements for the filing of claims as set forth in Article 12 or elsewhere in the Contract Documents.

1.8.2.2 For Claims of fifty thousand dollars (\$50,000) or less

- 1.8.2.2.1 The County shall respond in writing within forty-five (45) Days of receipt of the Claim, or
- 1.8.2.2.2 The County may request in writing within thirty (30) Days of receipt of the Claim, any additional documentation supporting the Claim or relating to any defenses or claims the County may have against Claimant.
- 1.8.2.3 If additional information is thereafter required, it shall be requested and provided in accordance with this Document, upon mutual agreement of the County and the Claimant.
- 1.8.2.4 The County's written response to the Claim, as further documented, shall be submitted to Claimant within fifteen (15) Days after receipt of further documentation or within a period of time no greater than taken by Claimant in producing the additional information, whichever is greater.
- 1.8.2.5 For Claims over fifty thousand dollars (\$50,000) and less than or equal to three hundred seventy-five thousand dollars (\$375,000):
  - 1.8.2.5.1 The County shall respond in writing within sixty (60) Days of receipt of the Claim, or
  - 1.8.2.5.2 The County may request in writing within thirty (30) Days of receipt of the Claim, any additional documentation supporting the Claim or relating to any defenses or claims the County may have against the Claimant.
    - 1.8.2.5.2.1 If additional information is thereafter required, it shall be requested and provided in accordance with this section, upon mutual agreement of County and Claimant;
    - 1.8.2.5.2.2 The County's written response to the Claim, as further documented, shall be submitted to the Claimant within thirty (30) Days after receipt of further documentation or within a period of time no greater than taken by the Claimant in producing the additional information, whichever is greater.
- 1.8.2.6 Meet and Confer
  - 1.8.2.6.1 If the Claimant disputes the County's written response or the County fails to respond within the time prescribed above, the Claimant shall notify the County, in writing, either within fifteen (15) Days of receipt of the County's response or within fifteen (15) Days of the County's failure to timely respond and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon demand the County will schedule a meet and confer conference within thirty (30) Days for settlement of the dispute.
  - 1.8.2.6.2 Following the meet and confer conference, if the Claim or any portion remains in dispute, Claimant may file a Claim as provided in Chapter 1 (commencing with § 900) and Chapter 2

(commencing with § 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time Claimant submits his/her/their written claim for negotiation as set forth above until the time that Claim is denied as a result of the meet and confer process herein, including any period of time utilized by the meet and confer process.

1.9 COMPLIANCE WITH AMERICANS WITH DISABILITIES ACT

- 1.9.1 Design-Build Entity acknowledges that, pursuant to the Americans with Disabilities Act (“ADA”), programs, services, and other activities provided by a public entity to the public, whether directly or through a Design-Build Entity, must be accessible to the disabled public.
- 1.9.2 Design-Build Entity shall provide the services specified in the Contract in a manner that complies with the ADA and any and all other applicable federal, state, and local disability rights legislation.
- 1.9.3 Design-Build Entity shall not discriminate against disabled persons in the provision of services, benefits, or activities provided under the Contract and further agrees that any violation of this prohibition on the part of Design-Build Entity, its employees, agents, or assigns shall constitute a material breach of the Contract.

PART 2 - PRODUCTS - Not used.

PART 3 - EXECUTION - Not used.

END OF SECTION

## DOCUMENT 01 42 00

### REFERENCES AND DEFINITIONS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- 1.1.1 This Document 01 42 00 includes reference standards, abbreviations, symbols, and definitions of capitalized terms used in the Contract Documents and not otherwise expressly defined in the Contract Document in which the capitalized term or abbreviation is used.
- 1.1.2 Material and workmanship specified by reference to number, symbol, or title of specific standard such as state standard, commercial standard, federal specifications, technical society, or trade association standard, or other similar standard shall comply with requirements of standards except when more rigid requirements are specified or required by applicable codes.
- 1.1.3 Standards referred to, except as modified herein, shall have full force and effect as though printed in the Contract Documents. Standards are not furnished to Design-Build Entity since manufacturers and trades involved are assumed to be familiar with their requirements.

##### 1.2 REFERENCE TO STANDARDS AND SPECIFICATIONS OF TECHNICAL SOCIETIES; REPORTING AND RESOLVING DISCREPANCIES

- 1.2.1 Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to the laws or regulations of any AHJ, whether such reference be specific or by implication, shall mean the latest standard, specification, manual, code, or laws or regulations in effect at the time of the Qualifications and Proposal Deadline, except as may be otherwise specifically stated in the Contract Documents.
- 1.2.2 If during the performance of the Work, Design-Build Entity discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such law or regulation applicable to the performance of the Work or of any such standard, specification, manual, or code or of any instruction of any supplier, report it in writing at once by submitting a Design Request for Information ("DRFI") as defined in Paragraph 5.4.4 of Document 00 72 53 (General Conditions) to County, and shall not proceed with the Work affected thereby until consent to do so is given by County.
- 1.2.3 Except as otherwise specifically stated in the Contract Documents or as may be provided by Change Order, Construction Change Directive ("CCD"), or Supplemental Instruction, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
  - 1.2.3.1 The provisions of any such standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or
  - 1.2.3.2 The provisions of any such laws or regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such law or regulation).

- 1.2.4 No provision of any such standard, specification, manual, code, or instruction shall be effective to change the duties and responsibilities of County or Design-Build Entity or any of its Subcontractors, Subconsultants, agents, or employees, from those set forth in the Contract Documents, nor shall it be effective to assign to County or any of its consultants, agents, representatives, or employees any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.
- 1.2.5 Design-Build Entity shall comply with the applicable portions of standards, specifications, manuals, or codes published by the technical societies, organizations, or associations, and to the laws or regulations of any AHJ referred to in the Criteria Documents.
- 1.2.6 Referenced Grades, Classes, and Types: Where an alternative or optional grade, class, or type of product or execution is included in a reference but is not identified in the Criteria Documents, provide the highest, best, and greatest of the alternatives or options for the intended use and prevailing conditions.
- 1.2.7 Job Site Copies:
  - 1.2.7.1 Design-Build Entity shall provide copies or access to reference standards identified in the Criteria Documents at the Site as needed or requested by the County in order to properly execute the Work.
  - 1.2.7.2 At a minimum, Design-Build Entity shall maintain at the Site the Safety Orders and Codes as prescribed by the State of California, Division of Industrial Safety Title 8 regulations.
- 1.2.8 Edition Date of Reference Standards and Specification:
  - 1.2.8.1 When an edition or effective date of reference standards, specifications, manuals, or codes of any technical society, organization, or association, or to the laws or regulations of any AHJ, is not given, it shall be understood to be the current edition or latest revision published as of the date the Qualifications and Proposal Deadline unless otherwise identified by date in the Contract Documents.
  - 1.2.8.2 All amendments, changes, errata, and supplements as of the applicable edition or effective date shall be included.
- 1.2.9 ASTM and ANSI References: Specifications and Standards of the American Society for Testing and Materials ("ASTM") and the American National Standards Institute ("ANSI") are identified in the Drawings and Specifications by abbreviation and number only and may not be further identified by title, date, revision, or amendment. It is presumed that Design-Build Entity is familiar with and has access to these nationally- and industry-recognized specifications and standards.

1.3 ABBREVIATIONS

- 1.3.1 Listed hereinafter are the various organizations or references which may appear in the Contract Documents, along with their respective acronyms and/or abbreviations:

<u>Reference</u>	<u>Organization / Term</u>
AA	Aluminum Association
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council

<u>Reference</u>	<u>Organization / Term</u>
AAMA	Architectural Aluminum Manufacturers Association
AAP	Affirmative Action Program
AASHTO	American Association of State Highway and Transportation Officials
ABMA	American Boiler Manufacturers Association
ABPA	American Board Products Association
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
ADAAG	Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities
AED	Association of Equipment Distributors
AGA	American Gas Association
AGC	Association of General Contractors
AHJ	Authority(ies) Having Jurisdiction, as defined in Paragraph 1.5 below.
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association, Inc.
ANSI	American National Standards Institute (formerly American Standards Association)
APA	American Plywood Association
ARI	Air-Conditioning and Refrigeration Institute
ASHRAE	American Society of Heating, Refrigeration, and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWCI	Association of the Wall and Ceiling Industries
AWPA	American Wood- Preservers Association
AWPB	American Wood Preservers Bureau
AWS	American Welding Society
AWWA	American Water Works Association
BIL	Basic Insulation Level
BIM	Building Information Modeling
BSCC	Board of State and Community Correction
Cal/OSHA	California Occupational Safety and Health Administration
Caltrans	State of California, Department of Transportation
CBC	California Building Code
CCD	Construction Change Directive
CCR	California Code of Regulations
CEC	California Electric Code
CFR	Code of Federal Regulations
CGA	Compressed Gas Association
CISPI	Cast Iron Soil Pipe Institute
CLMFI	Chain Link Fence Manufacturers Institute
CMC	California Mechanical Code
CO	Change Order
CPC	California Plumbing Code
CPM	Critical Path Method
CPUC	California Public Utilities Commission
CRA	California Redwood Association
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standards, U.S. Department of Commerce
CSA	Canadian Standards Association
CTI	Ceramic Tile Institute

<u>Reference</u>	<u>Organization / Term</u>
DHI	Door and Hardware Institute
DSA	Division of State Architect (formerly known as the Office of the State Architect)
EPA	Environmental Protection Agency
FCI	Fluid Controls Institute
FGMA	Flat Glass Marketing Association
FF&E	Furniture, Fixture, and Equipment
FM	Factory Mutual
FS	Federal Specifications
GA	Gypsum Association
HPMA	Hardwood Plywood Manufacturers Association
HVAC	Heating, Ventilating and Air Conditioning
I.D.	Identification
IACS	International Annealed Copper Standards
IAPMO	International Association of Plumbing and Mechanical Officials
ICBO	International Conference of Building Officials
ICEA	Insulated Cable Engineers Association
IEEE	Institute of Electrical and Electronic Engineers, Inc.
IES	Illuminating Engineering Society
ISA	Instrumentation Society of America
JATC	Joint Apprenticeship Training Committee
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
JV	Joint Venture
LBE	Local Business Enterprise
M.I.	Middle Initial
M/WBE	Minority and/or Woman-Owned Business Enterprise
MBE	Minority Business Enterprise
MIA	Masonry Institute of America
MIA	Marble Institute of America
MLSFA	Metal Lath/Steel Framing Association
MS	Military Specifications
MSDS	Material Safety Data Sheet
MSS	Manufacturers Standardization Society of the Valve & Fitting Industry
NAAMM	National Association of Architectural Metal Manufacturers
NACE	National Association of Corrosion Engineers
NBS	National Bureau of Standards
NEC	National Electric Code
NEMA	National Electric Manufacturers Association
NESC	National Electrical Safety Code
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Science and Technology (formerly the National Bureau of Standards)
NOFMA	National Oak Flooring Manufacturers Association
NSF	National Sanitation Foundation
NTMA	National Terrazzo & Mosaic Association
NWWDA	National Wood Windows and Doors Association
OSHA	Occupational Safety and Health Administration
OSHPD	Office of Statewide Health Planning and Department
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PDI	Plumbing and Drainage Institute
PG&E	Pacific Gas and Electric Company

<u>Reference</u>	<u>Organization / Term</u>
PM	Preventive Maintenance
PR	Proposal Request
PS	Product Standard, U. S. Department of Commerce
RFI	Request for Information
RFQ/P	Request for Qualifications and Proposals
RFS	Request for Substitution
RIS	Redwood Inspection Service
SDI	Steel Deck Institute
SFM	State of California, Office of State Fire Marshal
SIGMA	Sealed Insulating Glass Manufacturers Association
SJI	Steel Joint Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPIB	Southern Pine Inspection Bureau
SSPC	Steel Structures Painting Council
SWI	Steel Window Institute
SWPPP	Stormwater Pollution Prevention Plan
TCA	Tile Council of America
TIE	Time Impact Evaluation
UBC	Uniform Building Code
UFC	Uniform Fire Code
UL	Underwriters' Laboratories, Inc.
UMC	Uniform Mechanical Code
UPC	Uniform Plumbing Code
USA	Underground Service Alert
USC	United States Code
WCLIB	West Coast Lumber Inspection Bureau
WHI	Warnock Hersey International – a testing lab
WIC	Woodwork Institute of California
WWPA	Western Wood Products Association

1.3.2 Abbreviations in Specifications:

<u>Abbrev.</u>	<u>Definition</u>
AWG	American Wire Gauge
accord	Accordance
Co.	Company
Corp.	Corporation
cm.	centimeter (centimeters)
cu.	Cubic
Div.	Division
dia.	Diameter
ft.	foot (feet)
g./gr.	gram (grams)
gal.	gallon (gallons)
gpd	gallons per day
gpm	gallons per minute
hr.	Hour
kg.	kilogram (kilograms)
in.	inch (inches)
Inc.	Incorporated
km.	kilometer (kilometers)
Kw	Kilowatt
l.	liter (liters)
lbs.	Pounds

<u>Abbrev.</u>	<u>Definition</u>
m	meter (meters)
Mfg.	Manufacturing
Mg.	milligram (milligrams)
ml./mls.	milliliter (milliliters)
mm.	millimeter (millimeters)
No.	Number
o.c.	on center
O.D.	outside diameter
psi	pounds per square inch
psf	pounds per square foot
sq.	Square
T & G	tongue and groove
U.S.	United States
yd.	yard (yards)

### 1.3.3 Abbreviations on Drawings:

Additional abbreviations, used only on Drawings, are indicated thereon.

## 1.4 SYMBOLS

### 1.4.1 Symbols in Specifications:

<u>Symbol</u>	<u>Definition</u>
:	"shall be" or "shall" - where used within sentences or paragraphs
#1	Number
1#	Pound
&	And
%	Percent
C	Centigrade
F	Fahrenheit
°	Degree
/	per, except where used to combine words; example: power/fuel, and in that case it means and
"	inch (inches)
'	foot (feet)
@	At

### 1.4.2 Symbols on Drawings:

Symbols, used only on Drawings, are indicated thereon.

## 1.5 DEFINITIONS

### 1.5.1 General terminology used throughout the Contract Documents is as indicated below:

- 1.5.1.1 Wherever words "as directed", "as required", "as permitted", or words of like effect are used, it shall be understood that direction, requirements, or permission of the County is intended. Words "sufficient", "necessary", "proper", determined and the like shall mean sufficient, necessary, or proper in the judgment of the County. Words "approved", "acceptable", "satisfactory", "favorably reviewed" or words of like import, shall mean approved by, or acceptable to, or satisfactory to, or favorably reviewed by the County.

- 1.5.1.2 Wherever the word “may” is used, the action to which it refers is discretionary. Wherever the words “shall” or “will” are used, the action to which it refers is mandatory.
- 1.5.1.3 References throughout these documents to “Proposer” and “Design-Build Entity”, or any variations thereof, mean the same as DESIGN-BUILD ENTITY. See definition of “DESIGN-BUILD ENTITY” below.
- 1.5.2 Wherever any of the words or phrases defined below regardless of capitalization, or a pronoun used in place thereof, is used in any part of the Contract Documents, it shall have the meaning herein set forth:
  - 1.5.2.1 ADDENDA/ADDENDUM: A document(s) issued by the County prior to conclusion of the Request for Qualifications and Proposals evaluation period, which modifies, supersedes, or supplements the original Contract Documents.
  - 1.5.2.2 ADMITTED SURETY INSURER/SURETY: “Admitted Surety Insurer” and “Surety” mean a corporate insurer or a reciprocal or interinsurance exchange to which the California Insurance Commissioner has issued a certificate of authority to transact “surety insurance” in the State of California, as defined in Section 105 of the California Insurance Code.
  - 1.5.2.3 AGREEMENT (Document 00 52 00): The written document of agreement, as executed by the County and Design-Build Entity. The Agreement is the basic Contract Document that binds the parties. The Agreement defines relationships and obligations between County and the Design-Build Entity, by reference incorporates the Contract Documents; includes all Addenda prior to execution of Contract, and includes all Modifications subsequent to execution of Contract.
  - 1.5.2.4 ALLOWANCE: Estimated cost identified by the County in the Proposal Form, or identified in any incremental Final GMP Proposal by the Design-Build Entity, and included in the Contract Sum for a certain portion of the Work that has not yet been fully developed or authorized for inclusion in the Work or to permit deferral of selection of actual materials and equipment to a later date when additional information is available for evaluation, with County’s approval, or to cover unforeseen or differing Site conditions. The costs included in each Contract Sum Allowance shall be as described in Document 01 21 00 (Allowances) or as may be established any such Final GMP Proposal.
  - 1.5.2.5 ARCHITECT/ARCHITECT OF RECORD: The terms “Architect” and “Architect of Record” refer to Design-Build Entity’s lead professional architect Design-Build Team member as designated in Design-Build Entity’s Qualification Questionnaire submitted in response to County’s Request for Qualifications and Proposal whose stamp will appear on the Construction Documents, and who shall provide responsible control over the preparation and coordination of the Construction Documents for the Project, as required by California Business and Professions Code § 5535.1 et seq., and provide design and construction documentation, as well as construction administration services, for the Project.
  - 1.5.2.6 AS-BUILT DRAWINGS, SPECIFICATIONS, SHOP DRAWINGS/DOCUMENTS/BIM VC MODEL: Up to date field Drawings,

Specifications, Shop Drawings, and BIM VC MODEL marked up to reflect current construction Work changes, (including resolution of RFIs) and actual installed conditions that differ from the approved Construction Documents or clarify undocumented conditions. These Drawings, Specifications, Shop Drawings, and BIM VC Model will form the basis of Design-Build Entity's Architect's Record Drawings and must be kept up to date and available for review on the Site. Also known as redlines.

- 1.5.2.7 **AUTHORITY(IES) HAVING JURISDICTION ("AHJ"):** Any private or public agency, board, department, district, organization, or similar entity responsible for enforcing the requirements of a code, regulation, or standard, or for approving equipment, materials, an installation, or a procedure on the Project.
- 1.5.2.8 **AUTOCAD:** AutoCAD software release 14 or later.
- 1.5.2.9 **BENEFICIAL USE:** County's occupancy or use of any part of the Work, when the Project in its entirety or partially, as applicable, is: (i) ready for use or occupancy for the purposes of normal operations, except for Punch List items; and (ii) has met all the requirements outlined in the "Beneficial Use" section of the General Conditions (Document 00 72 53).
- 1.5.2.10 **BEST VALUE:** A value determined by evaluation of objective criteria that may include, but not be limited to price, features, function, life-cycle costs, experience, and past performance. A Best Value determination may involve selection of the lowest cost Proposal meeting the interests of County and the objectives of the Project.
- 1.5.2.11 **BID PACKAGE:** A part of the Construction Work for a particular Component of the Work or particular Subcontractor trades represented by a portion of the Construction Documents and performed by Design-Build Entity's Subcontractors or self-performed.
- 1.5.2.12 **BOARD OF SUPERVISORS or BOARD:** Shall mean the duly elected or appointed officials who constitute such a Board, who will act for the County in all matters pertaining to award, acceptance, or termination of the Contract.
- 1.5.2.13 **BUSINESS DAY(S):** Any day other than Saturday, Sunday, and the following days that have been designated as holidays by County. If a holiday falls on a Saturday, the preceding Friday will be the holiday. If a holiday falls on a Sunday, the following Monday will be the holiday.
- (a) New Year's Day, January 1;
  - (b) Martin Luther King Jr.'s Birthday, third Monday in January;
  - (c) Lincoln's Birthday, second Monday in February;
  - (d) Washington's Birthday, third Monday in February;
  - (e) Memorial Day, last Monday in May;
  - (f) Juneteenth, June 19;
  - (g) Independence Day, July 4;
  - (h) Labor Day, first Tuesday in September;
  - (i) Veterans' Day, November 11;
  - (j) Thanksgiving Day, fourth Thursday in November;
  - (k) The Day following Thanksgiving Day;
  - (l) Christmas Day, December 25; and

- (m) Each day appointed by the Governor of California and formally recognized by the County as a day of mourning, thanksgiving, or special observance.
- 1.5.2.14 BY COUNTY: Work that will be performed by County or its agents at the County's expense and coordinated with the Design-Build Entity.
  - 1.5.2.15 BY OTHERS: Work that is outside Scope of Work to be performed by Design-Build Entity under the Contract Documents, which will be performed by County, other contractors, or other means.
  - 1.5.2.16 CERTIFICATE FOR PAYMENT: A written representation by the County's Representative to the County, based on the Representative's evaluation of the Work and the data in the application for payment, that, to the best of the Representative's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of Work is in accordance with the Contract Documents, and Design-Build Entity is entitled to payment in the amount certified.
  - 1.5.2.17 CHANGE ORDER: A written instrument prepared by County and signed by County and Design-Build Entity, stating their agreement upon all of the following:
    - (a) a change in the Work,
    - (b) the amount of the adjustment in the Contract Sum, if any, and
    - (c) the amount of the adjustment in the Contract Time, if any.

A Change Order shall alter the Contract Documents as defined in the Change Order and shall be the method used to adjust the Contract Documents, Contract Sum, and Contract Time after County's acceptance of the Initial GMP, as provided in Document 01 26 00. .
  - 1.5.2.18 CHECKOUT: "Checkout" means the process of final setup, alignment, cleaning, operation, calibration, and testing of individual components, subsystems, or systems within the Facility and tie-in to the Interconnection Facilities, all prior to Startup.
  - 1.5.2.19 CLAIM: Claim is defined in Article 12 of Document 00 72 53 (General Conditions).
  - 1.5.2.20 COMPONENT: Work of the Project associated with a specific Site or portion of the Site, Facility, and/or building(s).
  - 1.5.2.21 CONCEALED: Work not exposed to view in the finished Work, including within or behind various construction elements.
  - 1.5.2.22 CONSTRUCTION CHANGE DIRECTIVE ("CCD"): A written order signed by the County directing a change in the Work within the general Scope of Work of the Contract consisting of additions, deletions, or other revisions, prior to agreement on the adjustment, if any to the Contract Sum and Contract Time. A CCD shall be used in the absence of total agreement on the terms of a Change Order and may, upon notice, consist of a Change Order executed by the County only.

- 1.5.2.23 **CONSTRUCTION DOCUMENTS:** The permitted Drawings (graphic and pictorial) and Specifications (written) prepared by Design-Build Entity as described in Document 01 11 14 (Summary of Work - Design Services, Preconstruction Activities, and Deliverables), which meet the requirements of the Criteria Documents and design goals of the County, setting forth in detail the requirements for permitting and construction of the Work consistent with Legal Requirements, acceptable to County and AHJs, that will enable experienced trade Subcontractors to efficiently bid, undertake, and complete the Work. The Drawings show Design-Build Entity's design, location, and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams. The Specifications consist of requirements for materials, equipment, construction systems, standards, and workmanship for the Work and performance of related services.
- 1.5.2.24 **CONSTRUCTION MANAGER:** Shall mean the authorized agent of the County at the Site of the Work identified in Document 00 21 16 (Request for Qualifications and Proposals - Instructions to Proposers).
- 1.5.2.25 **CONSTRUCTION SCHEDULE:** The construction schedule required by Document 01 32 16 (Schedules and Reports).
- 1.5.2.26 **CONSTRUCTION WORK:** The portion of the Work where Design-Build Entity provides labor, materials, furnishings, fixtures, equipment, and services, including demolition, to physically construct the Project as set forth in the Contract Documents, which shall commence when the County provides written authorization for Design-Build Entity to proceed with all or a part of the Construction Work.
- 1.5.2.27 **CONTRACT or CONTRACT DOCUMENTS:** The Contract is comprised of the Contract Documents and shall consist of the documents identified as the Contract Documents in Document 00 52 00 (Agreement), plus all Addenda and Modifications thereto.
- 1.5.2.28 **CONTRACT MODIFICATION/MODIFICATION:** "Contract Modification" or "Modification" mean a (1) written amendment to the Contract signed by both parties, (2) Change Order, (3) Unilateral Change Order, (4) Construction Change Directive, or (5) Field Change Directive. A Contract Modification may introduce or cancel specifications or terms of the Contract, while leaving its overall purpose and effect intact.
- 1.5.2.29 **CONTRACT SUM:** The total amount payable by County to Design-Build Entity for performance of the Work in accordance with the Contract Documents. The Contract Sum is comprised of the price components established in Article 8 of Document 00 52 00 (Agreement).
- 1.5.2.30 **CONTRACT TIME:** The number(s) of Days or the dates stated in the Agreement to (i) achieve Final Completion of the Work and/or (ii) complete the Work so that it is ready for final payment and is accepted.
- 1.5.2.31 **CONTRACTOR:** The individual, partnership, corporation, limited liability company, association, joint venture, or any other legal entity, who has entered into a Contract with the County for the Work of the Project. See "DESIGN-BUILD ENTITY."

- 1.5.2.32 COUNTY: The County of Alameda, a political subdivision of the State of California and party of the first part, or its duly authorized agents acting within the scope of their authority.
- 1.5.2.33 COUNTY-FURNISHED, DESIGN-BUILD ENTITY-INSTALLED: Items furnished by the County at County's expense, for installation by Design-Build Entity at Design-Build Entity's cost, designated as such under the Contract Documents.
- 1.5.2.34 COUNTY REPRESENTATIVE(S): The person or persons designated by the County pursuant to Paragraph 7.1 of Document 00 72 53 (General Conditions).
- 1.5.2.35 COUNTY'S MINIMUM REQUIREMENTS. The requirements outlined in the Criteria Documents, included in the Project Manual.
- 1.5.2.36 CRITERIA DOCUMENTS: Means the requirements developed by or for County to describe County's program requirements, needs, and objectives for the Project, including, as appropriate, use, space, price, durability, production standards, ingress and egress requirements, expandability requirements, or other criteria for the intended design and use of the Project. Criteria Documents may include conceptual documents, performance-oriented preliminary drawings, design criteria, standards, outline specifications and/or other documents provided to Design-Build Entity by County establishing the Project's basic elements and scale and their relationship to the Site. The Criteria Documents are included as exhibits to the Project Manual.
- 1.5.2.37 DAY(S): One (1) calendar day unless the word "day" is specifically modified to the contrary.
- 1.5.2.38 DEFECTIVE: An adjective which, when modifying the word "Work", refers to Work that is unsatisfactory or unsuited for the use intended, faulty, or deficient, that it does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents (including but not limited to approval of samples and "Or Equal" items), or has been damaged prior to final payment (unless responsibility for the protection thereof has been assumed by County). The County, in its sole discretion, determines whether Work is defective.
- 1.5.2.39 DESIGN-BUILD ENTITY/DESIGN-BUILD ENTITIES: A corporation, limited liability company, partnership, joint venture, or other legal entity that is able to provide appropriately licensed construction contracting, architectural, and engineering services pursuant to the Contract and referred to throughout the Contract Documents as if singular in number and neutral in gender. The term "Design-Build Entity" means Design-Build Entity or its authorized representative. References throughout these documents to "Contractor" or "Proposer" or any variations thereof shall mean Design-Build Entity.
- 1.5.2.40 DESIGN-BUILD TEAM: Design-Build Entity itself and the individuals and other entities identified by Design-Build Entity in the Qualifications and Proposal Package as members of its team.

- 1.5.2.41 DESIGN DELIVERABLES: The tangible design items prepared by or provided by Design-Build Entity as required by the Contract Documents, including without limitation, the deliverables produced pursuant to Document 01 11 14 (Summary of Work - Design Services, Preconstruction Activities, and Deliverables), the Construction Documents, including Drawings and Specifications, as well as engineering, calculations, schedules, estimates, Shop Drawings, and electronic information, including computer programs and computer generated materials, sketches, illustrations, descriptions, models (including BIM), and similar design materials.
- 1.5.2.42 DESIGN REQUEST FOR INFORMATION ("DRFI"): The procedure required by Paragraph 1.2.2 of Document 01 26 00 (Contract Modification Procedures).
- 1.5.2.43 DESIGN SCHEDULE: The design schedule required by Document 01 32 16 (Schedules and Reports).
- 1.5.2.44 DIRECT COST(S) OF THE WORK: All of Design-Build Entity's reasonable actual and direct costs of the Construction Work including labor including burden, materials, and equipment incorporated into the completed construction, sales and use taxes, testing fees, royalties and license fees, SWPPP implementation, trenching, closeout documents, final cleaning, and Environmental Impact Report ("EIR") mitigation measures, if any, and **excluding** Indirect Costs. Direct Cost of the Work specifically includes, as applicable:
- (a) (Subcontractor Costs) Total Subcontractor(s)' costs, fees, and charges for Subcontractor performed Construction Work including, Subcontractor insurance and bond costs and all other costs necessary for Subcontractor(s) to perform Work pursuant to the Contract Documents.
  - (b) (Design-Build Entity Costs) Total Design-Build Entity costs and charges for self-performed Work and all other costs necessary for Design-Build Entity to perform Work pursuant to the Contract Documents.
- 1.5.2.45 DISPUTED WORK DIRECTIVE: A unilateral written order issued by County directing Design-Build Entity to perform or continue performance of the Work or a disputed item of Work pending resolution of a Design Request for Information, Claim, or dispute concerning the scope of the Work, (e.g., whether or not such request is a change or extra work) or after a Contractor default.
- 1.5.2.46 DRAWINGS: The graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work, generally including plans, elevations, sections, details, schedules, renderings, and diagrams. County-issued Drawings are included in the Criteria Documents. Design-Build Entity-issued Drawings are included in the Construction Documents.
- 1.5.2.47 ENGINEER: As used in Division 01 of the Contract Documents, the person designated by the County authorizing such person to act as the Engineer on its behalf.

- 1.5.2.48 EQUAL: The terms “Approved Equal”, “Or Equal”, “Equal” or “Equivalent” means a material, product, equipment, method, or service approved in writing by County as being acceptable in the opinion of the County as equivalent alternate in essential attributes of quality, utility, and appearance to the material, product, equipment, method, or service specified in the Contract Documents in response to Design-Build Entity’s Request For Substitution. The burden of proof of equality of a proposed substitution is the responsibility of Design-Build Entity.
- 1.5.2.49 EXPOSED: Work exposed to view in the finished Work, including behind louvers, grilles, registers, and various other construction elements.
- 1.5.2.50 FACILITY: Same as Project.
- 1.5.2.51 FIELD CHANGE DIRECTIVE: A written work change directive to Design-Build Entity from the County, ordering alterations or modifications, which do not result in a change in Contract Sum or Contract Times, and do not substantially change the Contract Documents.
- 1.5.2.52 FINAL ACCEPTANCE: Written acceptance of the Work or completed Phase in compliance with the Contract by County through County’s Representative, Administrative Director, or the Administrative Director’s designee, whichever is applicable.
- 1.5.2.53 FINAL COMPLETION: Final Completion is the stage of performance of the Work when:
- (a) All Work required by the Contract Documents has been fully and satisfactorily completed in compliance with the Contract Documents and all Legal Requirements including, but not limited to, correction or completion of all Punch List items noted upon Substantial Completion and as directed by the County, and final cleaning;
  - (b) Design-Build Entity has delivered to County all closeout documentation required by the Contract Documents including but not limited to the closeout documentation required by Document 01 29 00 (Payment Procedures) and Document 01 77 00 (Closeout Procedures), As-Built Drawings, Record Documents/Drawings, manufacturer warranties and correction guarantees, and operations and maintenance manuals have been submitted by Design-Build Entity and reviewed and accepted by the County;
  - (c) All systems having been tested and accepted as having met the requirements of the Contract Documents;
  - (d) All required instructions and training sessions having been given to County by Design-Build Entity;
  - (e) All Work passes the County’s final inspection and the County’s Representative issues a final Certificate for Payment;
  - (f) Receipt of approved Regulatory Agency construction final certification or its equivalent has been issued covering the entire Project Site without exception or condition;

- (g) Generally, all Work, except Design-Build Entity maintenance after Final Acceptance, is completed in accordance with the Contract Documents; and
- (h) The County accepts the Work as complete and, in its discretion, records a Notice of Completion.

- 1.5.2.54 FINAL GUARANTEED MAXIMUM PRICE (“FINAL GMP” or “FGMP”): The terms “Final Guaranteed Maximum Price,” “Final GMP,” and “FGMP” mean the maximum amount that the County will pay Design-Build Entity for: (a) A/E Design & Engineering Fees through acceptance of Final GMP; (b) Design-Build Entity/Subcontractor Fees for Preconstruction Services through acceptance of Final GMP; (c) A/E Design & Engineering Fees through Final Completion; (d) Design-Build Entity/Subcontractor Fees for Preconstruction Services through Final Completion; and (e) the Direct Costs and Indirect Costs of the Construction Work, including but not limited to all obligations for closeout, warranties, and correction guarantees. The Final GMP includes all Allowances, alternates, if any, and any agreed Project Contingency. Design-Build Entity is responsible for cost overruns greater than the Final GMP, unless the Final GMP has been increased by a Change Order (only as a result of additional scope approved by the County, not price overruns, errors, or omissions). Design-Build Entity’s single proposal or aggregated incremental proposal(s) for the Final GMP, as authorized by the Contract Documents, are referred to as “Final GMP Proposal(s).”
- 1.5.2.55 FIXED PERCENTAGE RATE(S) FOR INDIRECT COSTS: The fixed percentage rates established in Design-Build Entity’s Proposal and as set forth in Article 8 of the Agreement (Document 00 52 00) to be applied to Design-Build Entity for “Indirect Costs”, as that term is defined below. Cost to be reimbursed for performance of the Work and not covered by Fixed Percentage Rates for Indirect Costs.
- 1.5.2.56 FLOAT: See Paragraph 1.2.12 of Document 01 32 16, (Schedules and Reports).
- 1.5.2.57 FORCE ACCOUNT: Work directed to be performed without prior agreement as to lump sum or unit price cost thereof, and which is to be billed at cost for labor, materials, equipment, taxes, and other costs, plus specified percentages for Indirect Costs, as described in Document 01 26 00 (Contract Modification Procedures).
- 1.5.2.58 FURNISH: To supply and deliver to the Project Site, ready for installation.
- 1.5.2.59 GENERAL CONDITIONS COSTS: See Definition in Indirect Costs below.
- 1.5.2.60 INDICATED: Shown or noted on the Drawings.
- 1.5.2.61 INDIRECT COSTS: Design-Build Entity’s costs for the following, which shall be compensated at Fixed Percentage Rates For Indirect Costs , defined above, established in Design-Build Entity’s Proposal and set forth in Article 8 of the Agreement (Document 00 52 00):
- (a) (“General Conditions Costs”) include but are not limited to, Design-Build Entity’s field services and temporary facilities including, but not limited to: On-Site personnel performing construction management,

supervision, engineering, safety, administrative, clerical, or technical support and similar On-Site services; travel costs benefits, field office facilities; temporary Project facilities, access, security, and protection; On-Site equipment and maintenance, fuel, Inspections, warranty and correction obligations, printing, shipping, mobilization, demobilization, temporary utility connection and on-going costs, dust control and track out, traffic control, cleaning, dumping and disposal, security (technology and/or guards), fire extinguishing, first aid, opening protection, temporary stairs, barricades, temporary sanitation (toilets, etc.), temporary signage, photographs, office trailer (including supplies, custodial, equipment, and furniture), storage containers or trailers, tools (owned or rented), EIR mitigation monitoring, other miscellaneous items used at the Site and required for the Work and as further defined in Paragraph 1.6 of Document 01 26 00 (Contract Modification Procedures). General Conditions Costs shall not include any costs included in Construction Overhead and Profit;

- (b) (“Construction Overhead and Profit” or “Overhead and Profit”) the all-inclusive compensation paid to Design-Build Entity, which includes but is not limited to salaries and other mandatory or customary compensation including benefits of Design-Build Entity’s employees and principals at its principal and branch offices and general and administrative expenses of Design-Build Entity’s principal and branch offices, including costs of home office, administration, accounting, clerical, legal, risk management, Off-Site construction management, Off-Site engineering, Off-Site supervision, Off-Site administrative or technical personnel, Off-Site support, home office overhead; Design-Build Entity’s capital expenses, including interest on Design-Build Entity’s capital employed for the Work; profit; and any other expenses not included in other Indirect Costs or Direct Cost of the Construction Work;
- (c) (“Payment Bond and Performance Bond Premiums”) for such bonds required by the Contract Documents; and
- (d) (“Insurance Policy Premiums”) for Design-Build Entity’s insurance required by the Contract Documents.

1.5.2.62 INITIAL GUARANTEED MAXIMUM PRICE (“INITIAL GMP” or “IGMP”): The “Initial GMP” or “IGMP” is defined in Article 3 of, and otherwise discussed, in Document 00 21 16 (Request for Qualifications and Proposals - Instructions to Proposers), Document 00 42 53 (Proposal Form) and Document 00 52 00 (Agreement).

1.5.2.63 INSPECTOR/INSPECTOR OF RECORD/SPECIAL INSPECTOR: The person(s) engaged by the County to inspect the workmanship, materials, or manner of construction of buildings or portions of buildings, to determine if such construction complies with the Contract Documents.

1.5.2.64 INSTALL: To transport and place in position, anchor, and connect and make ready for service or use.

1.5.2.65 INTERCONNECTION FACILITIES: Those protection devices, substation, metering, and other facilities that are required to permit an electrical interface

to be established between the Facility and the interconnected electric grid system owned and operated by the investor-owned utility, Pacific Gas & Electric, and regulated by the California Public Utilities Commission.

- 1.5.2.66 **KEY PERSONNEL:** Individuals critical to the success of the Project including, at a minimum, the Project Executive, Architect of Record and/or Principal in Charge, Project Manager, and A/E Designer, Senior Project Manager, Lead Construction Cost Estimator, Quality Control Manager, Project Site Construction Superintendent, Project Site Safety Manager, of Design-Build Entity and other Design-Build Team members, as applicable.
- 1.5.2.67 **LATENT:** Not apparent by reasonable inspection, including but not limited to, the inspections and research required as a condition to submitting a Qualifications and Proposal under the Contract Documents.
- 1.5.2.68 **LEGAL REQUIREMENTS:** "Legal Requirements" means laws, ordinances, rules, codes, regulations, permits, licenses, and Legal Requirements of any kind, issued by AHJs (including utilities), to the extent they apply to the Project, Facility, the Interconnection Facilities, or the Work.
- 1.5.2.69 **MATERIAL OR MATERIALS:** These words shall be construed to embrace machinery, manufactured articles, materials of construction (fabricated or otherwise), and any other classes of material to be furnished in connection with the Contract, except where a more limited meaning is indicated by context.
- 1.5.2.70 **MATERIALS AND EQUIPMENT:** "Materials and Equipment" means all materials, supplies, apparatus, equipment, machinery, and parts required for the Facility and tie-in to the Interconnection Facilities (including, spare parts consumed before Substantial Completion, or required for Checkout, Startup or Testing, or required by the terms of supplier contractors or warranties to be at the Facility prior to the Substantial Completion date). Materials and Equipment do not include construction equipment, special testing apparatus, other spare parts, or other items that do not form a part of the permanent Facility or Interconnection Facilities.
- 1.5.2.71 **METHOD OF PROCEDURE ("MOP"):** Written document outlining steps to be taken when performing Work outside Design-Build Entity's work area or outside the normal work hours. MOP will be developed by Design-Build Entity for review and acceptance by the County.
- 1.5.2.72 **MILESTONE(S):** A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion and Final Completion of all Work.
- 1.5.2.73 **MODIFICATION:** Same as Contract Modification.
- 1.5.2.74 **NOT IN CONTRACT ("NIC"):** Work that is outside the Scope of Work to be performed by Design-Build Entity under the Contract Documents.
- 1.5.2.75 **NOTICE OF AWARD:** A written notice given by the County to the responsible Proposer whose Qualifications and Proposal is determined to provide the Best Value to the County, advising that Proposer's Qualifications and Proposal and other qualifying information is acceptable to the County, requiring Proposer to fulfill the post Notice of Award requirements of

Document 00 21 16 (Request for Qualifications and Proposals - Instructions to Proposers). See Document 00 51 10 (Notice of Award).

- 1.5.2.76 **NOTICE TO PROCEED:** A written notice in the form of Document 00 55 00 (Notice to Proceed) given by the County to Design-Build Entity fixing the date on which the Contract Time will commence and on which Design-Build Entity shall start to perform Design-Build Entity's obligations for the Work under the Contract Documents, or any Phase(s) of the Work to the extent described in the Notice to Proceed and pursuant to the time indicated in the Notice to Proceed. County may issue separate Notices to Proceed for separate Phases or portions of the Work.
- 1.5.2.77 **OFF-SITE:** Outside geographical location of the Project.
- 1.5.2.78 **ON-SITE:** The geographical location of the Project.
- 1.5.2.79 **OWNER REQUEST FOR INFORMATION ("ORFI"):** A document prepared by the County requesting information regarding the design intent of the Construction Documents.
- 1.5.2.80 **PAYMENT BOND:** The bond for the Work and in the amount required by Paragraph 4.1.1.2 of Document 00 72 53 (General Conditions).
- 1.5.2.81 **PDF:** "Portable Document Format". An electronic file format that has captured all the elements of a printed document as an electronic image that you can view, navigate, print, or forward. To the extent possible, PDF files required to be submitted as part of this Project shall be formatted with text recognition such that the text can be readily searchable (also known as Optical Character Recognition ("OCR")). Large files submitted for systems, complex equipment, containing multiple topics, or otherwise comprised of numerous components shall be bookmarked to allow for efficient navigation through the file.
- 1.5.2.82 **PEER REVIEW:** The independent review(s) of Design-Build Entity's drawings and specifications by similarly licensed design professionals and construction consultants on behalf of the County.
- 1.5.2.83 **PERFORMANCE BOND:** The bond guaranteeing performance of the Work in the amount required by Paragraph 4.1.1.1 of Document 00 72 53 (General Conditions).
- 1.5.2.84 **PERFORMANCE SPECIFICATIONS:** Describe the County's minimum performance requirements for each Component of the Work of the Project.
- 1.5.2.85 **PHASE(S):** The term "Phase(s)" shall be given the same meaning as in the Agreement.
- 1.5.2.86 **PROFESSIONAL:** A professionally licensed person or entity who has a direct contract with Design-Build Entity to perform design or engineering services or any other portion of the Work.

- 1.5.2.87 PROGRESS REPORT: A periodic report submitted by Design-Build Entity to the County with progress payment requests accompanying actual Work accomplished. See Document 01 32 16 (Schedules and Reports).
- 1.5.2.88 PROGRESSIVE DESIGN-BUILD. A project delivery process in which both the design and construction of a project are procured from a single entity selected through a qualifications-based selection process at the earliest feasible stage of the project, which single entity in turn enters into construction subcontracts on a best value basis according to specified procedures.
- 1.5.2.89 PROJECT: "Project" means the Project defined in the Criteria Documents. The Project will be constructed of new Materials and Equipment, and this will be the end result of performing the Work.
- 1.5.2.90 PROJECT CONTINGENCY: An amount included in the Final GMP that the Design-Build Entity may use subject to the requirements for use of the Project Contingency in the Agreement, and only with the County's prior written authorization.
- 1.5.2.91 PROJECT MANUAL/PROJECT MANUAL DOCUMENTS: Project Manual and Project Manual Documents consist of Proposing Requirements, Contract Requirements, Conditions of the Contract, and General Requirements included in Divisions 00 and 01, and associated County's Criteria Documents attached as exhibits, applicable to each Component issued by Design-Build Entity as part of the Construction Documents.
- 1.5.2.92 PROJECT MASTER SCHEDULE: The Project Master Schedule required by Document 01 32 16 (Schedules and Reports).
- 1.5.2.93 PROPOSAL(S): The offer or proposal of a Proposer, as defined in Document 00 21 16 (Request for Qualifications and Proposals - Instructions to Proposers), submitted on the County-prescribed forms and required submissions, setting forth the qualifications, technical design and construction experience, past performance, prices, schedule, features, function, and life cycle costs, and other County-designated factors, as applicable, for the Scope of Work described in the Criteria Documents to be performed.
- 1.5.2.94 PROPOSER: Any individual, partnership, corporation, limited liability company, association, joint venture, or other legal entity submitting a Qualifications and Proposal Package for the Work, acting directly or through a duly authorized representative as a "DESIGN-BUILD ENTITY."
- 1.5.2.95 PROVIDE: Furnish and Install.
- 1.5.2.96 PUNCH LIST: The list issued by County of Work remaining to be completed after Design-Build Entity achieves Substantial Completion of the Work and is limited to minor incidental items of Work necessary to correct imperfections, which have no effect on the safety, function, or operability of the Work.
- 1.5.2.97 QUALIFICATIONS AND PROPOSAL(S)/QUALIFICATIONS AND PROPOSAL PACKAGE(S): All documents comprising Design-Build Entity's response to the Request for Qualifications and Proposals, including but not limited to executive summary, the completed Design-Built Entity Qualification

Questionnaire (Document 00 42 54) and attachments, technical and construction expertise documents, the Proposal Form and other pricing information, drawings, specifications, project manuals, renderings, narratives, building information models, exhibits, and completed forms and certificates required by Division 00 (Proposing and Contracting Requirements).

- 1.5.2.98 RECORD DOCUMENTS/RECORD DRAWINGS: Final Construction Documents issued at the end of the Project by Design-Build Entity's Architect, engineers, and designers capturing all changes shown on the As-Built Drawings and otherwise made during the course of the Project, which shall be updated in electronic format and shall be issued in both AutoCAD .dwg format and Adobe .pdf format (See "PDF"). Equivalent open-source file formats are also acceptable. .
- 1.5.2.99 REGULATORY AGENCY: The County of Alameda Public Works.
- 1.5.2.100 REQUEST FOR INFORMATION ("RFI") or ("DRFI"): A document prepared by Design-Build Entity requesting information regarding the Project or Contract Documents. The RFI/DRFI system is a means for the County to submit Contract Document clarifications or supplements to the Design-Build Entity.
- 1.5.2.101 REQUEST FOR QUALIFICATIONS AND PROPOSALS ("RFQ/P"): Document 00 21 16 (Request for Qualifications and Proposal - Instructions to Proposers) including all Addenda relating thereto.
- 1.5.2.102 REQUEST FOR SUBSTITUTION ("RFS"): A document prepared by Design-Build Entity requesting substitution of any unlisted Equal material, product, equipment, method, or service in lieu of those named in the Specifications or Drawings.
- 1.5.2.103 REQUEST FOR SUPPLEMENTAL INFORMATION: A request for information from Design-Build Entity by County during the Qualifications and Proposal submission process, or by a Regulatory Agency or AHJ in response to a Design-Build Entity submission after Contract award.
- 1.5.2.104 RFI REPLY(IES): A document consisting of supplementary details, instructions, or information issued by the County which clarifies or supplements Contract Documents, and with which Design-Build Entity shall comply. RFI Replies do not constitute changes in Contract Sum or Contract Time except as otherwise agreed in writing by the County. RFI Replies will be issued through the RFI administrative system.
- 1.5.2.105 SAMPLES: Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
- 1.5.2.106 SCOPE OF WORK: "Scope of Work" means the requirements for the Work set forth in the Scope of Work Summary in the County's Criteria Documents, attached as exhibits to the Project Manual,.
- 1.5.2.107 SHOP DRAWINGS: All drawings, diagrams, illustrations, submittals, schedules, and other data or information which are specifically prepared or assembled by or for Design-Build Entity and submitted by Design-Build Entity to illustrate some portion of the Work.

- 1.5.2.108 **SHOWN:** As indicated on Drawings, photographs, or renderings.
- 1.5.2.109 **SITE:** The particular geographical location of the Work performed pursuant to the Contract Documents. Also referred to as the Facility Site or the Component Site.
- 1.5.2.110 **SPECIAL CONDITIONS:** Special Conditions modify or supplement General Conditions to meet specific requirements for the Contract Documents and consist of Document 00 73 13 (Special Conditions). Special Conditions are sometimes also referred to as Supplemental General Conditions or Supplementary Conditions.
- 1.5.2.111 **SPECIFIED:** As written and described in the Project Manual, Design Deliverables, or Performance Specifications.
- 1.5.2.112 **STANDARD OF CARE:** See Paragraph 2.2.4 of Document 00 72 53 (General Conditions).
- 1.5.2.113 **START DATE/DATE OF COMMENCEMENT:** The dates specified by the County in Document 00 55 00 (Notice to Proceed) or otherwise, for commencement of performing portions of the Work under the Contract Documents.
- 1.5.2.114 **STARTUP:** "Startup" means the process of starting and conducting initial operations of the aggregate of systems, subsystems, and components of the Work. A necessary prerequisite of the initial operations of the aggregate systems is the processing of checking out of individual systems, subsystems, components, and auxiliaries of the Work, and on the Interconnection Facilities or other facility components with which it is connected has been completed.
- 1.5.2.115 **SUBCONTRACTOR(S) or SUBCONSULTANT(S):** An individual, partnership, corporation, limited liability company, association, joint venture, or any combination thereof, who has a direct contract with Design-Build Entity to perform a portion of the Work. The term "Subcontractor" shall not include those who supply materials only. Where the context requires, the term "Subcontractor" also includes lower-tier Subcontractors. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and neutral in gender and means a subcontractor or an authorized representative of the subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of the County.
- 1.5.2.116 **SUBSTANTIAL COMPLETION:** Substantial Completion is defined to mean the date agreed to by County when: (1) the Work or designated Portion thereof is sufficiently complete in accordance with the Contract Documents such that the County can occupy or utilize the facilities and all related and equipment for their intended use such that only minor Punch List items remain; (2) all systems included in the Work or designated Portion thereof, including but not limited to security, electronics, mechanical and electrical, shall be fully operational as confirmed by commissioning to be fully operational in compliance with approved Contract Documents; (3) all final finishes required by the Contract Documents for the Work or designated Portion thereof are in place and final cleaning is completed; (4) Design-Build Entity has provided conditional releases of mechanics' liens, and stop payment notice rights from all those providing materials and equipment as to

which the Substantial Completion application for payment relates, as well as unconditional releases of the same from the same as to the previous applications for payment for which they have not already been provided (5) Design-Build Entity has submitted to County a written certification that: (a) all remaining Work, including all Punch List Work, has been or will be completed within the number of days determined by mutual agreement of County and Design-Build Entity as specified in the Certificate of Substantial Completion; (b) written warranties, operations and maintenance manuals and reproducible As-Built Drawings, Specifications, Shop Drawings/Documents/BIM VC Model and Record Documents/Record Drawings as described in Paragraphs 1.2.3.6 and 1.5.2.99 of Document 01 42 00 (References and Definitions) and conditional releases of mechanics' liens, and stop payment notice rights from all those providing materials and equipment as to which the Substantial Completion application for payment will be completed and submitted to Owner within thirty (30) Days following the date of Substantial Completion of the Work or designated Portion and as a condition to receipt of release of retention for the Work or for the designated Portion thereof; and (6) the Design-Build Entity's Architect has issued a Certificate of Substantial Completion approved by the County. Substantial Completion of the Work or designated Portion thereof does not constitute Final Completion or Final Acceptance of the Work or designated Portion thereof. All remaining Punch List items, omissions, and defects must be completed prior to Final Completion and Final Acceptance.

- 1.5.2.117 SUPERINTENDENT(S): The representative(s) of Design-Build Entity who shall be present at the Work Site at all times during performance of the Work. Such Superintendent(s) shall at all times be fully authorized to receive and act upon instructions from the County or its authorized agent and to execute and direct the Work on behalf of Design-Build Entity.
- 1.5.2.118 SUPPLEMENTAL INSTRUCTION: Instructions or interpretations, or to order minor changes not involving adjustment of the Contract Sum or Contract Time given by County, Regulatory Agency(ies), or AHJ during the course of the Work, which may revise, add, or subtract from the Work or Criteria Documents. See Document 01 26 00 (Contract Modification Procedures).
- 1.5.2.119 TECHNICAL SPECIFICATIONS/SPECIFICATIONS: The Technical Specifications are that portion of the Design Deliverables prepared by the Design-Build Entity and authorized by the County as part of the Construction Documents for bidding and constructing the Work, consisting of the detailed written requirements for materials, equipment, systems, standards, and workmanship for the Work and performance of related services consistent with the Criteria Documents.
- 1.5.2.120 TEST OR TESTING: "Test" or "Testing" means the execution of all activities required for the performance tests.
- 1.5.2.121 TIME IMPACT ANALYSIS: See Paragraph 1.11 of Document 01 32 16 (Schedules and Reports).
- 1.5.2.122 UNDERGROUND FACILITIES: All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications,

cable television, sewage and drainage removal, traffic, or other control systems or water.

1.5.2.123 UNILATERAL CHANGE ORDER: A Unilateral Change Order is a written order signed solely by the County to adjust the Contract Sum or Contract Time, or both, only in the following instances: (1) to recover costs to County for Design-Build Entity defaults in performance; (2) for withholds and deductions allowed under the Contract Documents; (3) final quantity adjustments for unit price work that reconciles original estimated quantities in the bidding documents, if any, with final actual quantities used or for Allowances; and (4) an increase or decrease in the Contract Time consistent with the Contract Documents even though no agreement has been reached between County and Design-Build Entity.

1.5.2.124 WORK: The design, preconstruction, furnishing, and installing of all labor, materials, articles, supplies, and equipment as specified, designated, and required to fulfill the Design-Build Entity's obligations under the Contract Documents including but not limited to, those Specified in Document 00 52 00 (Agreement). Wherever the word "work" is used, rather than the word "Work", it shall be understood to have its ordinary and customary meaning.

**PART 2 - PRODUCTS - Not used.**

**PART 3 - EXECUTION - Not used.**

END OF DOCUMENT

**DOCUMENT 01 45 00**

**QUALITY CONTROL AND ASSURANCE**

**PART 1 - GENERAL**

**1.1 SUMMARY**

1.1.1 This Document includes administrative and procedural requirements for the following:

1.1.1.1 Quality Assurance and Quality Control.

1.1.1.2 Quality Control Plan.

1.1.1.3 Special Testing and Inspection.

1.1.2 Materials to be furnished under the Contract Documents are subject to testing and inspection for compliance with the Drawings and Specifications. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Design-Build Entity of responsibility for compliance with the Contract Document requirements.

1.1.2.1 Specific quality assurance and control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.

1.1.2.2 Specified tests, inspections, and related actions do not limit Design-Build Entity's other quality assurance and control procedures that facilitate compliance with the Contract Document requirements.

1.1.2.3 Requirements for Design-Build Entity to provide quality assurance and control services required by County, AHJ or Regulatory Agency are not limited by provisions of this Document.

1.1.3 Related Documents include the following:

1.1.3.1 Document 01 32 16 (Schedules and Reports)

1.1.3.2 Document 01 73 29 (Cutting and Patching)

1.1.3.3 Sections 2 through 48 Technical Specifications for specific testing and inspection requirements.

**1.2 DEFINITIONS**

1.2.1 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.

1.2.2 Quality Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by County Representative.

- 1.2.3 NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
- 1.2.4 NVLAP: A testing agency accredited according to the National Institute of Standards and Technology's (NIST's) National Voluntary Laboratory Accreditation Program.
- 1.2.5 Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
- 1.2.6 Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to AHJ, Regulatory Agency, or County Representative, to establish product performance and compliance with industry standards.
- 1.2.7 Source Quality Control Testing: Tests and inspections that are performed at the source (i.e., a plant, mill, factory, or shop).
- 1.2.8 Field Quality Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- 1.2.9 Testing Agency: An entity engaged to perform specific tests, inspections, or both that is certified as meeting the requirements applicable to the Work. Testing laboratory shall mean the same as testing agency.
- 1.2.10 Testing, Inspection, and Observation Program ("TIOP"): A program prepared by Design-Build Entity for Regulatory Agency approval prior to issuance of the building permit, pursuant to Section 7-141, California Building Standards Code, Part 1, Title 24, CCR. The program identifies the materials and tests to be performed on a project and the firm(s) and/or individual(s) responsible for performing those tests including, at a minimum, those required by applicable sections of the California Building Standards Code.
- 1.2.11 Installer/Applicator/Erector: Design-Build Entity or another entity engaged by Design-Build Entity as an employee or Subcontractor of any tier to perform a particular construction operation, including installation, erection, application, and similar operations.
- 1.2.12 Experienced: As used herein, an individual or entity that has successfully completed a minimum of five (5) previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction to work in California.

### 1.3 CONFLICTING REQUIREMENTS

- 1.3.1 General: If compliance with two (2) or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to County Representative for a decision before proceeding.
- 1.3.2 Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to County Representative for a decision before proceeding.

## 1.4 QUALITY CONTROL PERSONNEL

- 1.4.1 Quality Control Manager: Provide a Quality Control Manager at the Site to manage and implement the Quality Control Plan. The only duties and responsibilities of the Quality Control Manager will be to manage and implement the Quality Control Plan. The Quality Control Manager's duties and responsibilities include, but are not limited to:
- 1.4.1.1 Attending the Quality Control Meetings, Weekly Construction Progress Meetings, Pre-Installation Meetings, and Commissioning Meetings.
  - 1.4.1.2 Conducting Quality Control meetings.
  - 1.4.1.3 Reviewing submittals.
  - 1.4.1.4 Preparing, monitoring, and following through on Requests for Information ("RFIs"), Bulletins, Regulatory Agency Change Orders, and Deferred Approvals.
  - 1.4.1.5 Preparing, coordinating, submitting, and following through on Requests for Inspection.
  - 1.4.1.6 Ensuring work is ready for testing and testing is performed.
  - 1.4.1.7 Preparing required Quality Control certifications and documentation.
- 1.4.2 No Work or testing may be performed unless the Quality Control Manager or a Designated Alternate Quality Control Manager is on the Site. The Quality Control Manager shall report directly to an officer of Design-Build Entity who shall not be the same individual as, nor be subordinate to, the Superintendent.
- 1.4.3 Qualifications: The Quality Control Manager must be a graduate of a four (4) year accredited college program in one of the following disciplines: engineering, architecture, construction management, engineering technology, building construction, or building science with a minimum of ten (10) years' experience as a superintendent, inspector, Quality Control Manager, project manager, or construction manager on major and complex projects.
- 1.4.4 Other Quality Control Personnel: Provide additional quality control personnel (e.g., Quality Control Specialists, administrative support staff) as described in the Quality Control Plan and as required to implement the Quality Control Plan. The County, at its sole discretion, may require Design-Build Entity to assign additional quality control personnel to the Project if the County believes Design-Build Entity's assigned personnel are not capable of implementing the Quality Control Plan to the County's satisfaction. Design-Build Entity shall provide any additional personnel required by the County at no additional cost. Other active members of the Quality Control Program shall include a minimum of a full time architectural and engineering coordinator, Contractor's LEED Coordinator as defined in Document 01 81 13 (Sustainable Design Requirements), and Contractor's Commissioning Coordinator as defined in Document 01 91 13 (General Commissioning Requirements). The Quality Control Manager and supporting members' responsibility is to ensure compliance with Contract Documents and is a requirement of the Contractor Quality Control Program.

## 1.5 SUBMITTALS

- 1.5.1 Qualification Data: For testing agencies specified in Paragraph 1.6 (Quality Assurance) below, submit qualification data to demonstrate 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.
- 1.5.2 Testing, Inspection, and Observation Program: Prepare according to the requirements contained in Section 7-141 of the California Building Standards Administrative Code (Part 1, Title 24, CCR). Submit to the Regulatory Agency for approval prior to issuance of the building permit.
- 1.5.3 Reports: Reports of all tests made shall be provided regardless of whether test results indicate that the material tested is satisfactory or unsatisfactory. Samples taken but not tested shall also be reported. Prepare and submit certified written reports that include the following:
- 1.5.3.1 Date of issue.
  - 1.5.3.2 County's Project title and number.
  - 1.5.3.3 Regulatory Agency Project Number and increment number, if applicable.
  - 1.5.3.4 Name, address, and telephone number of testing agency.
  - 1.5.3.5 Dates and locations of samples and tests or inspections.
  - 1.5.3.6 Applicable Construction Drawing, detail, and Specification numbers.
  - 1.5.3.7 Names of individuals making tests and inspections.
  - 1.5.3.8 Description of the Work and test and inspection method.
  - 1.5.3.9 Identification of product and Specification Section including specified design strength or other applicable criteria.
  - 1.5.3.10 Complete test or inspection data.
  - 1.5.3.11 Test and inspection results and an interpretation of test results.
  - 1.5.3.12 Record of temperature and weather conditions at time of sample taking and testing and inspecting.
  - 1.5.3.13 Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
  - 1.5.3.14 A statement that the material or materials were sampled and tested according to the requirements of the California Code of Regulations, Title 21 or 22 and 24.
  - 1.5.3.15 Name and signature of laboratory inspector.
  - 1.5.3.16 Recommendations on retesting and re-inspecting, if any.

1.5.3.17 Reports shall be prepared according to the requirements of the TIOP and §§ 7-141 and 7-151 of the California Building Standards Code, Part 1, Title 24, CCR. Electronic copies and hard copies of each report shall be submitted as follows:

- 1.5.3.17.1 County Representative
- 1.5.3.17.2 Architect of Record (“AOR”)
- 1.5.3.17.3 Structural Engineer of Record (“SEOR”)
- 1.5.3.17.4 Design-Build Entity (2 copies)
- 1.5.3.17.5 Regulatory Agency & AHJ (2 copies)
- 1.5.3.17.6 Inspector of Record (“IOR”)

1.5.4 Permits, Licenses, and Certificates: For County’s records, 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.

1.5.5 Quality Control Plan: Prepare a plan describing procedures and methods Design-Build Entity will utilize to control the quality of the Work. At a minimum the Quality Control Plan shall include:

1.5.5.1 An organizational structure description, including Quality Control supervision, Regulatory Agency document control and inspection reporting structure. Delineate personnel training and qualification activities.

1.5.5.2 Plans and procedures for testing and inspections to verify attributes delineated in the Contract Documents, including those specified in referenced Codes and standards. Include documents that identify individual inspection or testing points and acceptance criteria, and include provisions for recording results and the responsible inspection/test personnel. This documentation shall be traceable to the particular material, items, processes, or systems evaluated, including notification requirements.

1.5.5.3 Procedures for identifying and contractually invoking the applicable technical and quality requirements delineated in the Specifications on vendors supplying materials, parts, and services.

1.5.5.4 Plans and procedures for receiving, inspecting, and accepting material and items. These shall include examination of physical condition and compliance with purchasing requirements, including markings for class type and grade, and conformance of supplied documentation. These shall also include provisions for:

1.5.5.4.1 Identifying, controlling, and processing non-conforming items, including notification of the County.

1.5.5.4.2 Inspection of materials for authenticity to preclude counterfeit parts, for items and attributes of concern identified by County.

1.5.5.4.3 Verifying for compliance and traceability, maintaining, and turnover to the County, certificates of conformance and mill certificates required by Contract Documents or codes or standards invoked, for materials received.

- 1.5.5.5 Provisions for identifying defective Work. Bring to County's attention, for consultation and possible relief, those cases where correction within the specified requirements may introduce a significant schedule penalty, personnel hazard, or compromise the quality of installed items, or is otherwise impractical.
- 1.5.5.6 Controls to assure that only the "Approved for Inspection" construction documents are utilized in the Work. This includes provisions for removing superseded versions from the work area, except where explicitly and prominently marked "Void - For Information Only"; such as to retain annotated installation data.
- 1.5.5.7 Detailed formal procedures or instructions for the performance of special processes, such as welding or concrete placement. These procedures/instructions and personnel performing special processes shall be qualified and certified as required by codes and standards invoked in the Contract Documents.
- 1.5.5.8 Controls providing for periodic calibration of testing and measurement equipment, including unique equipment identification and calibration tracking.
- 1.5.5.9 Maintain records documenting the implementation of the above activities, including tests, inspections, special process qualification and execution, vendor documentation and defective Work resolution. These records shall be indexed, protected, and retrievable for final submission to County.
- 1.5.5.10 Identify all tests and inspections that Design-Build Entity proposes to be conducted by the County.
- 1.5.5.11 Approval: The Quality Control Plan must be approved before the start of construction and shall reflect the requirements of the Regulatory Agency-approved TIOP. The County reserves the right to require revisions of the Quality Control Plan that are necessary to ensure the specified quality of the Work. The County may interview Quality Control personnel at any time to verify their submitted qualifications.
- 1.5.5.12 Changes: Design-Build Entity shall submit any requested changes to the Quality Control Plan, including changes in personnel, to the County in writing. Proposed changes must be submitted at least seven (7) Days in advance of the desired effective date of the change. No change in the Quality Control Plan shall be implemented without the County Representative's written approval.

## 1.6 QUALITY ASSURANCE

- 1.6.1 General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- 1.6.2 Installer Qualifications: Documentation demonstrating firm or individual experience in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- 1.6.3 Manufacturer Qualifications: Documentation demonstrating firm experience in fabricating 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.

- 1.6.4 Fabricator Qualifications: Documentation demonstrating firm experience in procuring and fabricating 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.
- 1.6.5 Professional Engineer Qualifications: Documentation demonstrating professional engineer who is legally qualified to practice in California and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of systems, assemblies, or products that are similar to those indicated for this Project in material, design, and extent.
- 1.6.6 Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated. Requirement for specialists shall not supersede building codes and regulations governing the Work.
- 1.6.7 Testing Agency Qualifications: Documentation demonstrating NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, including the requirements of ASTM D3666, D3740, E329, E543, and E548 as applicable; and with additional qualifications specified in individual Sections; and that is acceptable to County. All testing shall be performed under the supervision and control of a California registered professional engineer employed by the testing agency.
- 1.6.8 Factory-Authorized Service Representative Qualifications: Documentation demonstrating authorized representative of a manufacturer who is trained and approved by the manufacturer to inspect installation of the manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- 1.6.9 Preconstruction Testing: Where a testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
  - 1.6.9.1 Design-Build Entity's responsibilities include the following:
    - 1.6.9.1.1 Provide test specimens representative of proposed products and construction.
    - 1.6.9.1.2 Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
    - 1.6.9.1.3 Provide sizes and configurations of test assemblies to adequately demonstrate capability of products to comply with performance requirements.
    - 1.6.9.1.4 Build site-assembled test assemblies using installers who will perform same tasks for Project.
    - 1.6.9.1.5 When testing is complete, remove test specimens and assemblies; do not reuse products on Project.

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

## 1.7 QUALITY CONTROL

- 1.7.1 County Responsibilities: Where quality control services are indicated as County's responsibility, County will engage a qualified testing agency approved by the Regulatory Agency to perform these services.
  - 1.7.1.1 Specified inspection and testing shall be performed in accordance with Part 1, Title 24, Article 4, Paragraph 7-149, CCR.
  - 1.7.1.2 County will furnish Design-Build Entity with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspections they are engaged to perform.
  - 1.7.1.3 Payment for these services will be by the County.
  - 1.7.1.4 Costs for canceled inspections, additional inspections for retesting and re-inspecting any corrective work, construction that was incomplete, or replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Design-Build Entity, and the Contract Sum will be adjusted by Change Order.
  - 1.7.1.5 Inspection and associated cost of work related to means and methods that is not part of the permanent completed Project such as temporary structures, bracing, shoring, fall protection, scaffolding, and the like is the responsibility of Design-Build Entity.
- 1.7.2 Inspector or Special Inspector: The County shall employ and assign an Inspector or Special Inspector to the Work in accordance with State and County requirements. The Inspector's duties are specifically defined in Title 24. The Work in all stages of progress shall be subject to the continuous observation of the Inspector. The Inspector shall have free access to all parts of the Work at any time. Design-Build Entity shall keep the Inspector fully informed regarding the progress and manner of the Work and the character of the materials. Inspection of the Work shall not relieve Design-Build Entity of any obligation contained in the Contract Documents.
- 1.7.3 Design-Build Entity's Responsibilities: Tests and inspections not explicitly assigned to County are Design-Build Entity's responsibility. Perform quality control services required by the Regulatory Agency, whether specified or not.
  - 1.7.3.1 Where services are indicated as Design-Build Entity's responsibility, engage a qualified testing agency to perform these quality control services. Design-Build Entity shall not employ same entity engaged by County.
  - 1.7.3.2 Notify testing agencies, the IOR, and the County Representative at least seventy-two (72) hours in advance of time when Work that requires testing or inspecting will be performed.

- 1.7.3.3 Where quality control services are indicated as Design-Build Entity's responsibility, submit a certified written report, in duplicate, of each quality control service to the County Representative.
- 1.7.3.4 Testing and inspecting requested by Design-Build Entity and not required by the Contract Documents are Design-Build Entity's responsibility.
- 1.7.3.5 Submit additional copies of each written report directly to Authorities Having Jurisdiction, when so requested by the AHJ or directed by the County Representative.
- 1.7.3.6 Do not cover work before required tests and inspections are performed (refer to Document 00 72 53 (General Conditions)).
- 1.7.3.7 Design-Build Entity shall schedule construction activities so that costs of inspection to the Owner will be kept to a minimum.
- 1.7.4 Disqualified Material: Material shipped or delivered to the site by Design-Build Entity from the source of supply prior to satisfactorily passing required tests or inspections, or prior to the receipt of a notice from the County Representative that such testing or inspection is not required, shall not be incorporated into the Work.
- 1.7.5 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 Document 01 33 00 (Submittal Procedures).
- 1.7.6 Retesting / Re-Inspecting: Where the original tests or inspections were County's responsibility, the County will provide retesting and re-inspection for construction that replaces Work that failed to comply with the Contract Documents. Design-Build Entity shall provide quality control services for the new work prior to County retesting or re-inspection.
  - 1.7.6.1 If such additional tests or inspections establish that such portion of the Work fails to comply with the Contract Documents, all costs of such additional tests and inspections, and all other costs resulting from such failure, including compensation for County Representative, County hired Inspectors and County's consultants shall be deducted from the Contract Sum by Change Order.
  - 1.7.6.2 In addition, Design-Build Entity shall pay for:
    - 1.7.6.2.1 Additional costs, including compensation for travel and daily living expenses which are beyond normal inspection costs, when the County's Testing Agency is required to conduct inspections outside of the San Francisco Bay area.
    - 1.7.6.2.2 Cost of retesting construction revised or replaced by Design-Build Entity, where required tests were performed on original construction.
    - 1.7.6.2.3 Cost of testing or retesting construction used as temporary facilities by Design-Build Entity.
    - 1.7.6.2.4 Costs of additional construction testing due to Design-Build Entity's substitutions.

- 1.7.7 Testing Agency Responsibilities: Cooperate with County Representative and Design-Build Entity in performance of duties. Provide qualified personnel to perform required tests and inspections:
- 1.7.7.1 Notify County Representative and Design-Build Entity promptly of irregularities or deficiencies observed in the Work during performance of services.
  - 1.7.7.2 Determine the location(s) from which test samples will be taken and in which in-situ tests are conducted.
  - 1.7.7.3 Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
  - 1.7.7.4 Submit a certified written report, electronically and in duplicate, of each test, inspection, and similar quality control service.
  - 1.7.7.5 Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
  - 1.7.7.6 Do not perform any duties of Design-Build Entity.
  - 1.7.7.7 Submit two (2) copies of a verified report to the Regulatory Agency covering all tests and inspections that are required by the TIOP during the progress of the Work. The report shall be furnished each time that the Work is suspended, covering the tests completed up to that time, at the completion of the Work, covering all tests, and as otherwise required by the TIOP.
- 1.7.8 Associated Services: Design-Build Entity shall cooperate with agencies performing required tests, inspections, and similar quality control services, and provide reasonable auxiliary services as requested. Notify AHJ sufficiently in advance of operations to permit assignment of personnel. Provide the following:
- 1.7.8.1 Access to the Work.
  - 1.7.8.2 Incidental labor and facilities necessary to facilitate tests and inspections.
  - 1.7.8.3 Adequate quantities of representative samples of materials that require testing and inspecting. Assist AHJ in obtaining samples.
  - 1.7.8.4 Facilities for storage and field curing of test samples.
  - 1.7.8.5 Delivery of specified quantities of representative samples of materials proposed for use as specified to testing agencies.
  - 1.7.8.6 Preliminary design mix proposed for use for material mixes that require control by testing agency.
  - 1.7.8.7 Security and protection for samples and for testing and inspecting equipment at Site.
  - 1.7.8.8 The County will be responsible for all City of Dublin (e.g., Department of Public Works, Water Department, Fire Department) inspection, review, and construction permit costs. Costs for other construction process related permits such as encroachment permits for use of City parking space or street closures shall be the responsibility of Design-Build Entity.

- 1.7.9 Coordination: Coordinate sequence of activities to accommodate required quality assurance and quality control services with a minimum of delay and to avoid the need to remove and replace construction to accommodate testing and inspecting.
- 1.7.9.1 Schedule times for tests, inspections, obtaining samples, and similar activities.
- 1.7.9.2 Do not cover any piping, wiring, ducts, or other installations until they have been inspected and approved by the Regulatory Agency Building Inspector or certified, if certification is required.
- 1.7.10 Implementation of the TIOP: If the Regulatory Agency requires a TIOP that lists the tests and inspections to be included in the Specifications for the project, Design-Build Entity will adhere to those requirements.

## 1.8 SPECIAL TESTS AND INSPECTIONS

- 1.8.1 Special Tests and Inspections: The County will engage a qualified special inspector to conduct special tests and inspections required by the California Building Codes. The responsibilities of the Special Inspector are as follows:
- 1.8.1.1 Verifying that manufacturer maintains detailed fabrication and quality control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
- 1.8.1.2 Notifying County Representative promptly of irregularities and deficiencies observed in the Work during performance of its services.
- 1.8.1.3 Submitting a certified written report of each test, inspection, and similar quality control service to County Representative with copy to Design-Build Entity.
- 1.8.1.4 Submitting a final report of special tests and inspections at completion, which includes a list of unresolved deficiencies.
- 1.8.1.5 Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- 1.8.1.6 Retesting and re-inspecting corrected work, as needed.
- 1.8.2 The Regulatory Agency shall review and approve the list of special tests and inspections for accuracy and completeness as part of the TIOP.
- 1.8.3 The Regulatory Agency field staff shall review and approve the agencies and/or individuals conducting the special tests and inspections prior to issuing the building permit or prior to the commencement of related work.

## PART 2 - PRODUCTS

Not used.

## **PART 3 - EXECUTION**

### **3.1 INSPECTION**

- 3.1.1 Design-Build Entity shall provide access to the Work including the shops where the Work is in preparation, at all times for the purpose of inspection. Design-Build Entity shall maintain proper facilities and provide safe access for such inspection at all times.
- 3.1.2 The County shall have the right to reject materials and workmanship that are defective, or to require their correction. Rejected workmanship shall be satisfactorily corrected and rejected materials shall be removed from the Site without charge to the County.
- 3.1.3 The County may make an examination of Work already completed by requiring Design-Build Entity to remove or tear out such Work at any time before final acceptance of the Work. Upon request, Design-Build Entity shall provide all facilities, labor, and materials necessary to remove the portion of the Work designated by the County Representative. If such Work is found to be defective in any respect due to the fault of Design-Build Entity or its Subcontractors, Design-Build Entity shall be responsible for all expenses of such examination and satisfactory reconstruction. If such Work is found to meet the requirements of the Contract Documents, the additional cost of labor and materials involved in the examination shall be allowed to Design-Build Entity.

### **3.2 QUALITY CONTROL REPORTS**

- 3.2.1 Frequency: Reports are required for each day that Work is performed, for every seven (7) consecutive Days of no work, and on the last day of a no-work period. Account for each day throughout the life of the Contract. The reporting of Work shall be identified by Specification number and title and terminology consistent with the Contract Schedule. Design-Build Entity Quality Control Reports shall be prepared, signed, and dated by the Quality Control Manager and shall contain the following information:
  - 3.2.1.1 Identify the part or parts of the Work that is the subject of the report.
  - 3.2.1.2 Indicate, as applicable, that for this portion of the Work, the drawings and specifications have been reviewed, submittals have been approved, materials comply with approved submittals, materials are stored properly, preliminary work was done correctly, the testing plan has been reviewed, and work methods and schedule have been discussed.
  - 3.2.1.3 Indicate, as applicable, that for this portion of the Work, the preliminary work was done correctly, samples have been prepared and approved, the workmanship is satisfactory, test results are acceptable, work is in compliance with the Contract Documents, and the required testing has been performed. Include a list of who performed the tests.
  - 3.2.1.4 Results of Off Site quality control work, if applicable, including actions taken.
  - 3.2.1.5 List any rework items identified but not corrected by close of business.
  - 3.2.1.6 List the rework items corrected from the rework items list along with the corrective action taken.
  - 3.2.1.7 Include a "Comments" section in the report that contains pertinent information including directions received, quality control problem areas, deviations from the Quality Control Plan, construction deficiencies encountered, Quality

Control meetings held, acknowledgement that as-built drawings have been updated, corrective direction given by the Quality Control Manager, and corrective action taken by Design-Build Entity.

3.2.1.8 Contractor Quality Control Report certification.

### 3.3 TEST AND INSPECTION LOG

3.3.1 Prepare a sequentially numbered record of tests and inspections organized by Regulatory Agency project. Include the following:

3.3.1.1 Request for Inspection.

3.3.1.2 Date test or inspection was conducted.

3.3.1.3 Description of the Work tested or inspected.

3.3.1.4 Applicable Construction Drawing and Specification numbers.

3.3.1.5 Date test or inspection results were transmitted to County Representative.

3.3.1.6 Identification of testing agency or special inspector conducting test or inspection.

3.3.2 Maintain log at Site. Post changes and modifications as they occur. Provide access to test and inspection log for County Representative's reference during normal working hours.

### 3.4 REPAIR AND PROTECTION

3.4.1 General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes. Comply with the Contract Document requirements for Document 01 73 29 (Cutting and Patching).

3.4.2 Protect construction exposed by or for quality control service activities.

3.4.3 Repair and protection are Design-Build Entity's responsibility, regardless of the assignment of responsibility for quality control services.

### 3.5 GEOTECHNICAL ENGINEERING

3.5.1 The geotechnical engineer or his representative will provide the following tests and inspections:

3.5.1.1 Continuous inspection of fill placement.

3.5.1.2 Evaluation of onsite and imported earth materials before placement.

3.5.1.3 Field test fill and earth backfill as placed and compacted.

3.5.1.4 Inspect excavations and subgrade before concrete is placed.

3.5.1.5 Provide continuous inspection of pile boring.

- 3.5.1.6 Provide periodic inspection of open excavations, embankments, and other cuts or vertical surfaces of earth.
- 3.5.1.7 The Geotechnical Engineer will submit reports of tests and inspections. These reports will indicate compliance or noncompliance with the Contract Documents, results of compaction tests and that soil conditions encountered do or do not confirm anticipated conditions and support their design recommendations.
- 3.5.2 Design-Build Entity shall remove unsatisfactory material, re-compact, adjust moisture, place new material, or in the case of excavations, provide proper protective measures, perform other operations necessary, as determined by the geotechnical engineer and directed by the County Representative, whose decisions and directions will be considered final.
- 3.5.3 Soils Test and Inspection Procedure
  - 3.5.3.1 Allow sufficient time for testing and evaluation of results before material is needed. The Geotechnical Engineer will be the sole and final judge of suitability of all materials.
  - 3.5.3.2 Laboratory compaction tests to be used will be in accordance with ASTM D 1557.
  - 3.5.3.3 Field density tests will be made in accordance with ASTM D 1556.
  - 3.5.3.4 The number of tests will be determined by the Geotechnical Engineer and County Representative. Materials in question may not be used, pending test results.
  - 3.5.3.5 The Geotechnical Engineer will visually or otherwise examine excavations and embankments.
- 3.6 CONCRETE TESTS AND INSPECTIONS
  - 3.6.1 Tests
    - 3.6.1.1 Notify IOR, County Representative, and testing agency of brand and type of cement and sources of aggregates in time for review, sampling, and testing. Test cement in accordance with Title 24, 1928 B.1
    - 3.6.1.2 Aggregate: The County's testing agency will test at least one (1) sample for every two hundred (200) cubic yards of aggregate. Aggregates from a known source of supply that have shown by actual service to produce concrete of the required quality will be tested only for gradation and deleterious substances.
    - 3.6.1.3 Obtain at least one (1) set of samples for strength tests of each separate design mix of concrete placed each day. Frequency of sampling shall be not less than once per day, nor less than once for each fifty (50) cubic yards of concrete, nor less than once per 2,000 square feet of surface area for slabs or walls. Obtain one additional set of samples for testing at the start of concrete for each class of concrete, and whenever the mix or aggregate is changed.
    - 3.6.1.4 One set of samples consists of four cylinders.

- 3.6.1.5 Cylinders will be taken so as to represent as nearly as possible the batch of concrete from which they are taken. Sampling procedures shall conform to ASTM C 172.
- 3.6.1.6 Test cylinders shall be made and cured in compliance with ASTM C 31, except as modified hereinafter. Tests will comply with ACI 301 for strength, slump, and air entrainment tests.
- 3.6.1.7 Test cylinders from respective batches, one at age of seven (7) Days, and two at age twenty-eight (28) Days. The fourth cylinder shall be held in reserve and tested only at the direction of the IOR, SEOR, or County Representative. Cylinder testing procedures shall conform to ASTM C 39 for strength.
- 3.6.1.8 Slump tests shall be taken as required by Testing Laboratory to certify compliance with the Contract Documents. Slump shall be tested in accordance with ASTM C 143.
- 3.6.1.9 Minimum compressive strength of test cylinders, in pounds per square inch, shall not be less than the specified required design strength.
- 3.6.1.10 If minimum strengths of test cylinder fall below those specified, IOR or County Representative may require test cores from hardened concrete to be taken and tested. Each core test, if taken shall consist of three (3) cores. The cost of such cores and tests shall be borne by Design-Build Entity. Cores shall be taken in accordance with ASTM C 42, from locations selected by the IOR or County Representative. Design-Build Entity shall repair core holes with a non-shrinking natural aggregate grout. Concrete testing by coring shall be considered acceptable if the average strength of the three (3) cores is equal to at least .85 of the minimum specified twenty-eight (28) day strength and if no single core strength is less than five hundred (500) psi below the twenty-eight (28) day strength.

### 3.6.2 Concrete Inspections

An authorized inspector from the testing agency shall be present at all times during placing of structural cast-in-place concrete. The inspector shall inspect and accept the accuracy of all reinforcing steel before concrete is placed. Concrete construction activities shall not proceed until inspections are complete and the inspected construction is approved.

### 3.6.3 Concrete Plant Inspection

3.6.3.1 Structural concrete manufacturer(s) shall deliver a certificate in accordance with ASTM C 94, Section 15.1, and all items of Section 15.2 with the addition of type and brand of cement and admixtures, source, and identification of aggregates to the Inspector with each mixer truck. Certificates shall be from a public weighmaster. The inspector shall not accept concrete that is not accompanied and identified by a certificate from a batch plant inspector, and that does not correspond with the mix design submitted by Design-Build Entity and approved by the testing agency/laboratory.

3.6.3.2 Concrete shall be mixed at certified automatic concrete batch plants and shall have quality control as follows:

3.6.3.2.1 Laboratory designed mixes using adequate cement factors.

- 3.6.3.2.2 The testing agency shall perform continuous batch plant inspection.
- 3.6.3.2.3 Compliance with California Building Code (CBC) Standard 19-3.
- 3.6.3.2.4 Periodic inspection of quality of materials used may be made by testing laboratory acceptable to IOR or County Representative.

### 3.7 HIGH-STRENGTH GROUT

- 3.7.1 This Paragraph applies to structural grout used below base plates and similar applications.
- 3.7.2 The placement of grout materials will be continuously inspected by the County's testing agency.
- 3.7.3 Grout compressive strength testing: The County will obtain a set of three (3) samples from each batch. Samples will be tested at one (1) or three (3) days and seven (7) days following mixing. Compressive strengths shall exceed the manufacturer's published minimum strengths or eighty percent (80%) of their published typical compressive strengths.

### 3.8 EXPANSION ANCHOR BOLTS (TITLE 24, 1925 B.3.5)

- 3.8.1 Expansion type concrete anchor bolts shall be Hilti Kwik Bolt II or as indicated on the approved Construction Documents. Other brands of similar anchors will be acceptable with demonstration of equivalency. Submit manufacturer's specifications and ICBO reports. All anchors shall be installed with special inspection in accordance with the requirements of the Building Code.
- 3.8.2 Fifty percent (50%) of the anchors or alternate bolts in any group arrangement shall be proof tested in tension or torque, as specified on the drawings.
- 3.8.3 Testing Requirements:
  - 3.8.3.1 Anchor diameter refers to the thread size.
  - 3.8.3.2 Apply proof test loads to anchors without removing the nut, if possible. If not possible, remove nut and install a threaded coupler to the same tightness as the original nut using a torque wrench and apply load.
  - 3.8.3.3 Reaction loads from test fixtures may be applied close to the anchor being tested, provided the anchor is not restrained from withdrawing by the fixture(s).
  - 3.8.3.4 Test equipment is to be calibrated by an approved testing laboratory in accordance with standard recognized procedures.
  - 3.8.3.5 The following criteria are applicable for the approval of installed anchors:
    - 3.8.3.5.1 Hydraulic Ram Method: The anchor should have no observable movement at the applicable test load. For wedge and sleeve type anchors, a practical way to determine observable movement is that the washer under the nut becomes loose.
    - 3.8.3.5.2 Torque Wrench Method: The applicable test torque must be reached within the following limits:

3.8.3.5.2.1 One half (1/2) turn of the nut.

3.8.3.5.2.2 One quarter (1/4) turn of the nut for the 3/8" sleeve anchor only.

3.8.3.5.3 Testing should occur a minimum of twenty-four (24) hours after installation of the subject anchors.

### 3.9 ADHESIVE ANCHORS

3.9.1 Installation Testing: Fifty percent (50%) of the anchors shall be pull-tested.

3.9.2 Proof Test Load: Pull test to twice the ICBO evaluation report design tension values or as indicated on the drawings.

3.9.3 Inspection: Installation of adhesive anchors will be continuously inspected in accordance with the requirements of the California Building Code § 1701, and the appropriate ICBO evaluation report.

### 3.10 EPOXY AND CEMENTITIOUS GROUTED DOWELS

3.10.1 Initial Testing: Install three (3) anchors for each anchor size and installation position planned in allocation acceptable to the IOR or County Representative. These anchors shall not be incorporated into the finished construction. The testing agency will pull-test these anchors at one hundred twenty-five percent (125%) of the values specified on the drawings.

3.10.2 Testing: The testing agency will pull-test fifty percent (50%) of the dowels in accordance with the schedule shown on the drawings. If any failures occur, the testing agency will pull-test one hundred percent (100%) of dowels in the vicinity or placed with the same batch of grout until at least twenty (20) tests demonstrate compliance. Design-Build Entity shall bear the cost of replacing failed dowels and re-inspection.

3.10.3 Inspection: Installation of epoxy grouted dowels will be continuously inspected in accordance with the California Building Code § 1701, and the appropriate ICBO evaluation report.

### 3.11 REINFORCING STEEL

#### 3.11.1 Tests

3.11.1.1 Tests shall be performed before the delivery of steel to the Site. Steel that does not meet specifications shall not be shipped to the Project.

3.11.1.2 Testing procedure shall conform to ASTM A615.

3.11.1.3 Sample at the place of distribution, before shipment. Make one (1) tensile strength test and one (1) bending test from samples out of 10 tons, or fraction thereof, each size and kind of reinforcing steel, where taken from bundles as delivered from the mill and properly identified as to heat number. Mill analysis shall accompany report. Where identification number cannot be ascertained, or where random samples are taken, make one (1) series of tests from each two and a half (2-1/2) tons, or fraction thereof, of each size and kind of reinforcing steel. Samples shall include not fewer than two (2) pieces, each eighteen (18) inches long, of each size and kind of reinforcing steel.

3.11.1.4 Welds: Reinforcing bar welds shall be inspected. Tests of reinforcing bar welds shall be in accordance with ASTM E 709 and AWS D1.4. Chemical testing of reinforcing bars for welding shall conform to Title 24, 2603 B.5.2.

3.11.2 Inspector will inspect all reinforcement for concrete construction for size, dimensions, locations, and proper placement. Special Inspector required for welding as required by Title 24, 1928 B.12. Inspector shall be present during welding of all reinforced steel.

### 3.12 MASONRY

#### 3.12.1 Job Inspector

3.12.1.1 All masonry work will be continuously inspected during laying and grouting by an inspector specially trained in such inspections. The inspector shall make test samples and perform such tests as are required.

3.12.1.2 The inspector shall check the materials, details of construction and construction procedure. The inspector shall furnish a verified report that of his own personal knowledge the work covered by the report has been performed and materials used and installed are in every particular in accordance with, and in conformity to, the duly approved drawings and specifications.

#### 3.12.2 Stone Veneer

All veneer shall be continuously inspected as required by the CCR, Title 24, Part 2, Volume I, Section 1403 A.6 and the enforcement agency (Regulatory Agency).

### 3.13 STRUCTURAL STEEL INCLUDING MISCELLANEOUS STEEL

3.13.1 Mill certificates or affidavits and manufacturers' certifications shall be supplied to the inspector for verification of steel materials. Testing agency shall be notified at least three (3) working days in advance of fabrication and supplied with the reports so that the inspector can make a shop inspection of the steel.

3.13.2 Inspection requests shall be based on Title 24, Part 2, California Building Code, Volume 2, Seismic Provisions for Structural Steel Buildings of the American Institute of Steel Construction, 2002.

3.13.3 Identify and mark steel in accordance with Section 2202B. Structural steel properly identified need not be tested.

3.13.4 Tests of Steel Materials: If structural steel cannot be identified by heat or melt numbers, or if its source is questionable, not less than one (1) tension test and one (1) bend test will be made for each five tons or fractional part thereof. The cost of such testing will be borne by Design-Build Entity.

#### 3.13.5 Testing and Inspection of Structural Steel:

3.13.5.1 Testing agency will visit the fabricator's plant to verify that materials used check with the mill tests, affidavits of test reports, and that fabrication and welding procedures meet specifications.

3.13.5.2 Testing agency shall visually check fabricated steel delivered to the Project against the working and reviewed shop drawings for compliance, and make physical tests and measurements as required to meet the Specifications.

- 3.13.5.3 Inspection of welding shall be in accordance with the requirements of section 2212 B.5.
- 3.13.5.4 Erection Inspection: Testing agency will visually inspect bolted and field welded connections, perform such additional tests and inspections of the field work as are required by the Regulatory Agency or County Representative and prepare test reports for the approval.
- 3.13.6 Ultrasonic Testing: All complete penetration multi-pass groove welds will be ultrasonically tested:
  - 3.13.6.1 The County's testing agency will perform ultrasonic testing immediately after welding is complete. A second ultrasonic testing will be performed near the end of field welding for at least twenty-five percent (25%) of the field welded groove welds.
  - 3.13.6.2 All defective welds shall be repaired and retested with ultrasonic equipment.
  - 3.13.6.3 When ultrasonic indications arising from the weld root can be interpreted as either a weld defect or the backing strip itself, the backing strip shall be removed at Design-Build Entity's expense and, if no root defect is visible, the weld shall be retested. If no defect is indicated on this retest, and no significant amount of the base and weld metal have been removed, no further repair or welding is necessary. If a defect is indicated, it shall be repaired at Design-Build Entity's expense.
  - 3.13.6.4 The ultrasonic instrumentation shall be calibrated by the technician to evaluate the quality of the welds in accordance with AWS D1.1.
  - 3.13.6.5 Should defects appear in welds tested, repairs shall be similarly inspected at Design-Build Entity's expense and at the direction of the IOR, SEOR, or County Representative until satisfactory performance is assured.
  - 3.13.6.6 Other methods of inspection, for example, x-ray, gamma ray, magnetic particle, or dye penetrant, may be used on welds if deemed necessary by the IOR, SEOR, or County Representative.
- 3.13.7 The testing agency will review welding procedure specifications and related documentation to verify compliance with AWS and the Contract Documents.
- 3.14 HIGH-STRENGTH BOLTS, NUTS AND WASHERS
  - 3.14.1 Material Tests: High-strength bolts, nuts and washers will be sampled and tested in accordance with the requirements of the specification for High-Strength Bolts for Structural Steel Joints, including Suitable Nuts and Plain Hardened Washers, ASTM A325, or for Quenched and Tempered Alloy Steel Bolts for Structural Steel Joints, ASTM 490, latest editions, details of construction, and installation procedure.
  - 3.14.2 Inspection of High-Strength Bolt Installation: Inspection of high-strength bolt installations shall be made in accordance with Title 24, Section 2213B by an inspector specially approved for that purpose by Regulatory Agency. The inspector will check the materials, equipment, details of construction, and installation procedure. The inspector shall furnish Design-Build Entity, County Representative, and Regulatory Agency with a report that the Work has been completed in every respect in compliance with the approved Drawings and Specifications.

### 3.15 METAL DECKING

#### 3.15.1 Tests and Inspections:

3.15.1.1 Inspection by a qualified welding inspector of all deck welding will be made in accordance with CBC Chapter 17.

#### 3.15.1.2 Materials Testing:

3.15.1.2.1 Identified Steel: Materials testing is waived for steel identified in accordance with CBC Section 2203.

3.15.1.2.2 Unidentified Steel: Steel will be sampled and testing to confirm compliance with the strength and chemical requirements of the appropriate ASTM standard. Frequency of sampling will be as determined by the IOR or County Representative. Design-Build Entity shall supply samples and test pieces and provide facilities for inspection without extra charge.

3.15.2 Inspection shall be in accordance with the CBC Standard 27-6. Inspection of steel welding shall be made to ensure that seam welds and puddle welds are made in accordance with the Drawings and Specifications. Inspection shall ensure that proper electrodes, current, travel, and speed are used, and that no cracks, serious undercutting, overlap, surface holes or slag inclusions occur. The provisions of inspection by the IOR, testing agency, or County Representative shall not relieve Design-Build Entity from performing the Work in accordance with the Contract Documents.

### 3.16 LOAD BEARING METAL STUD, LIGHT GAGE FRAMING WELDING TESTS AND INSPECTIONS

3.16.1 All shop and field welding of cold formed metal framing members, including cold formed metal framing welded to structural steel, will be continuously inspected by the County's special inspector.

3.16.2 Framing erection will be periodically inspected by the County's inspector.

3.16.3 Acceptable or rejected weld quality, including concavity and convexity will be determined by the County's special inspector. Repair or replace welds and welded components, as directed by the IOR, special inspector, or County Representative, if any welds are deemed unacceptable by the County's special inspector.

3.16.4 Sheet to structural steel and structural steel to sheet welding will be continuously inspected by the County's testing agency and shall comply with both AWS D1.1-98 and AWS D1.3-98. Structural steel is material whose thickness exceeds 0.18".

### 3.17 WELDED STUD AND REBAR CONNECTORS

3.17.1 Inspection: Perform pre-production testing, stud installation, and production testing under continuous inspection of the Testing Laboratory Welding Inspector. In addition to standard reports, inspector's report shall detail the location of all defective studs with repair or replacement action taken, damage resulting from stud installation, and all defects and unusual occurrences.

3.17.2 Exception: Inspection and testing are waived for studs connecting non-structural and non-stressed finish materials.

3.17.3 Pre-Production Testing: Perform the following tests with each welding equipment power source at the start of each production period (the time period from start-up to any shutdown of any stud welding equipment) at the start of any new welding procedure, and after any change in the welding procedure.

3.17.3.1 Pre-Production Tests – Stud Shear Connectors: After cooling, test the first two (2) studs on a member by hammer bending to a forty-five (45) degree angle. If a failure occurs in the weld zone of either stud, correct the procedure, and weld and bend test two (2) more studs on the member. If either of the second two (2) studs fails, continue all additional welding on separate materials until two (2) consecutive studs are tested and found to be satisfactory. Then weld two (2) studs to the same member, bend test, and find satisfactory before any more studs are welded to the member.

3.17.3.2 Pre-Production Tests – Studs other than Shear Connectors: Weld two (2) studs to separate material in the same general position (such as flat, vertical, sloping, or overhead) and of similar steel material and thickness as members to receive studs. After cooling, hammer bend the studs to a thirty (30) degree angle. If failure occurs in any stud shank, ascertain and correct the cause before making any further welds. If a failure occurs in the weld zone of either stud, correct the procedure and successfully weld and test two (2) successive studs before any studs are welded to members.

#### 3.17.4 Production Inspection and Testing

3.17.4.1 Inspection of Stud Shear Connectors: After cooling, test at least one (1) stud on each member by hammer bending to a fifteen (15) degree angle, or test each stud by striking twice with a six (6) pound hammer to verify that quality welds have been obtained. If failure occurs either in weld zone or stud shank, follow method of correction as required herein for pre-production testing until successful installations are produced, and replace all defective studs. Test all studs:

3.17.4.1.1 Not showing full three hundred sixty (360) degree fillet weld

3.17.4.1.2 That have been repaired by welding

3.17.4.1.3 That are replacement studs

3.17.4.1.4 In which reduction in length is less than correct by hammer bending to a fifteen (15) degree angle; for studs showing less than a three hundred sixty (360) degree weld fillet, bend the stud in the direction opposite to the missing weld fillet. Remove and replace studs that crack either in the weld zone, base metal, or shank under inspection and testing, or under subsequent straightening.

3.17.4.2 Inspection of Studs other than Shear Connectors: Test at least one (1) stud in every 100 studs by hammer bending to a fifteen (15) degree angle or, if threaded, torque test with a calibrated torque wrench to an approved value for stud diameter and thread in an approved device. If the stud fails, correct the welding procedure as required herein for pre-production testing and bend or torque test two (2) more in-place studs. If either of the two (2) second studs fails, all studs represented by the tests shall be bend or torque, or shall be rejected and replaced. The extent of additional inspection and testing for critical structural connections shall be as designated by Regulatory Agency.

- 3.17.5 Straightening: Leave in a bent condition those stud shear connectors and shear transfer devices that are bent less than sixteen (16) degree and are free of failure provided no portion of the studs is within one (1) inch of an exposed concrete surface. Perform stud bending and straightening without heating and before completion of each day's stud welding operations. Obtain inspection and approval of straightened studs before covering.
- 3.17.6 Load Testing: The testing agency shall load test studs to the extent and by the methods directed.

END OF DOCUMENT

**DOCUMENT 01 50 00**

**TEMPORARY FACILITIES AND CONTROLS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

1.1.1 Document Includes:

- 1.1.1.1 Temporary Electricity
- 1.1.1.2 Temporary Communications.
- 1.1.1.3 Temporary Water
- 1.1.1.4 Fences
- 1.1.1.5 Protection of Public and Private Property
- 1.1.1.6 Temporary Sanitary Facilities
- 1.1.1.7 Temporary Barriers and Enclosures
- 1.1.1.8 Water Control
- 1.1.1.9 Pollution Control
- 1.1.1.10 Construction Aids
- 1.1.1.11 Erosion Control
- 1.1.1.12 Noise Control
- 1.1.1.13 Traffic Control
- 1.1.1.14 Removal of Temporary Facilities and Controls
- 1.1.1.15 Interim Wayfinding

**1.2 TEMPORARY ELECTRICITY**

- 1.2.1 Design-Build Entity shall provide, maintain, and pay for electrical power at the Site for construction purposes and for Design-Build Entity's trailers. Design-Build Entity must meter all connections to determine usage rates.

**1.3 TEMPORARY COMMUNICATIONS**

Provide, maintain, and pay for all applicable communications and data service connections (including without limitation: telephone, WiFi, e-mail, and internet) to field office commencing at time of Project mobilization, including all installation and connection charges. In addition, Design-Build Entity shall provide, maintain, and pay for a high-speed internet service at the Site suitable and available to County Representatives and consultants.

**1.4 TEMPORARY WATER**

- 1.4.1 Provide, maintain, and pay for suitable quality water service (potable water) required for construction operations.
- 1.4.2 All water required for and in connection with the Work, including without limitation for dust control, shall be furnished by and at the expense of Design-Build Entity. Design-Build Entity shall furnish necessary pipe, hose, nozzles, meter, and tools and perform all necessary labor. Unnecessary waste of water will not be permitted. Special hydrant wrenches shall be used for opening and closing fire hydrants; in no case shall pipe wrenches be used for this purpose.

## 1.5 FENCES

- 1.5.1 All new temporary security fences associated with the Project shall be installed, maintained, and then removed by Design-Build Entity at final completion. Gates shall be kept closed and locked at all times when not in use.
- 1.5.2 On completion of the Work across any tract of land, Design-Build Entity shall restore all existing fences to their original condition and to their original locations, as required.

## 1.6 PROTECTION OF PUBLIC AND PRIVATE PROPERTY

- 1.6.1 Design-Build Entity shall protect, shore, brace, support, and maintain all underground pipes, conduits, drains, and other underground construction uncovered or otherwise affected by its construction operations. All pavement, surfacing, driveways, curbs, walks, buildings, utility poles, guy wires, fences, and other surface structures affected by construction operations, together with all sod and shrubs in yards, parkways, and medians, shall be restored to their original condition, whether within or outside the easement. All replacements shall be made with new materials.
- 1.6.2 Design-Build Entity shall be responsible for all damage to streets, roads, highways, shoulders, ditches, embankments, culverts, bridges, and other public or private property, regardless of location or character, which may be caused by transporting equipment, materials, or workers to or from the Work, Site, or any part thereof, whether by Design-Build Entity or Subcontractors. Design-Build Entity shall make satisfactory and acceptable arrangements with the County, or the Agency or Authority Having Jurisdiction over the damaged property, concerning its repair or replacement or payment of costs incurred in connection with the damage.
- 1.6.3 All fire hydrants and water control valves shall be kept free from obstruction and available for use at all times.

## 1.7 TEMPORARY SANITARY FACILITIES

- 1.7.1 Provide and maintain required temporary buildings with sanitary toilets for use of all workers. At a minimum, sanitary facilities shall be located at trailer site, staging area, and adjacent to Work area.
- 1.7.2 Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view to the greatest practical extent. Sanitary facilities shall include an integral hand sanitizer dispenser, or a separate hand wash station shall be provided. If toilets of the chemically treated type are used, at least one (1) toilet will be furnished for each twelve (12) persons.
- 1.7.3 Design-Build Entity shall enforce the use of such sanitary facilities by all personnel at the Site.
- 1.7.4 Comply with all minimum requirements of the Health Department or other public Agency Having Jurisdiction; maintain in a sanitary condition at all times.

## 1.8 TEMPORARY BARRIERS AND ENCLOSURES

- 1.8.1 Provide barriers to prevent unauthorized entry to construction areas, to allow for County's use of Site, and to protect existing facilities and adjacent properties from damage from construction operations. Barriers may be chain link fencing with fabric.

- 1.8.2 Protect vehicular traffic, stored materials, Site, and structures from damage.
- 1.8.3 Provide Final Site Logistics Plan including any Off-Site lay down and parking areas, worker drop-off locations, construction fencing, location of construction gates, fire access gates, and locations of existing fire hydrants for approval by Fire Department and County Representative.

## 1.9 WATER CONTROL

- 1.9.1 Grade Site to drain.
- 1.9.2 Maintain excavations free of water.
- 1.9.3 Protect Site from puddling or running water.
- 1.9.4 Provide water barriers as required to protect Site from soil erosion.
- 1.9.5 Provide for drainage of storm water and such water as may be applied or discharged on the Site in performance of the Work. Drainage facilities shall be adequate to prevent damage to the Work, the Site, utility infrastructure, and adjacent property.
- 1.9.6 Clean, enlarge and/or supplement existing drainage channels and conduit as necessary to carry all increased runoff attributable to Design-Build Entity's operations. Construct dikes as necessary to divert increased runoff from entering adjacent property (except in natural channels), to protect County's facilities and the Work, and to direct water to drainage channels or conduits. Provide ponding as necessary to prevent downstream flooding.

## 1.10 POLLUTION CONTROL

- 1.10.1 Design-Build Entity shall establish and maintain a Storm Water Pollution Prevention Plan ("SWPPP") for each site.
- 1.10.2 Design-Build Entity shall prevent the pollution of drains and watercourses by sanitary wastes, sediment, debris, and other substances resulting from construction activities. No sanitary waste shall be permitted to enter any drain or watercourse other than sanitary sewers. No sediment, debris, chemicals, or other substances shall be permitted to enter sanitary sewers without authorization of the receiving sanitary sewer service, and all possible Best Management Practices ("BMPs") shall be taken to prevent such materials from entering any drain to watercourse.
- 1.10.3 Design-Build Entity shall implement BMPs during construction activities as specified in the California *Storm Water Best Management Practices Handbook* (Stormwater Quality Task Force) and/or the *Manual of Standards for Erosion and Sediment Control Measures* ("ABAG"). Erosion and sedimentation control practices shall include installation of silt fences, straw wattle, soil stabilization, revegetation, and runoff control to limit increases in sediment in stormwater runoff, including but not limited to, detention basins, straw bales, silt fences, check dams, geofabrics, drainage swales, and sandbag dikes.
- 1.10.4 In the event that dewatering of excavations is required, Design-Build Entity shall obtain the necessary permits for discharge of the dewatering effluent from the local jurisdiction. Design-Build Entity shall be responsible for assuring that water quality of such discharge meets the appropriate permit requirements prior to any discharge. Design-Build Entity shall be responsible for any discharge permit fees.

## 1.11 CONSTRUCTION AIDS

- 1.11.1 Design-Build Entity and/or its Subcontractors shall furnish, install, maintain, and operate all construction aids required by it and its Subcontractors in the performance of the Work, except as otherwise provided herein. Such construction aids shall include elevators and hoists, cranes, temporary enclosures, swing staging, scaffolding and temporary stairs. In the event of conflict, Design-Build Entity furnishing the equipment shall determine priorities in the best interest of the Project.
- 1.11.2 When sandblasting, spray painting, spraying of insulation, or other activities inconveniencing or dangerous to property or the health of employees or the public are in progress, the area of activity shall be enclosed adequately to contain the dust, over-spray, fumes, noxious odors, or other hazard. In the event there are no permanent enclosures of the area, or such enclosures are incomplete or inadequate, Design-Build Entity shall provide suitable temporary enclosures.
- 1.11.3 Temporary shoring and bracing of construction shall be provided wherever necessary and shall be adequate for all loads to which the structure may be subject during construction including seismic, wind, materials, equipment, and operation of same. Leave temporary shoring and bracing in place as long as may be required for safety.

## 1.12 EROSION CONTROL

- 1.12.1 Design-Build Entity shall prevent soil erosion on the Site and adjacent property resulting from its construction activities consistent with an approved Storm Water Pollution Prevention Plan ("SWPPP"). Effective measures shall be initiated prior to the commencement of clearing, grading, excavation, or other operations that will disturb the natural or existing protection.
- 1.12.2 Work shall be scheduled to expose areas subject to erosion for the shortest possible time, and natural vegetation shall be preserved to the greatest extent practicable. Temporary storage and construction buildings shall be located, and construction traffic routed, to minimize erosion. Temporary fast-growing vegetation or other suitable ground cover shall be provided as necessary to control runoff.

## 1.13 NOISE CONTROL

- 1.13.1 When required by OSHA Standards or otherwise recommended by best practices or equipment operation manuals, construction workers shall be provided with ear protection to operate equipment.
- 1.13.2 Design-Build Entity shall take reasonable measures to avoid unnecessary noise. Such measures shall be appropriate for the normal ambient sound levels in the area during working hours. All construction machinery and vehicles shall be equipped with practical sound-muffling devices and operated in a manner to cause the least noise consistent with efficient performance of the Work. During construction activities on or adjacent to occupied buildings, and when appropriate, Design-Build Entity shall erect screens or barriers effective in reducing noise in the building and shall conduct its operations to avoid unnecessary noise which might interfere with the activities of building occupants.
- 1.13.3 Ensure that all construction equipment and vehicles used for the Work are:
  - 1.13.3.1 Maintained in good mechanical condition.
  - 1.13.3.2 Equipped with properly installed engine mufflers.

## 1.14 TRAFFIC CONTROL

- 1.14.1 All traffic associated with the construction, including without limitation delivery and mail trucks, shall enter Design-Build Entity's access gate and road. Design-Build Entity shall provide signs directing construction and delivery traffic to this gate.
- 1.14.2 Design-Build Entity shall take all necessary steps to minimize inconvenience to the general public throughout all Work under this Contract. No driveways or private roads shall be blocked without notifying the respective property owner, and access must be restored during all non-working hours. Safe access must be maintained for pedestrian traffic throughout any public work area at all times.
- 1.14.3 At least one lane of traffic in each direction on all roads used at the Project must be kept open at all times unless prior approval is provided by the County and any affected agency. No roads shall be blocked or made inaccessible for any period, due to Design-Build Entity's Work, without prior written approval of the County and the affected agencies in the form of an encroachment permit. Design-Build Entity shall not block or obstruct fire lanes at any time.
- 1.14.4 Traffic control shall be in accordance with the California Department of Transportation Traffic Manual. Design-Build Entity shall submit its traffic control plans to the appropriate agency for approval prior to working in public streets. Traffic control shall include signs, warning lights, reflectors, barriers, and other necessary safety devices and measures, including sufficient flaggers to direct vehicular traffic through the construction areas. No material or equipment shall be stored/parked where it will interfere with the free and safe passage of public traffic, and at the end of each day's work, and at other times when construction operations are suspended for any reason, Design-Build Entity shall remove all equipment and other obstructions from the public right-of-way.
- 1.14.5 Upon securing appropriate agency approval of the traffic control plans, Design-Build Entity shall submit its Traffic Management Plan ("TMP") including the agency-approved traffic control plans, to the County for review and acceptance. The TMP shall be fully aligned with the agency-approved traffic control plans. Design-Build Entity shall not proceed with any work requiring or involving vehicular traffic from its own personnel, Subcontractor personnel, or vendor personnel, without first having secured an accepted TMP from the County. The TMP shall address peak demand data, fully coordinated with mitigation measures, onsite parking, onsite staging, offsite parking, offsite staging, deliveries and off-haul, and emergency response access to the premises.

## 1.15 REMOVAL OF TEMPORARY FACILITIES AND CONTROLS

- 1.15.1 Remove temporary utilities, equipment, facilities, structures, and materials prior to final inspection.
- 1.15.2 Remove underground installations.
- 1.15.3 Clean and repair damage caused by installation or use of temporary work.
- 1.15.4 Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

## 1.16 INTERIM WAYFINDING

- 1.16.1 During construction or demolition, some recognizable features will be obscured, removed or replaced. Arrival points, wayfinding routes, and department locations that are familiar

to the public, visitors, vendors, and staff members will change. Interim and temporary graphics shall be designed and implemented to mitigate identity and wayfinding issues that will arise during demolition and construction.

- 1.16.2 In order to respond to the dynamic nature of the construction process, interim wayfinding shall utilize modular, movable, reusable, and changeable signage elements that allow rapid deployment and removal. Cost effective materials selection and efficient use of materials shall be considered in the design process.

PART 2 - PRODUCTS - Not used.

PART 3 - EXECUTION - Not used.

END OF DOCUMENT

**DOCUMENT 01 52 00**

**CONSTRUCTION FACILITIES FOR DESIGN-BUILD ENTITY AND COUNTY USE**

**PART 1 - GENERAL**

**1.1 SUMMARY**

1.1.1 General: Design-Build Entity shall provide fully functional and serviced Field Office Space ready for Design-Build Entity use at the Project Site.

1.1.1.1 The Field Office Space and contents shall be clean, safe, fully furnished, functional, complete, finished, and in like new condition ready for use and operation.

1.1.1.2 The Field Office Space shall be installed and ready for occupancy and use twenty (20) days prior to the start of any construction activities at the Site. Facilities shall be maintained by Design-Build Entity throughout the duration of Project Work at the Site.

1.1.1.3 The Field Office Space shall meet all the requirements of this Document.

1.1.1.4 Property: The Office Space, furniture and equipment supplied by Design-Build Entity shall remain the property of Design-Build Entity.

1.1.2 At the Project Site, Design-Build Entity shall provide the County Field Office Space and contents, for the County's use, exclusively, during the Design and Construction of the Project.

1.1.2.1 Where so provided, County Field Office Space shall meet the same requirements as for Design-Build Entity Field Office Space specified in this Document with regard to safety, finishes, condition, functionality, amenities, furnishings, and fixtures.

1.1.2.2 Property: The Office Space, furniture and equipment supplied by Design-Build Entity shall remain the property of Design-Build Entity.

1.1.2.3 Modifications: The County reserves the right to modify the Field Office Space and contents as may be deemed necessary by the County. Modifications to the standard office/trailer space layout will be the responsibility of Design-Build Entity. Design-Build Entity shall provide a plan of the proposed office/trailer layout to the County representative for review and approval prior to delivery.

**1.2 SUBMITTALS**

1.2.1 Design-Build Entity shall submit to the County for its review prior to procurement or installation by Design-Build Entity:

1.2.1.1 Office Space Data: Manufacturer's descriptive data, technical descriptions, regulatory compliance, industry standards, installation, removal, and maintenance instructions.

1.2.1.2 Equipment Data: Manufacturer data for each type of equipment, if directed by the County.

1.2.1.3 Furniture and Furnishings Data: Manufacturer data for each type of equipment, if directed by the County.

### 1.3 REGULATORY REQUIREMENTS

In addition to any other regulatory compliance required by the Contract Documents, if Design-Build Entity provides Office Space in part or in whole by means of trailers, any such space shall display California Commercial Coach Insignia indicating that the entire complies with the California law including, but not necessarily limited to, the Construction and Fire Safety requirements of the California Code of Regulations.

## PART 2 - PRODUCTS

### 2.1 OFFICE SPACE

- 2.1.1 General: Provide County Field Office Space of type, function, operation, capacity, size, complete with controls, safety devices, and accessories, for proper and durable installation. Partitions, walls, ceiling, and other interior and exterior surfaces shall be appropriately finished, including, but not limited to, trim, painting, wall base, floor covering, and suspended or similar ceiling; provide systems, components, units, nuts, bolts, screws, anchoring devices, fastening devices, washers, accessories, adhesives, sealants, and other items of type, grade, and class required for the particular use, not identified but required for a complete, weather-tight, appropriately operating, and finished installation.
- 2.1.2 Program: Space shall be maintained by Design-Build Entity in good, proper, safe, clean, sanitary, and properly finished condition during the Contract.
  - 2.1.2.1 Field Office Space shall be located at the Project building Site. Exact location to be approved by the County.
  - 2.1.2.2 County Field Office Space shall include, at a minimum, the following:
    - 2.1.2.2.1 Two (2) private offices, conference room for 18-20 people, workspace, storage area, kitchenette including a refrigerator, and one (1) unisex restroom.
    - 2.1.2.2.2 Each office and conference room shall include window, tack boards, and dry erase boards. Conference room shall include a 70" computer display monitor.
    - 2.1.2.2.3 Stairs, Platform (if applicable): Provide properly finished stairs, platforms, and ramps as necessary for ADA accessibility compliance.
    - 2.1.2.2.4 Doors: Provide (2) two, 3-foot-wide exterior doors with keypad locksets; finished ramp, steps, and entry platform at each exterior door.
    - 2.1.2.2.5 HVAC system.
    - 2.1.2.2.6 Lighting: 65 foot-candles illumination minimum at any point, at 30 inches above finished floor throughout from LED light source.
    - 2.1.2.2.7 Electrical Outlets: Provide one (1) duplex outlet evenly spaced every 12 linear horizontal feet of wall face, and electrical service ready for use. Include dedicated outlet for office copier.
    - 2.1.2.2.8 Not Used.
    - 2.1.2.2.9 Data and Internet: Provide high-speed internet line serving eight (8) outlets, wired, connected to internet service provider, and ready for use; locate each outlet as directed by the County. Provide WiFi service with password protected internet access.

## 2.2 OFFICE SPACE ITEMS

### 2.2.1 General: Provide the Field Office Space with the following:

- 2.2.1.1 Desks: Quantity four (4), 36 inches by 72 inches, 29" high, laminated plastic top, one (1) or two (2) locking file drawers, single pedestal; provide two (2) keys.
- 2.2.1.2 Tables: Quantity four (4), 36 inches by 60 inches, 29 inches high, laminated plastic top tables; one (1) at each office, workspace, and four (4) for conference table.
- 2.2.1.3 Chairs: Quantity four (4), ergonomic rolling task chairs. Fully adjustable with swivel, seat cushion and arms, one (1) at each desk and workspace and twelve (12) at the conference table.

### 2.2.2 Furniture and Equipment: Provide in the space located to effect efficient and logical use.

- 2.2.2.1 File Cabinet: Quantity four (4), four (4) drawers, lateral, steel, locking.
- 2.2.2.2 Plan Table: Quantity one (1), 36 inches deep, 72 inches wide, 42 inches high, adjustable, wood or steel.
- 2.2.2.3 Drafting Stool: Quantity one (1), swiveling, steel, padded, adjustable; with footrest, and casters.
- 2.2.2.4 Plan Rack: Quantity one (1), wheel mounted, suitable for storing 30x42 drawing sets.
- 2.2.2.5 Small waste and recycling Baskets: Quantity seven (7), one (1) at each desk, two (2) for conference room, and one (1) in toilet room.
- 2.2.2.6 Large waste and Recycling Baskets: Quantity one (1) large of each.

### 2.2.3 Maintenance: Design-Build Entity shall purchase service agreements for each unit of equipment for the duration of the Project plus two (2) months and shall maintain all equipment in proper working condition. Service agreements shall include provision or replacement of filters and other items required to effect proper unit use.

- 2.2.3.1 Unlimited Service Call.
- 2.2.3.2 Same Day Response.
- 2.2.3.3 All parts, labor, preventative maintenance and mileage.
- 2.2.3.4 System training and setup.
- 2.2.3.5 Sanitary Holding tanks (if applicable): one (1), each shall include hook-up and removal; shall be pumped one (1) time per week or as necessary to prevent overflow.

## 2.3 UTILITY AND SERVICES

### 2.3.1 Not Used

- 2.3.2 Electrical Service: Provide all proper connections and continuously pay for service for the duration of the Work.
- 2.3.3 Data/Internet/WiFi Service: Design-Build Entity shall provide highspeed data, internet access, and WiFi service for Design-Build Entity, County, and Subconsultant use.
- 2.3.4 Water Service: Provide all proper connections and continuously pay for service for the duration of the Work.
- 2.3.5 Bottled Water Service: Provide electric water cooler and maintain regular water delivery.

## 2.4 FINISHES

- 2.4.1 General: Manufacturer standard finish system over surfaces properly cleaned, pretreated, and prepared to obtain proper bond; all visible surfaces shall be coated.
- 2.4.2 Finish: Color as selected by the County from manufacturer standard palette.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- 3.1.1 General: Prepare area and affected items to receive the Work. Set Work accurately in location, alignment, and elevation; rigidly, securely, and firmly anchor to appropriate structure; install plumb, straight, square, level, true, without racking, rigidly anchored to solid blocking or substrate; provide appropriate type and quantity of reinforcements, fasteners, adhesives, self-adhesive and other tapes; lubricants, coatings and accessories, as required for a complete, structurally rigid, stable, sound, and finished installation, in accordance with manufacturer's published instructions. Moving parts shall be installed without binding, looseness, noise, and the like.
- 3.1.2 Installation: If a trailer, install in accordance with 25 CCR 3.2.3. Jack up Field Office Space and level both ways; mount on proper concrete piers with all load off wheels; provide required tie down and accessories per Section 4368 of referenced 25 CCR 3.2.3.
- 3.1.3 Rejected Work: Work, materials, unit, items, and systems, not accepted by the County shall be deemed rejected; and shall be removed and replaced with proper and new at no cost to the County.
- 3.1.4 Standard: Comply with manufacturer's published instructions.
- 3.1.5 Location: To be determined.
- 3.1.6 Fire Resistance: Construct and install in accordance with UL requirements.
- 3.1.7 Maintenance: Design-Build Entity shall maintain Field Office Space and adjacent areas in a safe, clean, and hygienic condition throughout the duration of the Work and as directed by the County. Repair or replace furniture or other items, as directed by the County. Remove unsafe, damaged, or broken furniture, or similar items, and replace it with safe and proper items. Design-Build Entity shall pay cost of all services, repair, and maintenance, or replacement of each item.
- 3.1.8 Janitorial Service: At frequency of two (2) times each week, minimum (or as directed by County), provide professional janitorial service, including, but not by limitation, trash, recyclables, wastepaper baskets, fill paper dispensers; clean and dust all furniture, files,

and the like; and sweep and mop resilient and similar flooring; vacuum carpeting and similar flooring.

- 3.1.9 Removal: Properly remove the Field Office Space and contents from the Site upon completion of the Contract, or as directed by the County in writing. Patch and repair affected areas; replace damaged items with new items. Carefully and properly inventory, clean, pack, store, and protect County property; submit County property to the County at a date, time, and location as directed by the County.

END OF DOCUMENT

## DOCUMENT 01 55 26

### TRAFFIC CONTROL

#### PART 1 - GENERAL

##### 1.1. SUMMARY

Drawings and general provisions of the Contract, including General Conditions and other Division 1 Documents, apply to this Document.

##### 1.2. DOCUMENT INCLUDES

- 1.2.1. Construction parking control.
- 1.2.2. Flagmen.
- 1.2.3. Flares and lights.
- 1.2.4. Haul routes.
- 1.2.5. Traffic signs and signals.
- 1.2.6. Removal.

##### 1.3. GENERAL

- 1.3.1. Comply with CEQA Mitigated Negative Declarations requirements, identified in Document 00 73 13 (Special Conditions) for this Project including, but not limited to, use of Traffic Control Best Management Practices.

##### 1.4. SIGNS, SIGNALS, AND DEVICES

- 1.4.1. Traffic Control Signals: As approved by local jurisdictions.
- 1.4.2. Traffic Cones and Drums, Flares, and Lights: As approved by local jurisdictions.
- 1.4.3. Flagman Equipment: As approved by local jurisdictions.

##### 1.5. CONSTRUCTION PARKING CONTROL

- 1.5.1. Control vehicular parking to prevent interference with public and parking, access by emergency vehicles, and County's operations.
- 1.5.2. Monitor parking of delivery, visitor, and construction personnel's vehicles. Maintain vehicular access to and through parking areas.
- 1.5.3. Prevent parking on or adjacent to access roads or in non-designated areas.

##### 1.6. FLAGMEN

Provide trained and equipped flagmen to regulate traffic when construction operations or traffic encroach on public traffic lanes.

## 1.7. LIGHTS

Use lights during hours of low visibility to delineate traffic lanes and to guide traffic.

## 1.8. HAUL ROUTES

- 1.8.1. Consult with authority having jurisdiction in establishing public thoroughfares to be used for haul routes and site access.
- 1.8.2. Confine construction traffic to designated haul routes.
- 1.8.3. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

## 1.9. TRAFFIC SIGNS AND SIGNALS

- 1.9.1. At approaches to site and on site, install at crossroads, detours, parking areas and elsewhere as needed to direct construction and affected public traffic as approved by County.
- 1.9.2. Install and operate traffic control signals to direct and maintain orderly flow of traffic in areas under Trade Contractor's control, and areas affected by Design Build Entity's operations.
- 1.9.3. Relocate or adjust as necessary, to maintain effective traffic control.

## 1.10. REMOVAL

- 1.10.1. Remove equipment and devices when no longer required.
- 1.10.2. Repair damage caused by installation.
- 1.10.3. Remove post settings to a depth of 2-feet (600 mm).

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF DOCUMENT

## DOCUMENT 01 60 00

### PRODUCT REQUIREMENTS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

1.1.1 This Document 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 product substitutions.

1.1.2 Related Documents include the following:

1.1.2.1 Document 01 42 00 (References and Definitions)

1.1.2.2 Document 01 77 00 (Closeout Procedures)

1.1.2.3 Document 01 33 00 (Submittal Procedures)

##### 1.2 DEFINITIONS

1.2.1 Products: Items purchased 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.

1.2.1.1 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.

1.2.1.2 New Products: Items that have not previously been incorporated into another project, facility, or location, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.

1.2.2 Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Design-Build Entity.

1.2.2.1 The following are not considered substitutions:

1.2.2.1.1 Revisions to Contract Documents requested by the County Representative.

1.2.2.1.2 Specified options of products and construction methods included in Contract Documents.

1.2.2.1.3 Design-Build Entity's determination of and compliance with governing regulations and orders issued by governing authorities.

1.2.2.2 Design-Build Entity will be held responsible for: (a) all costs and claims arising from any cost or schedule impact resulting from the County's approval of a requested substitution and (b) all costs and claims arising from any cost or schedule impact resulting from any substitution not approved by the County.

### 1.3 SUBMITTALS

- 1.3.1 **Product List:** Submit a list, in tabular form, showing Specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
- 1.3.1.1 Coordinate product list with Design-Build Entity's Project Master Schedule and the Submittals Schedule.
- 1.3.1.2 **Form:** Tabulate information for each product under the following column headings:
- 1.3.1.2.1 Specification Section number and title.
  - 1.3.1.2.2 Generic name used in the Contract Documents.
  - 1.3.1.2.3 Proprietary name, model number, and similar designations.
  - 1.3.1.2.4 Manufacturer's name and address.
  - 1.3.1.2.5 Supplier's name and address.
  - 1.3.1.2.6 Installer's name and address.
  - 1.3.1.2.7 Projected delivery date or time span of delivery period.
  - 1.3.1.2.8 Identification number on Project Master Schedule network.
  - 1.3.1.2.9 Identification of items that require early submittal approval for scheduled delivery date (Long lead items).
- 1.3.1.3 **Product List:** Within sixty (60) Days after date of Notice to Proceed, submit electronic copy and three (3) hard copies of product list. Include a written explanation for omissions of data and for variations from Contract requirements.
- 1.3.1.4 **County's Action:** County will respond in writing to Design-Build Entity within fourteen (14) Days of receipt of each product list. County's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. County's response, or lack of response, does not constitute a waiver of requirement to comply with the Contract Documents.
- 1.3.2 **Substitution Requests:** Submit an electronic copy and three (3) copies of each request for consideration. Identify product, fabrication, or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
- 1.3.2.1 **Substitution Request Form:** Use form provided by County included at the end of this Document 01 60 00.
- 1.3.2.2 **Documentation:** Show compliance with requirements for substitutions and the following, as applicable:
- 1.3.2.2.1 Statement indicating why Specified material or product cannot be provided.
  - 1.3.2.2.2 Coordination information, including a list of changes or modifications needed on other parts of the Work and to construction performed by County and separate contractors, which will be necessary to accommodate proposed substitution.

- 1.3.2.2.3 Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  - 1.3.2.2.4 Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - 1.3.2.2.5 Samples, where applicable or requested.
  - 1.3.2.2.6 List of similar installations for completed projects with project names and addresses and names and addresses of owners.
  - 1.3.2.2.7 Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - 1.3.2.2.8 Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to County Representative.
  - 1.3.2.2.9 Detailed comparison of Design-Build Entity's Project Master Schedule using proposed substitution with products Specified for the Work, including effect on the overall Contract Time. If a Specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
  - 1.3.2.2.10 Cost information, including a proposal of change, if any, in the Contract Sum.
  - 1.3.2.2.11 Design-Build Entity's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
  - 1.3.2.2.12 Design-Build Entity's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
- 1.3.2.3 County's Action: If necessary, County will request additional information or documentation for evaluation within seven (7) Days of receipt of a request for substitution. County will notify Design-Build Entity of acceptance or rejection of proposed substitution within twenty-one (21) Days of receipt of request, or seven (7) Days of receipt of additional information or documentation, whichever is later.
- 1.3.2.3.1 Form of Acceptance: Substitution Request form indicating acceptance from the County Representative.
  - 1.3.2.3.2 Use product specified if County cannot decide on use of a proposed substitution within time allocated.

1.3.2.3.3 If any proposed substitution is deemed by the County Representative to be unacceptable, the Specified material or equipment shall be provided.

1.3.2.3.4 The decision of the County Representative shall be final.

#### 1.4 QUALITY ASSURANCE

1.4.1 Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.

1.4.2 Compatibility of Options: If Design-Build Entity is given the option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.4.3 Underwriter's Laboratories, Inc. ("UL") Label: Where laboratory standards have been established and label service is available, materials and equipment shall bear the appropriate UL, Warnock-Hersey, or Factory Mutual label.

1.4.4 Manufacturers' Trademarks and Names: County Representative reserves the right to review and request the removal or redesign of manufacturers' trademarks and names on items of material and equipment that will be exposed to view in the completed Work. Such removal or redesign shall be completed with no adjustment of the Contract Sum.

1.4.5 If a proposed substitution requires that portions of the Work be redesigned or removed to accommodate the substituted item, submit design and engineering calculations prepared by a California licensed design professional.

1.4.6 Samples may be required for substitutions. Tests required by County Representative for the determination of quality and utility shall be made by Design-Build Entity's Testing Laboratory and at the expense of Design-Build Entity, with acceptance of the test procedure first given by County Representative.

1.4.7 In reviewing the supporting data submitted for substitutions, County Representative will use, for purposes of comparison, all the characteristics of the Specified material or equipment as they appear in the manufacturer's published data, even though all the characteristics may not have been particularly mentioned in the Specifications. If more than two submissions of supporting data are required, the cost of reviewing the additional supporting data shall be borne by Design-Build Entity; and County will deduct the costs from the Contract Sum.

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

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

1.5.2 Delivery and Handling:

1.5.2.1 Schedule delivery to minimize long-term storage at Project Site and to prevent overcrowding of construction spaces.

1.5.2.2 Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

- 1.5.2.3 Deliver products to Project Site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
- 1.5.2.4 Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- 1.5.2.5 Reject delivery of damaged or defective items. Promptly remove damaged or defective products from the Project Site and replace them with new at no change in Contract Sum.

1.5.3 Storage:

- 1.5.3.1 Should the County, in its discretion, allow the Design-Build Entity to store materials and/or equipment for the Work Off-Site, Design-Build Entity will store said materials and/or equipment at a bonded warehouse and with appropriate insurance coverage at no additional cost to the County.
- 1.5.3.2 Design-Build Entity shall keep an accurate inventory of all materials and/or equipment that is stored Off-Site or On-Site in a manner that is satisfactory to the County.
- 1.5.3.3 Store products to allow for inspection and measurement of quantity or counting of units.
- 1.5.3.4 Store materials in a manner that will not endanger Project structure.
- 1.5.3.5 Store products that are subject to damage by the elements under cover in a weather tight enclosure above ground, with ventilation adequate to prevent condensation.
- 1.5.3.6 Store cementitious products and materials on elevated platforms.
- 1.5.3.7 Store sand, rock, or aggregate materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.
- 1.5.3.8 Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
- 1.5.3.9 Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
- 1.5.3.10 Protect stored products from damage.
- 1.5.3.11 Periodically inspect stored products to assure that products are maintained under specified conditions and are free from damage and deterioration.
- 1.5.3.12 The use of stairways and mechanical or electrical rooms for storage of materials is prohibited.

1.5.4 Imported Materials and Products:

- 1.5.4.1 Imported materials and products require special handling in shipping crates. Document and examine materials at the following points:

- 1.5.4.1.1 At the origination point prior to crating.
- 1.5.4.1.2 At the port of embarkation (for damage to crates).
- 1.5.4.1.3 At the port of entry (for damage to crates).
- 1.5.4.1.4 Immediately following delivery to the Site.
- 1.5.4.2 If crates show signs of damage, open them, and inspect materials and products.
- 1.5.4.3 Reject damaged or defective products or materials and replace them promptly.
- 1.5.4.4 Provide detailed Bill of Goods at each point listed above, indicating quantity and condition of each item. At port locations, Bill of Goods may be accepted unless damage is observed.

## 1.6 PRODUCT WARRANTIES

- 1.6.1 Warranties specified in other Documents shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. The manufacturer's disclaimers and limitations on product warranties do not relieve Design-Build Entity of obligations under requirements of the Contract Documents.
  - 1.6.1.1 Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to County.
  - 1.6.1.2 Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend the time limit provided by manufacturer's warranty or to provide more rights for County.
- 1.6.2 Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
  - 1.6.2.1 Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
  - 1.6.2.2 Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
- 1.6.3 Submittal Time: Comply with requirements in Document 01 77 00 (Closeout Procedures).

## PART 2 - PRODUCTS

### 2.1 PRODUCT SELECTION PROCEDURES

- 2.1.1 General Product Requirements: Provide products that comply with the Contract Documents, which are undamaged and, unless otherwise indicated, that are new at time of installation.
  - 2.1.1.1 Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

- 2.1.1.2 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.
  - 2.1.1.3 County reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  - 2.1.1.4 Where products are accompanied by the term “as selected,” County will make selection.
  - 2.1.1.5 Where products are accompanied by the term “match sample,” sample to be matched is County’s.
  - 2.1.1.6 Descriptive, performance, and reference standard requirements in the Specifications establish “salient characteristics” of products.
  - 2.1.1.7 Or Equal: Where products are specified by manufacturer’s name and accompanied by the term “or equal,” comply with provisions in Paragraph 2.2, Product Substitutions, to obtain approval for use of an unnamed product.
- 2.1.2 Product Selection Procedures:
- 2.1.2.1 Product: Where Specifications name a single product and manufacturer, and indicate “no known equal,” provide the named product that complies with requirements.
  - 2.1.2.2 Manufacturer/Source: Where Specifications name a single manufacturer or source, and indicate “no known equal,” provide a product by the named manufacturer or source that complies with requirements.
  - 2.1.2.3 Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
  - 2.1.2.4 Manufacturers: Where Specifications include a list of manufacturers’ names, provide a product by one of the manufacturers listed that complies with requirements.
  - 2.1.2.5 Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches County’s sample. County’s decision on whether a proposed product matches will be final.
    - 2.1.2.5.1 When approval of a color, pattern or texture sample match by the County is required, provide the best match that complies with the Specification and provide the two (2) nearest in the selection range to either direction from the same manufacturer/supplier. Application examples are:
      - 2.1.2.5.1.1 *Color* – shall have two (2) color hues or shades darker and two (2) color hues or shades lighter. A total of five (5) selections available.
      - 2.1.2.5.1.2 *Pattern* – shall have two (2) patterns that are less dense (or smaller) and two (2) patterns that are

denser (or larger). A total of five (5) selections available.

2.1.2.5.1.3 *Texture* – shall have two (2) textures that are less rough (or smaller) and two (2) patterns that are rougher (or larger). A total of five (5) selections available.

2.1.2.5.2 If no product available within Specified category matches and complies with other Specified requirements, comply with provisions in Paragraph 2.2 (Product Substitutions) below for proposal of product.

2.1.2.6 Visual Selection Specification: Where Specifications include the phrase “as selected from manufacturer’s colors, patterns, textures” or a similar phrase, select a product that complies with other Specified requirements.

2.1.2.6.1 Standard Range: Where Specifications include the phrase “standard range of colors, patterns, textures” or similar phrase, County will select color, pattern, density, or texture from manufacturer’s product line that does not include premium items.

2.1.2.6.2 Full Range: Where Specifications include the phrase “full range of colors, patterns, textures” or similar phrase, County will select color, pattern, density, or texture from manufacturer’s product line that includes both standard and premium items.

## 2.2 PRODUCT SUBSTITUTIONS

2.2.1 Timing: County will consider requests for substitution if received within thirty (30) Days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of County.

2.2.2 Regulatory Agency Approval of Product Substitutions: After regulatory agency approval of the Construction Drawings, no substitutions that would require additional regulatory agency approval<sup>1</sup> shall be allowed except as may be deemed necessary by the County Representative because:

2.2.2.1 Previously Specified or approved manufactured products are no longer manufactured.

2.2.2.2 The substitution is required due to a County-initiated Change Order.

2.2.2.3 The substitution is in the best interests of the County.

2.2.3 Conditions: County will consider Design-Build Entity’s request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, County will return requests without action, except to record noncompliance with these requirements:

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<sup>1</sup>As required under Section 7-153 of the California Building Standards Administrative Code (C.C.R., Title 24, Part 1).

- 2.2.3.1 Requested substitution offers County a substantial advantage in cost, time, durability, maintainability, energy conservation, environmental impact, and other benefits.
- 2.2.3.2 Requested substitution is consistent with the Contract Documents and will produce required results.
- 2.2.3.3 The substitute request is fully documented and properly submitted.
- 2.2.3.4 If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, compatible with other products, and acceptable to all contractors involved.
- 2.2.3.5 One (1) or more of the following conditions must be satisfied:
  - 2.2.3.5.1 The Specified product or method of construction cannot be provided within the Contract Time. The request for substitution will not be considered if the product or method cannot be provided due to Design-Build Entity's failure to pursue the Work promptly or coordinate activities properly.
  - 2.2.3.5.2 The Specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
  - 2.2.3.5.3 The Specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where Design-Build Entity certifies that the substitution will overcome the incompatibility.
  - 2.2.3.5.4 The Specified product or method of construction cannot be coordinated with other materials, and the Design-Build Entity certifies that the proposed substitution can be coordinated.
  - 2.2.3.5.5 The Specified product or method of construction cannot provide a warranty required by the Contract Documents and the Design-Build Entity certifies that the proposed substitution can provide the required warranty.
  - 2.2.3.5.6 The Specified product or material has been discontinued or is no longer available.
  - 2.2.3.5.7 The proposed substitution exceeds minimum requirements of the Contract Documents.
- 2.2.3.6 The County's acceptance of any substitution shall not relieve Design-Build Entity of the responsibility to comply with the requirements of the Contract Documents.
- 2.2.3.7 Design-Build Entity shall be responsible for all costs of any changes resulting from substitutions that affect other parts of the Work or the work of separate Contractors.

PART 3 - EXECUTION – NOT USED

END OF DOCUMENT

**DOCUMENT 01 61 16**

**VOLATILE ORGANIC COMPOUND (“VOC”) CONTENT RESTRICTIONS**

**PART 1 - GENERAL**

**1.01 DOCUMENT INCLUDES**

- A. Requirements for Indoor-Emissions-Restricted products.
- B. Requirements for VOC-Content-Restricted products.
- C. Requirement for installer certification that they did not use any non-compliant products.

**1.02 RELATED REQUIREMENTS**

- A. Document 01 81 19 (Indoor Air Quality Controls)
- B. Document 01 81 13 (Sustainable Design Requirements)

**1.03 DEFINITION**

- A. Indoor-Emissions-Restricted Products: All products in the following product categories, whether specified or not:
  - 1. Interior paints and coatings.
  - 2. Interior adhesives and sealants, including flooring adhesives.
  - 3. Flooring.
  - 4. Composite wood.
  - 5. Products making up wall and ceiling assemblies.
  - 6. Thermal and acoustical insulation.
- B. VOC-Content-Restricted Products: All products in the following product categories, whether specified or not:
  - 1. Interior paints and coatings.
  - 2. Interior adhesives and sealants, including flooring adhesives.
  - 3. Other products when specifically stated in the specifications.
- C. Interior of Building: Anywhere inside the exterior weather barrier.
- D. Adhesives: All gunnable, trowelable, liquid-applied, and aerosol adhesives, whether specified or not; including flooring adhesives, resilient base adhesives, and pipe jointing adhesives.
- E. Sealants: All gunnable, trowelable, and liquid-applied joint sealants and sealant primers, whether specified or not; including firestopping sealants and duct joint sealers.
- F. Inherently Non-Emitting Materials: Products composed wholly of minerals or metals, unless they include organic-based surface coatings, binders, or sealants; and specifically, the following:
  - 1. Concrete.
  - 2. Clay brick.
  - 3. Metals that are plated, anodized, or powder coated.
  - 4. Glass.
  - 5. Ceramics.
  - 6. Solid wood flooring that is unfinished and untreated.

#### 1.04 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. ASTM D3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings; 2005 (Reapproved 2013).
- C. BIFMA e3 - Furniture Sustainability Standard; Business and Institutional Furniture Manufacturers Association; 2012.
- D. BIFMA M7.1 - Standard Test Method for Determining VOC Emissions; Business and Institutional Furniture Manufacturers Association; 2011.
- E. CAL (CDPH SM) - Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions From Indoor Sources Using Environmental Chambers; California Department of Public Health; v1.2.
- F. CARB (ATCM) - Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products; California Air Resources Board; current edition.
- G. CARB (SCM) - Suggested Control Measure for Architectural Coatings; California Air Resources Board; 2007.
- H. CHPS (HPPD) - High Performance Products Database; Current Edition at [www.chps.net/](http://www.chps.net/).
- I. CRI (GLP) - Green Label Plus Testing Program - Certified Products; [www.carpet-rug.org](http://www.carpet-rug.org); current edition.
- J. GreenSeal GS-36 - Commercial Adhesives; 2011.
- K. SCAQMD 1113 - South Coast Air Quality Management District Rule No.1113; current edition.
- L. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition.
- M. SCS (CPD) - SCS Certified Products; current listings at [www.scscertified.com](http://www.scscertified.com).
- N. UL (GGG) - GREENGUARD Gold Certified Products; current listings at <http://productguide.ulenvironment.com/QuickSearch.aspx>.
- O. US EPA TSCA Title VI (EPA TSCA) – Ultra-low emitting formaldehyde products under EPA Toxic Substances Control Act Title VI.

#### 1.05 SUBMITTALS

- A. See Document 01 33 00 (Submittal Procedures), for submittal procedures.
- B. Submittals: Information required to document LEED as defined in other Division 01 Documents and in individual Specification Sections. Include "LEED Materials Reporting Form" for every submittal for the Project.
- C. Product Data: For each VOC-Content Restricted Product used in the Project, submit evidence of compliance.

- D. Sustainable Design Submittals: Submit evidence of compliance along with Material Content Form.

#### 1.06 QUALITY ASSURANCE

- A. Indoor Emissions Standard and Test Method: CAL (CDPH SM), using Standard Private Office exposure scenario and the allowable concentrations specified in the method, and range of total VOCs after fourteen (14) days.
  - 1. Wet-Applied Products: State amount applied in mass per surface area.
  - 2. Paints and Coatings: Test tinted products, not just tinting bases.
  - 3. Evidence of Compliance: Acceptable types of evidence are the following;
    - a. Current UL (GGG) certification.
    - b. Current SCS (CPD) Floorscore certification.
    - c. Current SCS (CPD) Indoor Advantage Gold certification.
    - d. Current listing in CHPS (HPPD) as a low-emitting product.
    - e. Current CRI (GLP) certification.
    - f. Test report showing compliance and stating exposure scenario used.
  - 4. Product data submittal showing VOC content is NOT acceptable evidence.
  - 5. Manufacturer's certification without test report by independent agency is NOT acceptable evidence.
- B. VOC Content Test Method: 40 CFR 59, Subpart D (EPA Method 24), or ASTM D3960, unless otherwise indicated.
  - 1. Evidence of Compliance: Acceptable types of evidence are:
    - a. Report of laboratory testing performed in accordance with requirements.
- C. Composite Wood Emissions Standard: EPA TSCA Title VI (EPA TSCA) or CARB (ATCM) for ultra-low emitting formaldehyde (ULEF) resins.
  - 1. Evidence of Compliance: Acceptable types of evidence are:
    - a. Current SCS "No Added Formaldehyde (NAF)" certification; [www.scs-certified.com](http://www.scs-certified.com).
    - b. Report of laboratory testing performed in accordance with requirements.
    - c. Published product data showing compliance with requirements.
- D. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this Document.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS

- A. All Products: Comply with the most stringent of federal, state, and local requirements, or these specifications.
- B. Indoor-Emissions-Restricted Products: Comply with Indoor Emissions Standard and Test Method, except for:
  - 1. Composite Wood, Wood Fiber, and Wood Chip Products: Comply with Composite Wood Emissions Standard or contain no added formaldehyde resins.
  - 2. Inherently Non-Emitting Materials.
- C. VOC-Content-Restricted Products: VOC content not greater than required by the following:
  - 1. Adhesives, Including Flooring Adhesives: SCAQMD 1168 Rule.
  - 2. Joint Sealants: SCAQMD 1168 Rule.
  - 3. Paints and Coatings: Each color; most stringent of the following:
    - a. 40 CFR 59, Subpart D.
    - b. SCAQMD 1113 Rule.
    - c. CARB (SCM).

PART 3 - EXECUTION

3.01 FIELD QUALITY CONTROL

- A. County reserves the right to reject non-compliant products, whether installed or not, and require their removal and replacement with compliant products at no extra cost to County.
- B. Additional costs to restore indoor air quality due to installation of non-compliant products will be borne by Design-Build Entity.

END OF DOCUMENT

**DOCUMENT 01 71 23**

**FIELD ENGINEERING**

**PART 1 - GENERAL**

**1.1 SUMMARY**

1.1.1 This Document describes field engineering services to be done by Design-Build Entity and by County, and procedures to accomplish these services.

1.1.2 Related Documents.

1.1.2.1 Document 00 31 32 (Geotechnical Data and Existing Conditions)

1.1.2.2 Document 01 11 10 (Summary of Work)

1.1.2.3 Document 01 11 14 (Summary of Work - Design Services, Preconstruction Activities, and Deliverables)

1.1.2.4 Document 01 31 19 (Project Meetings)

1.1.2.5 Document 01 88 19 (Asbestos Removal Performance Requirements)

1.1.2.6 Document 01 88 22 (Soil Remediation Performance Requirements)

1.1.2.7 Document 01 88 25 (Miscellaneous Hazardous Materials Performance Requirements)

**1.2 RESPONSIBILITIES**

1.2.1 Design-Build Entity shall provide field engineering services; establish grades, lines, and levels for Work by use of recognized engineering survey practices.

1.2.2 Design-Build Entity shall employ California licensed civil engineer or land surveyor for horizontal and vertical control.

1.2.3 Design-Build Entity shall locate and maintain reference points for horizontal and vertical control and shall provide starting points for the Work.

**1.3 PROCEDURES**

Design-Build Entity shall request assistance from County two (2) Calendar Days prior to date any assistance is required.

PART 2 - PRODUCTS - Not used.

PART 3 - EXECUTION - Not used.

END OF DOCUMENT

## DOCUMENT 01 73 00

### EXECUTION REQUIREMENTS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

1.1.1 This Document includes general procedural requirements governing execution of the Work including, but not limited to, the following:

- 1.1.1.1 Construction layout.
- 1.1.1.2 Field engineering and surveying.
- 1.1.1.3 General installation of products.
- 1.1.1.4 Coordination of County-installed products.
- 1.1.1.5 Progress cleaning.
- 1.1.1.6 Starting and adjusting.
- 1.1.1.7 Protection of installed construction.
- 1.1.1.8 Correction of the Work.

1.1.2 Related Documents include the following:

- 1.1.2.1 Document 01 11 10 (Summary of Work).
- 1.1.2.2 Document 01 14 00 (Work Restrictions).
- 1.1.2.3 Document 01 33 00 (Submittal Procedures).
- 1.1.2.4 Document 01 31 00 (Project Management and Coordination).
- 1.1.2.5 Document 01 31 19 (Project Meetings).
- 1.1.2.6 Document 00 31 32 (Geotechnical Data and Existing Conditions).
- 1.1.2.7 Document 01 71 23 (Field Engineering).
- 1.1.2.8 Document 01 73 29 (Cutting and Patching).
- 1.1.2.9 Document 01 77 00 (Closeout Procedures).

##### 1.2 SUBMITTALS

- 1.2.1 Qualification Data: For land surveyor or professional engineer.
- 1.2.2 Certificates: Submit certificate signed by land surveyor or professional engineer certifying that location and elevation of improvements comply with requirements.
- 1.2.3 Contingency Plan: Submit six (6) copies within sixty (60) Days of Notice to Proceed for emergency plan(s) should an existing utility be damaged.

##### 1.3 QUALITY ASSURANCE

- 1.3.1 Land Surveyor Qualifications: A professional land surveyor who is licensed to practice in California and has a minimum of five (5) years of successful delivery of land-surveying services, as indicated.

- 1.3.2 Installer Qualifications: Installers shall have a minimum of five (5) years' successful experience installing items similar to those required for Project, except for individuals in training under the direct supervision of an experienced installer.
- 1.3.3 If cleaning and protection is not performed to the satisfaction of the County Representative, the County reserves the right to have cleaning performed by others at Design-Build Entity's expense.

## PART 2 - PRODUCTS

Not used.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- 3.1.1 Existing Utilities: 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 locations of underground utilities and other construction affecting the Work.
  - 3.1.1.1 Before construction, verify the locations and invert elevations at points of connection of gas, sanitary sewer, storm sewer, fire water, water-service piping, and underground electrical and communication/data services.
  - 3.1.1.2 Furnish location data for Work related to Project that must be performed by public utilities serving Project Site.
  - 3.1.1.3 Locate all known existing utilities and shut-off devices before proceeding with construction operations that may cause damage to such installations. Existing utilities shall be kept in service where possible and damage to them shall be repaired with no adjustment of Contract Sum.
  - 3.1.1.4 If any other structures or utilities are encountered, request County Representative to provide direction on how to proceed with the Work.
  - 3.1.1.5 If any structure or utility is damaged, take appropriate action to ensure the safety of persons and property.
  - 3.1.1.6 Submit a contingency plan for safety and emergency repair of all utilities to County Representative for approval prior to commencing Work.
- 3.1.2 Acceptance of Conditions: 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.
  - 3.1.2.1 Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Documents, include the following:
    - 3.1.2.1.1 Description of the Work.
    - 3.1.2.1.2 List of detrimental conditions, including substrates.
    - 3.1.2.1.3 List of unacceptable installation tolerances.

- 3.1.2.1.4 Recommended corrections.
- 3.1.2.2 Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- 3.1.2.3 Examine rough-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
- 3.1.2.4 Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
- 3.1.2.5 Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

## 3.2 MANUFACTURERS' INSTRUCTIONS

- 3.2.1 Manufacturer's Recommendations: When Work is specified to comply with manufacturers' recommendations or instructions, distribute copies to persons involved, and maintain one set in field office. Conform to requirements specified in Document 01 33 00 (Submittal Procedures) for submittal of recommendations or instructions to County; submit to County only where specified or where specifically requested.
- 3.2.2 Perform Work in accordance with details of recommendations and instructions and specified requirements.
  - 3.2.2.1 Should a conflict exist between Specifications and recommendations or instructions, consult with County.
- 3.2.3 Where manufacturer's information notes special recommendations in addition to installation instructions, comply with both recommendations and instructions.

## 3.3 PREPARATION

- 3.3.1 Existing Utility Information: Furnish public utilities with information 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 County Representative.
- 3.3.2 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. Allow for cutting and patching to avoid delaying Work.
- 3.3.3 Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- 3.3.4 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 County Representative. Include a detailed description of problem or issue encountered, together with recommendations for changing the Contract Documents. Submit requests via a "Request for Information."

### 3.4 CONSTRUCTION LAYOUT

- 3.4.1 Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify County Representative promptly.
- 3.4.2 General: Engage a land surveyor or professional engineer to lay out the Work using accepted surveying practices.
  - 3.4.2.1 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.
  - 3.4.2.2 Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  - 3.4.2.3 Inform installers of lines and levels to which they must comply.
  - 3.4.2.4 Check the location, level, and plumb of every major element as the Work progresses.
  - 3.4.2.5 Notify County Representative when deviations from required lines and levels exceed allowable tolerances.
  - 3.4.2.6 Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction, industry standard, or as directed by the County.
- 3.4.3 Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
- 3.4.4 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.
- 3.4.5 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 County Representative.

### 3.5 FIELD ENGINEERING

- 3.5.1 Identification: Design-Build Entity shall pothole and provide surveys that identify reference points for horizontal and vertical control which shall provide basis for establishing the starting points for the Project Work.
- 3.5.2 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.
  - 3.5.2.1 Do not change or relocate existing benchmarks or control points without prior written approval of County Representative. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to County Representative before proceeding.

- 3.5.2.2 Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- 3.5.3 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.
  - 3.5.3.1 Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
  - 3.5.3.2 Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
  - 3.5.3.3 Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- 3.5.4 Final Property Survey: Prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor or professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
  - 3.5.4.1 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.
  - 3.5.4.2 At Final Completion, have the final property survey recorded by or with Authorities Having Jurisdiction as the official "property survey."

### 3.6 INSTALLATION

- 3.6.1 Pre-Installation Meetings: Installers and suppliers are to attend pre-installation meetings scheduled and run by Design-Build Entity.
- 3.6.2 General: Locate the Work and components of the Work accurately, in correct alignment and elevation.
  - 3.6.2.1 Make vertical work plumb and make horizontal work level.
  - 3.6.2.2 Install components to maximize space available for maintenance and ease of removal for replacement.
  - 3.6.2.3 Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
  - 3.6.2.4 Doors and access panels shall be kept clear.
  - 3.6.2.5 Before beginning any installation, make provisions to avoid interference.
  - 3.6.2.6 Relocate installed work that does not provide adequate accessibility.
  - 3.6.2.7 Maintain minimum headroom clearance of nine (9) feet in spaces without a suspended ceiling.
  - 3.6.2.8 Do not obstruct spaces and installations that are required to be clear by California Building Code requirements.

- 3.6.3 Precedence of Installation Requirements:
  - 3.6.3.1 Descriptive specification.
  - 3.6.3.2 Product listing, classification, or certification.
  - 3.6.3.3 Manufacturer's installation instructions.
  - 3.6.3.4 Trade association or referenced standards.
  - 3.6.3.5 Most common trade practices.
- 3.6.4 Comply with manufacturer's written instructions and recommendations for installing products in applications indicated unless more explicit or stringent requirements are contained in Contract Documents.
- 3.6.5 Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Completion.
- 3.6.6 Allow for building movement including thermal expansion and contraction.
- 3.6.7 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.
- 3.6.8 Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
  - 3.6.8.1 Maximum noise level for trenchers, graders, and trucks shall not exceed ninety (90) dBA at fifty (50) feet as measured under the noisiest operating conditions. For other equipment, noise levels shall not exceed eighty-five (85) dBA at fifty (50) feet.
  - 3.6.8.2 Jackhammers shall be equipped with exhaust mufflers and steel muffing sleeves. Air compressors should be of a quiet type such as a "whisperized" compressor.
  - 3.6.8.3 Machines and equipment shall not be left idling.
  - 3.6.8.4 Where commercially feasible, electric power shall be used in lieu of internal combustion engine power wherever possible.
  - 3.6.8.5 Schedule noisy operations so as to minimize their duration at any given location.
  - 3.6.8.6 Equipment shall be properly maintained to reduce noise from excessive vibration, faulty mufflers, or other sources.
  - 3.6.8.7 Provide noise barriers to comply with above criteria.
  - 3.6.8.8 Refer to Document 01 14 00 (Work Restrictions), for additional noise control requirements.
- 3.6.9 Obtain and distribute to the parties' involved templates for Work specified to be factory prepared and field installed. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

- 3.6.10 Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
  - 3.6.10.1 Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application and as required by applicable Code requirements for accessibility. Refer questionable mounting height decisions to the County Representative for final decision.
  - 3.6.10.2 Allow for building movement, including thermal expansion and contraction.
  - 3.6.10.3 Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, blocking, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project Site in time for installation.
  - 3.6.10.4 Comply with the California Building Code requirements for earthquake Seismic Zone 4.
- 3.6.11 Make joints of uniform width. Where joint locations in exposed work are not indicated, produce sketch to arrange joints for the best visual effect and submit to the County Representative for review. Fit exposed connections together to form hairline joints.
- 3.6.12 Use products, cleaners, and installation materials that are not considered hazardous.
- 3.6.13 Isolate each part of the completed construction from incompatible material to prevent deterioration.

### 3.7 COUNTY-INSTALLED PRODUCTS

- 3.7.1 Site Access: Provide access to Project Site for County's construction and installation forces.
- 3.7.2 Coordination: Coordinate construction and operations of the Work with work performed by County's forces.
  - 3.7.2.1 Contract Schedule: Inform County of Design-Build Entity's preferred contract Schedule for County's portion of the Work. Adjust Contract Schedule based on a mutually agreeable timetable. Notify County if changes to schedule are required due to differences in actual construction progress.
  - 3.7.2.2 Pre-Installation Conferences: Include County's forces at pre-installation conferences covering portions of the Work that are to receive County's work. Attend pre-installation conferences conducted by County's forces if portions of the Work depend on County's construction.

### 3.8 PROGRESS CLEANING

- 3.8.1 Clean Project Site and work areas at frequent intervals, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
  - 3.8.1.1 Comply with requirements in CFC Article 87 for removal of combustible waste materials and debris.

- 3.8.1.2 Do not hold materials more than seven (7) Days during normal weather or three (3) Days if the temperature is expected to rise above eighty degrees Fahrenheit (80°F).
- 3.8.1.3 Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- 3.8.2 Maintain Project Site free of waste materials and debris.
- 3.8.3 Clean areas where Work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 3.8.3.1 Remove liquid spills promptly.
  - 3.8.3.2 Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate. Refer to Document 01 14 00 (Work Restrictions) regarding dust control requirements.
- 3.8.4 Keep installed work clean. Clean installed surfaces according to 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.
- 3.8.5 Remove debris from concealed spaces before enclosing the space.
- 3.8.6 Clean exposed surfaces in finished areas and protect as necessary to ensure protection from damage and deterioration at time of Final Completion.
- 3.8.7 Burying or burning waste materials On Site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- 3.8.8 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 completion.
- 3.8.9 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.
- 3.8.10 Manage and Supervise construction operations and take appropriate measures to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:
  - 3.8.10.1 Excessive static or dynamic loading.
  - 3.8.10.2 Excessive internal or external pressures.
  - 3.8.10.3 Excessively high or low temperatures.
  - 3.8.10.4 Thermal shock.
  - 3.8.10.5 Excessively high or low humidity.
  - 3.8.10.6 Air contamination or pollution.
  - 3.8.10.7 Water or ice.

- 3.8.10.8 Solvents.
- 3.8.10.9 Chemicals.
- 3.8.10.10 Light.
- 3.8.10.11 Puncture.
- 3.8.10.12 Abrasion.
- 3.8.10.13 Heavy traffic.
- 3.8.10.14 Soiling, staining and corrosion.
- 3.8.10.15 Bacteria.
- 3.8.10.16 Rodent and insect infestation.
- 3.8.10.17 Combustion.
- 3.8.10.18 Electrical current.
- 3.8.10.19 High speed operation.
- 3.8.10.20 Improper lubrication.
- 3.8.10.21 Unusual wear or other misuse.
- 3.8.10.22 Contact between incompatible materials.
- 3.8.10.23 Destructive testing.
- 3.8.10.24 Misalignment.
- 3.8.10.25 Excessive weathering.
- 3.8.10.26 Unprotected storage.
- 3.8.10.27 Improper shipping or handling.
- 3.8.10.28 Theft.
- 3.8.10.29 Vandalism.

3.8.11 Design-Build Entity shall regularly evaluate environmental and Site conditions and take appropriate measures in advance of reasonably anticipated situations to prevent deleterious exposure to items listed above.

3.8.12 If cleaning and protection is not performed to the satisfaction of the County Representative, the County reserves the right to have cleaning performed by others at Design-Build Entity's expense.

### 3.9 STARTING AND ADJUSTING

3.9.1 Following are minimum starting and adjusting requirements. Design-Build Entity is to perform starting and adjusting per manufacturer's recommendations. If more stringent requirements are described in the Contract Documents, the more stringent shall apply.

- 3.9.1.1 Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace them with new units, and retest.
- 3.9.1.2 Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

- 3.9.1.3 Test each piece of equipment to verify proper operation. Test and adjust controls and safety. Replace damaged and malfunctioning controls and equipment.
- 3.9.1.4 If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Document 01 45 00 (Quality Control and Assurance).

### 3.10 PROTECTION OF INSTALLED CONSTRUCTION

- 3.10.1 Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Final Completion.
  - 3.10.1.1 Cover products subject to deterioration with impervious cover; provide ventilation to avoid condensation and trapping water.
  - 3.10.1.2 Take care to use protective covering and blocking materials that do not soil, stain, or damage materials being protected.
  - 3.10.1.3 After installation, provide coverings to protect products from damage from traffic and construction operations, remove when no longer needed.
- 3.10.2 Comply with manufacturer's written instructions for temperature and relative humidity.
- 3.10.3 Protect interior materials from water damage; immediately remove wet materials from Site to prevent growth of mold and mildew On Site.
- 3.10.4 Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.

### 3.11 CORRECTION OF THE WORK

- 3.11.1 Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Document 01 73 29 (Cutting and Patching). Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- 3.11.2 Restore permanent facilities used during construction to their specified condition.
- 3.11.3 Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- 3.11.4 Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- 3.11.5 Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF DOCUMENT

## DOCUMENT 01 73 29

### CUTTING AND PATCHING

#### PART 1 - GENERAL

##### 1.1 SUMMARY

1.1.1 This Document includes procedural requirements for cutting and patching. Design-Build Entity shall be responsible for cutting, fitting, and patching required to complete Work and to:

1.1.1.1 Make its parts fit together properly.

1.1.1.2 Uncover Work to provide for installation of ill-timed Work.

1.1.1.3 Remove and replace defective Work.

1.1.1.4 Remove and replace Work not conforming to Contract Documents.

1.1.1.5 Patch and repair visible finish surfaces or fire-rated assemblies affected by installation of products or construction.

1.1.1.6 Remove samples of installed Work as required for testing.

1.1.1.7 Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.

1.1.2 Related Documents include the following:

1.1.2.1 Documents 01 11 10 (Summary of Work) and 01 14 00 (Work Restrictions).

1.1.2.2 Document 01 73 32 (Selective Demolition), if applicable.

1.1.2.3 Scope of Work for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1.1.2.3.1 Cutting and patching incidental to Work specified in the Document.

1.1.2.3.2 Coordination with Work specified in other Documents for openings required to accommodate Work specified in those other Documents.

1.1.2.4 Scope of Work for specific requirements and limitations applicable to penetration firestopping for patching fire-rated construction.

##### 1.2 DEFINITIONS

1.2.1 Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.

1.2.2 Patching: Fitting and repair work required to restore surfaces to original condition after installation of other Work.

### 1.3 SUBMITTALS

- 1.3.1 Cutting and Patching Proposal: Submit a proposal describing procedures at least fourteen (14) Days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
- 1.3.1.1 Extent: Describe cutting and patching, show how it will be performed, and indicate why it cannot be avoided. Include Shop Drawings as necessary to identify locations and communicate descriptions.
  - 1.3.1.2 Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements. Describe extent and method of refinishing to be included.
  - 1.3.1.3 Products: List products to be used and firms or entities that will perform the Work.
  - 1.3.1.4 Dates: Indicate when cutting and patching will be performed.
  - 1.3.1.5 Exterior Envelope or Moisture Barriers: Where the integrity of weather-exposed or moisture-resistant elements is involved, describe the temporary measures that are to be implemented to maintain a weather tight installation during the execution of the Work. Also, describe the permanent construction to be cut and how it shall be properly patched. Provide supporting documentation by manufacturer of products and/or trade association involved.
  - 1.3.1.6 Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted. Comply with the requirements of Documents 01 11 10 (Summary of Work) and 01 14 00 (Work Restrictions).
  - 1.3.1.7 Structural Elements: Where cutting and patching affect the integrity of, or involve adding reinforcement to structural elements, submit details and engineering calculations prepared and signed by a California Registered Structural Engineer for existing buildings, or by the Structural Engineer of Record for the new buildings showing integration of reinforcement with original structure.
  - 1.3.1.8 County's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory Work.

### 1.4 QUALITY ASSURANCE

- 1.4.1 Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- 1.4.2 Operational Elements: Do not cut and patch operating elements and related components in a manner that results in a reduction of their capacity to perform as intended, increased maintenance, or decreased operational life or safety.
- 1.4.3 Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the

exterior or in occupied spaces in a manner that would reduce, in County Representative's opinion, the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

## 1.5 WARRANTY

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

## PART 2 - PRODUCTS

### 2.1 MATERIALS

2.1.1 General: Comply with requirements specified in other Documents.

2.1.2 Primary Products: As required for original installation and to match surrounding construction.

2.1.2.1 Where Specifications and standards have not been provided, provide materials and fabrication consistent with quality of Project and intended for commercial construction.

2.1.2.2 Provide new materials for cutting and patching unless otherwise indicated.

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

2.1.3.1 If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

3.1.1 Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

3.1.1.1 Inspect existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching.

3.1.1.2 After uncovering existing Work, inspect conditions affecting proper accomplishment of Work.

3.1.1.3 Report unsatisfactory or questionable conditions to County in writing; do not proceed with Work until County has provided further instructions. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.1.1.4 Identify hazardous substances or conditions exposed during the Work to County for decision or remedy.

3.1.1.5 Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.

- 3.1.1.6 Beginning of cutting or patching shall be interpreted to mean that existing conditions were found by Design-Build Entity to be acceptable.

## 3.2 PREPARATION

- 3.2.1 Temporary Support: Provide temporary support of Work to be cut. If structural elements are to be involved, comply with Paragraph 1.3.1.7 above. Provide devices and methods to protect other portions of Project from damage. Provide services of California licensed engineer for designing temporary support where required by applicable authorities for temporary support and for shoring; submit engineering calculations directly to applicable authorities and County upon request.
- 3.2.2 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.
- 3.2.3 Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- 3.2.4 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.

## 3.3 PERFORMANCE

- 3.3.1 General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay. 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.
- 3.3.2 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.
  - 3.3.2.1 In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Pneumatic tools will not be allowed without prior approval. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Do not overcut corners. Temporarily cover openings when not in use.
  - 3.3.2.2 Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3.3.2.3 Concrete or Masonry: Core drill holes through concrete and masonry. Cut using a cutting machine, such as an abrasive saw or a diamond-core drill. Cut masonry and concrete materials using masonry saw.
  - 3.3.2.4 Excavating and Backfilling: Comply with requirements in applicable Specification Sections where required by cutting and patching operations. Execute excavating and backfilling by methods that will prevent settlement and damage to other work.

- 3.3.2.5 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.
- 3.3.2.6 Proceed with patching after construction operations requiring cutting are complete.
- 3.3.3 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 possible. Provide materials and comply with installation requirements specified in other Sections.
  - 3.3.3.1 Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
  - 3.3.3.2 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.
    - 3.3.3.2.1 For continuous surfaces, refinish to nearest intersection or natural break.
    - 3.3.3.2.2 For an assembly, refinish entire unit.
    - 3.3.3.2.3 Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - 3.3.3.2.4 Restore damaged pipe covering to its original condition.
  - 3.3.3.3 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. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  - 3.3.3.4 Ceilings: Patch, repair, or re-hang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
  - 3.3.3.5 Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- 3.3.4 Restoration:
  - 3.3.4.1 Restore work that has been cut or removed; install new products to provide completed Work in accordance with requirements of Contract Documents.
  - 3.3.4.2 Fit work neat and tight allowing for expansion and contraction. Butt new finished construction to existing exposed surfaces, structure, pipes, ducts, conduit, and other penetrations through surfaces to allow for movement.

- 3.3.4.3 Penetrations at Fire-Rated Construction: At penetrations of fire-rated walls, partitions, ceiling, or floor construction, completely seal voids or membrane with material in accordance with applicable Specifications Sections, to full thickness of the penetrated element.
- 3.3.5 Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF DOCUMENT

## DOCUMENT 01 73 32

### SELECTIVE DEMOLITION

#### PART 1 - GENERAL

##### 1.1 SUMMARY

1.1.1 This Document includes the following:

1.1.1.1 Demolition and removal of selected portions of buildings or structures.

1.1.1.2 Demolition and removal of soil and selected site elements.

1.1.1.3 Salvage of existing items to be reused or recycled.

1.1.2 Related Documents include the following:

1.1.2.1 Document 01 11 10 (Summary of Work)

1.1.2.2 Document 01 14 00 (Work Restrictions)

1.1.2.3 Document 01 50 00 (Temporary Facilities and Controls)

1.1.2.4 Document 01 73 29 (Cutting and Patching)

1.1.2.5 Document 01 74 19 (Construction Waste Management and Disposal)

1.1.2.6 Document 01 81 13 (Sustainable Design Requirements)

##### 1.2 DEFINITIONS

1.2.1 Remove: Detach items from existing construction and legally dispose of them Off-Site, unless indicated to be removed and salvaged or removed and reinstalled.

1.2.2 Remove and Salvage: Detach items from existing construction and deliver them to County ready for reuse.

1.2.3 Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

1.2.4 Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

##### 1.3 MATERIALS OWNERSHIP

1.3.1 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 County that may be encountered during selective demolition remain County's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to County. Coordinate with County Representative, who will establish special procedures for removal and salvage.

- 1.3.2 Demolished material not claimed by the County shall be considered to be property of Design-Build Entity and shall be completely removed from the job Site. Materials and equipment to be salvaged shall not be placed on view to prospective purchasers or sold On-Site.

#### 1.4 SUBMITTALS

- 1.4.1 Schedule of Selective Demolition Activities: Indicate the following, as applicable:
  - 1.4.1.1 Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure County's buildings and adjacent tenants' operations are uninterrupted.
  - 1.4.1.2 Interruption of utility services. Indicate how long utility services will be interrupted. Comply with the requirements of Documents 01 11 10 (Summary of Work) and 01 14 00 (Work Restrictions).
  - 1.4.1.3 Coordination for shutoff, capping, and continuation of utility services.
  - 1.4.1.4 Locations of proposed Site access, dust- and noise-control temporary partitions and means of egress, including for other tenants affected by selective demolition operations.
  - 1.4.1.5 Coordination of any of County's continuing occupancy of portions of existing building and Site and partial occupancy of completed Work.
  - 1.4.1.6 Means of protection for items to remain and items in path of waste removal from building or Site.
- 1.4.2 Design-Build Entity shall secure and pay for required hauling permits and pay dumping fees and charges. Submit permits for transport and disposal of debris.
- 1.4.3 Submit demolition procedures and operational sequence for review and acceptance by County.
  - 1.4.3.1 Demolition Plan: Prior to the commencement of the work of this Document, and in accordance with the provisions of the Division 1 General Specifications, submit a plan for the organization of the demolition, including salvage, demolition, removal, and disposal procedures for acceptance by County. Indicate plans for the protection of portions of the existing structure to remain. Include locations of temporary barriers.
  - 1.4.3.2 Shop Drawings: Indicate demolition and removal sequence and location of salvageable items; location and construction of temporary work.
- 1.4.4 Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.
- 1.4.5 Pre-Demolition Photographs and Video: Show existing conditions of adjoining construction and Site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations. Submit to County Representative before Work begins.
- 1.4.6 Project Record Documents: Design-Build Entity shall accurately record actual locations of capped utilities, subsurface construction, and obstructions.

- 1.4.7 Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.
- 1.4.8 Statement of Refrigerant Recovery: A statement signed by technician responsible for recovering refrigerant, that "All refrigerant that was present was recovered and the recovery was performed under EPA regulations." Include name and address of technician and list the refrigerant(s) recovered.

## 1.5 QUALITY ASSURANCE

- 1.5.1 Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.
- 1.5.2 Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- 1.5.3 Standards: Comply with ANSI A10.6 and CFC Article 87.

## 1.6 PRE-DEMOLITION CONFERENCE

- 1.6.1 Pre-demolition Conference: Conduct conference at Project Site. In company with the Architect and County Representative, visit the Site and verify the extent and location of demolition required. Review methods and procedures related to selective demolition including, but not limited to, the following:
  - 1.6.1.1 Inspect and discuss condition of construction to be selectively demolished.
  - 1.6.1.2 Carefully identify limits of demolition.
  - 1.6.1.3 Review structural load limitations of existing structure.
  - 1.6.1.4 Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
  - 1.6.1.5 Review areas where existing construction is to remain and require protection.
  - 1.6.1.6 Mark interface surfaces as required to enable workmen also to clearly identify items to be removed and items to be left in place intact.
  - 1.6.1.7 Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.

## 1.7 PROJECT CONDITIONS

- 1.7.1 Notify County Representative of discrepancies between existing conditions and Drawings before proceeding with selective demolition. Information shown on the Drawings is to show existing Site and building conditions with information developed from the original construction documents, field surveys and County's records, and to generally show the amount and type of demolition required to prepare existing areas for new work. Design-Build Entity shall make a detailed survey of existing conditions pertaining to the Work prior to commencing demolition.

- 1.7.2 Hazardous Materials: It is expected that hazardous materials will be encountered in the Work.
- 1.7.3 Storage or sale of removed items or materials On-Site is not permitted.
- 1.7.4 Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations. Maintain fire-protection facilities in service during selective demolition operations.

## 1.8 WARRANTY

Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

## PART 2 - PRODUCTS

- 2.1 TEMPORARY PROTECTION: Temporary, protective plastic sheeting shall have the following minimum characteristics:
  - 2.1.1 Self-adhesive applications shall provide a clean release for easy removal without adhesive transfer.
  - 2.1.2 Provide anti-slip, anti-trip at walking surfaces.
  - 2.1.3 Protection shall be impact and scratch resistant to the underlying surface.
  - 2.1.4 Provide waterproof polyethylene top layer at areas exposed to moisture.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- 3.1.1 Verify that utilities have been disconnected and capped.
- 3.1.2 Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- 3.1.3 Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- 3.1.4 If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to the County Representative.
- 3.1.5 Record existing conditions by use of pre-construction photographs and video.
- 3.1.6 Engage a professional engineer to survey the condition of the building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure to remain or adjacent structures during selective demolition operations.
- 3.1.7 Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

### 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- 3.2.1 Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations. Comply with requirements for existing services/systems interruptions specified in Documents 01 11 10 (Summary of Work) and 01 14 00 (Work Restrictions).
- 3.2.2 Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished or connection point for new service.
- 3.2.2.1 County Representative will arrange to shut off County services/systems when requested by Design-Build Entity.
- 3.2.2.2 Arrange to shut off service utilities with utility companies.
- 3.2.2.3 Do not schedule shutdowns until materials, manpower, and equipment are available to complete the Work with a minimum of delay.
- 3.2.2.4 The County Representative may require system and utility shutdowns, power outages, and interruption of services to be performed on weekends or off-hours with no increase in Contract Sum. Shutdowns, power outages, and interruptions of services must be requested in writing to the County Representative in accordance with Document 01 14 00 (Work Restrictions). These shutdowns, power outages, and interruption of services must be approved in advance by the County Representative prior to scheduling.
- 3.2.2.5 If services/systems are required to be removed, relocated, or abandoned before proceeding with selective demolition, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
- 3.2.2.6 Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing. Where an entire wall is to be removed, existing services/systems shall be removed with removal of the wall.

### 3.3 PREPARATION

- 3.3.1 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. Comply with requirements for access and protection specified in Document 01 50 00 (Temporary Facilities and Controls).
- 3.3.2 Temporary Facilities: Provide temporary barricades, enclosures, chutes, and other protection required to prevent injury to people and damage to adjacent buildings and facilities that remain. Do not interfere with use of adjacent building spaces; maintain free and safe passage to and from.
- 3.3.2.1 Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
- 3.3.2.2 Temporary safeguards shall conform to the requirements of the Fire Marshal where fire and life systems, rated assemblies, or exit ways are involved.

- 3.3.2.3 Provide appropriate temporary signage including signage for exit or building egress. Provide warning signs, lanterns, and lighting for vehicular and personnel protection.
- 3.3.2.4 Prevent dust, odors, and noise from becoming a nuisance to occupants, neighbors, the public, and to other work being performed on or near the Site.
- 3.3.2.5 Provide temporary weather protection during intervals between selective demolition of existing construction on exterior surfaces and new construction to prevent water leakage and damage to structure and interior areas.
- 3.3.2.6 Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations. Where temporary partitions are utilized to allow disassembly of fire-rated assemblies, the temporary partitions and any openings in them shall be constructed to maintain the fire rating of the adjacent rated partition.
- 3.3.2.7 Cover and protect furniture, furnishings, and equipment that have not been removed.
- 3.3.2.8 Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Document 01 50 00 (Temporary Facilities and Controls).
- 3.3.3 Temporary Shoring: 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.
  - 3.3.3.1 Strengthen or add new support when required during the progress of selective demolition. Provide services of a California Licensed Engineer for designing temporary support where required by applicable authorities for temporary support and for shoring; submit engineering calculations directly to applicable authorities upon request.
  - 3.3.3.2 Prevent movement of adjacent construction, provide and place bracing and be responsible for safety and support of adjacent construction.
  - 3.3.3.3 Assume liability for movement of adjacent construction, for damage, and for injury.
  - 3.3.3.4 Cease operations and notify County Representative immediately if safety of structure appears to be endangered; take precautions to properly support structure. Do not resume operations until safety is restored.

#### 3.4 GENERAL REQUIREMENTS

- 3.4.1 Demolish and remove existing construction only to the extent required by new construction. Perform demolition work in accordance with the submitted plan as accepted. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 3.4.1.1 Shut off, cap, and otherwise protect existing utility lines in accordance with the requirements of the County, public agencies or utilities having jurisdiction.

- 3.4.1.1.1 Do not remove utilities discovered during demolition but not indicated without first determining purpose for utility; coordinate with County Representative.
- 3.4.1.1.2 Do not disrupt services to adjacent building areas not in Project.
- 3.4.1.1.3 Place markers to indicate location of disconnected services; identify service lines and capping locations on Project Record Documents.
- 3.4.1.2 Completely remove items scheduled to be demolished and removed, leaving surfaces clean, solid, and ready to receive new materials specified elsewhere.
- 3.4.1.3 The use of explosives is not permitted.
- 3.4.1.4 Proceed with selective demolition systematically, from higher to lower level.
- 3.4.1.5 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, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
- 3.4.1.6 Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
- 3.4.1.7 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. Establish and maintain fire watch and portable fire-suppression devices during flame-cutting operations.
- 3.4.1.8 Maintain adequate ventilation when using cutting torches.
- 3.4.1.9 Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of Off-Site at Design-Build Entity's expense. Immediately remove from site wet materials and materials with water stains, mold, and mildew.
- 3.4.1.10 Removal of any structural framing members is not allowed without design professional review and the County Representative's approval.
- 3.4.1.11 Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
- 3.4.1.12 Dispose of demolished items and materials promptly Off-Site at Design-Build Entity's expense.
- 3.4.1.13 Spoil material that is excavated in excess of what is required for backfill, or excavated material that is unsuitable for backfill and rubbish, shall be removed from the Site and disposed of promptly Off-Site at Design-Build Entity's expense.

3.4.1.14 Ensure fire alarm system remains operable at all times. If fire alarm system becomes inoperable, immediately establish and maintain a continuous fire watch until such time as the system is restored to full operation.

3.4.2 Removed and Salvaged Items:

3.4.2.1 Carefully remove, store, and protect materials indicated for reinstallation or retention by County. Where stored materials are damaged, repair them to their original condition or replace with new undamaged materials.

3.4.2.2 Clean salvaged items.

3.4.2.3 Pack or crate items after cleaning. Identify contents of containers.

3.4.2.4 Store items in a secure area until delivery to County.

3.4.2.5 Transport items to County's storage area on-site as designated by County Representative.

3.4.2.6 Protect items from damage during transport and storage.

3.4.3 Removed and Reinstalled Items:

3.4.3.1 Clean and repair items to functional condition adequate for intended reuse. Repair and paint equipment to match new equipment.

3.4.3.2 Pack or crate items after cleaning and repairing. Identify contents of containers.

3.4.3.3 Protect items from damage during transport and storage.

3.4.3.4 Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, support, and miscellaneous materials necessary to make items functional for use indicated.

3.4.4 Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the County Representative, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

3.5.1 Concrete: Demolish in sections. Cut concrete to its full depth at junctures with construction to remain and at regular intervals using a power-driven saw, then remove concrete between saw cuts.

3.5.2 Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain using a power-driven saw, then remove masonry between saw cuts.

3.5.3 Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

### 3.6 DISPOSAL OF DEMOLISHED MATERIALS

3.6.1 General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the County's property, remove demolished materials from Project Site and recycle or legally dispose of them in an EPA-approved landfill at Design-Build Entity's expense.

3.6.1.1 Do not allow demolished materials to accumulate On-Site.

3.6.1.2 Remove and transport debris in a manner that will prevent spillage on adjacent streets, surfaces, and areas.

3.6.1.3 Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled manner.

3.6.2 Burning: Do not burn demolished materials.

3.6.3 Disposal: Transport demolished materials off County's property and legally dispose of them at Design-Build Entity's expense.

### 3.7 CLEANING

3.7.1 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 DOCUMENT

**DOCUMENT 01 74 19**

**CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS**

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

**1.02 SUMMARY**

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

**1.03 DEFINITIONS**

- A. Alternative Daily Cover ("ADC"): Material other than earthen material placed on the surface of the active face of a municipal solid waste landfill at the end of each operating day to control vectors, fires, odors, blowing litter, and scavenging. Note that materials that are used as ADC are not considered diverted from the landfill for USGBC LEED v4 O+M and must be included in calculations as landfilled waste.
- B. Commingled Waste: Building waste streams that are combined on the Project Site and hauled away for sorting into recyclable streams. Note that for USGBC LEED v4 O+M, regardless of the number of materials that are separated out, commingled materials contribute to LEED as only one material stream.
- C. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- D. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations, excluding land-clearing debris and soil (see below).
- E. Disposal: Removal Off-Site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- F. Land-Clearing Debris and Soil: Materials that are natural (e.g., rock, soil, stone, vegetation). Note that these are excluded from LEED waste management accounting. Materials that are man-made (e.g., concrete, brick, cement) are considered construction waste even if they were originally on the Site.
- G. Material Stream: A flow of materials coming from a jobsite into markets for building materials.
- H. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for remanufacturing.
- I. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- J. Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

- K. Waste Management Plan: means a waste management plan required under this Contract that is used to track and report the disposal of all construction debris generated on this Project.
- L. WasteTracking.com powered by Green Halo Systems: is the web-based system required for use in developing a waste management plan, uploading recycling data throughout the construction process, and submitting the final report demonstrating the Project compliance online. More information about WasteTracking.com powered by Green Halo Systems is available by visiting them online at [www.wastetracking.com](http://www.wastetracking.com) or calling (888) 525-1301.
- M. Waste Diversion: A management activity that disposes of waste through methods other than incineration or landfilling. Examples include reuse and recycling.
- N. Waste-To-Energy: The conversion of non-recyclable waste materials into usable heat, electricity, or fuel through variety of processes, including combustion, gasification, pyrolyzation, anaerobic digestion, and landfill gas ("LFG") recovery. In USGBC LEED v4 O+M, to be considered diversion from landfill, the Project team must follow the European Commission Waste Framework Directive 2009/98/EC and European Commission Waste Incineration Directive 200/76/EC. In addition, the waste-to-energy facility must meet the applicable European Committee for Standardization ("CEN") EN 303 standards, based on the fuel type.

#### 1.04 PERFORMANCE REQUIREMENTS

- A. General: Achieve end-of-Project rates for salvage/recycling of seventy-five percent (75%) by weight of total non-hazardous solid waste generated by the Work. Diverted materials must include a minimum of four (4) material streams. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials, including, but not limited to, the following:
  - 1. Demolition Waste:
    - a. Asphalt paving
    - b. Concrete
    - c. Concrete reinforcing steel
    - d. Brick
    - e. Concrete masonry units
    - f. Wood studs
    - g. Wood joists
    - h. Plywood and oriented strand board
    - i. Wood paneling
    - j. Wood trim
    - k. Structural and miscellaneous steel
    - l. Rough hardware
    - m. Roofing
    - n. Insulation
    - o. Doors and frames
    - p. Door hardware
    - q. Windows
    - r. Glazing
    - s. Metal studs
    - t. Gypsum board
    - u. Acoustical tile and panels
    - v. Carpet
    - w. Carpet pad
    - x. Demountable partitions
    - y. Equipment
    - z. Cabinets
    - aa. Plumbing fixtures
    - bb. Piping

- cc. Supports and hangers
- dd. Valves
- ee. Sprinklers
- ff. Mechanical equipment
- gg. Refrigerants
- hh. Electrical conduit
- ii. Copper wiring
- jj. Lighting fixtures
- kk. Lamps
- ll. Ballasts
- mm. Electrical devices
- nn. Switchgear and panelboards
- oo. Transformers

2. Construction Waste:

- a. Masonry and CMU
- b. Lumber
- c. Wood sheet materials
- d. Wood trim
- e. Metals
- f. Roofing
- g. Insulation
- h. Carpet and pad
- i. Gypsum board
- j. Piping
- k. Electrical conduit
- l. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph 1 above, salvage or recycle one hundred percent (100%) of the following uncontaminated packaging materials:
  - 1) Paper
  - 2) Cardboard
  - 3) Boxes
  - 4) Plastic sheet and film
  - 5) Polystyrene packaging
  - 6) Wood crates
  - 7) Plastic pails

1.05 ACTION SUBMITTALS

- A. Construction and Demolition Waste Management Plan: Submit LEED-compliant plan within thirty (30) days of date established in the Notice to Proceed. This plan must be submitted regardless of Project goals for diversion.

1.06 INFORMATIONAL SUBMITTALS

- A. Waste Reduction Progress Reports: Submit report to LEED consultant on a monthly basis.
  - 1. Material category
  - 2. Generation point of waste
  - 3. Identify diverted waste material stream
  - 4. Total quantity of waste in tons
  - 5. Quantity of waste salvaged, both estimated and actual in tons
  - 6. Quantity of waste recycled, both estimated and actual in tons
  - 7. Total quantity of waste recovered (salvaged plus recycled) in tons
  - 8. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste
- B. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

- C. Record of materials removed from new building site and reused on County or other property, as appropriate or required.
- D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices. Note that commingled materials contribute to credit requirements as a single material stream only, and that visual approximation is not an acceptable method of calculating commingled load content. Commingled materials must be either individually weighed or documented with a compliant facility-level accounting methodology.
- G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- H. LEED Submittal: LEED letter template for Construction and Demolition Waste Management Planning and Construction and Demolition Waste Management, signed by Design-Build Entity, tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met.
- I. Waste-to-Energy Records: Indicate receipt and acceptance of waste diverted to a waste-to-energy facility that follows the European Commission Waste Framework Directive 2009/98/EC and Waste Incineration Directive 2000/76/EC and meets the applicable European Committee for Standardization ("CEN") EN 303 standards.

1.07 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: Experienced firm, with a record of successful waste management coordination of projects with similar requirements. Waste management coordinator may also serve as LEED coordinator.
- B. Regulatory Requirements: Comply with hauling and disposal regulations of Authorities Having Jurisdiction.
- C. Waste Management Conference: Conduct conference at Project Site to comply with requirements in Document 01 31 00 (Project Management and Coordination). Review methods and procedures related to waste management including, but not limited to, the following:
  1. Review and discuss waste management plan including responsibilities of waste management coordinator.
  2. Review requirements for documenting quantities of each type of waste and its disposition.
  3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
  4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
  5. Review waste management requirements for each trade.

1.08 WASTE MANAGEMENT PLAN

- A. General: Develop a waste management plan according to requirements in this Document. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue

analysis. Indicate quantities by weight or volume but use same units of measure throughout waste management plan.

- B. Waste Identification: Indicate anticipated types and quantities of waste generated by the Work. Include estimated quantities and assumptions for estimates. Identify a diversion rate goal and a minimum of five (5) waste streams as part of Construction and Demolition Waste Planning.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, waste diversion, and handling and transportation procedures.
  - 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 Reuse by County: For materials that will be salvaged and reused by County on another project or on County property, describe methods for preparing salvaged materials before incorporation into the Work.
  - 3. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
  - 4. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
  - 5. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
  - 6. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
  - 7. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.
  - 8. Construction waste quantities entered in volume will be converted automatically using the defined Conversion Rate approved by Alameda County that is integrated into WasteTracking.com powered by Green Halo Systems.

## PART 2 - PRODUCTS (NOT APPLICABLE)

## PART 3 - EXECUTION

### 3.01 PLAN IMPLEMENTATION

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
  - 1. Comply with operation, termination, and removal requirements in Document 01 50 00 (Temporary Facilities and Controls).
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan.
- C. Training: Train workers, Subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
  - 1. Distribute waste management plan to entities when they first begin work On-Site. Review plan procedures and locations established for salvage, recycling, and disposal.
- D. 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, recycled, reused, donated, and sold.
  2. Comply with Document 01 50 00 (Temporary Facilities and Controls) for controlling dust and dirt, environmental protection, and noise control.
- E. Retain a copy of, and upload into WasteTracking.com powered by Green Halo Systems, all weight tickets, copies of receipts and invoices and any other documentation related to the reuse, recycling, and disposal of generated waste/debris from demolition and construction activities.
- F. Maintain a log of each load of each category item diverted from landfill. Log in separately debris sent to a Class III landfill and materials sent to recycling facilities.
1. Include in log: type of load, load weight, name of hauling service, name of recycling service or landfill, and date accepted by recycling service or by landfill.
  2. County reserves the right to audit the log at any time. Design-Build Entity shall retain and provide to the County all weight tickets, copies of receipts and invoices, and any other documentation related to the disposal or recycling of generated waste/debris from demolition and construction activities.
- G. Material Handling:
1. Separation Facilities:
    - a. Designate a specific On-Site area or areas to facilitate separation of materials for potential reuse, salvage, recycling, and return.
    - b. Keep waste bins and pile areas neat and clean. Clearly mark bins for each category of waste. Do not commingle non-recyclable waste with materials designated for reuse or recycling.

### 3.02 EXAMINATION AND PREPARATION

- A. Set up and maintain in good standing a project account with WasteTracking.com powered by Green Halo Systems using the website [ACGSA.WasteTracking.com](http://ACGSA.WasteTracking.com) to be used exclusively for this project to develop a waste management plan, upload all reuse, recycling and waste disposal data throughout the construction process, and submit the final online report demonstrating Project compliance.
- B. Perform as required in the approved Waste Management Plan.

### 3.03 RECYCLING WASTE, GENERAL

- A. General: Household recyclables such as cans, bottles, paper, plastic containers.
- B. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project Site to the maximum extent practical according to approved construction waste management plan.
1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project Site. Include list of acceptable and unacceptable materials at each container and bin.
    - a. Inspect containers and bins for contamination and remove contaminated materials if found.
  2. Stockpile processed materials On-Site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
  4. Store components off the ground and protect from the weather.

5. Remove recyclable waste from County's property and transport to recycling receiver or processor.

#### 3.04 RECYCLING DEMOLITION WASTE

- A. Asphalt Paving: Break up and transport to recycling facility.
- B. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
  1. Break up and transport to recycling facility.
- C. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
  1. Transport to recycling facility.
- D. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.
- E. Metals: Separate metals by type.
  1. Structural Steel: Stack members according to size, type of member, and length.
  2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
- F. Asphalt Shingle Roofing: Separate organic and glass-fiber asphalt shingles and felts. Remove and dispose of nails, staples, and accessories.
- G. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.
- H. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.
- I. Metal Suspension System: Separate metal members including trim, and other metals from acoustical panels and tile and sort with other metals.
- J. Carpet: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.
  1. Store clean, dry carpet in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
- K. Carpet Tile: Remove debris, trash, and adhesive.
  1. Stack tile on pallet and store clean, dry carpet in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
- L. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.
- M. Conduit: Reduce conduit to straight lengths and store by type and size.

#### 3.05 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
  1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
  2. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project Site. For pallets that remain On-Site, break down pallets into component wood pieces and comply with requirements for recycling wood.
  3. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
  4. Alternative Daily Cover ("ADC"): Does not qualify as material diverted from disposal and does not contribute to waste diversion but must be included in waste accounting.

- 5. Land-Clearing Debris: Is not considered construction, demolition, or renovation waste that can contribute to waste diversion. It is excluded from Project waste accounting.
  - B. Wood Materials: Separate lumber, engineered wood products, panel products, and treated wood materials.
  - C. Masonry: Remove metal reinforcement, anchors, and ties from masonry.
    - 1. Transport to recycling facility.
  - D. Metals: Separate metals by type.
    - 1. Structural Steel.
    - 2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
  - E. Gypsum Board:
    - 1. Clean Gypsum Board:
      - a. Comply with requirements in Division 32 Section "Plants" for use of clean ground gypsum board as inorganic soil amendment.
- 3.06 DISPOSAL OF WASTE
- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project Site and legally dispose of them in a landfill or incinerator acceptable to Authorities Having Jurisdiction.
    - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of to accumulate On-Site.
    - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  - B. Burning: Do not burn waste materials.
  - C. Disposal: Remove waste materials from County's property and legally dispose of them.

END OF DOCUMENT

**DOCUMENT 01 77 00**

**CLOSEOUT PROCEDURES**

**PART 1 - GENERAL**

**1.1 SUMMARY**

1.1.1 This document describes contract closeout procedures including:

- 1.1.1.1 Removal of temporary construction facilities
- 1.1.1.2 Substantial completion
- 1.1.1.3 Final completion
- 1.1.1.4 Final cleaning
- 1.1.1.5 Project record documents
- 1.1.1.6 Material, equipment, and finish data
- 1.1.1.7 Project guarantee
- 1.1.1.8 Warranties
- 1.1.1.9 Turn-in
- 1.1.1.10 Release of claims
- 1.1.1.11 Guaranty and Maintenance Bonds

See Document 01 29 00 (Payment Procedures), for additional contract documentation required for Final Completion and final payment.

**1.2 PRE-CLOSEOUT COORDINATION MEETING**

1.2.1 Design-Build Entity shall convene, administer, and minute a meeting with County to review the requirements stated herein as well as in the following Documents:

- 1.2.1.1 01 78 23 Operations and Maintenance Data
- 1.2.1.2 01 78 39 Project Record Documents
- 1.2.1.3 01 79 00 Demonstration and Training

1.2.2 Minutes of the discussion shall be maintained by Design-Build Entity and shall document any deviations, modifications, or variances from the contract requirements that are agreed to by the County in the Pre-Closeout Coordination Meeting. Minutes shall be distributed by Design-Build Entity to County for review and acceptance. Bi-weekly follow-up meetings shall be convened to track progress in achieving the requirements as stated herein and in the above Documents.

### 1.3 REMOVAL OF TEMPORARY CONSTRUCTION FACILITIES

- 1.3.1 Remove temporary materials, equipment, services, and construction prior to Substantial Completion inspection. Temporary construction facilities to be removed upon Final Completion when approved by County.
- 1.3.2 Clean and repair damage caused by installation or use of temporary facilities.
- 1.3.3 Restore permanent facilities used during construction to original condition.

### 1.4 SUBSTANTIAL COMPLETION

- 1.4.1 The term "Substantial Completion" is defined in Document 01 42 00, References and Definitions. When Design-Build Entity considers Work or designated portion thereof as substantially complete, submit to the County Representative written notification, with a punch list of items to be completed or corrected.
- 1.4.2 Within reasonable time, County will inspect to determine status of completion.
- 1.4.3 Should County determine that Work is not substantially complete, **within fourteen (14) days** County will notify Design-Build Entity in writing and will submit a list of all defects and omissions.
- 1.4.4 Design-Build Entity shall remedy deficiencies and send a second written notice of substantial completion. County will re-inspect the Work. If deficiencies previously noted are not corrected on re-inspection, then Design-Build Entity shall pay the cost of the re-inspection.
- 1.4.5 When County concludes that Work is nearing Substantial Completion, County will respond to Design-Build Entity's notice acknowledging the notice of substantial completion and will include a list of any additional remaining items to be provided, completed, or corrected not already on Design-Build Entity's list of remaining items.
- 1.4.6 The following are requirements for Regulatory Agency and Certificate of Occupancy in order to achieve Substantial Completion:
  - 1.4.6.1 Design-Build Entity must complete all Work necessary for the County to operate the facility for the purposes for which it is intended, including but not limited to the following:
    - 1.4.6.1.1 Manufactured units, equipment, and all building systems that require Startup must have been started up and run for a fifteen (15) day period.
    - 1.4.6.1.2 All electrical and low voltage systems must be complete.
    - 1.4.6.1.3 Final Test and Balance Report Complete and accepted by the Mechanical Engineer of Record and County.
    - 1.4.6.1.4 All requirements of Document 01 78 23 (Operations and Maintenance Data) are complete and accepted by County.
    - 1.4.6.1.5 All Training required in Document 01 79 00 (Demonstration and Training) must be complete.

- 1.4.6.2 Certificate of Occupancy: The Work has progressed to the point where, in the opinion of the County, as evidenced by the Regulatory Agency's issuance of a Certificate of Occupancy or equivalent final approval and sign off, and County's acknowledgment of Substantial Completion, the Work is sufficiently complete in accordance with the Contract Documents, so that the Work can be utilized for the purposes for which it is intended, including but not limited to the following:
  - 1.4.6.2.1 All Work necessary to occupy, utilize, and operate the building for its intended purpose is complete.
  - 1.4.6.2.2 All corrections or punchlist items completed that would require an occupied space to be vacated to complete those corrections or punchlist items.
  - 1.4.6.2.3 All Commissioning, including but not limited to:
    - (a) Final Sequence of Operations submitted and approved by Mechanical Engineer of Record and County.
    - (b) All functional and performance testing of all building systems complete and all outstanding issues resolved.
    - (c) Building Management System programming complete and system fully functional.

## 1.5 FINAL COMPLETION

- 1.5.1 Final Completion is defined in Document 01 42 00 (References and Definitions). When Design-Build Entity considers Work is finally complete, it shall submit written certification that:
  - 1.5.1.1 Design-Build Entity has inspected Work for compliance with the Contract Documents, and all requirements for Final Completion/Acceptance have been met.
  - 1.5.1.2 The Work, except for Design-Build Entity maintenance after Final Completion/Acceptance, has been completed in accordance with the Contract Documents and deficiencies listed as part of Substantial Completion have been corrected. Equipment and systems have been tested in the presence of County Representative and/or designated consultants and are operative.
  - 1.5.1.3 The Work is complete and ready for final inspection.
- 1.5.2 In addition to submittals required by conditions of the Contract Documents, Design-Build Entity shall provide submittals required by AHJs and submit final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.
- 1.5.3 When County finds the Work is acceptable and final submittal is complete, County will issue final Unilateral Change Order reflecting approved adjustments to Contract Sum not previously made by Change Order.
  - 1.5.3.1 Should County determine that the Work is incomplete or defective:

- 1.5.3.1.1 County promptly will so notify Design-Build Entity, in writing, and will submit a list of the incomplete or defective items.
- 1.5.3.1.2 Design-Build Entity shall promptly remedy the deficiencies and notify County when the Work is ready for re-inspection.
- 1.5.3.1.3 When County determines that the Work is acceptable under the Contract Documents, County will request Design-Build Entity to prepare any closeout submittals/deliverables that are still due.

## 1.6 FINAL CLEANING

- 1.6.1 Employ professional cleaners for final cleaning. Clean each surface or unit to condition expected in a professional, routine cleaning, and maintenance program. Comply with manufacturers' written instructions.
- 1.6.2 Complete the following cleaning operations before requesting inspection for Substantial Completion for entire Project or for any Phase of the Project:
  - 1.6.2.1 Cleaning chemicals must be approved by facility maintenance staff; utilize green cleaning procedures or other appropriate cleaning procedures for use in an occupied facility.
  - 1.6.2.2 Clean Project Site, yard, and grounds in areas disturbed by construction activities including landscape development areas, of rubbish, construction building materials, waste material, litter, and other foreign substances.
  - 1.6.2.3 Sweep paved areas broom clean. Remove paint, petrochemical spills, stains, and other foreign deposits.
  - 1.6.2.4 Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
  - 1.6.2.5 Remove tools, construction equipment, machinery, and surplus material from Project Site.
  - 1.6.2.6 Clean exposed exterior and interior hard-surface 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.
  - 1.6.2.7 Horizontal surfaces: All horizontal surfaces must be dusted and/or washed until free of dust and grime.
  - 1.6.2.8 Furnishings and equipment:
    - 1.6.2.8.1 Remove all gum, adhesives, and sticky substances from all surfaces. Wash all furniture and equipment with a neutral cleaner. Use specialized cleaner appropriate for wood and/or excessively dirty surfaces.
    - 1.6.2.8.2 Walls: Wash all wall surfaces with detergent and water.
    - 1.6.2.8.3 All restroom fixtures and accessories must be washed with a disinfectant cleaner.

- 1.6.2.8.4 Doors: Remove all tape, adhesive, and foreign matter and wash all doors, frames, and hardware.
- 1.6.2.9 Floors:
  - 1.6.2.9.1 Clean and finish flooring using appropriate procedures and finishes/sealers per manufacturers' recommendations. Newly installed resilient floors or linoleum must have seams welded, all surface mastic removed, and shall be allowed to set for time recommended by manufacturer prior to final finish application.
  - 1.6.2.9.2 Concrete Floors – Scrub using water and detergent.
  - 1.6.2.9.3 Ceramic Floors – Clean and apply sealer per manufacturer's recommendations.
- 1.6.2.10 Restrooms: Thoroughly clean and disinfect all surfaces and fixtures.
- 1.6.2.11 Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
- 1.6.2.12 Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
- 1.6.2.13 Sweep concrete floors broom clean in unoccupied spaces.
- 1.6.2.14 Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
- 1.6.2.15 Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
- 1.6.2.16 Remove labels that are not permanent.
- 1.6.2.17 Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
- 1.6.2.18 Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
- 1.6.2.19 Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint, tape, mortar droppings, and other foreign substances.
- 1.6.2.20 Replace parts subject to unusual operating conditions.
- 1.6.2.21 Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
- 1.6.2.22 Clean ducts, blowers, and coils if units were operated without filters during construction.

- 1.6.2.23 Clean all new and existing light fixtures, lamps, globes, and reflectors to function at full efficiency.
- 1.6.2.24 Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
- 1.6.2.25 Do not perform final cleaning while Design-Build Entity's punch list activities are in progress. Do not perform final cleaning while County's staff, suppliers, or installers are completing occupancy-related activities prior to Design-Build Entity's request for Final Completion/Acceptance inspection.
- 1.6.2.26 Ensure that Project is clean and "turnkey" ready for occupancy.

## 1.7 MATERIAL, EQUIPMENT AND FINISH DATA

- 1.7.1 Submit electronic copy and two (2) sets of data for primary materials, equipment and finishes as required under each Specification Document prior to final inspection, bound in 8-1/2 inches by 11 inches three-ring binders with durable plastic covers to County for its records.

## 1.8 MISCELLANEOUS PROJECT RECORD SUBMITTALS

- 1.8.1 Refer to other Specification Documents for digital media and miscellaneous record keeping requirements and submittals in connection with various construction activities. Immediately prior to Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for use and reference. Submit electronic copy and hardcopy to County for its records. All versions to be tabbed or bookmarked for easy reference.
- 1.8.2 Refer to other Specification Documents for miscellaneous Operation & Maintenance ("O&M") data requirements. Prior to furnishing hard copies of O&M manuals, provide electronically as a submittal, which shall be reviewed by County and once accepted for content and format, shall be submitted along with hardcopy in the quantities stated herein and in individual Specification Documents. All versions to be tabbed or bookmarked for easy reference.
- 1.8.3 Digital media shall be submitted in a format and on a device acceptable to the County. All photographs, videos, or other image files should be at the resolution Specified or of a minimum quality to be sufficient to provide clear representation of the subject matter. All digital files shall be organized and indexed to provide easy navigation to each document within the document.

## 1.9 PROJECT GUARANTEE

- 1.9.1 Requirements for Design-Build Entity's guarantee of completed Work are included in Documents 00 72 53 (General Conditions) and 00 65 36 (Project Warranty and Correction Guarantee). Design-Build Entity shall guarantee Work done under Contract against failures, leaks, breaks, or other unsatisfactory conditions due to defective design, equipment, materials, or workmanship, and shall perform repair work or replacement required, at Design-Build Entity's sole expense, for period of five (5) years from date of Final Acceptance/Completion.
- 1.9.2 Neither recordation of final acceptance nor final Certificate for Payment nor provision of the Contract nor partial or entire use or occupancy of premises by County shall constitute

acceptance of Work not done in accordance with Contract Documents nor relieve Design-Build Entity of liability in respect to express warranties or responsibility for faulty materials or workmanship.

- 1.9.3 County may make repairs to defective Work as set forth in Document 00 72 53 (General Conditions) if, within five (5) Business Days after mailing of written notice of defective Work to Design-Build Entity or authorized agent, Design-Build Entity shall neglect to make or undertake repair with due diligence; provided, however, that in case of leak or emergency where, in opinion of County, delay would cause hazard to health or serious loss or damage, repairs may be made without notice being sent to Design-Build Entity, and Design-Build Entity shall pay the cost thereof.
- 1.9.4 If, after installation, operation or use of materials or equipment furnished under the Contract Documents proves to be unsatisfactory to County, County shall have right to operate and use materials or equipment until it can, without damage to County, be taken out of service for correction or replacement. Period of use of defective materials or equipment pending correction or replacement shall in no way decrease guarantee period required for acceptable corrected or replaced items of materials or equipment.
- 1.9.5 Nothing in this Document shall be construed to limit, relieve, or release Design-Build Entity's, Subcontractors', and equipment suppliers' liability to County for damages sustained as result of latent defects in equipment caused by negligence of suppliers' agents, employees, or Subcontractors. Warranty contained in the Contract Documents shall not amount to, nor shall it be deemed to be, waiver by County of any rights or remedies (or time limits in which to enforce such rights or remedies) it may have for defective workmanship or defective materials under laws of this State pertaining to acts of negligence.

#### 1.10 WARRANTIES

- 1.10.1 Execute Design-Build Entity's submittals and assemble warranty documents, and operations and maintenance manuals, executed or supplied by Subcontractors, suppliers, and manufacturers.
  - 1.10.1.1 Provide electronically as a submittal, which shall be reviewed by County and once accepted for content and format, shall be submitted along with hardcopy in the quantities stated herein and in individual Specification Documents.
  - 1.10.1.2 Provide table of contents and assemble in 8-1/2 inches by 11 inches three-ring binder with durable plastic cover, appropriately separated and organized.
  - 1.10.1.3 Assemble in Specification Section order.
  - 1.10.1.4 Provide two (2) copies of completed warranty binders.
- 1.10.2 Submit material prior to final application for payment.
  - 1.10.2.1 For equipment put into use with County's permission during construction, submit within twenty (20) Business Days after first operation.
  - 1.10.2.2 For items of Work delayed materially beyond Date of Substantial Completion, provide updated submittal within ten (10) Business Days after acceptance, and list date of acceptance as start of warranty period.

- 1.10.3 Warranties are intended to protect County against failure of work and against deficient, defective, and faulty materials and workmanship, regardless of sources.
- 1.10.4 Warranties are not intended to cover failures that result from the following:
  - 1.10.4.1 Unusual or abnormal phenomena of the elements.
  - 1.10.4.2 Vandalism after substantial completion.
  - 1.10.4.3 Insurrection or acts of aggression including war.
- 1.10.5 Related Damages and Losses: Remove and replace Work which is damaged as result of defective Work, or which must be removed and replaced to provide access for correction of warranted Work.
- 1.10.6 Warranty Reinstatement: After correction of warranted Work, where the correction requires replacement of a major component of equipment or more than ten percent (10%) of work area, reinstate warranty for corrected Work to date of original warranty expiration or to a date not less than three hundred sixty-five (365) Days after corrected Work was done, whichever is later for the effected equipment or area.
- 1.10.7 Replacement Cost: Replace or restore failing warranted items without regard to anticipated useful service lives.
- 1.10.8 Warranty Forms: Submit drafts to County for approval prior to execution. Forms shall not detract from or confuse requirements or interpretations of the Contract Documents.
  - 1.10.8.1 Warranty shall be countersigned by manufacturers.
  - 1.10.8.2 Where specified, warranty shall be countersigned by Subcontractors and installers.
- 1.10.9 Rejection of Warranties: County reserves right to reject unsolicited and coincidental product warranties which detract from or confuse requirements or interpretations of Contract Documents.
- 1.10.10 Term of Warranties: For materials, equipment, systems and workmanship, warranty period shall be five (5) years minimum from date of Substantial Completion, as defined in Document 01 42 00 (References and Definitions), except where:
  - 1.10.10.1 Detailed specifications for certain materials, equipment, or systems require longer warranty periods.
  - 1.10.10.2 Materials, equipment, or systems are put into beneficial use of County prior to Final Completion as agreed to in writing by County.
- 1.10.11 Warranty of Title: No material, supplies, or equipment for Work under the Contract Documents shall be purchased subject to any chattel mortgage, security agreement, or under a conditional sale or other agreement by which an interest therein or any part thereof is retained by seller or supplier. Design-Build Entity warrants good title to all material, supplies, and equipment installed or incorporated in Work and agrees upon completion of all Work to deliver premises, together with improvements and appurtenances constructed or placed thereon by Design-Build Entity, to County free from any claim, liens, security interest, or charges, and further agrees that neither Design-Build Entity nor any person, firm, or corporation furnishing any materials or labor for any Work covered by the Contract

Documents shall have right to lien upon premises or improvement or appurtenances thereon. Nothing contained in this paragraph, however, shall defeat or impair right of persons furnishing materials or labor under bond given by Design-Build Entity for their protection or any rights under law permitting persons to look to funds due Design-Build Entity in hands of County.

1.11 TURN-IN

The Contract Documents will not be closed out and final payment will not be made until all personnel identification media, vehicle permits, and keys issued to Design-Build Entity during prosecution of Work are turned into County.

1.12 RELEASE OF CLAIMS

The Contract Documents will not be closed out and final payment will not be made until an Agreement and Design-Build Entity General Release is completed and executed by Design-Build Entity and County.

1.13 FIRE INSPECTION COORDINATION

Design-Build Entity shall coordinate fire inspection and secure sufficient notice to County to permit convenient scheduling, if necessary.

PRODUCTS - Not used.

EXECUTION - Not used.

END OF DOCUMENT

## DOCUMENT 01 78 23

### OPERATION AND MAINTENANCE DATA

#### PART 1 - GENERAL

##### 1.1 SUMMARY

1.1.1 This Document includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1.1.1.1 Operation and Maintenance documentation directory.

1.1.1.2 Finishes maintenance manuals for the care and maintenance of products, materials, and finishes.

1.1.1.3 Operation and maintenance manuals for systems, subsystems, and equipment.

1.1.2 Related Documents include the following:

1.1.2.1 Document 01 33 00 (Submittal Procedures).

1.1.2.2 Document 01 77 00 (Closeout Procedures).

1.1.2.3 Document 01 78 39 (Project Record Documents).

1.1.2.4 Divisions 2 – 48 (Technical Specifications) as developed by the Design-Build Entity for specific operation and maintenance manual requirements for the Work in those Documents.

##### 1.2 DEFINITIONS

1.2.1 System: An organized collection of parts, equipment, or subsystems united by regular interaction.

1.2.2 Subsystem: A portion of a system with characteristics similar to a system.

##### 1.3 SUBMITTALS

1.3.1 Each Component of the Project shall be considered a separate submittal for the purposes of this Document.

1.3.2 Initial Submittal: Submit one (1) draft copy of each manual in digital PDF format on USB Drive at least thirty (30) Days before requesting inspection for Substantial Completion. Submittal shall include a complete operation and maintenance directory describing the contents and showing the organization of the manuals. County will review and provide comments on whether general scope and content of manual are acceptable.

1.3.3 Final Submittal: Submit two (2) hard copies of each manual in final form at least thirty (30) Days before final inspection. County will return copy with comments within fifteen (15) Days after final inspection.

- 1.3.3.1 Correct or modify each manual to comply with County's comments. Submit three (3) hard copies of each corrected manual within ten (10) Days of receipt of County's comments.
- 1.3.3.2 Electronic Format: Submit one (1) final copy of each manual in digital searchable PDF format on USB drive. Large files submitted for systems or complex equipment shall be bookmarked to allow for efficient navigation through the file.

#### 1.4 COORDINATION

- 1.4.1 Where operation and maintenance documentation include information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by all representatives in prepared manuals.

### PART 2 - PRODUCTS

#### 2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- 2.1.1 Organization: Include a section in the directory for each of the following:
  - 2.1.1.1 List of systems and subsystems.
  - 2.1.1.2 List of equipment.
  - 2.1.1.3 Tables of contents.
- 2.1.2 List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- 2.1.3 List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- 2.1.4 Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- 2.1.5 Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, *Preparation of Operating and Maintenance Documentation for Building Systems*.

#### 2.2 MANUALS, GENERAL

- 2.2.1 Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
  - 2.2.1.1 Title page.
  - 2.2.1.2 Table of contents.
  - 2.2.1.3 Manual contents, including all approved product data, shop drawings, installation instructions for equipment and all consumable components such

as filters, operation instructions, manufacturer's recommended maintenance instructions, and other data required in individual Specification Documents.

2.2.2 Binder Labels:

2.2.2.1 Spine shall include the following information, in the order listed:

- (a) Project name and any additional identifying information requested by County.
- (b) Specification Document(s) (number and title of each Section).
- (c) "Operation & Maintenance Data" beneath the Specification Section(s).

2.2.2.2 Front cover shall include the following information, in the order listed:

- (a) Project name and any additional identifying information requested by County.
- (b) Specification Section(s) (number and title of each Section).
- (c) "Operation & Maintenance Data" beneath the Specification Section(s).
- (d) Date of submittal

2.2.3 Title Page: Enclose title page in transparent plastic sleeve. Include the following information:

2.2.3.1 Subject matter included in manual, including Specification Section(s) (number and title of each Section).

2.2.3.2 Name and address of Project.

2.2.3.3 Date of submittal.

2.2.3.4 Name, address, and telephone number of Design Build Entity.

2.2.3.5 Name and address of responsible Design Professional.

2.2.3.6 Cross-reference to related systems in other operation and maintenance manuals.

2.2.3.7 Volume number (e.g., Volume 1 of 3)

2.2.4 Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in the Project Manual.

If operation or maintenance documentation requires more than one (1) volume to accommodate data, include a comprehensive table of contents for all volumes in each volume of the set.

2.2.5 Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

2.2.5.1 Binders: Heavy-duty, three-ring, "D" ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch

paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

- 2.2.5.1.1 If two (2) or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
- 2.2.5.1.2 Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets (e.g., Volume 1 of 3).
- 2.2.5.2 Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of the Project Manual.
- 2.2.5.3 Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software on digital media for computerized electronic equipment.
- 2.2.5.4 Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
- 2.2.5.5 Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
  - 2.2.5.5.1 If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
  - 2.2.5.5.2 If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in the manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.
  - 2.2.5.5.3 Use of photographs instead of drawings to demonstrate unusual installations is acceptable.

## 2.3 PRODUCT FINISHES MAINTENANCE MANUAL

- 2.3.1 Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- 2.3.2 Source Information: List each product included in manual, identified by product name, and arranged to match the Project Manual (Specifications) table of contents. For each product, list name, address, and telephone number of installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in the Project Manual.
- 2.3.3 Product Information: Include the following, as applicable:
  - 2.3.3.1 Product name and model number.
  - 2.3.3.2 Manufacturer's name.

- 2.3.3.3 Color, pattern, and texture.
- 2.3.3.4 Material and chemical composition.
- 2.3.3.5 Reordering information for specially manufactured products.
- 2.3.4 Maintenance Procedures: Include manufacturer's written recommendations and the following:
  - 2.3.4.1 Inspection procedures.
  - 2.3.4.2 Types of cleaning agents to be used and methods of cleaning.
  - 2.3.4.3 List of cleaning agents and methods of cleaning detrimental to product.
  - 2.3.4.4 Schedule for routine cleaning and maintenance.
  - 2.3.4.5 Repair instructions.
- 2.3.5 Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- 2.3.6 Warranties and Bonds:
  - 2.3.6.1 Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
  - 2.3.6.2 Include procedures to follow and required notifications for warranty claims.

2.4 SYSTEMS AND EQUIPMENT OPERATION AND MAINTENANCE MANUAL

- 2.4.1 Manual shall be provided in the following volumes to match the department. Some information shall be provided in more than one (1) volume. Final contents shall be as directed by the County Representative. The following list may not include all equipment on the Project.
  - 2.4.1.1 Distribution shall be:
    - 2.4.1.1.1 One (1) hard copy and one scanned electronic copy on USB drive copy to the County Building Maintenance Department.
    - 2.4.1.1.2 One (1) hard copy and one scanned electronic copy on USB drive to the County's project record files.

No.	Department	Description of contents
1	BUILDING ENGINEER	Air handling Units Fan coil units Hydronic specialties Pumps (hydronic, fire & domestic booster) Soft Water, Heat Exchanger DHW Generators Filters Emergency Generators Boilers
2	BUILDING MAINTENANCE	Toilet partition Toilet accessories Finishes manual Light fixtures
3	BUILDING SYSTEMS	Fire Alarm Security Fire Suppression sprinkler system
4	ENVIRONMENTAL HEALTH & SAFETY (EH&S)	HEPA Filters Fume / Exhaust Hoods
5	ELECTRIC Shop	Emergency Generators Switchgear Panel boards Transformers
6	ELEVATOR	Elevators
7	GROUNDS	Irrigation system Planting materials
8	HVAC Shop	Exhaust Fans Controls Package AC units
9	LOCK Shop	Door hardware
10	PLUMBING Shop	Water heater gas/electric DHW recirc – Pump Sump pumps Plumbing fixtures Electric water cooler and drinking fountains Safety Shower/Eye wash Backflow Preventors Fire Suppression Sprinkler System Fire Hydrants Fire pump Domestic water booster pumps

2.4.2 Content: For each system, subsystem, and piece of equipment not part of a system, include operation data, source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below. In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

2.4.2.1 System, subsystem, and equipment descriptions.

- 2.4.2.2 Performance and design criteria.
  - 2.4.2.3 Operating standards.
  - 2.4.2.4 Operating procedures.
  - 2.4.2.5 Operating logs.
  - 2.4.2.6 Wiring diagrams.
  - 2.4.2.7 Control diagrams.
  - 2.4.2.8 Piped system diagrams.
  - 2.4.2.9 Precautions against improper use.
  - 2.4.2.10 License requirements include inspection and renewal dates.
- 2.4.3 Descriptions: Include the following:
- 2.4.3.1 Product name and model number.
  - 2.4.3.2 Manufacturer's name.
  - 2.4.3.3 Equipment identification with serial number of each component.
  - 2.4.3.4 Equipment function.
  - 2.4.3.5 Operating characteristics.
  - 2.4.3.6 Limiting conditions.
  - 2.4.3.7 Performance curves.
  - 2.4.3.8 Engineering data and tests.
  - 2.4.3.9 Complete nomenclature and number of replacement parts.
- 2.4.4 Operating Procedures: Include the following, as applicable:
- 2.4.4.1 Startup procedures.
  - 2.4.4.2 Equipment or system break-in procedures.
  - 2.4.4.3 Routine and normal operating instructions.
  - 2.4.4.4 Regulation and control procedures.
  - 2.4.4.5 Instructions on stopping.
  - 2.4.4.6 Normal shutdown instructions.
  - 2.4.4.7 Seasonal and weekend operating instructions.
  - 2.4.4.8 Required sequences for electric or electronic systems.
  - 2.4.4.9 Special operating instructions and procedures.
- 2.4.5 Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- 2.4.6 Piped Systems: Diagram piping as installed and identify color-coding where required for identification.
- 2.4.7 Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name, and arranged to match manual's table of contents. For each product, list name, address, and telephone number of installer or supplier and

maintenance service agent, and cross-reference Specification Section number and title in the Project Manual.

- 2.4.8 Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
  - 2.4.8.1 Standard printed maintenance instructions and bulletins.
  - 2.4.8.2 Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
  - 2.4.8.3 Identification and nomenclature of parts and components.
  - 2.4.8.4 List of items recommended to be stocked as spare parts.
- 2.4.9 Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
  - 2.4.9.1 Test and inspection instructions.
  - 2.4.9.2 Troubleshooting guide.
  - 2.4.9.3 Precautions against improper maintenance.
  - 2.4.9.4 Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - 2.4.9.5 Aligning, adjusting, and checking instructions.
- 2.4.10 Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
  - 2.4.10.1 Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
  - 2.4.10.2 Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- 2.4.11 Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- 2.4.12 Maintenance Service Contracts: Include copies of maintenance agreements with the name and telephone number of service agent.
- 2.4.13 Warranties and Bonds:
  - 2.4.13.1 Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
  - 2.4.13.2 Include procedures to follow and required notifications for warranty claims.

## PART 3 - EXECUTION

### 3.1 MANUAL PREPARATION

- 3.1.1 Operation and Maintenance Documentation Directory: Prepare a separate document that provides an organized reference to operation and maintenance manuals.
- 3.1.2 Product Finishes Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- 3.1.3 Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
  - 3.1.3.1 Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
  - 3.1.3.2 Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by County's operating personnel.
- 3.1.4 Manufacturers' Data:
  - 3.1.4.1 Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work.
  - 3.1.4.2 If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
  - 3.1.4.3 Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- 3.1.5 Drawings:
  - 3.1.5.1 Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
  - 3.1.5.2 Comply with requirements of Record Shop Drawings in Document 01 78 39 (Project Record Documents).

END OF DOCUMENT

## DOCUMENT 01 78 39

### PROJECT RECORD DOCUMENTS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

1.1.1 This Document includes general, administrative, and procedural requirements for project record documents. Design-Build Entity shall have complete responsibility for preparation of marked-up As-Builts and final Record Documents, including the following:

- 1.1.1.1 Record drawings
- 1.1.1.2 Record specifications
- 1.1.1.3 Record product data
- 1.1.1.4 Record samples
- 1.1.1.5 Miscellaneous record submittals

1.1.2 Related Documents include the following:

- 1.1.2.1 Document 01 77 00 (Closeout Procedures).
- 1.1.2.2 Document 01 78 23 (Operations and Maintenance Data).
- 1.1.2.3 Divisions 2 through 48 Technical Specifications as developed by Design-Build Entity for specific requirements for Project Record Documents in those Documents.

##### 1.2 PRE-SUBMITTAL MEETING

1.2.1 Prior to submitting any Project Record Documents described herein, Design-Build Entity shall convene a pre-submittal meeting to review all required Project Record Documents to establish County and Design-Build Entity understanding of the requirements, County preferences for content, format, and number of sets, and any requirements that the County agrees may be waived or modified. Minutes of the pre-submittal meeting shall be recorded by Design-Build Entity and distributed to County and County Representative for review and confirmation.

##### 1.3 SUBMITTALS

1.3.1 Record CAD Drawings and BIM files: Comply with the following:

1.3.1.1 Number of Hard Copies: Submit hard copies of As-Builts and Record Drawings as follows:

1.3.1.1.1 *Initial Submittal*: Submit three (3) sets of bond plots from corrected record electronic drawings and three (3) sets of marked-up (in **red**) As-Built prints. Design-Build Entity's Architect of Record will initial and date each plot and mark (in **red**) whether general scope of changes, additional information recorded, and quality of drafting is acceptable. County Representative will return

plots with any comments (in **red**) to be incorporated into Record Drawings.

- 1.3.1.1.2 *Final Submittal:* Submit three complete **full color** sets of Record Drawings, and three (3) complete **full color** sets of As-Built Drawings. Plot and print each drawing, whether or not changes and additional information were applicable to the sheet.
- 1.3.1.1.3 Drawings shall be organized into volumes by discipline and bound with bolts into sets no more than one (1) inch thick with translucent mylar covers front and back. Include a title sheet describing the contents of each set and listing the contents of all volumes/sets.
- 1.3.1.2 Electronic Media: Along with the initial and final hard copies listed above, submit CAD files, BIM files, and PDF files of all drawings on USB or portable hard drive.
  - 1.3.1.2.1 CAD and BIM files shall be Revit, Version 2019 or later operating in Microsoft Windows operating system.
  - 1.3.1.2.2 PDF files shall be of manageable file size and organized by discipline with bookmarks for ease of navigation to each drawing.
- 1.3.2 Record Specifications: Prior to submitting hard copies, submit one (1) electronic file copy and one (1) hardcopy of Project Specifications, conformed to include addenda and contract modifications. Electronic media shall be Microsoft Word, Version 2010 or later operating in Microsoft Windows operating system on USB drive. Provide as a submittal, which County shall review, and after County acceptance of content and format, Design-Build Entity shall submit three (3) hardcopy sets and final electronic files in both MS Word document and PDF format. Hard copies shall be organized into volumes with plastic front and back covers and bound with bolts into sets no more than two (2) inches thick.
- 1.3.3 Record Product Data: Record Product Data shall be part of operation and maintenance manuals. Insert in operation and maintenance manuals instead of a record product data submittal.

## PART 2 - PRODUCTS

### 2.1 AS-BUILT / RECORD DRAWINGS

- 2.1.1 As-Built Prints: Maintain one (1) set of red-line prints of the permitted Construction Drawings, Deferred Approval Drawings, and relevant Shop Drawings on Site. Label each document or volume (on first sheet or page) "PROJECT AS-BUILT" in two (2) inch printed letters. Keep As-Built documents current. Note: A reference by number to a Change Order, RFI, RFQ, Field Order Directive, or other such document is not acceptable as sufficient record information on any As-Built document. Do not permanently conceal any Work until required information has been recorded.
  - 2.1.1.1 Preparation: Mark As-Built Drawings 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 prepare the marked-up As-Built.

- 2.1.1.1.1 Give particular attention to information on concealed elements that would be difficult to identify or measure and record later. Record sufficient information such that Work concealed in the building may be located with ease and accuracy. County Representative will determine what constitutes sufficient information.
- 2.1.1.1.2 Accurately record information in an understandable drawing technique.
- 2.1.1.1.3 Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
- 2.1.1.1.4 Update project As-Built Drawings daily and allow for County inspection per Paragraph 3.1.1 below.
- 2.1.1.2 Content: Types of items requiring marking include, but are not limited to, the following:
  - 2.1.1.2.1 Dimensional changes to the Drawings.
  - 2.1.1.2.2 Revisions to details shown on the Drawings.
  - 2.1.1.2.3 Depths of various elements of foundation in relation to main floor level or survey datum.
  - 2.1.1.2.4 Horizontal and vertical location of underground duct banks, utilities, and appurtenances referenced to permanent surface improvements.
  - 2.1.1.2.5 Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
  - 2.1.1.2.6 Establish locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stub-outs, invert elevations, and similar items.
  - 2.1.1.2.7 Provide actual numbering of each electrical circuit.
  - 2.1.1.2.8 Field changes of dimension and detail.
  - 2.1.1.2.9 Revisions to routing of piping and conduits.
  - 2.1.1.2.10 Revisions to electrical circuitry.
  - 2.1.1.2.11 Actual equipment locations.
  - 2.1.1.2.12 Duct size and routing.
  - 2.1.1.2.13 Changes made by Change Order.
  - 2.1.1.2.14 Details not on original Contract Plans.

- 2.1.1.3 Mark the Construction Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Construction Drawings.
- 2.1.1.4 Unless otherwise agreed by the County and Design-Build Entity, mark As-Built sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
- 2.1.1.5 Mark important additional information that was either shown schematically or omitted from original Drawings.
- 2.1.1.6 Note Alternate numbers, Change Order numbers, and similar identification, where applicable.
- 2.1.2 As-Built Electronic Drawings: Immediately before inspection for Substantial Completion, review marked-up As-Built prints with County Representative and submit for Architect's and other design professionals' review and approval. Produce PDF files of the approved prints for submittal to the County.
- 2.1.3 Prepare a full set of corrected electronic Record Drawings of the Construction Drawings, as follows:
  - 2.1.3.1 Format: Provide "live" files in Revit, Version 2019 or later, operating in Microsoft Windows operating system. Provide read only version of each drawing in full size PDF format.
  - 2.1.3.2 Incorporate changes and additional information previously marked on As-Built prints. Modify, delete, redraw, and add details and notations where applicable.
- 2.1.4 Record Shop Drawings: Prepare Shop Drawings instead of revising Design Professional drawings as Record Drawings when shop drawings have been produced for the project.
  - 2.1.4.1 Revise Design Professional drawings to refer to shop drawing sheet for record drawing information for that particular product, material or equipment shown on the shop drawing.
  - 2.1.4.2 Shop Drawings as Record Drawings shall detail and show requirements to record the actual physical installation and its relation to other construction. Integrate Shop Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
- 2.1.5 Format: Identify and date each record drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
  - 2.1.5.1 Record Prints: Organize record prints and Record Shop Drawings into manageable sets. Bind each set with durable mylar cover sheets. Include identification on cover sheets.
  - 2.1.5.2 Record Electronic Drawings: Organize Revit project files into separate electronic files that correspond to the system models used to develop the Project. Further organize these files into folders that correspond to the major Phases of the Project. Each folder will contain a Microsoft Word document explaining the organizational logic of the Revit files and the system used to produce the paper drawing sheets.

- 2.1.5.3 Identification: As follows:
  - 2.1.5.3.1 County's Project name and number.
  - 2.1.5.3.2 Date.
  - 2.1.5.3.3 Designation "PROJECT RECORD DRAWINGS."
  - 2.1.5.3.4 Name of Design Professionals.
  - 2.1.5.3.5 Name of Design-Build Entity.
  - 2.1.5.3.6 Professional license, seal, and signature.

## 2.2 AS-BUILT / RECORD SPECIFICATIONS

- 2.2.1 Preparation: Redline mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
  - 2.2.1.1 Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  - 2.2.1.2 Note related Change Orders and Record Drawings where applicable.
  - 2.2.1.3 Indicate actual products used in record specifications, including manufacturer, model number and options.
  - 2.2.1.4 Line out any items not utilized on the Project.
  - 2.2.1.5 Update Project Record Documents daily and allow for County inspection per Paragraph 3.1.1 below.
- 2.2.2 Submittal: Immediately before inspection for Substantial Completion, review marked-up As-Built Specifications with County Representative. Provide as a numbered submittal, and following County acceptance of content and format prepare a full set of corrected Specifications of the Construction Specifications, as follows:
  - 2.2.2.1 Format: Provide "live" Record Specification files in Microsoft Word, Version 2016 or later, operating in Microsoft Windows operating system. Provide searchable read only version of each specification in PDF format.
  - 2.2.2.2 Incorporate changes and additional information previously marked on As-Built Specifications. Delete, rewrite, and add details and notations where applicable.

## 2.3 RECORD PRODUCT DATA

- 2.3.1 Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
  - 2.3.1.1 Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

- 2.3.1.2 Include significant changes in the product delivered to Project Site and changes in manufacturer's written instructions for installation.
- 2.3.1.3 Note related Change Orders, Record Specifications, and Record Drawings where applicable.
- 2.3.2 Submittal: Include in the Operation and Maintenance Manual for the specific Specification Section; do not provide as a separate submittal.

## 2.4 RECORD SAMPLES

- 2.4.1 Immediately before date of Substantial Completion, meet with County Representative at Project Site to determine which samples maintained during the construction period shall be transmitted to County for record purposes.
- 2.4.2 Comply with County Representative's instructions for packaging, identification, marking, and delivery to County's sample storage space. Dispose of other samples in the manner specified for disposing surplus and waste materials.

## 2.5 MISCELLANEOUS RECORD SUBMITTALS

- 2.5.1 Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference. Miscellaneous records include, but are not limited to, the following:
  - 2.5.1.1 Field records on excavations and foundations.
  - 2.5.1.2 Field records on underground construction and similar work.
  - 2.5.1.3 Surveys showing locations and elevations of underground lines.
  - 2.5.1.4 Invert elevations of drainage piping.
  - 2.5.1.5 Surveys establishing building lines and levels.
  - 2.5.1.6 Authorized measurements using unit prices or allowances.
  - 2.5.1.7 Records of plant treatment.
  - 2.5.1.8 Ambient and substrate condition tests.
  - 2.5.1.9 Certifications received in lieu of labels on bulk products.
  - 2.5.1.10 Batch mixing and bulk delivery records.
  - 2.5.1.11 Testing and qualification of trade persons.
  - 2.5.1.12 Documented qualification of installation firms.
  - 2.5.1.13 Load and performance testing.
  - 2.5.1.14 Inspections and certifications by governing authorities.

- 2.5.1.15 Leakage and water-penetration tests.
- 2.5.1.16 Fire-resistance and flame-spread test results.
- 2.5.1.17 Final inspection and correction procedures.

## PART 3 - EXECUTION

### 3.1 RECORDING AND MAINTENANCE

- 3.1.1 Recording: Maintain one (1) copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project As-Built Documents as they occur. County Representative shall review documents in concert with the monthly Application for Payment. **Approval of an Application for Payment may be withheld if As-Built Documents are not up to date.**
- 3.1.2 Maintenance of As-Built Documents and Samples: Store As-Built Documents and samples in the field office apart from the Contract Documents used for construction. Do not use Project As-Built Documents for construction purposes. Maintain As-Built Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project As-Built Documents for County Representative's reference during normal working hours.
- 3.1.3 The County reserves the right to review monthly updates of Project As-Built Documents to confirm Design-Build Entity's conformance with the requirements stated herein. Approval of monthly progress payments to Design-Build Entity shall take into account any exceptions noted by County in its review of Project As-Built Documents.

END OF DOCUMENT

## DOCUMENT 01 79 00

### DEMONSTRATION AND TRAINING

#### PART 1 - GENERAL

##### 1.1 SUMMARY

1.1.1 This Document includes administrative and procedural requirements for instructing County's personnel, including the following:

1.1.1.1 Demonstration of operation of systems, subsystems, and equipment.

1.1.1.2 Training in operation and maintenance of systems, subsystems, and equipment.

1.1.1.3 Demonstration and training videos.

1.1.2 Related Documents include the following:

1.1.2.1 Document 01 31 00 (Project Management and Coordination).

1.1.2.2 Divisions 2 through 48 Technical Sections as developed by Design-Build Entity for specific requirements for demonstration and training for products in those Documents.

##### 1.2 SUBMITTALS

1.2.1 Each Component shall be considered a separate submittal for the purposes of this Document.

1.2.2 Instruction Program: Submit electronically for County review and approval, a Basic System Training Schedule form with the outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.

1.2.2.1 Once the Training Schedule is approved by County, submit three (3) bound hard copies.

1.2.2.2 At completion of training, submit two (2) complete training manual(s) including electronic and hard copies of any presentations or materials used at the training session for County's use. Include a sign-in sheet showing all attendees at each training session.

1.2.2.3 Electronic Format: Submit copies in electronic format of each manual on USB drive.

1.2.3 Qualification Data: For each instructor.

1.2.4 Training Video: For each training session, submit electronic video in format directed by the County that captures the full content of the training and is suitable for training of additional personnel.

1.2.5 Attendance Record: For each training session, submit a list of participants and length of instruction time.

### 1.3 QUALITY ASSURANCE

1.3.1 Instructor Qualifications: A factory-authorized service representative experienced in operation and maintenance procedures and training.

1.3.2 Pre-Instruction Conference: Conduct conference at Project Site to comply with Document 01 31 19 (Project Meetings). Review methods and procedures related to demonstration and training including, but not limited to, the following:

1.3.2.1 Inspect and discuss locations and other facilities required for instruction.

1.3.2.2 Review and finalize instruction schedule and verify availability of County staff, educational materials, instructors' personnel, and facilities needed to avoid delays.

1.3.2.3 Review required content of instruction.

1.3.2.4 For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

### 1.4 COORDINATION

1.4.1 Coordinate instruction schedule with County's operations. Adjust schedule as required to minimize disrupting County's operations.

1.4.2 Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

1.4.3 Coordinate content of training modules with content of approved operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by County's Representative.

## PART 2 - PRODUCTS

### 2.1 INSTRUCTION PROGRAM

2.1.1 Program Structure: Develop an instruction program that includes individual training sessions for each system and equipment not part of a system, as required by individual Specification Sections. The systems and equipment listed below are minimum examples that might apply to the Project. Revise to suit Project:

2.1.1.1 Motorized doors, such as overhead coiling doors, overhead coiling grilles, detention doors and locks, and automatic entrance doors.

2.1.1.2 Equipment, such as projection screens, access control, loading dock equipment, waste compactors, security screening, and food-service equipment.

2.1.1.3 Fire-protection systems, such as fire alarms, fire pumps, and fire-extinguishing systems.

2.1.1.4 Conveying systems, such as elevators.

- 2.1.1.5 Heat generation, such as boilers, feedwater equipment, pumps, steam distribution piping, and water distribution piping.
  - 2.1.1.6 Refrigeration systems, such as chillers, cooling towers, condensers, pumps, and distribution piping.
  - 2.1.1.7 HVAC systems, such as air-handling equipment, air distribution systems, and terminal equipment and devices.
  - 2.1.1.8 HVAC instrumentation and controls.
  - 2.1.1.9 Electrical service and distribution, such as transformers, switchboards, panel boards, and motor controls.
  - 2.1.1.10 Packaged engine generators, such as transfer switches.
  - 2.1.1.11 Lighting equipment and controls.
  - 2.1.1.12 Communication systems, such as intercommunication, surveillance, clocks and programming, voice and data, radio, antenna, signage, and audio/video equipment
  - 2.1.1.13 Plumbing equipment, fixtures, valves, pumps, and irrigation.
  - 2.1.1.14 Food service and server equipment.
  - 2.1.1.15 Medical and dental equipment.
- 2.1.2 Training Sessions: Develop a learning objective and teaching outline for each session. Include a description of specific skills and knowledge that participant is expected to master. For each session, include instruction for the following:
- 2.1.2.1 Basis of System Design, Operational Requirements, and Criteria: Include the following:
    - 2.1.2.1.1 System, subsystem, and equipment descriptions.
    - 2.1.2.1.2 Performance and design criteria if Design-Build Entity is delegated design responsibility.
    - 2.1.2.1.3 Operating standards.
    - 2.1.2.1.4 Regulatory requirements.
    - 2.1.2.1.5 Equipment function.
    - 2.1.2.1.6 Operating characteristics.
    - 2.1.2.1.7 Limiting conditions.
    - 2.1.2.1.8 Performance curves.
  - 2.1.2.2 Documentation: Review the following items in detail:
    - 2.1.2.2.1 Operations manuals.
    - 2.1.2.2.2 Maintenance manuals.
    - 2.1.2.2.3 Project Record Documents.
    - 2.1.2.2.4 Identification systems.
    - 2.1.2.2.5 Warranties and bonds.
    - 2.1.2.2.6 Maintenance service agreements and similar continuing commitments.

- 2.1.2.3 Emergencies: Include the following, as applicable:
  - 2.1.2.3.1 Instructions on meaning of warnings, trouble indications, and error messages.
  - 2.1.2.3.2 Instructions on stopping.
  - 2.1.2.3.3 Shutdown instructions for each type of emergency.
  - 2.1.2.3.4 Operating instructions for conditions outside of normal operating limits.
  - 2.1.2.3.5 Sequences for electric or electronic systems.
  - 2.1.2.3.6 Special operating instructions and procedures.
- 2.1.2.4 Operations: Include the following, as applicable:
  - 2.1.2.4.1 Startup procedures.
  - 2.1.2.4.2 Equipment or system break-in procedures.
  - 2.1.2.4.3 Routine and normal operating instructions.
  - 2.1.2.4.4 Regulation and control procedures.
  - 2.1.2.4.5 Control sequences.
  - 2.1.2.4.6 Safety procedures.
  - 2.1.2.4.7 Instructions on stopping.
  - 2.1.2.4.8 Normal shutdown instructions.
  - 2.1.2.4.9 Operating procedures for emergencies.
  - 2.1.2.4.10 Operating procedures for system, subsystem, or equipment failure.
  - 2.1.2.4.11 Seasonal and weekend operating instructions.
  - 2.1.2.4.12 Required sequences for electric or electronic systems.
  - 2.1.2.4.13 Special operating instructions and procedures.
- 2.1.2.5 Adjustments: Include the following:
  - 2.1.2.5.1 Alignments.
  - 2.1.2.5.2 Checking adjustments.
  - 2.1.2.5.3 Noise and vibration adjustments.
  - 2.1.2.5.4 Economy and efficiency adjustments.
- 2.1.2.6 Troubleshooting: Include the following:
  - 2.1.2.6.1 Diagnostic instructions.
  - 2.1.2.6.2 Test and inspection procedures.
- 2.1.2.7 Maintenance: Include the following:
  - 2.1.2.7.1 Inspection procedures.
  - 2.1.2.7.2 Types of cleaning agents to be used and methods of cleaning.
  - 2.1.2.7.3 List of cleaning agents and methods of cleaning detrimental to product.

- 2.1.2.7.4 Procedures for routine cleaning
- 2.1.2.7.5 Procedures for preventive maintenance.
- 2.1.2.7.6 Procedures for routine maintenance.
- 2.1.2.7.7 Instruction on use of special tools.

2.1.2.8 Repairs: Include the following:

- 2.1.2.8.1 Diagnosis instructions.
- 2.1.2.8.2 Repair instructions.
- 2.1.2.8.3 Disassembly; component removal, repair, replacement, and reassembly instructions.
- 2.1.2.8.4 Instructions for identifying parts and components.
- 2.1.2.8.5 Review of spare parts needed for operation and maintenance.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- 3.1.1 Assemble educational materials necessary for instruction, including documentation and training module. Assemble training sessions into a combined training manual.
- 3.1.2 Set up instructional equipment at the instructional location.

### 3.2 INSTRUCTION

- 3.2.1 Engage qualified instructors to instruct County's personnel to adjust, operate, and maintain systems, subsystems, and associated equipment not part of the system.
- 3.2.2 Video each instruction program and edit as necessary to provide effective educational material for subsequent staff training.
- 3.2.3 Scheduling: Provide instruction at mutually agreed on times.
  - 3.2.3.1 Schedule training with County's Representative with at least fourteen (14) Days' advance notice.
  - 3.2.3.2 Fill out and expand, if necessary, the schedule form attached at the end of this Document to reflect equipment and systems on the Project.
- 3.2.4 Cleanup: Collect used and leftover educational materials and remove them from Project Site. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

**BASIC SYSTEMS TRAINING SCHEDULE**

NOTE: Each system must be cross referenced to the Contract Documents and each component identified.

<b>Spec. Section Number</b>	<b>System/Equipment Description</b>	<b>Plan/Schedule Identifier</b>	<b>Operations &amp; Maintenance Manual Required?</b>	<b>Training Required?</b>

END OF DOCUMENT

DOCUMENT 01 81 13

SUSTAINABLE DESIGN REQUIREMENTS LEED v4 BD+C NC & MR

PART 1 - GENERAL

1.01 SUMMARY

- A. Document includes general requirements and procedures for compliance with certain prerequisites and credits needed for Project to obtain "LEED Version 4 for New Construction and Major Renovation" (LEED v4 BD+C) Silver certification based on USGBC's LEED v4 BD+C.
1. This Project has been designated and targeted to achieve a minimum LEED Silver (minimum 50 points) certification as defined in USGBC LEED v4 BD+C for New Construction and Major Renovation.
  2. LEED v4.1 requirements were substituted for the following credits: MR credits Environmental Product Declarations, Sourcing of Raw Materials, Material Ingredients, and EQ credits Low Emitting Materials.
  3. Specific LEED prerequisites and credits required by Alameda County are as follows:
    - a. Water Efficiency Credit, Outdoor Water Use
    - b. Water Efficiency Credit, Water Metering
    - c. Energy & Atmosphere Credit, Optimize Energy Performance, minimum 8 points out of a total of 18 for this credit
    - d. Materials & Resources Credit, Life Cycle Impact Reduction
    - e. Materials & Resources Credit, Building Product Disclosure and Optimization – Environmental Product Declarations
    - f. Energy & Atmosphere Credit, Enhanced Commissioning
    - g. Materials & Resources Credit, Construction and Demolition Waste Management
    - h. Innovation Credit, LEED™ Accredited Professional
  4. Specific requirements for LEED are also included in other Sections.
  5. Some LEED prerequisites and credits needed to obtain LEED certification depend on product selections and may not be specifically identified as LEED requirements. Compliance with requirements needed to obtain LEED prerequisites and credits may be used as one criterion to evaluate substitution requests and comparable product requests. Free-standing furniture and furnishings are included in the Contract.
  6. A Sustainable Design Consultant has been employed by Owner to review sustainable design documentation, in addition to review submittals by Architect.
  7. Design-Build Entity is responsible for the application for certification and for determination of methods of achieving sustainable design credits. Design-Build Entity shall familiarize itself with the relevant requirements and provide the necessary information and instruction to all Subcontractors and installers.
  8. Since Design-Build Entity and Subcontractors may not be familiar with sustainable design requirements, this Document includes a summary of the products and procedures intended to achieve sustainable design credits.
    - a. Some credits are dependent on proper performance by Design-Build Entity and subcontractors.
    - b. Other credits involve quantifying percentages by weight or volume and cost; these require careful recordkeeping and reporting by Design-Build Entity.
    - c. See [www.usgbc.org](http://www.usgbc.org) for more information.

9. A sample copy of the LEED Project checklist is attached at the end of this Document and is for information only.

#### 1.02 RELATED REQUIREMENTS

- A. Document 01 81 19 (Indoor Air Quality Controls)
- B. Document 01 61 16 (Volatile Organic Compound (VOC) Content Restrictions)
- C. Document 01 74 19 (Construction Waste Management and Disposal)

#### 1.03 REFERENCE STANDARDS

- A. USGBC LEED v4 BD+C – for New Construction and Major Renovation

#### 1.04 DEFINITIONS

- A. Adequate Ventilation: Ventilation, including air circulation and air changes, required to cure materials, dissipate humidity, and prevent accumulation of dust, fumes, vapors, and gases.
- B. Biobased Material: commercial or industrial products (other than food or feed) that are composed in whole, or in significant part, of biological products, renewable agricultural materials (including plant, animal, and marine materials), or forestry materials. For the purposes of LEED, this excludes leather and other animal hides.
  1. Biobased content: The amount of biobased carbon in the material or product as a percentage of weight (mass) of the total organic carbon in the material or product.
- C. Building Exterior: a structure's primary and secondary weatherproofing system, including waterproofing membrane and air- and water-resistant barrier materials, and all building elements outside that system.
- D. Building Interior: everything inside a structure's weatherproofing membrane.
- E. California Department of Public Health Standard v1.1-2010 (CDPH SM): Standard method for the testing and evaluation of volatile organic chemical emissions from indoor sources using environmental chambers, emission testing method for California specification 01350.
- F. CARB (ATCM): Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products; California Air Resources Board; current edition.
- G. Chain-of-Custody (CoC): a procedure that tracks a product from the point of harvest or extraction to its end use, including all successive stages of processing, transformation, manufacturing, and distribution.
- H. Chain-of-Custody Certificates: certificates signed by manufacturers certifying that wood used to make products was obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001. Certificates shall include evidence that manufacturer is certified for chain of custody by an FSC-accredited certification body.
- I. Cradle-to-Gate Assessment: analysis of a product's partial life cycle, from resource extraction (cradle) to the factory gate (before it is transported for distribution and sale). It omits the use and the disposal phases of the product.

- J. Enclosure: the exterior plus semi-exterior portions of the building. Exterior consists of the elements of a building that separate conditioned spaces from the outside (i.e., the wall assembly). Semi-exterior consists of the elements of a building that separate conditioned space from unconditioned space or that encloses semi-heated space through which thermal energy may be transferred to or from the exterior or conditioned or unconditioned spaces (e.g., attic, crawl space, basement, etc.).
- K. Environmental Product Declaration: a verified document that reports environmental data of products based on life cycle assessment (LCA) and other relevant information and in accordance with the international standard ISO 14025 (Type III Environmental Declarations).
- L. Extended Producer Responsibility: measures undertaken by the maker of a product to accept its own and sometimes other manufacturers' products as postconsumer waste at the end of the products' useful life. Producers recover and recycle the materials for use in new products of the same type. To count toward credit compliance, a program must be widely available. For carpet, extended producer responsibility must be consistent with NSF/ANSI 140-2007. Also known as closed-loop program or product take-back.
- M. Health Product Declaration (HPD): A standard format for reporting product content and associated health information for building products and materials, overseen by the non-profit Health Product Declaration Collaborative.
- N. Interior Final Finishes: Materials and products that will be exposed at interior occupied spaces, including flooring, wall covering, finish carpentry, and ceilings.
- O. LEED®: Leadership in Energy and Environmental Design, Building Design and Construction Rating System (BD+C) for New Construction and Major Renovation
  - 1. Definitions that are a part of LEED Version 4 BD+C for New Construction and Major Renovation (LEED v4 BD+C) apply to this Document.
- P. Life-Cycle Assessment: an evaluation of the environmental effects of a product from cradle to grave, as defined by ISO 14040-2006 and ISO 14044-2006.
- Q. Product (Permanently Installed Building Product): an item that arrives on the Project Site either as a finished element ready for installation or as a component to another item assembled On Site. The product unit is defined by the functional requirement for use in the Project; this includes the physical components and services needed to serve the intended function of the permanently installed building product. In addition, similar product within a specification, each contributes as a separate product.
- R. Product Reporting Scope: All products specified in Divisions 2 through 10, 12, 31, and 32, including the following:
  - 1. All paints, coatings, adhesives, and sealants that are used but not specified
  - 2. Composite wood that is permanently installed but not specified
  - 3. Flooring
  - 4. Wall & ceiling systems
  - 5. Thermal and acoustical insulation
- S. Raw Material: the basic substance from which products are made, such as concrete, glass, gypsum, masonry, metals, recycled materials (e.g., plastics and metals), oil (petroleum polylactic acid), stone, agrifiber, bamboo, and wood.
- T. Recycled Content: the recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value.

1. Post-consumer: material is defined as waste material generated by households or by commercial, industrial, and institutional facilities in their role as end users of the product, which can no longer be used for its intended purpose.
  2. Pre-consumer: material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials, such as rework, regrind, or scrap, generated in a process and capable of being reclaimed within the same process that generated it.
- U. Regional Materials: materials extracted, harvested, or recovered, as well as manufactured, within 100 miles (160 km) of Project Site. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value.
- V. Reuse: the reemployment of materials in the same or a related capacity as their original application, thus extending the lifetime of materials that would otherwise be discarded. Reuse includes the recovery and reemployment of materials recovered from existing building or construction sites, also known as salvage.
- W. Structure: elements carrying either vertical or horizontal loads (e.g., walls, roofs, and floors) that are considered structurally sound and nonhazardous.
- X. Wet Products: Materials and products installed in wet form, including paints, sealants, adhesives, and special coatings
- 1.05 DESIGN-BUILD ENTITY LEED KICK-OFF MEETING
- A. Conduct a LEED Design-Build Entity Kick-Off Meeting with Design-Build Entity, Subcontractors, and LEED consultant upon mobilization.
- 1.06 ADMINISTRATIVE REQUIREMENTS
- A. Respond to questions and requests from Architect, LEED Consultant, and the USGBC regarding LEED credits that depend on product selection or product qualities, or that depend on Design-Build Entity's procedures until the USGBC has made its determination on the Project's LEED certification application. Document responses as informational submittals.
- 1.07 SUBMITTALS
- A. LEED Submittals: Information required to document LEED credits as defined in other Division 01 Documents and in individual Specification Sections. Include "LEED Materials Reporting Form" for every submittal for the Project.
- B. Design-Build Entity shall include LEED Consultant on the submittal distribution list and review submittals as applicable the scope of work. LEED Consultant shall indicate respective Action Taken on all submittals. Design-Build Entity is responsible for responding to LEED Consultant's submittal responses within fifteen (15) days, as needed.
1. LEED Consultant Action Taken submittal responses will be as follows:
    - a. Compliant: Product(s) included in the Submittal are LEED compliance and no further action from Design-Build Entity is required.
    - b. Rejected: Product(s) included in the Submittal do not meet LEED compliance and an alternative, compliant product(s) must be re-selected and re-submitted by Design-Build Entity.
    - c. Revise and Resubmit: Product(s) included in the Submittal lack required submittal documentation and as such LEED compliance cannot be determined. Design-Build Entity shall re-submit Submittal will all required product documentation.

- d. Not Reviewed: Product(s) included in the Submittal are not applicable to the LEED scope of work.
- C. Sustainable design submittals are in addition to other submittals.
- 1. If submitted item is identical to that submitted to comply with other requirements, include an additional copy with other submittal as a record copy of compliance with indicated LEED requirements instead of separate sustainable design submittal. Mark additional copy "Sustainable design submittal".
- D. Sustainable Design Documentation Submittals:
- 1. Materials and Resources: Environmental Product Declarations v4.1. Option 1. Environmental Product Declarations. For each product submit:
    - a. If available, submit publicly available critically reviewed life-cycle assessment conforming to ISO 14044 that have at least a cradle to gate scope.
    - b. Alternate: Submit product-specific Type III EPD Internally Reviewed in accordance with ISO 14071.
    - c. Alternate: Submit industry wide generic EPD in accordance with ISO 14025 and EN 15804 or ISO 21930 – products with third-party certification (Type III) including external verification, in which the manufacturer is explicitly recognized as a participant by the program operator.
    - d. Alternate: Submit product-specific Type III EPD in accordance with ISO 14025 and EN 15804 or ISO 21930 – products with third-party certification (Type III) including external verification in which the manufacturer is explicitly recognized as a participant by the program operator.
  - 2. Materials and Resources: Environmental Product Declaration v4.1. Option 2. Embodied Carbon/LCA Optimization. For each product submit:
    - a. If available, provide a product specific LCA or Type III EPD for each product that conforms to the requirements of ISO 21930 and have demonstrated environmental impact reductions below industry average in at least three (3) environmental impact categories.
    - b. For products meeting the above criteria, submit a letter stating the extraction, manufacturing, and purchasing locations of all products.
  - 3. Materials and Resources: Sourcing of Raw Materials v4.1. Responsible Sourcing of Raw Materials. For each product, submit:
    - a. Extended Producer Responsibility: Products purchased from a manufacturer (producer) that participates in an extended producer responsibility program. Include statement of costs.
    - b. Bio-Based Materials: Bio-based products meeting the Sustainable Agriculture Network's Sustainable Agriculture Standard and tested using ASTM Test Method D6866 and legally harvested. Include statement of costs.
    - c. Materials Reuse: Reuse includes salvage, refurbish, or reused products. Include statements of costs.
    - d. Chain-of-Custody Certificates: For certified wood products. Include statements of costs.
    - e. Recycled Products: A letter stating the dollar value of the sum of post-consumer recycled content plus one half (1/2) the pre-consumer recycled content.
    - f. For products meeting the above criteria, submit a letter stating the dollar value of all products that are extracted, manufactured, and purchased (including distribution) within 100-mile radius of the Project Site.
  - 4. Materials and Resources: Material Ingredients v4.1. Option 1. Material Ingredients Reporting. For each product, submit:

- a. A chemical inventory of the product to at least 0.1% (1000 ppm) using one of the following criteria:
  - 1) A publicly available inventory of all ingredients identified by name and Chemical Abstract Service Registration Number (CASRN). Materials defined as trade secret or intellectual property may withhold the name and/or CASRN but must disclose role, amount and GreenScreen benchmark, as defined in GreenScreen v1.2.
  - 2) Health Product Declaration with full disclosure of known hazards in compliance with the Health Product Declaration open Standard.
  - 3) Cradle-to-Cradle v3 Certified level certification documentation or Material Health Certificate.
  - 4) Declare product label designated as Red List Free or Declared and LBC compliant demonstrating content inventory to 0.1% (1000 ppm).
  - 5) Product Lens Certification.
- 5. Documentation complying with Document 01 74 19 (Construction Waste Management and Disposal).
  - a. Construction and Demolition Waste Management. For all products submit:
    - 1) A letter stating the total weight and volume of waste diverted from landfills. Provide details of how the waste was recovered, reused, or recycled.
- 6. Indoor Environmental Quality: Low Emitting Materials. See Document 01 61 16 "Volatile Organic Compounds (VOC) Content Restrictions":
  - a. Adhesives and Sealants:
    - 1) Product data sheets for adhesives and sealants used inside the weatherproofing system, indicating VOC content
    - 2) Product data sheets confirming that products have been tested and determined compliant in accordance with CDPH SM.
    - 3) Provide a narrative to describe any special circumstances or non-standard compliance path taken by the project.
  - b. Paints and Coatings:
    - 1) Product data sheets for paints and coatings used inside the weatherproofing system, indicating VOC content.
    - 2) Product data sheets confirming that products have been tested and determined compliant in accordance with CDPH SM.
    - 3) Provide a narrative to describe any special circumstances or non-standard compliance path taken by the Project.
  - c. Flooring Systems:
    - 1) Product data sheets confirming that products have been tested and determined compliant in accordance with CDPH SM.
  - d. Composite Wood & Agrifiber Products:
    - 1) Product data sheets confirming that all products meet the CARB (ATCM) requirements for no added urea formaldehyde resins.
  - e. Ceiling, Walls, Thermal, and Acoustic Insulation:
    - 1) Product data sheets confirming that products have been tested and determined compliant in accordance with CDPH SM.
- 7. Indoor Environmental Quality: Construction Indoor-Air-Quality (IAQ) Management. See Document 01 81 19 (Indoor Air Quality Controls):
  - a. Construction IAQ management plan.
  - b. Product data for temporary filtration media.

- c. Product data for filtration media used during occupancy.
  - d. Construction Documentation: Six (6) photographs at three (3) different times during the construction period, along with a brief description of the SMACNA approaches employed, documenting implementation of the IAQ management measures, such as protection of ducts and On Site stored or installed absorptive materials.
8. Indoor Environmental Quality: Indoor Air Quality Assessment. See Document 01 81 19 (Indoor Air Quality Controls):
- a. Signed statement describing the building air flush-out procedures, including the dates when flush-out was begun and completed and statement that filtration media was replaced after flush-out.
  - b. Product data for filtration media used during flush-out and occupancy

#### 1.08 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For LEED coordinator.
- B. Project Materials Cost Data: Provide statement indicating total cost for materials used for Project. Costs exclude labor, overhead, and profit. Include breakout of costs for the following categories of items:
  - 1. Plumbing
  - 2. Mechanical
  - 3. Electrical
  - 4. Specialty items, such as elevators and equipment
- C. Sustainable Design Action Plans: Provide preliminary submittals within fourteen (14) days of date established for the Notice to Proceed indicating how the following requirements will be met:
  - 1. List of proposed products with Environmental Product Declarations. Option 1.
  - 2. List of proposed products complying with requirements for sourcing of raw materials disclosure.
  - 3. List of proposed products complying with requirements for material ingredients reporting. Option 1.
  - 4. List of proposed products complying with requirements for low emitting materials complying with Document 01 61 16 (VOC Content Restrictions).
  - 5. Construction and Demolition Waste Management Planning complying with Document 01 74 19 (Construction Waste Management and Disposal).
  - 6. Construction IAQ Management Plan complying with Document 01 81 19 (Indoor Air Quality Controls).
- D. Volumes of all adhesives, sealants, paints and coatings used on Project.
- E. Sustainable Design Progress Reports: Concurrent with each Application for Payment, submit reports comparing actual construction and purchasing activities with sustainable design action plans.

#### 1.09 QUALITY ASSURANCE

- A. LEED Coordinator: Engage an experienced LEED-accredited professional to coordinate LEED requirements. LEED coordinator may also serve as waste management coordinator.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. Provide products and procedures necessary to obtain LEED credits required in this Document. Although other Documents may specify some requirements that contribute to these LEED credits, Design-Build Entity shall provide additional materials and procedures necessary to obtain LEED credits indicated.
- B. At least ten (10) different products from at least three (3) different manufacturers shall have Environmental Product Declarations (EPDs) that comply with LEED requirements.
  - 1. EPDs must conform to ISO 14025 and EN 15804 or ISO 21930 and have at least a cradle to gate scope.
- C. At least fifteen percent (15%) of the permanently installed building products, by cost, shall meet at least one (1) of the responsible extraction criteria below. Priority will be given to products harvested and manufactured within 100 miles of the Project Site.
  - 1. Extended producer responsibility
  - 2. Bio-based materials
  - 3. FSC certified wood products
  - 4. Materials reuse
  - 5. Recycled content
- D. At least ten (10) different products from at least three (3) different manufacturers shall comply with LEED requirements for material ingredient reporting. The reporting program options include but are not limited to:
  - 1. Health Product Declarations (HPDs): Measured to 1,000 ppm or 100 ppm.
  - 2. Cradle to Cradle v3 Bronze or v2 Basic or better
  - 3. Declare Label, evaluated and disclosed to 1,000 ppm.
  - 4. GreenScreen v1.2

### 2.02 LOW-EMITTING MATERIALS

- A. Indoor Environmental Quality Credits:
  - 1. All materials in this category to comply with the minimum requirements listed under LEED BD+C v4.1 IAQ Low Emitting Materials credit.
- B. Paints and Coatings: For field applications, all paints and coatings inside the weatherproofing system shall comply with the applicable VOC content limits of the California Air Resources Board (CARB) 2007, Suggested Control Measures (SCM) for Architectural Coatings, or the South Coast Air Quality Management District (SCAQMD) Rule 1113, effective June 3, 2011. This includes but is not limited to:
  - 1. Flat Paints and Coatings: 50 g/L
  - 2. Non-flat Paints and Coatings: 50 g/L
  - 3. Dry-Fog Coatings: 150 g/L
  - 4. Primers, Sealers, and Undercoaters: 100 g/L
  - 5. Rust-Preventive Coatings: 100 g/L
  - 6. Zinc-Rich Industrial Maintenance Primers: 100 g/L
  - 7. Pretreatment Wash Primers: 420 g/L
  - 8. Clear Wood Finishes, Varnishes: 275 g/L
  - 9. Clear Wood Finishes, Lacquers: 275 g/L
  - 10. Floor Coatings: 50 g/L
  - 11. Shellacs, Clear: 730 g/L
  - 12. Shellacs, Pigmented: 550 g/L
  - 13. Stains: 100 g/L

14. Waterproofing Sealers: 100 g/L
15. Waterproofing concrete/masonry sealers: 100 g/L
16. Swimming Pool Coatings: 340 g/L
17. Fire-Proofing Coatings: 150 g/L
18. Concrete – Curing Compounds: 100 g/L
19. Roof Coatings: 50 g/L
20. Roof Primers, Bituminous: 350 g/L
21. Anti-Graffiti Coatings: 50 g/L
22. Colorant – Architectural Coatings: 50 g/L

C. Paints and Coatings: For field applications that are inside the weatherproofing system seventy-five percent (75%) of paints and coatings, by volume or surface area, shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers" (CDPH SM v1.2-2017).

D. Adhesives and Sealants: For field applications that are inside the weatherproofing system, all adhesives and sealants shall comply with the applicable VOC content limits of the South Coast Air Quality Management District (SCAQMD) Rule 1168, Adhesive and Sealant Applications, effective June 1, 2005. This includes but is not limited to:

1. Wood Glues: 30 g/L
2. Metal-to-Metal Adhesives: 30 g/L
3. Adhesives for Porous Materials (Except Wood): 50 g/L
4. Subfloor Adhesives: 50 g/L
5. Plastic Foam Adhesives: 50 g/L
6. Carpet Adhesives: 50 g/L
7. Carpet Pad Adhesives: 50 g/L
8. VCT and Asphalt Tile Adhesives: 50 g/L
9. Cove Base Adhesives: 50 g/L
10. Gypsum Board and Panel Adhesives: 50 g/L
11. Rubber Floor Adhesives: 60 g/L
12. Ceramic Tile Adhesives: 65 g/L
13. Multipurpose Construction Adhesives: 70 g/L
14. Fiberglass Adhesives: 80 g/L
15. Contact Adhesives: 80 g/L
16. Structural Glazing Adhesives: 100 g/L
17. Wood Flooring Adhesives: 100 g/L
18. Structural Wood Member Adhesives: 140 g/L
19. Single-Ply Roof Membrane Adhesives: 250 g/L
20. Special-Purpose Contact Adhesives (That Are Used to Bond Melamine-Covered Board, Metal, Unsupported Vinyl, Rubber, or Wood Veneer 1/16 Inch or Less in Thickness to Any Surface): 250 g/L
21. Top and Trim Adhesives: 250 g/L
22. Plastic Cement Welding Compounds: 250 g/L
23. ABS Welding Compounds: 325 g/L
24. CPVC Welding Compounds: 490 g/L
25. PVC Welding Compounds: 510 g/L
26. Adhesive Primer for Plastic: 550 g/L
27. Sheet-Applied Rubber Lining Adhesives: 850 g/L
28. Aerosol Adhesive, General-Purpose Mist Spray: 65 percent by weight
29. Aerosol Adhesive, General-Purpose Web Spray: 55 percent by weight
30. Special-Purpose Aerosol Adhesives (All Types): 70 percent by weight
31. Other Adhesives: 250 g/L
32. Architectural Sealants: 250 g/L
33. Non-Membrane Roof Sealants: 300 g/L

- 34. Single-Ply Roof Membrane Sealants: 450 g/L
  - 35. Other Sealants: 420 g/L
  - 36. Sealant Primers for Nonporous Substrates: 250 g/L
  - 37. Sealant Primers for Porous Substrates: 775 g/L
  - 38. Modified Bituminous Sealant Primers: 500 g/L
  - 39. Other Sealant Primers: 750 g/L
- E. Adhesives and Sealants: For field applications that are inside the weatherproofing system, seventy-five percent (75%) of adhesives and sealants, by volume or surface area, shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers" (CDPH SM v1.2-2017).
  - F. Flooring: At least ninety percent (90%) of all flooring shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers" (CDPH SM v1.2-2017).
  - G. Composite Wood: At least seventy-five (75%) of composite wood, agrifiber products, and adhesives, by cost or surface area, shall be made with ultra-low-emitting formaldehyde (ULEF) resins as certified under EPA Toxic Substances Control Act, Formaldehyde Emission Standards for Composite Wood Products (EPA TSCA Title VI) or California Air Resources Board's (CARB) Airborne Toxic Control Measure (ATCM) to reduce formaldehyde emissions from composite wood products, or shall be made with no added formaldehyde (NAF).
  - H. Wall Panels: At least seventy-five percent (75%) of all wall panels, by cost or surface area, including finish wall treatments (wall coverings, wall paneling, wall tile), surface wall structures such as gypsum or plaster, cubicle/curtain/partition walls, trim doors, frames, windows, and window treatments shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers" (CDPH SM v1.2-2017).
  - I. Ceilings: At least ninety percent (90%) of all ceilings, by cost or surface area, including ceiling panels, ceiling tile, surface ceiling structures such as gypsum or plaster, suspended systems (including canopies and clouds), and glazed skylights shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Environmental Chambers" (CDPH SM v1.2-2017).
  - J. Insulation: At least seventy-five percent (75%) of all insulation, including thermal and acoustic boards, batts, rolls, blankets, sound attention fire blankets, foamed-in place, loose-fill, blown, and sprayed insulation shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers" (CDPH SM v1.2-2017).

**PART 3 - EXECUTION**

**3.01 NONSMOKING BUILDING**

- A. Smoking is not permitted at any time within the building or within twenty-five (25) feet of it.

**3.02 LOW EMITTING MATERIALS**

- A. Comply with Document 01 61 16 (VOC Content Restrictions).

3.03 CONSTRUCTION WASTE MANAGEMENT

- A. Comply with Document 01 74 19 (Construction Waste Management and Disposal).

3.04 CONSTRUCTION IAQ MANAGEMENT

- A. Comply with Document 01 81 19 (Indoor Air Quality Controls).

3.05 INDOOR AIR QUALITY ASSESSMENT

- A. Comply with Document 01 81 19 (Indoor Air Quality Controls).

**PART 4 - LEED CHECKLIST**

[INSERT LEED CHECKLIST HERE]

**END OF DOCUMENT 01 81 13**

## DOCUMENT 01 81 14

### LOW CARBON CONCRETE REQUIREMENTS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

###### 1.1.1 Document Includes:

- 1.1.1.1 Design-Build Entity's Responsibilities.
- 1.1.1.2 Low Carbon Concrete Requirements.
- 1.1.1.3 Low Carbon Concrete Product Specifications.

##### 1.2 REFERENCES

- 1.2.1 All web-page references, current as of the release of the Project Manual, are provided as a courtesy.
- 1.2.2 Bay Area Low Carbon Concrete Codes project, for research and resources related to the standards for low carbon concrete required on this Project:  
<https://www.stopwaste.org/concrete>.
- 1.2.3 Carbon Leadership Forum, for research, resources, initiatives to bring embodied carbon emissions of buildings down to zero: <https://carbonleadershipforum.org/>.
- 1.2.4 National Ready Mix Concrete Association ("NRMCA"), concrete industry trade group that provides an industry-wide Environmental Product Declaration ("EPD") and industry benchmark report from regular survey of concrete mix designs produced by the ready mix concrete plants among its membership: <https://www.nrmca.org/association-resources/sustainability/epd-program/>.
- 1.2.5 Comprehensive Procurement Guidelines, for products designated by the U.S. Environmental Protection Agency for purchase with recovered materials:  
<https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>.

##### 1.3 DEFINITIONS

- 1.3.1 Environmental Product Declaration ("EPD"): Environmental Product Declarations present quantified environmental information on the life cycle of a product to enable comparisons between products fulfilling the same function.
- 1.3.2 Global Warming Potential ("GWP"): A measure of how much heat a greenhouse gas traps in the atmosphere up to a specific time horizon, relative to carbon dioxide. Gases other than carbon dioxide are multiplied by a characterization factor describing the radiative forcing impact of one mass-based unit of a given greenhouse gas relative to that of carbon dioxide over a given period of time, for a total mass value typically reported in units of kg-CO<sub>2</sub>-equivalent.

##### 1.4 DESIGN-BUILD ENTITY'S RESPONSIBILITIES

- 1.4.1 Low Carbon Concrete: Comply with low-carbon concrete standards as developed by the Bay Area Low Carbon Concrete Codes project as specified and as directed by the Alameda County General Services Agency, Office of Sustainability.

## 1.5 LOW CARBON CONCRETE REQUIREMENTS

- 1.5.1 Low Carbon Concrete Submittal to County: Design-Build Entity shall supply an updated Low Carbon Concrete Compliance Form (see Attachment A) to the County, at the following times during the Project:
- 1.5.1.1 At 100% Construction Document submittal. At this submittal, Design-Build Entity shall complete the portion designated as “Design Team to Complete,” to demonstrate the plan for compliance with Low Carbon Concrete requirements.
  - 1.5.1.2 Within six (6) weeks after completion of concrete work on the Project, Design-Build Entity shall supply the final Low Carbon Concrete Compliance Form, with portion designated as “Concrete Contractor to Complete” filled out. Attach all approved concrete mix or concrete product submittals used for the Project. Each mix design number listed on the Low Carbon Concrete Compliance Form must match the mix design numbers shown on the approved mix designs used on the Project. For precast products including concrete masonry units, the product names listed on the Low Carbon Concrete Compliance Form must match the product data sheets of approved products used on the Project.
  - 1.5.1.3 If pursuing the Prescriptive Method, each mix design or product data sheet shall show the cement content of the mix or product.
  - 1.5.1.4 If pursuing the Performance Method, each mix design or product data sheet shall supply a Type III Environmental Product Declaration specific to the product.
  - 1.5.1.5 If Design-Build Entity chooses to use concrete mixes that exceed cement or GWP limits specified herein, Design-Build Entity must include volumes for each concrete mix or product to show on the completed Low Carbon Concrete Compliance Form that the total concrete cement or GWP remains below the total cement or GWP allowance for the Project. Total Project cement or GWP allowance is calculated by multiplying the volume of each concrete mix type with the specified GWP limit for the mix.
  - 1.5.1.6 If Project uses concrete masonry units (“CMU”), Design-Build Entity shall follow the CMU guidance notes below the Low Carbon Concrete Compliance Form. Each CMU assembly shall have its own line item and shall be listed with any other concrete used on the Project.
- 1.5.2 Calculation of Estimated Carbon Reduction: Design-Build Entity shall provide a calculation of the estimated carbon reduction, as measured from a baseline using the Bay Area Low Carbon Concrete Codes (“BALCC”) thresholds as shown in Part 2 below. BALCC thresholds are generally 10-30% below the National Ready Mix Concrete Association (“NRMCA”) Benchmark (Industry Average) Report and provides for certain allowances for special conditions. Calculation methodology and sources shall be documented and transparent, and shall include, at minimum, all concrete types used on the Project that are documented in the Low Carbon Concrete Compliance Form.

## PART 2 - PRODUCTS

### 2.1 Low Carbon Concrete

- 2.1.1 Prescriptive Method - Maximum cement content of a concrete mix using this option for compliance shall not exceed the values shown in the table below:

Minimum specified compressive strength $f'_c$ (psi) at 28 days	Up to 2500	3000	4000	5000	6000	7000 and above
Maximum ordinary Portland cement content (lbs/yd <sup>3</sup> )	362	410	456	503	531	594

2.1.1.1 The maximum cement content given in this table can be increased proportionately over the industry average of 1040 kg CO<sub>2</sub>e/metric ton published by the Portland Cement Association (“PCA”), when using an approved cement, or blended cement, demonstrated by approved cement EPD to have a plant-specific global warming potential lower than the industry average.

2.1.2 Performance Method – As an alternative to the prescriptive method, concrete mix designs can be based on an approved environmental product declaration (“EPD”) to verify compliance of the mix design with the values in the table below:

Minimum specified compressive strength $f'_c$ (psi) at 28 days	Up to 2500	3000	4000	5000	6000	7000 and above
Maximum Global Warming Potential, kg CO <sub>2</sub> e/m <sup>3</sup>	260	289	313	338	356	394

2.1.3 The maximum cement and GWP limits in tables above can be increased by 30% for concretes demonstrated to the County Project Manager as requiring high early strength. Such concretes could include:

2.1.3.1 Precast concrete

2.1.3.2 Prestressed concrete

2.1.3.3 Retaining walls requiring immediate backfill

2.1.3.4 Shotcrete

2.1.4 Design-Build Entity may elect to use a volume-weighted limit wherein the cement or GWP limit of each mix or product is multiplied by the volume used of that mix or product to produce a total Project cement or GWP limit. The total Project cement or GWP within the entirety of concrete work on the Project must remain below the total cement or GWP allowance for the Project.

2.1.5 For concrete masonry units, compliance with the Low Carbon Concrete Requirements shall be demonstrated through one of the compliance options in the table below.

Minimum specified compressive strength $f'_c$ (psi) at 28 days	1500	2000	2500	3000
Maximum Cement Content of Assembly, lb per cyd	263	310	353	399
Maximum Global Warming Potential of Assembly, kg CO <sub>2</sub> e/m <sup>3</sup>	237	250	254	282

- 2.1.5.1 Option 1, assembly cement = sum of cement in CMU block, grout and mortar, per cubic yard of installed structural element. If the mortar volume is unknown, it may be assumed to be zero. If the units are fully grouted, the volume of grout may be assumed to be 50% of the total assembly.
- 2.1.5.2 Option 2, a calculation of the total global warming potential (“GWP”) of the assembly is required that accounts for both the CMU block and grout. Mortar may be included as well but is not required. The calculation should use the GWP from the CMU block environmental product declaration (“EPD”) and the GWP of the grout must account for the amount of cement it contains. The industry average EPD for CMU block may be used if there is no product specific EPD. The GWP of the cement component in the grout must come from the most recent Portland Cement Association EPD for cement. See attached spreadsheet for an example of a compliant calculation.

### PART 3 - EXECUTION

Not used.

END OF DOCUMENT

Low Carbon Concrete Worksheets (on following page)

**Low Carbon Concrete Compliance Form (maximum cement pathway, Prescriptive Method)**

*This form shall be completed by the party indicated under each section for compliance with project Low-Carbon Concrete requirements.*

Project name \_\_\_\_\_

Date \_\_\_\_\_

DESIGN TEAM TO COMPLETE FOR CONFORMANCE WITH DOCUMENT 01 81 14						CONCRETE SUBCONTRACTOR TO COMPLETE				
<i>Structural engineer shall complete and include within concrete specification of the Project Manual submitted to the County Project Manager for conformance review with DOCUMENT 01 81 14 (Low Carbon Concrete)</i>						<i>Design-Build Entity shall complete and submit to the Architect and County Project Manager within six (6) weeks of completion of the concrete work.</i>				
Date:						Date:				
Structural Engineer Company Name:						Design-Build Entity Name:				
Signature:						Signature:				
Print Name:						Print Name:				
Concrete mixture name	Design strength, f'c per spec (psi)	Used for (indicate if needs early strength)	Volume Estimated (cyd)	Max Cement Content per spec (lb/cyd)	Cement Limit (lb/cyd)	Volume Supplied (cyd)	Concrete Supplier Name	Concrete Batch Code	Cement Content (lb/cyd)	Cement Limit (lb/cyd)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
These rows only for use if contractor is pursuing budget method		Total cement of all concrete used on Project (lbs)				Total cement of all concrete used on Project (lbs)				
		Total cement allowed for all concrete on Project (lbs)				Total cement allowed for all concrete on Project (lbs)				
Signature of Approval at Plan Check:						Signature of Approval for TCO Permit:				
Print Name:						Print Name:				
Date:						Date:				

**Low Carbon Concrete Compliance Form (maximum GWP pathway, Performance Method)**

*This form shall be completed by the party indicated under each section for compliance with project Low-Carbon Concrete requirements.*

Project name \_\_\_\_\_

Date \_\_\_\_\_

<b>DESIGN TEAM TO COMPLETE FOR CONFORMANCE WITH DOCUMENT 01 81 14</b>						<b>CONCRETE SUBCONTRACTOR TO COMPLETE</b>				
<i>Structural engineer shall complete and include within concrete specification of the Project Manual submitted to the County Project Manager for conformance review with DOCUMENT 01 81 14 (Low Carbon Concrete).</i>						<i>Design-Build Entity shall complete and submit to the Architect and County Project Manager within six (6) weeks of completion of the concrete work.</i>				
Date:						Date:				
Structural Engineer Company Name:						General Contractor Company Name:				
Signature:						Signature:				
Print Name:						Print Name:				
Concrete mixture name	Design strength, f'c per spec (psi)	Used for (indicate if needs early strength)	Volume Estimated (cyd)	Max Cement Content per spec (lb/cyd)	Cement Limit (lb/cyd)	Volume Supplied (cyd)	Concrete Supplier Name	Concrete Batch Code	Cement Content (lb/cyd)	Cement Limit (lb/cyd)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
These rows only for use if contractor is pursuing budget method		Total cement of all concrete used on Project (lbs)				Total cement of all concrete used on Project (lbs)				
		Total cement allowed for all concrete on Project (lbs)				Total cement allowed for all concrete on Project (lbs)				
Signature of Approval at Plan Check:						Signature of Approval for TCO Permit:				
Print Name:						Print Name:				
Date:						Date:				

Guidance Notes for CMU, in accordance with the numbered columns:

- (1) Use a unique name for each assembly, matching the mark used in the drawings or specifications if possible.
- (2) Use the net area compressive strength of masonry assemblage (f'm) instead of f'c.
- (3) Ensure CMU is noted if not noted under (1).
- (4) Volume may use the nominal block thickness, e.g. 8" instead of actual 7-5/8", because the limits were derived using nominal dimensions.

- (5) Calculate the amount of cement expected in the concrete block and grout specified. Ensure the same maximum cement is stated in the specifications. See Option 1 example above.
- (6) Copy value from Table 1.
- (7) Use actual volume which will change the total cement allowed for all concrete on the Project if different from (4).
- (8) List CMU supplier.
- (9) List block and grout used for the assembly. Note percentage of supplementary cementitious materials used in the grout.
- (10) Calculate actual amount of cement based on the assembly used for the Project.
- (11) Copy cement limit from (6). Repeated here to allow for adjustment in total cement on Project if any actual volumes are different from estimated volumes.

**DOCUMENT 01 81 19**

**INDOOR AIR QUALITY CONTROL**

**PART 1 - GENERAL**

**1.01 DOCUMENT INCLUDES**

- A. Construction procedures to promote adequate indoor air quality after construction.
- B. Building flush-out after construction and before occupancy.
- C. Testing indoor air quality after completion of construction.
- D. Testing air change effectiveness after completion of construction.

**1.02 PROJECT GOALS**

- A. See Document 01 81 13 (Sustainable Design Requirements).
- B. Dust and Airborne Particulates: Prevent deposition of dust and other particulates in HVAC ducts and equipment.
  - 1. Cleaning of ductwork is not contemplated under this Contract.
  - 2. Design-Build Entity shall bear the cost of cleaning required due to failure to protect ducts and equipment from construction dust.
  - 3. Establish condition of existing ducts and equipment prior to start of alterations.
- C. Airborne Contaminants: Procedures and products have been specified to minimize indoor air pollutants.
  - 1. Furnish products meeting the specifications.
  - 2. Avoid construction practices that could result in contamination of installed products leading to indoor air pollution.

**1.03 RELATED REQUIREMENTS**

- A. Document 01 33 00 (Submittal Procedures)
- B. Document 01 61 16 (Volatile Organic Compound ("VOC") Content Restrictions)
- C. Document 01 81 13 (Sustainable Design Requirements)

**1.04 REFERENCE STANDARDS**

- A. ASHRAE Std 52.2 - Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size; 2012, with 2015 amendments.
- B. ASHRAE Std 129 - Measuring Air-Change Effectiveness; 1997 (Reaffirmed 2002).
- C. ASTM D5149 - Standard Test Method for Ozone in the Atmosphere: Continuous Measurement by Ethylene Chemiluminescence; 2002 (Reapproved 2008).

- D. ASTM D5197 - Standard Test Method for Determination of Formaldehyde and Other Carbonyl Compounds in Air (Active Sampler Methodology); 2009.
- E. ASTM E77 - Standard Test Method for Inspection and Verification of Thermometers; 2014.
- F. CAL (CDPH SM) - Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers; California Department of Public Health; v1.1, 2010.
- G. EPA 600/4-90/010 - Compendium of Methods for the Determination of Air Pollutants in indoor Air; April 1990.
- H. AWWA C707 - Encoder-Type Remote-Registration Systems for Cold-Water Meters; 2010.
- I. SMACNA (OCC) - IAQ Guidelines for Occupied Buildings Under Construction; 2007.

#### 1.05 DEFINITIONS

- A. Adsorptive Materials: Gypsum board, acoustical ceiling tile and panels, carpet and carpet tile, fabrics, fibrous insulation, and other similar products.
- B. Contaminants: Gases, vapors, regulated pollutants, airborne mold and mildew, and the like, as specified.
- C. Particulates: Dust, dirt, and other airborne solid matter.
- D. Wet Work: Concrete, plaster, coatings, and other products that emit water vapor or volatile organic compounds during installation, drying, or curing.

#### 1.06 SUBMITTALS

- A. See Document 01 33 00 (Submittal Procedures), for submittal procedures.
- B. Sustainable Design Documentation: Submit all submittals required in this Document in accordance with procedures specified in Document 01 81 13 (Sustainable Design Requirements).
- C. Indoor Air Quality Management Plan: Describe in detail measures to be taken to promote adequate indoor air quality upon completion; use SMACNA ("OCC") as a guide.
  1. Submit not less than sixty (60) days before enclosure of building.
  2. Identify potential sources of odor and dust.
  3. Identify construction activities likely to produce odor or dust.
  4. Identify areas of Project potentially affected, especially occupied areas.
  5. Evaluate potential problems by severity and describe methods of control.
  6. Describe construction ventilation to be provided, including type and duration of ventilation, use of permanent HVAC systems, types of filters, and schedule for replacement of filters.
  7. Describe cleaning and dust control procedures.
  8. Describe coordination with commissioning procedures.
- D. Interior Finishes Installation Schedule: Identify each interior finish that either generates odors, moisture, or vapors or is susceptible to adsorption of odors and vapors, and indicate air handling zone, sequence of application, and curing times.
- E. Duct and Terminal Unit Inspection Report.

- F. Ventilation Effectiveness Test Plan: Identify:
  - 1. Testing agency qualifications.
  - 2. Description of test spaces, including locations of air sampling.
  - 3. Test procedures, in detail; state whether tracer gas decay or step-up will be used.
  - 4. Test instruments and apparatus; identify tracer gas to be used.
  - 5. Sampling methods.
  
- G. Ventilation Effectiveness Test Reports: Show:
  - 1. Include preliminary tests of instruments and apparatus and of test spaces.
  - 2. Calculation of ventilation effectiveness, E.
  - 3. Location where each sample was taken, and time.
  - 4. Test values for each air sample.
  - 5. HVAC operating conditions.
  - 6. Other information specified in ASHRAE Std 129.
  - 7. Other conditions or discrepancies that might have influenced results.

#### 1.07 QUALITY ASSURANCE

- A. Testing and Inspection Agency Qualifications: Independent testing agency having minimum of five (5) years' experience in performing the types of testing specified.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS

- A. Low VOC Materials: See Document 01 61 16 (Volatile Organic Compound ("VOC") Content Restrictions). Low VOC Materials: See other documents for specific requirements for materials with low VOC content.
  
- B. Auxiliary Air Filters: MERV of 13, minimum, when tested in accordance with ASHRAE Std 52.2.

### PART 3 - EXECUTION

#### 3.01 CONSTRUCTION PROCEDURES

- A. Prevent the absorption of moisture and humidity by adsorptive materials by:
  - 1. Sequencing the delivery of such materials so that they are not present in the building until wet work is completed and dry.
  - 2. Delivery and storage of such materials in fully sealed moisture-impermeable packaging.
  - 3. Provide sufficient ventilation for drying within a reasonable time frame.
  
- B. Begin construction ventilation when the building is substantially enclosed.
  
- C. If extremely dusty or dirty work must be conducted inside the building, shut down HVAC systems for the duration; remove dust and dirt completely before restarting systems.
  
- D. When working in a portion of an occupied building, prevent movement of air from construction area to occupied area.
  
- E. Use of HVAC equipment and ductwork for ventilation during construction is not permitted:
  - 1. Provide temporary ventilation equivalent to 1.5 air changes per hour, minimum.
  - 2. Exhaust directly to outside.

3. Seal HVAC air inlets and outlets immediately after duct installation.
- F. HVAC equipment and supply air ductwork may be used for ventilation during construction:
1. Operate HVAC system on one hundred percent (100%) outside air, with 1.5 air changes per hour, minimum.
  2. Ensure that air filters are correctly installed prior to starting use; replace filters when they lose efficiency.
  3. Do not use return air ductwork for ventilation.
  4. Seal return air inlets or otherwise positively isolate return air system to prevent recirculation of air; provide alternate return air pathways.
- G. Do not store construction materials or waste in mechanical or electrical rooms.
- H. Prior to use of return air ductwork without intake filters clean up and remove dust and debris generated by construction activities.
1. Inspect duct intakes, return air grilles, and terminal units for dust.
  2. Clean plenum spaces, including top sides of lay-in ceilings, outsides of ducts, tops of pipes, and conduit.
  3. Clean tops of doors and frames.
  4. Clean mechanical and electrical rooms, including tops of pipes, ducts, and conduit, equipment, and supports.
  5. Clean return plenums of air handling units.
  6. Remove intake filters last, after cleaning is complete.
- I. Do not perform dusty or dirty work after starting use of return air ducts without intake filters.
- J. Use other relevant recommendations of SMACNA ("OCC") for avoiding unnecessary contamination due to construction procedures.

### 3.02 BUILDING FLUSH OUT

- A. Design-Build Entity's Option: Either full continuous flush-out OR satisfactory air contaminant testing is required, not both.
1. After construction ends, prior to occupancy and with all interior finishes installed, perform a building flush-out by supplying a total volume of 14,000 cubic feet of outdoor air per square foot of floor area.
  2. If occupancy is desired prior to flush-out completion, the space may be occupied following delivery of a minimum of 3,500 cubic feet of outdoor air per square foot of floor area to the space. Once a space is occupied, it shall be ventilated at a minimum rate of 0.30 cfm per square foot of outside air or the design minimum outside air rate, whichever is greater. During each day of the flush-out period, ventilation shall begin a minimum of three (3) hours prior to occupancy and continue during occupancy. These conditions shall be maintained until a total of 14,000 cubic feet of outdoor air per square foot has been delivered to that space.
- B. Perform building flush-out before occupancy.
- C. Do not start flush-out until:
1. All construction is complete.
  2. HVAC systems have been tested, adjusted, and balanced for proper operation.
  3. Inspection of inside of return air ducts and terminal units confirms that cleaning is not necessary.
  4. New HVAC filtration media have been installed.

- D. Building Flush-Out: Operate all ventilation systems at normal flow rates with one hundred percent (100%) outside air until a total air volume of 14,000 cubic feet per square foot of floor area has been supplied.
  - 1. Obtain County's concurrence that construction is complete enough before beginning flush-out.
  - 2. Maintain interior temperature of at least sixty degrees Fahrenheit / fifteen degrees Celsius (60°F or 15°C) and interior relative humidity no higher than sixty percent (60%).
  - 3. If additional construction involving materials that produce particulates or any of the specified contaminants is conducted during flush-out, start flush-out over.
  
- E. Install new HVAC filtration media after completion of flush-out and before occupancy or further testing.

END OF DOCUMENT

**DOCUMENT 01 88 19**

**ASBESTOS REMOVAL PERFORMANCE REQUIREMENTS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

**1.1.1 Related Documents**

- 1.1.1.1 Document 00 31 32 (Geotechnical Data and Existing Conditions)
- 1.1.1.2 Document 01 26 00 (Contract Modification Procedures)
- 1.1.1.3 Document 01 73 32 (Selective Demolition)
- 1.1.1.4 Document 01 88 22 (Soil Remediation Performance Requirements)
- 1.1.1.5 Document 01 88 25 (Miscellaneous Hazardous Materials Performance Requirements)

**1.1.2 Scope of Work:**

- 1.1.2.1 The following is a general outline of the procedures that shall be followed during removal of the asbestos and non-asbestos debris, buried asbestos-insulated and non-asbestos insulated piping, associated piping vaults, and asbestos contaminated soil from the Site. Design-Build Entity's scope of work will include but may not be limited to:
  - 1.1.2.1.1 Removal and disposal of all materials containing detectable concentrations of asbestos.
  - 1.1.2.1.2 Removal and disposal of all identified non-asbestos containing materials.
  - 1.1.2.1.3 Removal and disposal of additional building materials, piping concrete, metal, or other debris that contains detectable concentrations of asbestos and materials that do not contain asbestos which may be encountered during work.
  - 1.1.2.1.4 Excavation of soil to access underground piping and associated piping vaults, and debris.
  - 1.1.2.1.5 Removal and disposal of asbestos and non-asbestos debris and contaminated soil; and backfilling of excavations.
  - 1.1.2.1.6 By submitting a bid, Design-Build Entity acknowledges it has investigated the Site (through a site visit) and accepts the conditions affecting the Work. These conditions include but are not limited to, physical conditions of the Site that may affect access; handling and storage of tools and materials; and access to water and power or other utilities that may otherwise affect the performance of required activities.

Design-Build Entity shall develop and follow the requirements for the soil and groundwater management plan for the Project at all times when performing soil disturbance at the site.

- 1.1.2.1.7 Buried Asbestos-Insulated Piping, Concrete Pipe Vaults, and Concrete Pipe Stabilizers: It is anticipated that the most efficient way to remove the underground asbestos insulated pipe is to use "Wrap and Cut" abatement procedures. However, alternate methods may be employed for removal if they are approved by the County and the procedures for removal are in compliance with all federal, state, and local regulations. Concrete vaults may be present at pipe junctions, changes in pipe direction, and at building entry points. Cast-in-place concrete stabilizers may be encountered along piping runs.
  - 1.1.2.1.8 Soil Excavation: Soil shall be excavated to provide sufficient access to piping. Based on the subsurface investigation by Design-Build Entity, the heavy equipment operators performing initial excavation to access the pipes shall have a minimum of two (2) hour asbestos awareness training for Class IV Asbestos work. Manual excavation of soil around and under the piping shall be conducted by personnel with a minimum of thirty-two (32) hour asbestos worker training for Class I Asbestos work. Any required shoring of the trenches shall be completed per Cal-OSHA requirements. Disturbance of the pipe insulation shall be avoided during the excavation process. The County may require any damage to the pipe insulation and associated contaminated soil to be addressed and/or mitigated. Removal of damaged insulation and contaminated soil if deemed necessary shall be completed pursuant to visual inspection and/or soil sampling by the County or the County's Industrial Hygiene Consultant.
  - 1.1.2.1.9 Pipe Vaults and Pipe stabilizers: Demolition of concrete vaults and concrete stabilizers as required to remove pipe insulation shall be conducted by personnel with a minimum of thirty-two (32) hour asbestos worker training. Any vaults removed intact that contain pipe insulation shall be disposed of as a regulated asbestos-containing material (RACM - friable).
- 1.1.3 Project IH Consultant: The County's Industrial Hygiene Consultant (hereinafter referred to as the "Project IH Consultant") will provide independent, third-party industrial hygiene consulting services on behalf of the County. Such services may or may not include conducting onsite work observations, materials, or environmental testing, and/or consulting with the County. It is not the responsibility of the Project IH Consultant to supervise Design-Build Entity; nor to direct Design-Build Entity's work effort; nor to assume the management of, or responsibility for, Design-Build Entity's health and/or safety practices, nor its waste management, nor its regulatory compliance. At all times, Design-Build Entity shall be solely responsible for the quality and execution of all Phases and aspects of the Work.

## 1.2 SUBMITTALS

### 1.2.1 General:

- 1.2.1.1 In addition to any other contractual submittals required of Design-Build Entity, Design-Build Entity will provide to the County the submittals described in this Specification Document. Submittals will be reviewed by both the County and the Project IH Consultant for acceptability. The Project IH Consultant will either recommend submittals to the County for acceptance or will return them to the County as deficient, with notations for correction and re-submission. The Project IH Consultant does not have authority to “approve” submittals.
- 1.2.1.2 Documents submitted by Design-Build Entity in an effort to comply with the requirements of this Specification Document are to be separate and distinct from any other submittals provided to comply with other Specification Documents. In attempting to satisfy the requirements of this Specification Document, Design-Build Entity must submit only those documents specifically requested to fulfill the specified requirements. Extraneous documentation will be rejected, but not returned.

### 1.2.2 Schedule and Format:

- 1.2.2.1 Delivery: Submittals listed in this Document must be delivered to the County.
- 1.2.2.2 Quantity: Two (2) identical, legible copies of each submittal listed in this Document shall be delivered in an organized fashion suitable to the County for review. One (1) copy will be conveyed by the County to the Project IH Consultant for review.
- 1.2.2.3 Work Commencement: No portion of the Work shall be commenced by Design-Build Entity until the submittals are reviewed and accepted by the County.
- 1.2.2.4 Delays to the Work resulting from the submittal of deficient or illegible documentation, or from the untimely submittal of potentially acceptable documentation, shall be the sole responsibility of Design-Build Entity. Except as otherwise granted by the County, no extensions will be made to the awarded contract schedule or budget to accommodate such delays.
- 1.2.2.5 Format: Submittals will be provided in 8-1/2" x 11" format with sections separated by numbered tabs indexed to a printed Table of Contents. Illegible submittals will be considered deficient and returned for correction.
- 1.2.2.6 Schedule: Submittals delivered to the County will observe and conform with the following timetable:
  - 1.2.2.6.1 Pre-work Submittals – Not less than ten (10) business days prior to Design-Build Entity’s mobilization onto the work site, Design-Build Entity shall deliver legible copies of the specified documents. The Project IH Consultant will review submittals and return deficient submittals to the County within five (5) business days following their receipt by the Project IH Consultant. Deficient submittals will be corrected and resubmitted by Design-Build Entity within five (5) business days of their return. Once accepted,

the reviewed copy shall be returned to Design-Build Entity, who shall maintain a copy of the accepted submittal at the work site.

1.2.2.6.2 Product Submittals – Not less than ten (10) business days prior to the date of intended use of the product on the work site.

1.2.2.6.3 Post-work Submittals – Except as otherwise specified herein, Design-Build Entity shall, within twenty (20) business days following demobilization from the Project site, submit two (2) copies of the Post-work Submittals listed in this Document. If the Project IH Consultant or the County determines that the Post-work Submittals are unacceptable, Design-Build Entity will be required to correct the deficiencies and re-submit them for review.

1.2.3 Pre-Work Submittals:

1.2.3.1 Progress Schedule: Provide a proposed work schedule indicating the listed items.

1.2.3.1.1 Show the complete sequence of the abatement plan by activity and the sequencing of work within each building, on each floor, and for each regulated Work Area.

1.2.3.1.2 Show the dates for the beginning and completion of each major element (Work Area set-ups, gross removal, detail cleaning, preliminary visual inspections, final visual inspections, tear-down, etc.) of the abatement work, including substantial completion dates for each building, on each floor, and for each regulated Work Area. Update as necessary.

1.2.3.1.3 Provide anticipated manpower distribution per scheduled activity and regulated Work Area. Distinguish between trained full-time personnel and unskilled or temporary labor. Indicate whether or not any subcontracted labor will be utilized.

1.2.3.1.4 Provide anticipated number of shifts per day and days per week, as well as specific hours for each shift. Indicate any anticipated overtime, weekend work shifts, night shifts, or holiday work shifts planned. Unless otherwise directed, plan to conduct all abatement activities during routine business hours (M-F, 7:00 a.m. to 5:00 p.m.).

1.2.3.1.5 At a minimum, Design-Build Entity's Progress Schedule is to be formulated on a six (6) week, "look ahead" basis and updated weekly.

1.2.3.1.6 All requests for deviations from, or changes to, the initially established daily work shift hours and/or the weekly workdays shall be submitted in writing to the County and the Project IH Consultant for approval not less than three (3) business days prior to the anticipated implementation of said changes. This requirement will also apply to remobilizations following periods of inactivity by Design-Build Entity. Design-Build Entity shall not implement any work schedule changes without the prior

expressed approval of the County. Design-Build Entity shall be responsible for its Subcontractors' compliance with these requirements.

1.2.3.2 Notifications/Permits/Licenses:

- 1.2.3.2.1 Written Notice of Proposed Abatement activity (ten (10) days' prior notification) to the applicable air pollution control agency such as the Bay Area Air Quality Management District ("BAAQMD"). This Project involves the removal of Regulated Asbestos-Containing Materials ("RACM") in quantities that exceed notifiable thresholds. For floor tile and/or mastic removal operations involving the use of mechanized work methods, including motorized floor buffers, the ten (10) days' prior notification will include appropriate notification of these planned activities, per BAAQMD advisory of June 2003.
- 1.2.3.2.2 Written Notice of Proposed Abatement activity to the Cal-OSHA Regional Office or any other agency having jurisdiction (24-Hour Temporary Worksite Notification).
- 1.2.3.2.3 Written proof that all required permits, licenses, and registrations have been applied for and received, or are pending approval. This shall include, but not necessarily be limited to, Design-Build Entity State Licensing Board ("CSLB") Licenses, California Division of Occupational Safety and Health ("DOSH") registrations, and/or as otherwise required by any federal, state, or local governments or regulatory agencies.

1.2.3.3 Worker Documentation:

- 1.2.3.3.1 Provide name and photo identification of each employee engaged in asbestos abatement work.
- 1.2.3.3.2 Current valid documentation from a Cal/OSHA-approved training provider indicating the most recent asbestos abatement training course and training date that each person listed in Paragraph 1.2.4.4.1 (above) has attended. Legible photocopies of recent (within the preceding twelve (12) months) training certification cards (Laborer's Trust Cards) will suffice, as long as both sides of the card are provided.
- 1.2.3.3.3 Name and social security number of the Asbestos Project Superintendent. Provide current valid documentation from a Cal/OSHA-approved training provider indicating the most recent asbestos abatement contractor/supervisor training course and training date that he/she/they has attended. Provide evidence indicating that he/she/they has a minimum of one (1) year on-the-job experience as an Asbestos Project Superintendent.
- 1.2.3.3.4 Current valid documentation indicating each worker's most recent respiratory protection training and respirator fit testing. Respirator fit testing documentation must contain all information required in 8 CCR § 5144 (m)(2).

- 1.2.3.3.5 Current valid medical documentation indicating each worker's most recent asbestos medical examination. Each such medical document must be signed by a licensed physician to be acceptable. Illegible or incomplete photocopies, or preliminary examination reports, will be rejected as deficient.
  - 1.2.3.3.6 Current valid medical documentation indicating each worker's medical fitness to wear a tight-fitting respirator and noting any medical limitations to such respirator usage. Each such medical determination must be signed by a licensed physician to be acceptable. Illegible or incomplete photocopies, or preliminary examination reports, will be rejected as deficient.
  - 1.2.3.3.7 Submit a completed Certificate of Asbestos Worker's Acknowledgment form (Document 01 88 19A - Attachment A to this Document) for each worker engaged in asbestos-related work. Design-Build Entity's employees will not be allowed to engage in asbestos-related work prior to submitting a completed Certificate of Asbestos Worker's Acknowledgment form.
  - 1.2.3.3.8 Submit a completed Certificate of Competent Person Acknowledgment form (Document 01 88 19B - Attachment B to this Document) for each employee engaged in asbestos-related supervisory work. Abatement Contractor's Competent Person will not be allowed to engage in asbestos-related supervisory work prior to submitting a completed Certificate of Certificate of Competent Person Acknowledgment form.
- 1.2.3.4 Subcontractors: Submit qualifications and 24-hour contact information for each subcontractor to be used. This shall include two (2) legible copies of federal, state, and/or local business or operating permits, as well as State and/or Environmental Protection Agency ("EPA") identification numbers for the waste transporters and disposal facilities to be used.
- 1.2.3.5 Abatement Work Plan: Submit a detailed work plan indicating the practices and procedures proposed for use in complying with the requirements of this specification. Include in the plan schematic drawings with depictions of the locations and general configurations of all regulated Work Areas. Markups of current project plans will suffice to satisfy this requirement. For each regulated Work Area, indicate the planned locations of personal decontamination units, equipment decontamination, and waste load-out chambers, exhaust air filtration units, air exhaust locations, temporary utility's locations, Work Area view ports, and any other elements or conditions of significance to the controlled completion of the work (e.g., location of sanitary or storm drains that will require protection). The text of the Work Plan should address the sequencing of the asbestos work; the interface of any skilled trades involved in the performance of the work; the methods to be used to assure the safety of site workers and visitors to the site; a disposal plan including the onsite location(s) of secured waste storage areas; and a detailed description of the methods to be employed to prevent environmental impairment of the work site and its surrounding area. Expand upon the use of methods of removal to prohibit visible emissions from within the Work Areas, and for the packaging and transport of removed asbestos waste or debris. The plan must be

reviewed and accepted by the Project IH Consultant prior to the commencement of work.

- 1.2.3.6 Contingency Plan: Submit a contingency plan for emergencies including, but not necessarily limited to: fire, accidents, medical emergencies, power failures, differential air pressure (“negative air”) system failures, or any other event that may require modification of decontamination methods or Work Area isolation procedures. Include in the plan specific procedures for Work Area isolation and/or decontamination. **Note:** Nothing in this specification should be interpreted as instructions to impede the rapid and safe exiting from the Work Area(s), nor to impede the provision of adequate medical attention in the event of an emergency.

**Post:** In a room immediately adjacent to the Personnel Decontamination Unit(s), prominently display telephone numbers, locations of and driving instructions to, emergency services including, but not necessarily limited to: fire, ambulance, physician, hospital, police, power company, telephone company, and Design-Build Entity’s job site Superintendent.

- 1.2.3.7 Field Logs: Submit a sample of Daily Field Logs, Work Area Entry/Exit Logs, etc., to be used during the asbestos abatement work.

- 1.2.3.8 Rental Equipment: If rental equipment is to be used in conjunction with this asbestos abatement work, a written notification is to be provided to the rental company informing the company that the rented equipment will be used on an asbestos abatement project. A copy of that written notification will be submitted to the Project IH Consultant. The notification must state how the rented equipment is to be used, how it will be decontaminated following its use, and include a space for the acknowledgement of the rental company that it has been advised of the rented equipment’s intended use. Design-Build Entity will obtain written acknowledgment from an authorized representative of the rental company and will return an original signed copy of the acknowledgment to the Project IH Consultant as documentation of compliance with this requirement. In the absence of such rentals, Design-Build Entity will submit a signed declaration on Design-Build Entity’s letterhead and signed by an authorized representative of Design-Build Entity stating that no rented equipment will be used by Design-Build Entity on this project.

- 1.2.3.9 Safety Data Sheets: Submit current Safety Data Sheets for each potentially hazardous material to be used on the job site. Refer to 1.2.3.7.2 – Product Submittals.

- 1.2.3.10 California DOSH Registration: Submit evidence of Design-Build Entity’s registration with the Division of Occupational Safety and Health (Cal-OSHA) to conduct asbestos-related construction work, in accordance with 8 CCR § 341.6.

- 1.2.3.11 Waste Hauling Qualifications: Submit proof of hazardous waste transporter’s registration and the vehicle operator training. Submittals shall include, but not necessarily be limited to: business name, address (mailing address and physical location), and business telephone number of the company; primary contact name and emergency contact (24-hour) telephone number;

documentation of current State and/or EPA authorization to operate; and insurance coverage.

- 1.2.3.12 Waste Disposal Facility Qualifications: Submit documentation of the California State and/or EPA-approved waste disposal facility chosen to receive shipments of asbestos-containing waste generated during this Project. Such information will include, but not necessarily be limited to: business name, address (mailing address and physical location), and business telephone number of the facility; primary contact name and emergency contact (24-hour) telephone number; documentation of current State and/or EPA authorization to operate; operator's facility I. D. number; classification and/or types of waste(s) accepted; name, business address, and telephone number of insurance provider; documentation of insurance type(s), coverage amounts, and any limitations on liability; and any regulatory agency information pertaining to known citations issued, notices of violations issued, corrective actions ordered, Records of Decisions rendered, or ongoing environmental investigations or known liabilities.

#### 1.2.4 POST-WORK SUBMITTALS:

- 1.2.4.1 General: In accordance with the requirements of 1.2.3.7.3 Post-Work Submittals, submit the following documentation:
  - 1.2.4.1.1 Copies of employee and visitor Work Area Entry/Exit Logs and Daily Field Logs/Reports.
  - 1.2.4.1.2 Waste manifests, certified weight tickets, and landfill receipts.
  - 1.2.4.1.3 Results of all Design-Build Entity's personal exposure air monitoring.
  - 1.2.4.1.4 Manometer printouts attached to 8 1/2" x 11" paper. Each page should indicate the dates, times, and Work Area containment to which the Manometer print-out applies. Print-out pages should be arranged in ascending chronological order.
  - 1.2.4.1.5 Incident reports describing any events such as injuries, accidents, emergencies, or loss of differential air pressure and the actions taken in response.

### 1.3 QUALITY REQUIREMENTS

#### 1.3.1 Reference Standards:

- 1.3.1.1 Regulations: Applicable regulations pertaining to this asbestos abatement work include, but are not necessarily limited to, the following:
  - 1.3.1.1.1 Bay Area Air Quality Management District (BAAQMD) - Regulation 11 Hazardous Pollutants Rule 2, dated October 7, 1998, or more recent.

- 1.3.1.1.2 California Division of Occupational Safety and Health (Cal-OSHA) – Construction Safety Orders - Asbestos, Title 8, California Code of Regulations § 1529, et. seq. (8 CCR §1529).
  - 1.3.1.1.3 California Health and Safety Code, § 25163, et. seq. (Transportation of Hazardous Waste).
  - 1.3.1.1.4 Title 22, California Code of Regulations, § 66261.24 et. seq. (Characteristics of Hazardous Waste – Toxicity).
  - 1.3.1.1.5 Title 22, California Code of Regulations, § 66268.7(a)(11).
  - 1.3.1.1.6 Title 22, California Code of Regulations, § 66268.114 et. seq. (Treatment Standard for Asbestos-Containing Waste).
  - 1.3.1.1.7 California Labor Code §§ 6501.5 (Employer Registration); and 6501.9 (Determining the Presence of Asbestos Prior to Contracting for Work).
  - 1.3.1.1.8 California Safe Drinking Water and Toxic Enforcement Act of 1986 (Prop. 65).
  - 1.3.1.1.9 Title 29, Code of Federal Regulations, Parts 1910 and 1926.1101.
  - 1.3.1.1.10 Title 40, Code of Federal Regulations, Part 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP). U.S. Environmental Protection Agency (U.S. EPA).
  - 1.3.1.1.11 Title 49, Code of Federal Regulations, Part 172, U.S. Department of Transportation.
  - 1.3.1.1.12 All other applicable Federal, State, and/or Local regulations, codes, and ordinances.
- 1.3.1.2 Standards: Applicable industry standards pertaining to asbestos abatement work include, but are not limited to, the following:
- 1.3.1.2.1 American National Standard Institute (ANSI) Publications:
    - Z9.2 Fundamentals Governing the Design and Operation of Local Exhaust Systems; and
    - Z88.2 Practices for Respiratory Protection.
  - 1.3.1.2.2 U. S. Environmental Protection Agency (EPA): Publication No. 560/5-85-024 Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985
  - 1.3.1.2.3 American Society for Testing Materials (ASTM) Publications:
    - E1368-14 Standard Practice for Visual Inspection of Asbestos Abatement Projects;

E1542-20b (2020) Standard Terminology Relating to Occupational Health and Safety; and

E84-20 (2020) Standard Test Method for Surface Burning Characteristics of Building Materials.

1.3.1.2.4 National Institute of Occupational Safety and Health (NIOSH) Publications:

Manual of Analytical Methods:

Method 7400 Asbestos and Other Fibers by PCM; and

Method 7402 Asbestos Fibers by TEM.

1.3.1.2.5 Underwriters Laboratories, Inc. (UL) Publication:

UL 586 High Efficiency, Particulate, Air Filter Units

1.3.1.3 Applicability. The most current version of each document will apply. Where conflicts among these regulations or standards exist, the more stringent requirement or interpretation will apply.

1.3.2 Definitions: In addition to definitions provided elsewhere in the Contract Documents, the following definitions shall apply to asbestos work described in this Document:

1.3.2.1 **Abatement**: The procedure to control fiber release from asbestos-containing building materials. Activities include removal, encapsulation, and enclosure.

1.3.2.2 **Adequately Wet**: A term defined in 40 CFR 61, Subpart M and EPA 340/1-90-019 that means to sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed to be coming from ACM or ACCM, then that material has not been adequately wetted. The absence of visible emissions, however, is not sufficient evidence of being adequately wetted.

1.3.2.3 **Aggressive Clearance**: Final clearance air monitoring of a regulated asbestos Work Area which utilizes leaf blowers, fans, and similar tools to “aggressively” disturb and entrain any settled residual asbestos fibers for the purpose of capturing them during sampling.

1.3.2.4 **Air Lock**: A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area.

1.3.2.5 **Air Monitoring**: The process of measuring the fiber content of a specific volume of air in a stated period of time.

1.3.2.6 **Amended Water**: Water to which a surfactant has been added.

1.3.2.7 **Asbestos**: The general name given to a group of fibrous mineral forms including chrysotile, crocidolite, amosite, tremolite anthophyllite, and actinolite and any of these minerals that have been chemically treated or altered.

- 1.3.2.8 **Asbestos-Containing Hazardous Waste:** Any material that contains more than one percent (1%) asbestos and is in a friable, finely divided, or powdered state. Alternatively, any mixture of material(s) which contains (i.e., is contaminated with) equal to, or greater than, one percent (1%) friable asbestos is also asbestos-containing hazardous waste.
- 1.3.2.9 **Asbestos-Containing Material:** any material containing more than one percent (1%) asbestos.
- 1.3.2.10 **Asbestos-Containing Construction Material:** any manufactured construction material which contains more than one tenth of one percent (0.1%) asbestos by weight.
- 1.3.2.11 **Asbestos Abatement Contractor:** Design-Build Entity or subcontractor designated in the contract documents as being responsible to the County for the control or abatement of asbestos-containing or asbestos-contaminated materials.
- 1.3.2.12 **Asbestos Permissible Exposure Limit (PEL):** Design-Build Entity will assure that no employee is exposed to an airborne concentration of asbestos of greater than 0.1 fibers per cubic centimeter (f/cc) as based on an 8-hour time-weighted average (TWA).
- 1.3.2.13 **Authorized Visitor:** The County or designated representative, the Project IH Consultant, the Project IH Consultant's inspector or representative, or any representative of a federal, state, county, city, or local agency having legal or regulatory jurisdiction over the Project while acting in an official capacity. Any person whose name appears upon an approved authorized visitor's list.
- 1.3.2.14 **Background Monitoring:** See "Prevalent Level Monitoring."
- 1.3.2.15 **Class I Asbestos Work:** Activities involving the removal of thermal system insulation (TSI) and surfacing ACM and PACM. For the purposes of this specification, asbestos-containing resilient sheet flooring ("linoleum") will also be removed as "Class I Asbestos Work."
- 1.3.2.16 **Class II Asbestos Work:** Activities involving the removal of ACM which is not TSI or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard or joint compound, floor tile, roofing materials, sidings, and construction mastics.
- 1.3.2.17 **Clean Room:** An uncontaminated area or room which is part of the worker decontamination enclosure with provisions for storage of worker's street clothes and protective equipment.
- 1.3.2.18 **Competent Person:** In addition to the definition in Title 8 CCR 1529 (b), one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR § 1926.32 (f): in addition, for Class I and Class II work, one who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR § 763) for supervisor, or its equivalent and, for Class II and Class IV work, one who is trained in a manner consistent with

EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR § 763.92 (a)(2).

- 1.3.2.19 **County:** The County of Alameda and its designated representative(s).
- 1.3.2.20 **Critical Barrier:** One or more layers of plastic sealed over an opening into a Work Area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a Work Area from migrating to an adjacent area.
- 1.3.2.21 **Curtained Doorway:** A device to allow ingress and egress from one room to another while permitting minimal air movement between the rooms, typically constructed by placing two overlapping sheets of plastic over an existing or temporarily framed doorway, securing the vertical edge of one sheet along one vertical side of the doorway, and securing the vertical edge of the other sheet along the opposite vertical side of the doorway.
- 1.3.2.22 **Decontamination Enclosure System:** A series of connected rooms, with curtained doorways between any two adjacent rooms, for the decontamination of workers and of materials and equipment. A decontamination enclosure system always contains at least one airlock.
- 1.3.2.23 **Differential Air Pressure Equipment:** A portable local exhaust fan or “unit” equipped with HEPA filtration and capable of maintaining a constant, negative air pressure differential within the regulated Work Area by providing a low velocity air flow into contaminated areas from adjacent uncontaminated areas and exhausting filtered air outside the Work Area (preferably to the outdoor air).
- 1.3.2.24 **Disturbance:** Activities that disrupt the matrix of ACM/ACCM or PACM, crumble or pulverize ACM/ACCM or PACM, or generate visible debris from ACM/ACCM or PACM. This term includes activities that disrupt the matrix of ACM/ACCM or PACM, render ACM/ACCM or PACM friable, or generate visible debris. Disturbance includes cutting away small amounts of ACM/ACCM and PACM, no greater than the amount which can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event shall the amount of ACM/ACCM or PACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed sixty (60) inches in length and width.
- 1.3.2.25 **DOP Testing:** The challenge testing of HEPA-filtered equipment, using appropriate aerosols. A 0.3 mm dioctylphthalate aerosol was formerly used in challenging the efficiency of HEPA-filtered equipment. Although dioctylphthalate compounds are now suspected human carcinogens, the phrase “DOP testing” is still current vernacular for the process of challenge testing the efficiency of HEPA-filtered equipment.
- 1.3.2.26 **Encapsulant:** A liquid material which can be applied to asbestos-containing materials, and which prevents the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant). A sealant.

- 1.3.2.27 **Encapsulation:** All herein specified procedures necessary to apply an encapsulant to asbestos-containing building materials to control the possible release of asbestos fibers into the air.
- 1.3.2.28 **Enclosure:** All herein specified procedures necessary to completely enclose asbestos-containing material behind airtight, impermeable, permanent barriers.
- 1.3.2.29 **Equipment Decontamination Enclosure:** That portion of a decontamination enclosure system designed for controlled transfer of materials and equipment, typically consisting of a washroom and a holding area.
- 1.3.2.30 **Equipment Room:** A contaminated area or room which is part of the worker decontamination enclosure with provisions for storage of contaminated clothing and equipment.
- 1.3.2.31 **Excursion Limit:** Design-Build Entity will ensure that no employee is exposed to an airborne concentration of asbestos of greater than 1.0 fiber per cubic centimeters (f/cc) as an average over a sampling period of thirty minutes.
- 1.3.2.32 **Fixed Object:** A unit of equipment or furniture in the Work Area which cannot be removed from the Work Area.
- 1.3.2.33 **Friable:** Material(s) that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. Material that has been rendered to a finely divided or powdered state will also be considered to be "friable."
- 1.3.2.34 **Glovebag:** Not more than a 60 x 60-inch impervious plastic bag-like enclosure affixed around an asbestos-containing material, with glove-like appendages through which material and tools may be handled.
- 1.3.2.35 **Glovebag Technique:** A method with limited applications for removing small amounts of friable asbestos-containing material from HVAC ducts, short pipe runs, valves, joints, elbows, and other non-planer surfaces in an otherwise non-enclosed Work Area. The glovebag assembly is a manufactured or prefabricated device consisting of a glovebag (typically constructed of 6-mil transparent regulate plastic), two inward projecting long sleeve rubber gloves, one inward projecting sleeve, an internal tool pouch, and an attached, labeled receptacle for asbestos waste. The glovebag is constructed and should be installed in such a manner that it will surround the ACCM or ACM to be removed and will contain all asbestos fibers released during the removal process. All workers who are permitted to use the glovebag technique must be trained, experienced, and skilled in this method. Limitations on, and requirements pertaining to glovebag work, as set forth in 8 CCR §1529 et. seq., will be observed and complied with during this work. The number of contiguous glove-bags that may be used within a regulated Work Area will be at the discretion of the Project IH Consultant.
- 1.3.2.36 **Holding Area:** A chamber in the equipment decontamination enclosure located between the washroom and an uncontaminated area. The holding area comprises an airlock.

- 1.3.2.37 **HEPA Filter:** A High-Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97 percent of particles (asbestos fibers) greater than 0.3 micrometers in mass median aerodynamic equivalent diameter.
- 1.3.2.38 **HEPA Vacuum Equipment:** Vacuuming equipment manufactured with a HEPA filter system.
- 1.3.2.39 **Leak Tight:** Solids, liquids, or dust cannot escape or spill out.
- 1.3.2.40 **Log Book:** A notebook or other book containing essential project data and daily project information and a daily project diary. This book shall be kept up to date and on the Project site at all times.
- 1.3.2.41 **Movable Object:** A unit of equipment or furniture in the Work Area which can be removed from the Work Area.
- 1.3.2.42 **SDS:** Safety Data Sheet.
- 1.3.2.43 **Negative Initial Exposure Assessment:** A demonstration by the employer, which complies with the criteria in paragraph (f)(2)(C) of 8 CCR § 1529, that employee exposure during an operation is expected to be consistently below the PEL and Excursion Limit.
- 1.3.2.44 **NIOSH:** National Institute of Occupational Safety and Health.
- 1.3.2.45 **Phase Contrast Microscopy (PCM):** NIOSH Method 7400 using “A” counting rules.
- 1.3.2.46 **Plasticize:** To cover floors, walls, ceilings, or other surfaces with plastic sheeting as specified herein.
- 1.3.2.47 **Presumed Asbestos Containing Material (PACM):** Thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of a material as “PACM” may be rebutted pursuant to 8 CCR § 1529 (k)(5).
- 1.3.2.48 **Prevalent Level Monitoring:** Air sampling conducted for the purposes of evaluating existing ambient airborne fiber concentrations prior to starting abatement activities.
- 1.3.2.49 **Regulated Area:** An area established by the employer to demarcate areas where Class I, II, and/or III asbestos work is conducted, and/or any adjoining area where debris and waste from such asbestos work may accumulate; a Work Area within which airborne concentrations of asbestos exceed, or where there is a reasonable expectation they may exceed, the permissible exposure limit. Requirements for regulated areas are set out in paragraph (e) of 8 CCR § 1529.
- 1.3.2.50 **Removal:** All herein specified procedures necessary to remove asbestos-containing materials from the designated areas in an appropriate manner and to dispose of these materials at an acceptable site.

- 1.3.2.51 **Shower Room:** A room between the clean room and the equipment room in the worker decontamination enclosure with hot and cold or warm running water and suitably arranged for complete showering during decontamination.
- 1.3.2.52 **Small-Scale, Short Duration Work:** For the purposes of this Specification, asbestos abatement work that meets the Cal-OSHA definition of Class III asbestos work and that can be completed in no more than four (4) hours by no more than two (2) workers.
- 1.3.2.53 **Surfacing Material:** Material that is sprayed troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings or walls and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).
- 1.3.2.54 **Surfactant:** A chemical wetting agent added to water to improve penetration.
- 1.3.2.55 **Thermal System Insulation (TSI):** ACM or ACCM applied to pipes, fittings, boilers, breaching, tanks, ducts, or other structural components to prevent heat loss or gain.
- 1.3.2.56 **Time Weighted Average (TWA):** The TWA is an 8-hour time weighted average of the airborne concentration of fibers (longer than 5 micrometers) per cubic centimeter of air (f/cc) which represents the employee's 8-hour workday exposure as determined by the formula:
- $$\text{8-hour TWA} = \frac{C_1T_1+C_2T_2+C_nT_n}{480}$$
- 480 minutes where "C" is the contaminant concentration measured in units of f/cc and "T" the measurement time period in units of minutes.
- 1.3.2.57 **Transmission Electron Microscopy (TEM):** A method of analyzing air samples for asbestos fibers using a transmission electron microscope and associated instrumentation.
- 1.3.2.58 **Visible Emissions:** Any emissions containing particulate asbestos material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.
- 1.3.2.59 **Washroom:** A room between the Work Area and the holding area in the equipment decontamination enclosure system. The washroom comprises an airlock.
- 1.3.2.60 **Wet Cleaning:** The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with amended water and disposing of these cleaning tools as asbestos-contaminated waste.
- 1.3.2.61 **Work Area:** Designated rooms, spaces, or areas of the project in which asbestos abatement actions are to be undertaken or which may become contaminated as a result of such abatement actions. A contained Work Area is a Work Area which has been sealed, plasticized, and equipped with a decontamination enclosure system. A non-contained Work Area is an isolated or controlled-access Work Area which has not been plasticized nor equipped with a decontamination enclosure system.

- 1.3.2.62 **Worker Decontamination Enclosure System:** That portion of a decontamination enclosure system designed for controlled passage of workers, and other personnel and authorized visitors, typically consisting of a clean room, a shower room, and an equipment room separated by air locks.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- 2.1.1 Product Prohibitions: The following products or product constituents are prohibited from use during asbestos abatement activities:
- 2.1.1.1 Any product for which a Safety Data Sheet is available from the manufacturer and has yet to be submitted.
  - 2.1.1.2 Any product for which a less hazardous substitute product is readily available, provided that the substitute product possesses similar performance characteristics.
  - 2.1.1.3 Any product containing any concentration of diethylene glycol dimethyl ether; ethylene glycol monoethyl ether; or ethylene glycol mono methyl ether (skin TLV 5 ppm; CAS 109-86-4). These constituents cause reproductive damage and blood cell damage.
  - 2.1.1.4 Any product containing any concentration of ethylene glycol (1, 2 Ethanediol glycol; TLV = 50 ppm). This chemical causes kidney damage if ingested.
  - 2.1.1.5 Any product containing any concentration of formaldehyde, a suspect carcinogen.
  - 2.1.1.6 Any product containing any concentration of methylene chloride, a suspect carcinogen.
  - 2.1.1.7 Any product containing any concentration of n-hexane. This chemical causes peripheral nerve damage (potential ingredient in spray adhesive).
  - 2.1.1.8 Any product containing any concentration of isocyanates. An allergic sensitizer, this group of chemicals typically has no warning properties (potential ingredient in spray foams and some epoxies).
  - 2.1.1.9 Non-fire rated visquene and/or non-fire rated lumber are prohibited from use.
  - 2.1.1.10 Solvents with a flash point <140° F are prohibited from use.
- 2.1.2 Equipment Prohibitions: The following equipment is prohibited from use during asbestos abatement activities:
- 2.1.2.1 **Fasteners:** High velocity powder-actuated fasteners are prohibited from use without the expressed written permission of the County.
  - 2.1.2.2 **Torches:** Open flame torches are prohibited from use for asbestos abatement purposes.

- 2.1.2.3 Compressed Air: Air compressors, leaf blowers, or similar forced-air equipment is prohibited from use for asbestos abatement purposes.
- 2.1.2.4 Lamps: Sodium or mercury vapor (metal halide) lamps are prohibited from use.
- 2.1.2.5 Ladders: Wooden or metal ladders are prohibited from use.
- 2.1.2.6 Engines: Internal combustion engines shall not be permitted for operation indoors without the expressed written permission of the County in consultation with the Project IH Consultant.
- 2.1.2.7 Grounded Electrical Equipment: Electrical equipment manufactured with internal grounding or grounded wiring shall not be used if the grounding has been removed, tampered with, or otherwise altered.
- 2.1.2.8 HEPA-Filtered Vacuum Cleaners Without Certification of Efficiency Challenge Testing: Vacuums without certification of onsite testing for efficiency (“DOP testing”) shall not be allowed for use outside of a negative differential pressure enclosure (“containment”).

2.1.3 Material Requirements:

- 2.1.3.1 Sealants: Sealants used will have a flame spread, smoke and fuel contribution of zero, and will be ASTM and UL rated for 3 hours for standard method fire test for fire stop systems.
- 2.1.3.2 Lock-down Encapsulants: Lock-down encapsulants used will be compatible with substrate to which they will be applied, as well as with adhesives or other finish materials which may be applied over such encapsulants.
- 2.1.3.3 Polyethylene Sheeting: Polyethylene sheeting used will be in compliance with NFPA Standard 701 fire testing, with flame spread  $\leq 5$  and smoke development rating of  $\leq 70$  when tested by ASTM E-84. Minimal thickness will be 6 mil.
- 2.1.3.4 Spray Poly: Spray poly as a liquid must be non-flammable (no flash point), vapor free, and not noxious; when dry, poly must be Class A rated, with flame spread  $\leq 20$ , have a fuel contribution of zero, and smoke development of  $\leq 110$  by ASTM method E-84.
- 2.1.3.5 Waste Containers: Waste containers (bags, drums, bins, etc.) must be suitable for loading, temporary storage, transit, and unloading of asbestos waste without rupture, or otherwise causing asbestos exposure to persons nor releases to the atmosphere. Use of rigid primary containers (bins, boxes, drums, etc.) is preferred and recommended. Where rigid primary containers are used, they shall be lined with a secondary leak tight barrier of poly sheeting or poly bags of minimal thickness of 6 mil. All containers used for disposal of asbestos-containing waste shall be labeled in general accordance with applicable regulations, and in specific with the requirements of 8 CCR § 1529(k)(8) and BAAQMD Regulation 11, Rule 2. See 3.2.3.4 of this Document 01 88 19 for additional details.

- 2.1.3.6 Adhesives: Adhesives, whether tape or aerosol liquid, shall be capable of securely bonding plastic to plastic, or plastic to substrate. The bonding strength and resulting seal of the material used must not be compromised by mist or water, encapsulating agent or any other product or process used in the regulated Work Area.
- 2.1.3.7 Warning Signs and Labels: Warning signs and labels will be used in compliance with applicable federal, state, and local regulations. Signs must be lettered in the language(s) necessary to communicate the specific hazard warning(s) to workers or visitors reasonably expected to be at the job site.

2.1.4 Equipment Requirements:

- 2.1.4.1 General: It is the responsibility of Design-Build Entity to utilize tools and equipment that have been thoroughly and adequately decontaminated prior to their delivery to this Project site. All equipment brought onto this Project work site will be subject to inspection by the County and/or the Project IH Consultant. Visible evidence of suspected equipment contamination will be sufficient to cause the equipment to be rejected from mobilization onto the project work site. All costs resulting from the need to decontaminate any part of the work site contaminated by Design-Build Entity's use of inadequately decontaminated equipment will be borne by Design-Build Entity.
- 2.1.4.2 Differential Air Pressure Equipment: Differential air pressure equipment (also known as "exhaust fan units" or "negative air machines") shall be equipped with HEPA filtration. All differential air pressure equipment will be in well-maintained condition and will comply with ANSI/AIHA Standard Z9.2 for performance. Differential air pressure equipment will arrive onsite with the intake and exhaust openings sealed. Each unit must be efficiency-challenged ("DOP tested") onsite, in the presence of the Project IH Consultant and prior to use, so as to ensure a minimum 99.97% filtering efficiency of aerosol particulates of 0.3 microns in size. DOP testing shall be performed by a professional third-party testing firm not otherwise financially affiliated with Design-Build Entity. Each unit used on this Project must have a certification label affixed to it attesting to its most recent successful testing. Upon arriving onsite, each unit must be visibly clean and free of apparent or suspected asbestos contamination, as judged by the Project IH Consultant. If, in the opinion of the Project IH Consultant, the differential air pressure units are judged to be in need of cleaning, maintenance, or in any other way fail to meet typical industry standards, the unit(s) may not be placed into operation on this Project. If secured, negative air machines may be stacked, but no more than two high without the prior approval of the Project IH Consultant, and in no event will negative air machines be allowed to be inverted for the purpose of stacking.
- 2.1.4.3 HEPA-filtered Vacuum Cleaners: HEPA-filtered vacuum cleaners will be in well-maintained condition and must be visibly clean and free of apparent or suspected contamination, as judged by the Project IH Consultant. **Each unit must arrive onsite sealed and empty of any debris.** Each unit must be DOP tested onsite, within containment, before it can be used outside of a regulated Work Area. DOP testing will be performed by a professional third-party firm not otherwise financially affiliated with Design-Build Entity. Each unit used on this Project must have a certification label affixed to it attesting to its most recent successful testing. If, in the opinion of the Project IH Consultant,

the HEPA-filtered vacuum cleaners are judged to be in need of cleaning, maintenance, or in any other way fail to meet typical industry standards, the vacuum cleaners may not be placed into operation on this Project. Care will be exercised by Design-Build Entity to prevent commingling of asbestos and lead waste. Separate vacuums will be used for each type of waste clean-up.

- 2.1.4.4 Lights and Electrical Cords: Electrical lights and equipment utilizing electrical power cords will be in well-maintained condition and will be visibly clean and free of apparent contamination, as judged by the Project IH Consultant. All lighting and electrical equipment must be water resistant. Work lighting must have protective covers over the light source. Grounded electrical equipment will be used with grounded electrical supply and outlets. Where such equipment will be used in the near vicinity of water, ground fault circuit interruption (GFCI) protection shall be used in the wiring circuit at the first feasible point closest to the source of power.
- 2.1.4.5 Personnel Decontamination Facilities for Wrap and Cut Method: If the wrap and cut method of removal is employed, Design-Build Entity shall install a remote decontamination (decon) area for workers. The decon area will be placed as close as feasible to the regulated Work Area. Decon will be constructed in accordance with Cal-OSHA's requirements. Workers shall use a HEPA vacuum to clean the exterior of protective clothing prior to exiting the regulated Work Area and proceeding to the remote decon unit.
- 2.1.4.6 Personnel Decontamination Facilities for tasks other than Wrap and Cut: At a minimum, a 3-chamber personnel decontamination (decon) unit with functioning shower will be constructed and used whenever Class I work is being conducted. A decon unit with shower will be constructed contiguous with each Class I regulated Work Area. Use of a remote shower for Class I work may be allowed where a contiguous shower is infeasible, as judged by the Project IH Consultant. A curtained doorway (see 1.3.3.22 above) will be constructed to separate individual chambers within a personnel decon unit, as well as at ingress and egress points. The decon units shall be constructed in a manner so as to be free of physical hazards (e.g., jagged metal or exposed wood surfaces). **To the extent feasible, a personnel decon unit must not be used for waste load-out.**
- 2.1.4.7 Personnel Decontamination Facilities (Class II): At a minimum, a 2-chamber personnel decontamination (decon) with separate clean room and equipment room will be constructed in series and used whenever Class II work is being conducted indoors. For exterior Class II work where containment is not required, a single stage designated decontamination area will be established. A decon unit/area will be constructed contiguous with each Class II regulated Work Area. A curtained doorway (see 1.3.3.22 above) will be constructed to separate individual chambers within a personnel decon unit, as well as at ingress and egress points. The decon units shall be constructed in a manner so as to be free of physical hazards (e.g., jagged metal or exposed wood surfaces). Personnel decontamination facilities used for Class I work may be used for Class II work. **To the extent feasible, a personnel decon unit must not be used for waste load-out.**
- 2.1.4.8 Contaminated protective clothing will be removed and any exposed skin and reusable personal protective equipment ("PPE") thoroughly washed with clean water.

- 2.1.4.9 Water Filtration Equipment: Water will be collected from decontamination unit showers and from general asbestos abatement activities and must be filtered prior to discharge. Water will be filtered through a system capable of trapping particles 1 micron and larger in size, intended to remove asbestos fibers. Filtered water may be discharged into a sanitary sewer system, if Design-Build Entity can satisfactorily demonstrate that it is acceptable to the local wastewater treatment facility to do so. Design-Build Entity will bear the responsibility to investigate discharge requirements and to obtain any necessary discharge permits prior to the start of work. To the extent feasible, water should be reclaimed and used on the jobsite for application in wet method work practices prior to its discharge.
- 2.1.4.10 Smoke Detectors: Design-Build Entity will exercise due caution to not engage in activities that will inhibit the proper functioning of operable smoke detectors during the Work. Design-Build Entity will take steps to preserve and protect any operable smoke detectors from damage during the Work. Design-Build Entity must coordinate in advance with the local fire authority and the County prior to proceeding with any work activities that may require the disabling of an installed fire suppression system or a smoke detector. Design-Build Entity will designate a person or persons to the responsibility of "Fire Watch" for the duration of time that an installed fire suppression system or a smoke detector(s) is required to be disabled.
- 2.1.4.11 Fire Extinguishers: Fire extinguishers rated not less than 2A:10-B:C or as specified by more stringent regulations, will be required in the regulated Work Area(s). The minimum allowable number of fire extinguishers in any individual Work Area will be one in the regulated Work Area and one in the clean area.
- 2.1.4.12 *Manometers: (Not required for Wrap and Cut Method)* Use of data-logging manometers to record differential air pressure measurements within all regulated Work Areas is required on this Project, irrespective of the Cal/OSHA Class of asbestos work being undertaken. A separate manometer shall be used to document diminished air pressure differential within each regulated Work Area. Exceptions will not be allowed due to concerns for equipment security. It is Design-Build Entity's responsibility to provide and secure all equipment for the duration of this project. Manometers used to monitor air pressure within a regulated Work Area shall have been calibrated to the manufacturer's specifications within the previous twelve (12) months. Manometers shall have real-time digital read-out; an audible alarm; a hardcopy record (tape or circular disk) and be capable of continuous data logging and printing out a data record. The data collected will begin at the time of the initial establishment of a diminished air pressure differential within a regulated Work Area and continue until acceptable analytical results of final air clearance testing results for that Work Area are received and conveyed to Design-Build Entity.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- 3.1.1 Examination of Conditions: Design-Build Entity must carefully examine the work site before beginning work and report any previously undisclosed or special conditions to the County. Except as may be otherwise stipulated elsewhere in the Contract Documents, starting the Work shall be interpreted as implied acceptance of site conditions as they exist.

- 3.1.2 Responsibility for Work: By commencing the Work, Design-Build Entity acknowledges and agrees that it has sole and primary responsibility and obligation to the County to make inspections of its own work at all stages of the Work. This includes acknowledging and agreeing that Design-Build Entity has sole responsibility to supervise or superintend the performance of the Work, and that said work will be in strict adherence to, and in compliance with, all applicable methods, materials, regulations, and required standards whether or not specified herein. Design-Build Entity is responsible for site security upon starting the Project. This responsibility extends 24 hours per day until Project completion and final demobilization.
- 3.1.3 Coordination Of Work: Design-Build Entity is responsible to coordinate all scheduling, phasing, and completion of asbestos abatement work with the County and all other employers working on the job site during the abatement activities. This includes the responsibility to make notifications or communications of hazards to other trades or employers, as required by regulation.
- 3.1.4 Measurements and Quantities: Design-Build Entity is responsible to field verify all measurements, dimensions, and/or quantities before the start of work. Discrepancies between plan and field dimensions or quantities shall be reported to the County as soon as discovered.
- 3.1.5 Job Site Postings: Prior to commencing any preparation of the Work Area(s) for asbestos removal operations, Design-Build Entity will post all required documents, warning signs, and erect any physical barriers in order that the Work Area(s) may be secured. Prior to the commencement of any work, Design-Build Entity will post bilingual or multi-lingual (as appropriate) warning signage in and around the work site in compliance with applicable regulations.
- 3.1.6 Pre-Work Conference: Prior to the start of any work, Design-Build Entity will meet at the project site with the Project IH Consultant, the County, and other entities involved in, or associated with, the asbestos abatement work. This will be an organizational meeting to review responsibilities and personnel assignments; to identify any special needs or conditions pertaining to the Work or its completion; to identify the Work Area containment(s) and decontamination areas; and to coordinate temporary facilities including power, light, water, waste storage, etc.
- 3.1.7 Work Area Preparation:
- 3.1.7.1 Work Area Designation: Each regulated Work Area will be designated by Design-Build Entity and discussed with the Project IH Consultant prior to its preparation. At a minimum, discussion topics will include ingress and egress points, Work Area configurations, containment methods, location of viewing ports, and installation of decontamination system enclosures. This communication may be accomplished at the Pre-Work Conference.
- 3.1.7.2 Electrical Lock-out: Design-Build Entity, in coordination with the County, is responsible for the shutdown and disconnection of all electrical power within the Work Area. For the purposes of this Document 01 88 19, the Work Area is defined as including all wall, floor, and/or ceiling cavities which will be opened as a result of the removal of wall, floor or ceiling materials. Design-Build Entity will arrange for temporary power and lighting and will ensure safe installation of temporary power sources and equipment per applicable electrical code requirements. Design-Build Entity should notify the County in

writing before disconnecting any power or communication lines that may service the subject buildings or adjacent buildings.

- 3.1.7.3 HVAC Isolation: Design-Build Entity is required to shut down and isolate mechanical (heating, cooling, and ventilating) air systems to prevent contamination or fiber dispersal to other areas of the building. During the Work, HVAC vents and any other airway openings into and out of the work area will be sealed with barriers consisting of a minimum two (2) layers of 6-mil poly sheeting and duct tape ("critical barriers"). In the event of any containment breaches, filters in the HVAC system(s) will be removed and disposed of as asbestos-contaminated waste.
- 3.1.7.4 Work Area Containment: Each regulated Work Area will be regulated and isolated ("contained") from all building areas not a part of the Work. All critical openings including, but not limited to, doorways, windows, tunnels, ducts, grills, diffusers, or openings through which ducting, piping, or conduit passes are to be sealed securely with duct tape, spray adhesives, plastic sheeting, or by other means, as necessary, to prohibit the passage of air out of the regulated Work Area. Any fixed objects to remain within the proposed Work Area will be cleaned using HEPA vacuum equipment and/or wet cleaning methods as appropriate, and completely enclosed with plastic sheeting. The plastic sheeting shall be, at a minimum, 6-mil fire-rated poly. Once fully constructed, Design-Build Entity will inspect the containment for gaps, breaches, tears, leaks, holes, or other deficiencies. Design-Build Entity will conduct a similar inspection not less than once at the start of each work shift; however, Design-Build Entity will be responsible to ensure the integrity of the containment(s) at all times. Containment deficiencies shall be corrected immediately and with utmost priority upon discovery.
- 3.1.7.5 Decontamination Facilities: At a minimum, a 3-chamber personnel decontamination (decon) unit with functioning shower will be constructed and used whenever Class I work is being conducted. Cover the floor under the decontamination units, hoses, and equipment with at least one layer of 6-mil poly. Securely affix the poly sheeting to the floor. A personnel decon unit with shower will be constructed contiguous with each Class I regulated Work Area. Use of a remote shower for Class I work may be allowed where a contiguous shower is infeasible, as judged by the Project IH Consultant. A curtained doorway (see 1.3.3.22 above) will be constructed to separate individual chambers within a personal decon unit, as well as at ingress and egress points. The decon units shall be constructed in a manner so as to be free of physical hazards (e.g., jagged metal or exposed wood surfaces). Other alternate decontamination facilities may be used for compliance with Class II asbestos work or asbestos roofing removal work. **To the extent feasible, a personnel decon unit must not be used for waste load-out.**
- 3.1.7.6 Movable and Loose Items: Movable and loose items located within the Work Area(s) and not removed by the County are to be cleaned using HEPA-filtered vacuum equipment and/or wet cleaning methods, as appropriate, and will be removed from the Work Area to a temporary location designated by the County. The items will be received by and protected from future damage or loss by the County.
- 3.1.7.7 Pre-Cleaning: Design-Build Entity will clean each Work Area prior to commencing the construction of a regulated Work Area containment. Such

“precleaning” will be by means of HEPA-filtered vacuum equipment and/or wet cleaning methods, as appropriate. Design-Build Entity will use cleaning methods that minimize dust generation. Prohibited methods include shoveling, dry sweeping, use of forced or compressed air, or vacuuming with equipment not equipped with HEPA filtration. Workers engaged in “precleaning” activities are required to use appropriate personal protective equipment, including respiratory protection.

3.1.7.8 OSHA Class I Work Area Isolation: For Work Areas within which OSHA Class I asbestos work is to be conducted (removal of thermal system insulation [TSI] or surfacing material), Design-Build Entity will erect a full, diminished air pressure enclosure. In addition to sealing critical openings, a minimum of one layer (additional layers may be required based on the localized conditions) of fire-rated 6-mil plastic sheeting will be installed on the walls, floors, and ceilings (as appropriate for the location and/or type of material[s] being removed). Exceptions to this may apply to the removal of TSI by means of glovebag techniques. In the case of TSI removal using glovebags, full-room (“secondary containment”) or partial-room (“mini-enclosure”) containment structures may, at the Project IH Consultant’s discretion, be additionally required. Floor layers shall be applied making sure that plastic is turned-up at the wall at least sixteen (16) inches and sealed to wall layers. Wall layers shall be sealed by overlapping the turned-up floor plastic a minimum of twelve (12) inches. All joints and seams for each layer shall be glued and taped securely in a manner so as to prohibit water or air movement through the attached sheetings.

3.1.7.9 “Wrap and Cut” Removal of TSI: For Work Areas within which OSHA Class I asbestos work consisting primarily of TSI (pipe insulation) removal is to be conducted using the “Wrap and Cut” method, Design-Build Entity will prepare the Work Area in full compliance with the requirements of BAAQMD Regulation 11, Rule 2, and the requirements of Cal-OSHA 8 CCR § 1529 (g) for conducting Class I asbestos work. Removal of asbestos-containing TSI for the purposes of accessing the piping to facilitate cutting the pipe will be done by first removing a portion of the TSI by glovebag method and sealing the remaining cut ends of asbestos-containing materials. Once the uninsulated pipe is exposed, the remaining insulated section to be removed will be wrapped in a minimum of two layers of 6-mil poly before being removed from the Work Area. For the purposes of this Work, “Wrap and Cut” removal of TSI will meet the regulatory definitions of “removal” and “removing” set forth in Cal-OSHA 8 CCR § 1529 et. seq. and BAAQMD Regulation 11, Rule 2, respectively. Design-Build Entity will seek and obtain the approval of the County prior to implementing “Wrap and Cut” activities. Removal of the pipe will include:

- Excavate soil over and around the pipe.
- Protect immediate Work Area by covering the ground under the pipe with plastic sheeting. Temporarily wrap damaged/deteriorated asbestos insulation adjacent to the work with plastic and tape to prevent damage or disturbance during removal.
- Provide and utilize the following materials and equipment for this work: amended water, duct tape, plastic sheeting and waste bags, respiratory protection, disposable coveralls, warning signs, HEPA-filtered vacuum

cleaner, utility knife (retractable blade), hand tools, scrapers, industrial stapler, encapsulant.

- Place all necessary tools in the glovebag. Wrap glovebag around the pipe, seal with staples and tape leaving enough sealed space above pipe to allow easy access. Secure bag to pipe to support weight of stripped insulation and water.
- Insert HEPA-vacuum nozzle and flexible tubing or wetting agent sprayer into hole location provided, seal airtight with duct tape.
- Smoke Test: Design-Build Entity shall inject smoke via a small hole and slowly squeeze the bag. Repair leaks and holes as required.
- Design-Build Entity shall provide a crew of two or more well trained people for each glovebag removal operation. One member of the crew shall be dedicated to ensuring that the glovebag is secured to the component.

3.1.7.10 OSHA Class II Work Area Isolation: For Work Areas within which OSHA Class II asbestos work is to be conducted, Design-Build Entity will prepare the Work Area in accordance with the regulatory requirements of Cal-OSHA 8 CCR § 1529 et. seq. and BAAQMD Regulation 11, Rule 2. In addition, a diminished air pressure enclosure, as documented by manometric measurements (see 2.1 5. 13. above) is required for all OSHA Class II Work. OSHA Class I Work Area isolation controls may be used for Class II work.

3.1.7.11 Localized Limited Work Area Isolation: For Work Areas where small-scale, short duration ACCM or ACM removal work will occur, Design-Build Entity may, with the approval of the Project IH Consultant, use Localized Limited Work Area Isolation (“mini-containment”) methods. For the purposes of this Specification, the phrase “small-scale, short duration ACCM or ACM removal work” shall generally apply to that ACCM or ACM removal work which can be completed by no more than two (2) workers in no more than four (4) hours; and which generates no more ACCM or ACM waste than can be contained in one (1) standard-sized (60”) waste bag. At a minimum, such a Work Area shall be fully enclosed with one layer of 6-mil plastic; critical barriers shall be sealed; the mini-containment shall have a diminished interior pressure differential, and a curtained doorway for ingress/egress use. Additional enclosure measures may be required at the discretion of the Project IH Consultant. Localized Limited Work Area containments must be constructed so as to comply with all regulatory requirements including, but not necessarily limited to, BAAQMD, and Cal-OSHA.

3.1.7.12 Substrate Removal: In certain locations, asbestos-containing materials to be removed may have been identified as being present on wooden or other substrates that will also be subject to building demolition (e.g., adhesive on wallboard). At Design-Build Entity’s discretion, and with the concurrence of the County, such materials may be removed by means of removing the substrate material to which the ACM or ACCM is adhered. As a priority, consideration must be given to the use of methods that will minimize the weight or volume of waste generated by the use of this removal method. This method of removal should not be employed in locations where doing so will result in the creation of an imminent safety hazard.

- 3.1.7.13 Work Area Obscurity: Design-Build Entity will endeavor to block or obscure the view of the public into the asbestos abatement Work Areas but retain appropriate view portals in compliance with BAAQMD.
- 3.1.7.14 Adjacent Areas: Building areas immediately adjacent to regulated asbestos removal areas, such as corridors or hallways which are not themselves subject to asbestos material removal but are necessary routes to and from regulated Work Areas, must be protected by Design-Build Entity to prevent damage and/or contamination. Openings from these areas into areas where asbestos material removal activities will be conducted will have curtained doorways to further minimize air passage into non-regulated areas. Design-Build Entity will also be responsible for making all required notifications to trades or other building occupants in areas adjacent to regulated abatement work areas.
- 3.1.7.15 Emergency Exits: Design-Build Entity shall establish emergency and fire exits from the Work Areas, or establish alternative exits satisfactory to the County and to local emergency authorities or other applicable agencies. If feasible, emergency exits should be selected in such a way as to prevent incidental contamination of adjacent areas, provided that this can be accomplished without impeding the safety of abatement, County, or other personnel.

**All exits leading out of regulated Work Areas shall be marked in bold lettering "EXIT" or "Emergency Exit." Exit markings shall be in the primary language(s) appropriate to communicate with the workers present in the Work Area.**

- 3.1.7.16 Work Area Communications: Design-Build Entity will be responsible for establishing and maintaining clear communications between the personnel in the Work Area(s) and those stationed outside, such that those communications can be maintained without need for workers to perform an exit from the Work Area that would require decontamination.
- 3.1.7.17 Work Area Viewing Windows: Design-Build Entity will provide and construct observation windows into all regulated Work Area containments. The viewing windows will be of a visually transparent material of approximately 18" (H) x 24" (W) in size and/or will be constructed and maintained so as to allow unobstructed observation of the entire Work Area from outside the containment.
- 3.1.7.18 Differential Air Pressure: It is anticipated that negative air machines will not be necessary in regulated areas where "wrap and cut" procedures are being employed. Prior to the start of asbestos removal work, Design-Build Entity will install HEPA-filtered differential air pressure equipment (also known as "exhaust fan units" or "negative air machines"), as specified herein, to maintain a diminished air pressure differential within the Work Area. These exhaust fan units will remain in place within a regulated Work Area throughout the abatement and decontamination phases of the Work until the required visual and/or clearance air testing has been satisfactorily achieved. A minimum pressure differential of -0.03 inches of water column (-0.03" w.c.), with respect to the air pressure of the area outside a Work Area, will be established and must be maintained at all times within all regulated Work Areas. Design-Build Entity shall have sufficient auxiliary units onsite and/or in place to maintain this requirement throughout the work. Air exhausted from this equipment shall be exhausted to the outdoors and, to the extent feasible, away from occupied

areas around the building. Documentation of satisfactory differential air pressure shall require the use of a manometer, as specified herein. If, in the opinion of the Project IH Consultant, the differential air pressure units are judged to be in need of maintenance or in any other way fail to meet typical industry standards, the units shall not be placed into operation on this project.

3.1.7.19 Pre-Abatement Work Area Inspections: Prior to the start of asbestos removal work, Design-Build Entity, accompanied by the Project IH Consultant, will conduct a detailed inspection of all equipment and Work Area isolation preparations to assure that appropriate engineering controls are in place and are functioning sufficiently to contain asbestos fibers to within the Work Area. The concurrence of the Project IH Consultant will be required to determine that a Work Area has undergone adequate preparation to proceed with asbestos removal work. A Pre-Abatement Work Area inspection will be conducted for each regulated Work Area and each individual inspection must be documented in writing. Such documentation will be signed by the individual(s) conducting the inspection. A copy of each such documentation will be obtained by the Project IH Consultant for conveyance to the County.

## 3.2 ASBESTOS REMOVAL

3.2.1 All materials with detectable concentrations of asbestos are to be removed from the Site. The types of materials known to be present at the Site are summarized in Paragraph 1.1.2 of this document and in Project Manual Exhibit C.

### 3.2.2 Work Practices:

3.2.2.1 At all times, Design-Build Entity will employ work practices intended to maintain an orderly and safe workplace. This will include, but not be limited to: pre-cleaning the Work Area; adequately wetting ACCM or ACM prior to its disturbance and during its removal; prompt clean-up of ACCM or ACM waste; use of HEPA-filtered vacuums and exhaust fan units; and employing all feasible engineering controls necessary to prevent elevated airborne asbestos concentrations within and outside of the Work Area(s).

The Project IH Consultant may collect air samples during the project to document airborne fiber levels inside the Work Area(s) and in locations outside the Work Area(s). Design-Build Entity will be required to take immediate corrective action if perimeter samples exceed 0.01 fibers/cubic centimeter (f/cc) by PCM analysis, are overloaded, or exceed 70 structures/square millimeter (s/mm<sup>2</sup>) by Transmission Electron Microscopy (TEM).

### 3.2.2.2 Wrap and Cut Removal Procedures:

- Using glovebag procedures, remove a minimum of one (1) foot of pipe insulation at each location where cutting of the pipes will be performed for removal of the pipe from the trench.
- During removal, periodically wet the inside surfaces of bag and any waste for better visibility and fiber control. Use cold water to prevent fogging.
- During removal, periodically use HEPA-vacuum to compensate for any leaks and to reduce airborne fiber levels.

- Cut the insulation sharply for neat sealing of exposed insulation. Leave four (4) inches minimum margin at the bag seal point for safety. Thoroughly wet pipe insulation.
- After removal and brushing, wash down all surfaces to below the levels where the bag will be sealed, and saturate the waste. Look for residue in folds, on the back side of pipe, etc.
- Upon completion of removal work, seal all substrate surfaces from which asbestos material was removed with an encapsulant.
- Gather tools in a glove hand and pull the glove inside out. Seal the arm with plus or minus six (6) inches of tape and cut through the middle of the tape. Bend and re-tape the ends. Save the “bagged” tools for the next bag operation or clean by placing in pail of water.
- Collapse the bag with the HEPA-vacuum. With vacuum still applied, seal the bag just above the glove level. Remove the nozzle and tubing, place a 6-mil waste bag over the glove bag and then carefully remove the glove bag from the component and immediately seal it in the labeled waste bag. Check the component for loose waste and vacuum as required. Twist and seal the waste bag.
- Seal exposed insulation with fiberglass wettable cloth or other approved material while the insulation is damp, unless additional removal is planned.
- Wrap the remaining pipe insulation with two (2) layers of 6-mil poly sheeting sealed with tape prior to cutting and removing the pipe sections from the trench. Removal of the pipe sections shall be performed with care to maintain the integrity of the wrap and to minimize the potential for fiber release.
- Packaged waste will be transferred to secured disposal bins at the conclusion of each shift. Pipe insulation waste shall be properly labeled, manifested, and disposed of as a regulated asbestos-containing material (RACM – friable). The Project IH Consultant will sign the Uniform Hazardous Waste Manifests as an agent for the County.
- Workers shall use a HEPA vacuum to clean the exterior of protective clothing prior to exiting the regulated Work Area and proceeding to the remote decon unit.

3.2.2.3 OSHA Class I Asbestos Work: Materials designated for removal as OSHA Class I Asbestos Work will be removed in full compliance with the Class I Asbestos Work practices (i.e., Methods of Compliance) prescribed in Cal-OSHA’s Construction Safety Orders for Asbestos (8 CCR § 1529, et. seq.). All ACM or ACCM designated for removal as Class I Asbestos Work will likewise be removed in full compliance with the BAAQMD’s Regulation 11, Rule 2. Class I Asbestos Work may not commence until the Work Area(s) is/are prepared in accordance with 3.1.8.9 (or, in the case of TSI removal by “Wrap and Cut” method, 3.2.3.3) of this Document 01 88 19.

3.2.2.4 OSHA Class II Asbestos Work: Floor tiles, mastics, and other materials designated for removal as OSHA Class II Asbestos Work will, at a minimum,

be removed in full compliance with the Class II work practices (i.e., Methods of Compliance) prescribed in Cal-OSHA's Construction Safety Orders for Asbestos (8 CCR § 1529, et. seq.). All ACM or ACCM designated for removal as Class II Asbestos Work will likewise be removed in full compliance with the BAAQMD's Regulation 11, Rule 2. Class II materials should, to the extent feasible, be removed with hand tools, so that they might remain substantially intact. Class II Asbestos Work may not commence until the Work Area(s) is/are prepared in accordance with 3.1.8.11. At the discretion of the Project IH Consultant, use of mechanical or motorized removal methods may be permitted, provided the proposed method(s) is/are not prohibited under Cal-OSHA or BAAQMD work practices. Class I Asbestos Work practices may be utilized to perform Class II Asbestos Work. **Floor tile and/or floor tile mastic removal operations involving the use of mechanized work methods, including motorized floor buffers, must be conducted utilizing OSHA Class I Work Area Isolation methods and engineering controls as described in 3.1.8.9 of this Document 01 88 19. This includes preparing the Work Area(s) in accordance with BAAQMD requirements for the removal of RACM.** ACM shall be wetted prior to and during its removal, handling, and waste disposal. Low-odor, solvent-based mastic removers may be used to remove ACM mastics, provided the product(s) meets the requirements of 2.1 – MATERIALS of this Document 01 88 19, and provided the waste generated by their use is managed in accordance with applicable state and federal regulations.

- 3.2.2.5 Work Area Regulation: All asbestos removal Work Areas shall be regulated to prevent unauthorized entry. Isolation methods shall include, but not necessarily be limited to the use of barrier tape (yellow "Caution" and/or OSHA's "Danger Asbestos") and OSHA's "Danger Asbestos" sign(s). Design-Build Entity shall maintain a daily work area entry/exit log and require all persons entering the Work Area to sign in and out. Design-Build Entity will bear sole responsibility for controlling entry into the Work Area(s).

### 3.2.3 Work Area Decontamination

- 3.2.3.1 Initial Cleaning: Clean-up and containerization of ACCM or ACM waste will be an ongoing activity throughout the Work. ACCM or ACM gross debris must not be allowed to accumulate within the Work Area for subsequent clean-up. ACCM or ACM must be wetted and kept wet throughout the removal and clean-up work. All uncontained ACCM or ACM waste must be bagged and sealed in leak tight containers. Containerized waste may be stored within the Work Area during the work but must be removed from the Work Area for storage in a secured location before the end of each day's work shift. All containerized waste must be removed from the regulated Work Area prior to conducting visual inspections. In no event may the accumulation of containerized waste within the Work Area be allowed to impede the work progress or compromise work site safety.

- 3.2.3.2 Containerization of Waste: Unless otherwise authorized, ACCM or ACM waste will be containerized in rigid primary waste containers (boxes, drums, bins, etc.) suitable for loading, temporary storage, transit, and unloading of asbestos waste without rupture, or otherwise causing exposure to persons or releases to the atmosphere. Rigid primary containers must be lined with a leak tight barrier of poly sheeting or poly bags of minimum thickness of 6 mil. Waste containerized in bags will be double-bagged, evacuated of air, "goose-

necked” and sealed with duct tape. All containers used for disposal of asbestos-containing waste must be labeled in general accordance with applicable regulations, including the requirements of 8 CCR 1529 (k) (8) and BAAQMD Regulation 11, Rule 2.

- 3.2.3.3 Detail Cleaning: Following gross removal of ACM or ACCM, any remaining substrate surface and/or soil is to be detail cleaned using a combination of hand tools (scrapers, wire brushes, etc.), wet-wiping, and HEPA vacuuming. The substrate and containment will be considered to be adequately cleaned when no visible and no three-dimensional remnant of the ACM or ACCM can be seen or felt. This determination will be made by the Project IH Consultant on a case-by-case basis. In no event may encapsulation of residual ACM or ACCM be used in lieu of detail cleaning. Complete removal of an asbestos-impregnated porous substrate is an acceptable method of removal, so long as doing so does not introduce additional hazards into the Work Area, and with the additional requirement that the entire removed material be treated for disposal purposes as ACM or ACCM.
- 3.2.3.4 Waste Load Out: Prior to the removal of containerized waste from the Work Area, each container is to be wet wiped to remove any residual asbestos contamination. Double-bagging of waste must be completed within the regulated Work Area and the exterior of each bag or container must be individually wet-wiped prior to removal from the Work Area. Waste will be loaded out of the Work Area through the equipment decontamination (“waste load out”) chamber and not through the personal decon. Once outside of the Work Area, the waste will be transported in rigid movable bins, wheelbarrows or comparable directly to a secured waste storage location.
- 3.2.3.5 Post-Abatement Work Area Inspections: Subsequent to the completion of the cleaning phases and waste load-out, Design-Build Entity’s Supervisor, accompanied by the Project IH Consultant, will conduct a detailed visual inspection of the Work Area to assure that the identified asbestos has been removed and that the Work Area has been adequately cleaned. The concurrence of the Project IH Consultant will be required to determine that a Work Area has undergone adequate cleaning. This Post-Abatement Work Area Inspection will be conducted for each regulated Work Area and each individual inspection must be documented in writing. Such documentation will be signed by the individuals conducting the inspection(s). A copy of each such documentation will be obtained by the Project IH Consultant for conveyance to the County. Prior to conducting a Post-Abatement Work Area Inspection, Design-Build Entity will remove and replace the primary filter (“pre-filter”) on each differential air pressure unit (“negative air machine”). All non-essential equipment is to be decontaminated, as described herein, and removed from the Work Area prior to commencing the Post-Abatement Work Area Inspection.
- 3.2.3.6 Equipment Decontamination: Prior to removal from a Work Area, Design-Build Entity will decontaminate all tools and equipment. Decontamination will include, but not be limited to wet-wiping, HEPA-vacuuming, and containerizing tools into subsequently decontaminated containers. Prior to removal from the Work Area, HEPA-filtered vacuum cleaners will be emptied of debris, wet-wiped and wrapped, bagged or otherwise containerized for transport from the Work Area. Likewise, differential air pressure equipment is to be sealed with poly sheeting and tape, and externally decontaminated before removal from

the Work Area. All equipment will be subject to inspection by the Project IH Consultant prior to its demobilization from a regulated Work Area.

- 3.2.3.7 Encapsulation: Upon successful compliance with the requirements for Post-Abatement Work Area Inspection, and unless otherwise specified, Design-Build Entity shall apply a “lock-down” encapsulant to all surfaces within the contained Work Area. The encapsulant must be compatible with the existing surfaces. Following application of the encapsulant, a sufficient amount of time must pass to allow for the encapsulant to dry. Design-Build Entity should plan, at a minimum, to allow for an extended (preferably overnight) drying period. In all instances, the decision as to whether an adequate drying period has elapsed will be at the discretion of the Project IH Consultant.
- 3.2.3.8 Poly Removal: Once satisfactory Post-Abatement Work Area Inspections have been documented and after any applied encapsulant has been allowed to dry, Design-Build Entity will remove the top layer of plastic on the walls, floors, and/or ceilings (as appropriate). The inner plastic layer (if present) and primary isolation barriers (i.e., “critical barriers”) on vents, grilles, diffusers, etc., are to remain in place for the clearance air sampling. Care should be taken to avoid pulling down any remaining layer(s) of plastic sheeting. In Work Areas where a single layer of plastic has been used on the walls, floors, and ceilings (where applicable), that plastic layer shall be removed, and critical barriers are to remain in place until air clearance sampling is completed, and satisfactory air clearance criteria have been met. No alternative approaches are to be implemented without the prior agreement of the Project IH Consultant. Design-Build Entity will containerize removed plastic and any remaining debris, decontaminate the containers, and dispose of as ACM-contaminated waste. All other isolation engineering controls including decontamination facilities are to remain in place until the specified air clearance testing criteria have been met. **Removal of plastic layers and isolation engineering controls (“teardown”) may not occur without the knowledge and consent of the Project IH Consultant.**

### 3.2.4 Personal Protection

- 3.2.4.1 General: Design-Build Entity is solely responsible for the safety, efficiency, and adequacy of his work, workers, equipment, and methods, and for any damages which may result from their inappropriate actions, practices, construction, maintenance, or operations. Design-Build Entity will erect and maintain at all times, as required by the condition and progress of the Work, proper safeguards for the protection of the workers and the public, including the posting of appropriate and applicable warning signage and temporary fencing of excavations when Design-Build Entity is not on Site.
- 3.2.4.2 Competent Person: Design-Build Entity will designate a responsible member of its organization to be present on the work site, whose duty shall be the detection, recognition, and prevention of accidents and potential accidents. The designated individual will assume and fulfill the duties of the Competent Person, as defined in 8 CCR § 1529 et. seq. In the absence of notice to the contrary, provided in writing to the Project IH Consultant, this person will be the onsite Supervisor or Foreman of the Asbestos Abatement Design-Build Entity.

- 3.2.4.3 Toxic Exposure Responsibility: To the extent allowable by law, Design-Build Entity assumes all responsibility for any toxic exposures or effects experienced by workers as a result of the air quality supplied to respirators. Design-Build Entity will assume all responsibility for any toxic exposures or effects to all personnel or property caused by airborne particulates, mists, vapors, or any wetting agent(s), or hazardous substances, and for the legal disposal of said substances and/or any residual toxic residues. Commencement of the Work by Design-Build Entity will constitute implied acceptance of these responsibilities.
- 3.2.4.4 Worker Discipline: Design-Build Entity will at all times establish and maintain discipline and good order over its employees. Design-Build Entity will not employ on the work crew any person not skilled in the Work assigned, nor anyone who has not received notice and instructions in the dangers of asbestos exposure, and in the methods of reduction of the dangers associated with its disturbance. Workers must also receive training in the proper use of respirators, safety procedures, equipment, protective clothing, and appropriate work procedures. Design-Build Entity will remove any employee from the job site failing to adhere to any standard or requirement set forth herein.
- 3.2.4.5 Work Crew Size: Design-Build Entity is responsible for setting the size of its work crew(s), subject to the conditions stated in this paragraph. During asbestos removal operations, a minimum of two (2) workers must be in a Work Area at any time. No worker shall be allowed to work alone in a regulated Work Area. Under no circumstances may workers within a regulated Work Area be allowed to work without the supervision of an onsite foreman. The crew size on any given day shall be adequate to progress and/or complete the Work in accordance with the established Project Master Schedule.
- 3.2.4.6 Respiratory Protection: Prior to commencement of work, all workers must be instructed and must be knowledgeable in the use of respiratory protective equipment. All respiratory protection is to be provided to workers in conjunction with a respiratory protection program which shall meet the requirements of Cal-OSHA 8 CCR § 5144 et. seq. and 8 CCR § 1529 et. seq. This includes, but is not limited to, qualitative or quantitative fit testing. The following additional requirements shall apply:
- 3.2.4.6.1 Design-Build Entity will provide its workers with respiratory equipment approved by the National Institute for Occupational Safety and Health (“NIOSH”) for use in atmospheres containing asbestos fibers. Respiratory protection will be issued to each worker for their sole and individual use. Respiratory protection will be worn by all onsite personnel entering into a regulated Work Area or who may otherwise be potentially exposed to asbestos. Respiratory protection is to be worn at all times when inside a regulated Work Area, as well as during personal decontamination.
- 3.2.4.6.2 Where respirators with disposable filters are employed, Design-Build Entity will provide sufficient filter cartridges for replacement as necessary by the worker, or as required by the applicable regulation.
- 3.2.4.6.3 Design-Build Entity will supply all its employees with adequate respiratory protection, to meet the minimum standards of the

applicable Cal-OSHA requirements. In accordance with 8 CCR § 1529 et. seq., Design-Build Entity will have a Competent Person conduct exposure assessments and periodic monitoring to establish the minimum appropriate respiratory protection to be used and the effectiveness of the chosen respiratory protection. In the absence of data acceptable to the Project IH Consultant as satisfying the requirements for a Negative Exposure Assessment [8 CCR § 1529(b)], Design-Build Entity must conduct Initial Exposure Assessments, as defined in 8 CCR § 1529(f)(2). In addition, Design-Build Entity will require and enforce the use of the following activity-related requirements:

- (a) Work involving the use of solvents or volatile organic compounds shall be conducted with the use of air purifying respirators equipped with HEPA and Organic Vapor cartridges.
- (b) Any question as to respiratory protection requirements for any activity unnamed or not otherwise described herein shall, by default, require the maximum protection.
- (c) Appropriate respiratory equipment will be used throughout the Project, including during the removal of final layers of plastic after final air clearance is attained.
- (d) The minimum respiratory protection to be used during Class I asbestos removal will be powered air-purifying respirators ("PAPRs").

3.2.4.6.4 Design-Build Entity shall post in the Equipment Room and the Clean Room, all decontamination and safety procedures to be followed for ingress and egress from a regulated Work Area.

3.2.4.7 Protective Clothing: Design-Build Entity is to provide workers with sufficient sets of hooded, disposable, full-body coveralls recommended for use in asbestos operations equivalent to DuPont "TYVEK-Type 14". Such full body protective clothing will include, but not be limited to:

3.2.4.7.1 Foot coverings including safety shoes or boots, and/or disposable foot coverings.

3.2.4.7.2 Protective head coverings (hard-hats).

3.2.4.7.3 Protective clothing should be hooded, full-body coverall type.

3.2.4.7.4 Durable waterproof gloves (plastic, latex, rubber, nitrile, etc.) selected for chemical compatibility of the glove material and the liquid materials to be handled. Cloth or leather gloves may also be worn for comfort but are not to be worn alone when handling hazardous liquids.

3.2.4.8 Additional Clothing Requirements: Design-Build Entity will observe the following additional work clothing requirements:

- 3.2.4.8.1 Street clothes may not be worn under protective clothing into a regulated Work Area.
- 3.2.4.8.2 Any non-decontaminated protective clothing must remain within the contaminated areas and will be disposed of as asbestos-contaminated waste upon completion of its use.
- 3.2.4.8.3 Provide authorized visitors with disposable sets of protective full-body clothing, including footwear, as needed.
- 3.2.4.8.4 Provide eye protection and hard hats as required for job conditions or by applicable safety regulations. Where negative pressure respirators are worn, they are to be full faced, unless Design-Build Entity also provides protective eye wear.
- 3.2.4.8.5 All clothing must be sealable by design and/or by securing with tape at the workers' ankles and wrists. Short pants or short-sleeved shirts will not be allowed for primary clothing in the Work Area.

3.2.4.9 Personal Exposure Monitoring: It is Design-Build Entity's responsibility to conduct required personal exposure monitoring. Such exposure monitoring must be in full compliance with the requirements of 8 CCR § 1529, et. seq. and 8 CCR § 5144, et. seq. Design-Build Entity will monitor the airborne asbestos exposures of not less than ten percent (10%) of the work crew, or a minimum of two (2) workers, whichever is greater. Workers will be monitored in "worst case scenario" tasks, as well as those conducting less hazardous work. Personal exposure monitoring is not the responsibility of the County, nor of the Project IH Consultant, however, the Project IH Consultant may elect to conduct such monitoring as a supplemental or quality assurance measure. Personal exposure monitoring conducted by the Project IH Consultant is not to be construed as a substitute for, nor in any way to obviate, Design-Build Entity's duty to conduct such monitoring. Personal exposure monitoring for asbestos will be conducted and analyzed in accordance with NIOSH Method 7400. Analytical results of Design-Build Entity's personal exposure monitoring must be posted daily at the work site, and copies of the analyses are to be submitted to the County along with the Post-Job Submittals.

### 3.2.5 Waste Management and Disposal

3.2.5.1 General: Design-Build Entity is responsible for the safe handling, packaging, labeling, storage, and transportation of all asbestos-containing waste (hazardous and non-hazardous) generated by the Work. By commencing this Work, Design-Build Entity implicitly agrees to bear all costs arising from any claims, damages, losses, and/or clean-up expenses incurred which as a result of Design-Build Entity's negligence result from an asbestos release(s) on the job site or while asbestos waste is in transport to a waste disposal facility. Design-Build Entity and/or its designated subcontract waste hauler will deliver all asbestos-containing waste materials to an appropriately designated waste disposal facility that has been accepted by the County and which is permitted in accordance with applicable regulations.

3.2.5.2 Storage Facilities: Design-Build Entity will assure that all asbestos-containing wastes (hazardous and non-hazardous) generated by the Work are stored in

a secured manner until received at the waste disposal facility. Debris bins, storage enclosures, etc. must be locked overnight, and whenever Design-Build Entity is off site or unable to directly monitor their contents and management. Design-Build Entity will ensure that the appropriate and required warning signs are posted on waste storage locations. Design-Build Entity will be responsible to maintain the waste storage facilities in an orderly and well-kept condition at all times. Design-Build Entity will conduct routine waste storage area inspections to assure that appropriate storage conditions are maintained. Waste is not to be co-mingled with stored non-waste material or equipment.

- 3.2.5.3 Off site Shipment of Wastes: Design-Build Entity will notify the County and the Project IH Consultant in advance, whenever asbestos-containing waste materials are to be removed from the Project site. A copy of the Uniform Hazardous Waste Manifest or any other documents required by State or Local agencies shall be completed by Design-Build Entity and submitted to the Project IH Consultant for review and signature prior to transporting asbestos-containing waste materials to a disposal facility. Design-Build Entity shall provide sufficient advance notice of the need to obtain manifest signatures, so as to not delay waste shipment or otherwise impede the Project Master Schedule. The Project IH Consultant shall have authority to sign or approve waste shipping documents on behalf of the County. It shall be Design-Build Entity's responsibility to obtain the necessary authorized signature(s) to ship waste off site. Delays or expenses resulting from the untimely coordination of waste shipment documentation shall be borne by Design-Build Entity.
- 3.2.5.4 Waste Shipment Documentation: EPA Uniform Hazardous Waste Manifest forms will be used for all waste transported off site for hazardous waste disposal. An asbestos non-hazardous waste tracking manifest will be used for all asbestos-containing waste transported off site for disposal as non-hazardous waste. Design-Build Entity will submit original "Generator" copies of all hazardous and non-hazardous waste manifests to the Project IH Consultant at the time the waste is transported off site for disposal. All waste tracking documentation must meet the requirements of BAAQMD Regulation 11, Rule 2 (§§ 11-2-304.6 and 11-2-502). All waste loads removed from the Project Site shall be weighed by a Certified Weigh master prior to delivery to the disposal facility. Certified weight tickets shall be submitted by Design-Build Entity as a part of Design-Build Entity's Post-Job Submittals. At the conclusion of the Work, Design-Build Entity shall provide documentation that the asbestos-containing waste materials were disposed of at an appropriate EPA-approved waste disposal facility. The documentation shall be submitted as part of Design-Build Entity's Post-Job Submittals.
- 3.2.5.5 Shipment Containers: All waste shipping containers shall be individually labeled with appropriate signage and warnings, as required by applicable regulations, codes and ordinances. All waste hauling vehicles and/or waste debris bins shall, at all times, be enclosed and sealed while in route to the disposal facility.
- 3.2.5.6 Non-friable Debris Disposal: Resilient floor tiles, roofing materials and other non-friable asbestos-containing materials will not be required to be disposed of as hazardous waste, unless they are made friable during the removal process (see Definitions for description of friability.) Friability will be determined by the Project IH Consultant or by a representative of a regulatory agency.

### 3.2.6 Work Area Clearance Criteria

- 3.2.6.1 General: Design-Build Entity is not to demobilize from any work area until both the visual clearance criteria and the air monitoring clearance criteria have been met and documented, as described herein.
- 3.2.6.2 Post-Abatement Work Area Inspections: Subsequent to the completion of the cleaning phases and waste load-out, Design-Build Entity's Supervisor, accompanied by the Project IH Consultant, will conduct a detailed Post-Abatement Work Area Inspection (visual inspection) to assure that the identified asbestos has been removed and that the Work Area has been adequately cleaned. The concurrence of the Project IH Consultant is required to conclude that a Work Area has undergone adequate cleaning to proceed with clearance air testing. This Post-Abatement Work Area inspection will be conducted for each regulated Work Area and each individual inspection is to be documented in writing. Such documentation will be signed by the individuals conducting the inspections. A copy of each such documentation will be provided to the Project IH Consultant for conveyance to the County.
- 3.2.6.3 Visual Clearance Criteria: A Work Area will be considered to be adequately cleaned when no visible and no three-dimensional remnant of the ACCM or ACM can be seen or felt and/or soil sample results verify that ACCM has been removed. This determination will be made by the Project IH Consultant on a case-by-case basis. The need for soil sampling is at the discretion of the Project IH Consultant.
- 3.2.6.4 Air Clearance Testing: **(Not required for Wrap and Cut Method)** Once a Work Area has successfully achieved the Visual Clearance Criteria; has been encapsulated; and the encapsulant has been allowed to adequately dry, the Project IH Consultant will conduct Air Clearance Testing to evaluate the Work Area's cleanliness and suitability for unprotected human re-occupancy. Clearance air sampling will be conducted in general accordance with AHERA protocols (40 CFR 763 Subpart E) for analysis by Transmission Electron Microscopy (TEM), although other TEM analytical methods (e.g., Yamate II) may be employed at the discretion of the Project IH Consultant. Unless otherwise specified, air sample collection will be conducted by aggressively disturbing the air prior to and during the clearance air sample collection period. At the discretion of the Project IH Consultant, some Work Areas may be evaluated by Air Clearance Testing using PCM in accordance with the NIOSH 7400 Method. Clearance air samples will not be collected outside the Work Area for comparison purposes. Satisfaction of the Air Clearance Criteria will be based solely the analytical results obtained from clearance air testing conducted within a regulated Work Area.
- 3.2.6.5 Air Clearance Criteria: A Work Area will be judged to be adequately cleaned and suitable for unprotected human re-occupancy when the asbestos structure concentration of each of the air samples collected within the Work Area, as analyzed by TEM, is reported to be less than 70 s/mm<sup>2</sup> of sample filter media. In Work Areas where Air Clearance Testing is conducted for analysis by PCM, a Work Area will be judged to be adequately cleaned and suitable for unprotected human re-occupancy when each sample collected within the Work Area is reported to be less than 0.010 fibers per cubic centimeter of air sampled (<0.01 f/cc).

- 3.2.6.6 Failure to Achieve Clearance Criteria: Should Design-Build Entity fail to achieve either the Visual Clearance Criteria or the Air Clearance Criteria within a Work Area, Design-Build Entity will repeat a thorough re-cleaning of the entire Work Area. Following completion of the re-cleaning, the visual Post-Abatement Work Area Inspection will be repeated and documented again. Once the re-cleaned Work Area has successfully achieved the Visual Clearance Criteria, the Project IH Consultant will repeat the Air Clearance Testing. This pattern will be repeated until both Visual Clearance Criteria and Air Clearance Criteria have been achieved in the Work Area. All costs associated to the initial re-cleaning, and any subsequent re-cleaning, re-inspection, and/or re-sampling and analyses, will be borne by Design-Build Entity as re-work.

END OF DOCUMENT

DOCUMENT 01 88 19A

Attachment A

**CERTIFICATE OF ASBESTOS WORKER'S ACKNOWLEDGEMENT**

Project Name: \_\_\_\_\_

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

Project Address: \_\_\_\_\_

Contractor's Name: \_\_\_\_\_

**WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PUBLIC.**

Your employer's contract with the County of the above project requires that: You must be supplied with the proper respirator and be trained with its use. You must be trained in safe work practices and in the use of the equipment found on the job. You must receive a medical examination. These things are to have been done at no cost to you.

RESPIRATORY PROTECTION: You must have been trained in the proper use of respirators and informed of the type of respirator to be used on the above referenced project. You must be given a copy of the written respiratory protection manual issued by your employer. You must be equipped at no cost with the respirator to be used on the above project.

TRAINING COURSE: You must have been trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal area protective measures. The topics covered in the course must have included the following:

- Physical characteristics of asbestos
- Health hazards associated with asbestos
- Respiratory protection
- Use of protective equipment
- Pressure Differential Systems
- Work practices including hands on or on-job training
- Personal decontamination procedures
- Air monitoring, personal and area

MEDICAL EXAMINATION: You must have had a medical examination within the past twelve (12) months at no cost to you. This examination must have included: health history, pulmonary function tests, and may have included an evaluation of a chest x-ray.

By signing this Document 01 88 19A, you are acknowledging that you have been advised of your rights, as pertain to training and protection, and of the worker protection requirements applicable to your employer, the Contractor.

Signature: \_\_\_\_\_

Social Security No.: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Witness: \_\_\_\_\_

**CERTIFICADO DE RECONOCIMIENTO POR PARTE DEL TRABAJADOR**

NOMBRE DEL PROYECTO: \_\_\_\_\_

FECHA: \_\_\_\_\_

DIRECCION DEL PROYECTO: \_\_\_\_\_

NOMBRE DEL CONTRATISTA: \_\_\_\_\_

**TRABAJAR CON ASBESTO PUEDE SER PELIGROSO. EL ASPIRAR DE FIBRAS DE ASBESTO HA SIDO LIGADO CON VARIOS TIPOS DE CANCER. SI UD. FUMA Y ASPIRA FIBRAS DE ASBESTO, LAS POSIBILIDADES QUE UD. SUFRIRA DE CANCER SON MAYORES QUE PARA LA PERSONA QUE NO FUMA.**

El contrato entre su patron y el dueno para el proyecto antes citado requiere que le proveen a Ud. un respirador adecuado, y que a Ud. lo entrenen en su uso; que le entrenen a Ud. en practicas de seguridad en la obra y en el uso del equipo que se encuentre en la obra; que Ud. reciba un examen medico, y que todo esto se haga sin costo para Ud.

PROTECCION RESPIRATORIA: Ud. tiene que haber sido entrenado en el uso correcto de respiradores, y informado acerca del tipo de respirador que se usara en la obra citada. Deberan entregarle a Ud. una copia escrita del manual de proteccion respiratoria, expedida por su patron. Ud. tiene que ser equipado, sin costo alguno, con el respirador que se usara en la obra citada.

CURSO DE ENTRENAMIENTO: Ud. tiene que haber sido entrenado en los peligros inherentes en el manejo de asbesto y en el aspirar polvo de asbesto, asi como en los procedimientos correctos en el trabajo y las medidas de proteccion para el individuo y para la zona. Las materias tratadas en el curso deberan haber incluido las sigientes:

- Caracteristicas fisicas del asbesto
- Peligros a la salud asociados con el asbesto
- Proteccion repiratoria
- El uso de equipo de proteccion
- Sistemas de Presion Diferencial
- Practicas del trabajo, incluyendo experiencias en actividades reales del trabajo
- Procedimientos para la decontaminacion personal
- Revision del aire ambiental en una area y para el individuo

EXAMEN MEDICO: Usted debe haber tenido un examen médico en el plazo de los últimos doce (12) meses sin coste a usted. Esta examinación debe haber incluido: la historia de la salud, pruebas de función pulmonares, y pudo haber incluido una evaluación de una radiografía del pecho.

Firmando este documento usted está reconociendo que le han aconsejado de las sus derechas, como pertenece al entrenamiento y a la protección, y de los requisitos de la protección del trabajador aplicables a su patrón, el contratista.

Firma: \_\_\_\_\_

Numero de Su Seguro social: \_\_\_\_\_

Su nombre, en letras de molde: \_\_\_\_\_

Testigo: \_\_\_\_\_

**DOCUMENT 01 88 19B**

**ATTACHMENT B**

**CERTIFICATE OF COMPETENT PERSON ACKNOWLEDGMENT**

The Cal/OSHA Construction Safety Orders for asbestos-related work (8 CCR, § 1529, et. seq.) outlines specific duties and qualifications of the “Competent Person.” An overview of these qualifications and responsibilities are summarized below.

The competent person must be authorized by his/her/their employer to take prompt corrective measures to eliminate hazards on the job and protect workers’ safety.

The competent person must be capable of:

- Identifying existing and predictable hazards in the surroundings and working conditions which are unsanitary, hazardous, or dangerous to employees.
- Identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure.

The duties of the competent person include, but are not limited to:

- Frequent and regular inspections of the job site, materials, and equipment.
- Supervise or perform the set-up of the regulated area and/or containment.
- Ensure the integrity of the regulated area and/or containment.
- Set up procedures to control entry to and exit from the regulated area and/or containment.
- Supervise all employee exposure monitoring and assure it is conducted according to regulatory requirements.
- Ensure the employees working within the regulated area(s) wear respirators and protective clothing as required by regulation.
- Ensure that employees working set up, use, and remove engineering controls, and use work practices and personal protective equipment in compliance with the regulations.
- Ensure that employees use hygiene facilities and observe the decontamination procedures specified in the regulation.
- Ensure through continuing onsite surveillance that engineering controls are functioning properly and employees are using proper work practices.
- Ensure that notification requirements of the regulation are met.

Additionally, the Environmental Protection Agency (“EPA”) requires the competent person to be trained in the Federal NESHAP regulations, possess the means to comply with them, and be on site during all removal operations.

I hereby certify that I have the authority to take prompt corrective measures to eliminate hazards on the job and protect workers' safety. Furthermore, I certify that I have read and understand my duties as outlined above and under the applicable regulations, and that I will exercise them to the best of my ability.

Employer: \_\_\_\_\_

\_\_\_\_\_  
Signature of Competent Person

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name of Competent Person

**DOCUMENT 01 88 22**

**SOIL REMEDIATION PERFORMANCE REQUIREMENTS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

**1.1.1 Scope of Work**

1.1.1.1 If it is discovered that in-situ soils have been contaminated with diesel fuel or other Hazardous Materials, the County may elect to have the Design-Build Entity excavate contaminated soil and stockpile it On-Site; load, transport, and dispose of contaminated soil at a County-approved disposal facility; and perform site restoration.

1.1.1.2 Document includes:

1.1.1.2.1 Measurement and payment

1.1.1.2.2 Excavation and stockpiling

1.1.1.2.3 Loading, transport and disposal of contaminated soil

1.1.1.2.4 Soil sampling and analysis

1.1.1.2.5 Site restoration as directed by County

**1.2 Related Documents include the following:**

1.2.1.1 Document 00 31 32 (Geotechnical Data and Existing Conditions)

1.2.1.2 Document 01 21 00 (Allowances)

1.2.1.3 Document 01 26 00 (Contract Modification Procedures)

1.2.1.4 Document 01 73 32 (Selective Demolition)

1.2.1.5 Document 01 88 22 (Soil Remediation Performance Requirements)

1.2.1.6 Document 01 88 25 (Miscellaneous Hazardous Materials Performance Requirements)

**1.3 QUALITY ASSURANCE:**

1.3.1 Make necessary notifications and perform all contaminated soil remediation work in accordance with all applicable State, Federal, and local laws and requirements.

**PART 2 - PAYMENT AND MEASUREMENT**

2.1 Payment: Payment for work under this Document shall be in accordance with mutually agreed unit prices. Design Build Entity shall, each morning, submit to the County a daily report indicating

Design Build Entity's fees for the previous day's work, and backup documentation including daily work logs, weight tags, and such other documentation as County may require.

- 2.2 Measurement: Unit price work measured in terms of hours or days will generally need to be supported by daily work logs and/or time sheets. Unit price work measured in tons will need to be supported by weight tags. Certain quantities of work (e.g., additional asphalt pavement and/or additional backfill and compaction of clean soils excavated during soil remediation work) may need to be determined by field measurements. In such cases, the Design-Build Entity shall make the initial field measurement, submit it to the County for verification, and proceed only after receiving the County's concurrence. Field measurements made in cubic yards will be converted to tons using a conversion factor of 1.36 tons/cubic yard.

### PART 3 - SOIL SAMPLING, SAMPLE ANALYSIS AND REPORTING

- 3.1 The Design-Build Entity's Environmental Consultant will collect necessary soil samples to verify removal of contaminated soils.
- 3.2 The Design-Build Entity's Environmental Consultant will characterize and profile contaminated soils for Off-Site disposal.
- 3.3 The Design-Build Entity's Environmental Consultant will submit soil samples to a State-certified laboratory for analysis. A forty-eight (48) hour turnaround time will be requested unless it is determined by the County that a longer turnaround time can be specified without impacting the Design-Build Entity's schedule.
- 3.4 The Design-Build Entity's Environmental Consultant will prepare the required project closure report for submittal to the regulatory authorities. Design-Build Entity will provide County's Environmental Consultant with copies of permits, soil disposal manifests, etc.

### PART 4 - PRODUCTS **Not Used**

### PART 5 - EXECUTION

- 5.1 Excavate and stockpile soil as directed by the County's Environmental Consultant. Contaminated soil shall be separated from clean soil and stockpiled On-Site as directed by the County's Environmental Consultant. Contaminated soil stockpiles shall be covered with plastic, as required for regulatory compliance.
- 5.2 Assist County's Environmental Consultant with sample collection, if any, by providing access to the samples via backhoe, excavator, or other appropriate equipment that Design-Build Entity has On-Site.
- 5.3 After regulatory authorities have approved closure of the excavations, backfill and compact the excavations, and restore disturbed areas as directed by the County.
- 5.4 Load, transport and dispose of contaminated soil, including additional demolition debris generated as a result of soil remediation work, to an Off-Site disposal facility designated by the County. County will sign disposal manifests.

END OF DOCUMENT

DOCUMENT 01 88 25

MISCELLANEOUS HAZARDOUS MATERIALS PERFORMANCE REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

1.1.1 Application of Document. All of the provisions of this Document 01 88 25 (Miscellaneous Hazardous Materials Performance Requirements) shall apply to Work performed under all Related Documents, identified below.

1.1.1.1 Scope of Work: Except as otherwise expressly specified herein, Design- Build Entity will supply, through a duly licensed and certified Hazardous Substances Removal Contractor (“Removal Contractor”) or other contractors or consultants as appropriate, all labor, supervision, materials, equipment, tools, services, insurance, and each and every item of expense necessary for the testing, removal, handling, management, packaging, transportation, and disposal of Hazardous Materials and other material found at the Site (“Removal Work”).

1.1.2 Site Investigation.

1.1.2.1 Multiple environmental Site assessments and investigations have been conducted at the site going back to 2002. The most recent investigations are:

Subsurface Investigation Report; and

Geophysical Investigation.

1.1.2.1.1 During the construction Phase of the Project, Design-Build Entity may encounter hazardous materials in soil, which it will investigate and remove, and will otherwise proceed as required in the Contract Documents.

1.1.3 Applicability: Except as otherwise may be provided for, the requirements of the Removal Contractor will apply to Design-Build Entity and, by extension, to all Subcontractors engaged in the removal or handling of the miscellaneous hazardous materials designated herein. To the extent allowable by law, the County will be the sole and final arbiter of which contractor(s) or Subcontractor(s) qualify to remove hazardous materials at the Site.

1.1.4 Miscellaneous Hazardous Materials. Miscellaneous Hazardous Materials may be present at the Site. Miscellaneous Hazardous Materials may include, but are not limited to, soil impacted with Bunker C fuel oil (fuel oil); fuel oil storage tanks and associated piping; and steam, water, and other piping into which Bunker C fuel has migrated.

1.2 County’s Environmental Consultant.

1.2.1 The role of the County’s Environmental Consultant is to provide independent, third-party environmental consulting services on behalf of the County. Such services may or may not include conducting On-Site Work observations, materials, or environmental testing, and/or consulting with the County. It is not the responsibility of the County’s Environmental Consultant to supervise the Removal Contractor; nor to direct the Removal Contractor’s

work effort; nor to assume the management of, or responsibility for, the Removal Contractor's health and/or safety practices, nor its waste management, nor its regulatory compliance. At all times, the Removal Contractor is solely responsible for the quality and execution of all aspects of the Removal Work.

1.3 Payment. Payment for work under this Document shall be in accordance with mutually agreed unit prices. Design-Build Entity shall, each morning, submit to the County a daily report sheet indicating Design-Build Entity's fees for the previous day's work, and backup documentation including daily work logs, weight tags, and such other documentation as County may require.

1.4 Measurement. Unit price work measured in terms of hours or days will generally need to be supported by daily work logs and/or time sheets. Unit price work measured in tons will need to be supported by weight tags. Certain quantities of work (e.g., additional asphalt pavement and/or additional backfill and compaction of clean soils excavated during soil remediation work) may need to be determined by field measurements. In such cases, Design-Build Entity shall make the initial field measurement, submit it to the County for verification, and proceed only after receiving the County's concurrence. Field measurements made in cubic yards will be converted to tons using a conversion factor of 1.36 tons/cubic yard.

1.5 Related Documents include the following:

- 1.5.1.1 Document 00 31 32 (Geotechnical Data and Existing Conditions)
- 1.5.1.2 Document 01 26 00 (Contract Modification Procedures)
- 1.5.1.3 Document 01 73 32 (Selective Demolition)
- 1.5.1.4 Document 01 74 19 (Construction Waste Management and Disposal)
- 1.5.1.5 Document 01 81 13 (Sustainable Design Requirements)
- 1.5.1.6 Document 01 88 19 (Asbestos Removal Performance Requirements)
- 1.5.1.7 Document 01 88 22 (Soil Remediation Performance Requirements)

1.6 SUBMITTALS

1.6.1 General:

1.6.1.1 In addition to any other contractual submittals required of the Removal Contractor, the Removal Contractor will provide the submittals described in this Document. Submittals will be reviewed by both the County and the County's Environmental Consultant for acceptability. The County's Environmental Consultant will either recommend submittals to the County for acceptance or will return them as deficient, with notations for correction and re-submission. The County's Environmental Consultant does not have authority to "approve" submittals.

1.6.2 Schedule And Format:

1.6.2.1 Delivery: Submittals listed in this Document must be delivered to the County for conveyance to the County's Environmental Consultant.

- 1.6.2.2 Quantity: Five (5) identical, legible copies and one complete PDF of each submittal listed in this Document shall be delivered in an organized fashion suitable to the County for review. One (1) copy will be conveyed by the County to the County's Environmental Consultant for review.
- 1.6.2.3 Work Commencement: No portion of the Removal Work that is dependent upon submittal acceptance shall be commenced by the Removal Contractor until the submittals are reviewed and accepted by the County or its designated representative.
- 1.6.2.4 Delays: Delays to the Work or Removal Work resulting from the submittal of deficient or illegible documentation, or from the untimely submittal of potentially acceptable documentation, shall be the sole responsibility of Design-Build Entity. Except as otherwise granted by the County, no extensions will be made to the awarded contract schedule or budget to accommodate such delays.
- 1.6.2.5 Format: Submittals will be provided in 8-1/2" x 11" format, organized in a standard 3-ring binder, with sections separated by numbered tabs indexed to a printed Table of Contents. Illegible submittals will be considered deficient and returned for correction.
- 1.6.2.6 Pre-work Submittals: Pre-work submittals shall be delivered to the County not less than ten (10) Business Days prior to the Removal Contractor's mobilization onto the work site. Deficient submittals must be resubmitted by Design-Build Entity within five (5) Business Days after return of review copy. Once accepted, the reviewed copy will be returned to Design-Build Entity, who must maintain a copy of the reviewed submittal at the job site. The following is to be submitted:
  - 1.6.2.6.1 Work Plan detailing all work practices, procedures, and protocols for performance of the work, including but not limited to remediation, waste management, and disposal.
  - 1.6.2.6.2 Worker Qualifications: Name and qualifications of each employee to be engaged in handling or removal of materials specified in this Document.
  - 1.6.2.6.3 Worker Training: The Removal Contractor shall provide current (within previous twelve (12) months) valid documentation of worker training in accordance with Cal/OSHA Hazardous Waste Operations and Emergency Response (8 CCR § 5192, "HAZWOPER") for any workers or subcontractors engaged in work specified in this Document.
  - 1.6.2.6.4 Permits/Licenses: Design-Build Entity is responsible for obtaining any permits or licenses and for making any regulatory notifications required to perform the work of this Document. Design-Build Entity will deliver one (1) copy of all permits, approvals, and notifications to the County at least five (5) Business Days before beginning the work of this Document.
  - 1.6.2.6.5 Subcontractors: Submit qualifications and twenty-four (24) hour contact information for each subcontractor to be used. This shall include two (2) legible copies of federal, state, and/or local business or operating permits, as well as State and/or EPA

identification numbers for the waste transporters and disposal facilities to be used.

1.6.2.6.6 Waste Hauling Qualifications: Submit proof of hazardous waste transporter's registration and the vehicle operator training. Submittals shall include, but not necessarily be limited to, business name, address (mailing address and physical location), business telephone number of the company, primary contact name and emergency contact (twenty-four (24) hour) telephone number, documentation of current State and/or EPA authorization to operate, and insurance coverage.

1.6.2.6.7 Waste Disposal Facility Qualifications: Submit documentation of the California State and/or EPA-approved waste recycling, disposal, and/or treatment facilities designated to receive shipments of hazardous and universal wastes generated during this Project. Such information will include, but not necessarily be limited to: business name, address (mailing address and physical location), business telephone number of the facility, primary contact name and emergency contact (twenty-four (24) hour) and telephone number; documentation of current State and/or EPA authorization to operate, operator's facility I.D. number, classification and/or types of waste(s) accepted; name, business address and telephone number of insurance provider, documentation of insurance type(s), coverage amounts, and any limitations on liability, and any regulatory agency information pertaining to known citations issued, notices of violations issued, corrective actions ordered, Records of Decisions rendered, or ongoing environmental investigations or known liabilities.

1.6.2.7 Post-Removal Work Submittals: Design-Build Entity will, within twenty (20) Business Days of Removal Contractor's demobilization from the Project Site, submit two (2) copies of all waste disposal documentation (waste manifests, recycler's or reclaimer's receipts, or other applicable documentation) to demonstrate appropriate material management and disposal. If the County's Environmental Consultant or County determines that the Post-Removal Work Submittals are inadequate and/or require additional unanticipated review time, the Contractor will be required to correct the deficiencies and re-submit them for additional review. Any additional cost for the County's Environmental Consultant's time to perform a subsequent review(s) of Post-Removal Work Submittals will be borne by Design-Build Entity.

## 1.7 QUALITY REQUIREMENTS

### 1.7.1 Reference Standards:

1.7.1.1 Regulations: Applicable regulations pertaining to this work include, but are not limited to, the following:

1.7.1.1.1 California Department of Occupational Safety and Health (Cal-OSHA) – General Industry Safety Orders Hazardous Waste Operations and Emergency Response (8 CCR § 5192 et seq.)

1.7.1.1.2 California Health & Safety Code

1.7.1.1.3 California Code of Regulations

1.7.1.1.4 All other applicable Federal, State, and/or Local regulations, codes, and ordinances

1.7.1.2 Applicability: The most current version of each document shall apply. Where conflicts among these specifications exist, the more strict or stringent requirement or interpretation shall apply.

## PART 2 - PRODUCTS NOT USED

## PART 3 - EXECUTION

### 3.1 PREPARATION

3.1.1 Examination of Conditions: The Contractor must carefully examine the Site before beginning work and report any previously undisclosed or conditions different from those indicated in the Project Manual to the County. Except as may be otherwise stipulated elsewhere in the Contract Documents, starting the Work or Removal Work shall be interpreted as implied acceptance of conditions as they exist.

3.1.2 Responsibility for Work: By commencing the Work or the Removal Work, the Removal Contractor acknowledges and agrees that it has sole and primary responsibility and obligation to the County to make inspections of its own work at all stages of the Work. This includes acknowledging and accepting sole responsibility to supervise or superintend the performance of the Removal Work, and that the Removal Work will be in strict adherence to, and in compliance with, all applicable laws and required standards whether or not specified herein. Where conflicts arise between standards or regulations, the more stringent will apply.

3.1.3 Coordination of Work: Design-Build Entity is responsible to coordinate all scheduling, phasing, and completion of the Removal Work with the County and all other employers working on the Site. This includes the responsibility to make notifications or communications of hazards to other trades, as required by regulation.

3.1.4 Measurements and Quantities: Actual work quantities will be determined and agreed upon by the Removal Contractor and the County in the units for each type of material. Prior to starting Removal Work, the Removal Contractor and the County shall agree upon a methodology for tracking and documenting quantities of Work completed. Removal Work completed shall be documented daily and shall be initialed by both the Removal Contractor and the County to signify agreement.

### 3.2 INVESTIGATION AND PERFORMANCE OF REMOVAL WORK

3.2.1 Notice of Commencement. Removal Contractor shall give County written notice at least ten (10) Days before beginning performance of any Work within the scope of the Related Documents where Hazardous Materials are present or suspected to be present or any Removal Work.

3.2.2 Site Presence. County's Environmental Consultant will be present at the Site at all times Removal Contractor is performing Work within the scope of the Related Documents or any Removal Work, unless otherwise directed by the County.

- 3.2.3 Procedure When Hazardous Materials are Encountered or Suspected. The Removal Contractor shall immediately stop work in areas where suspected Hazardous Materials are encountered and notify the County and County's Environmental Consultant immediately of their discovery. The County may elect to conduct its own investigation of the nature and extent of the hazard in order to assess cleanup requirements. Removal Contractor will not proceed with the affected Work, or any Removal Work, until County's Environmental Consultant has authorized Removal Contractor to do so.

### 3.3 WASTE MANAGEMENT AND DISPOSAL

- 3.3.1 General: Design-Build Entity is responsible for the safe handling, storage, and transportation of all hazardous waste generated by the Work. By commencing this Work, Design-Build Entity implicitly agrees to bear all costs arising from any claims, damages, losses, and/or clean-up expenses incurred which, as a result of Design-Build Entity's negligence, result from a hazardous waste spill(s) or release(s) on the Site and/or while hazardous waste is in transport to a waste disposal facility. Design-Build Entity or its designated subcontract waste hauler will deliver all waste materials to an appropriately designated waste disposal facility that is acceptable to the County, and which is permitted in accordance with applicable regulations.
- 3.3.2 Storage Facilities: Design-Build Entity will assure that all waste (hazardous and non-hazardous) generated by the Work is stored in a secured manner until received at the waste disposal facility. Debris bins, storage enclosures, etc. will be locked overnight and whenever Design-Build Entity is Off-Site or unable to directly monitor their contents and management. Design-Build Entity will ensure that the appropriate and required warning signs are posted on waste storage locations. Design-Build Entity will be responsible to maintain the waste storage facilities in an orderly and well-kept condition at all times. Design-Build Entity will conduct routine waste storage area inspections to assure that appropriate storage conditions are maintained. Waste is not to be co-mingled with stored non-waste material or equipment.
- 3.3.3 Off-Site Shipment of Wastes: Design-Build Entity shall notify the County or its Representative in advance, whenever hazardous waste is to be removed from the Site. A copy of the Uniform Hazardous Waste Manifest or any other documents required by Federal, State, or Local agencies shall be completed by Design-Build Entity and submitted to the County or its Representative for review and signature prior to transporting hazardous waste materials to a disposal facility. Design-Build Entity shall provide the County or its Representative with sufficient advance notice of the need to obtain manifest signatures, so as to not delay waste shipment or otherwise impede the Project Master Schedule. Only the County or its Representative has authority to sign or approve waste shipping documents. It is Design-Build Entity's responsibility to obtain the necessary authorized signatures to ship wastes Off-Site. Delays or expenses resulting from the untimely waste document coordination shall be borne by Design-Build Entity.
- 3.3.4 Waste Shipment Documentation: EPA Uniform Hazardous Waste Manifest form will be used for all waste transported Off-Site for hazardous waste disposal. A non-hazardous waste Bill of Lading will be used for all waste transported Off-Site for disposal or recycling as non-hazardous waste. All waste loads removed from the Project Site will be weighed by a Certified Weighmaster prior to delivery to the disposal facility. Certified weight tickets are to be submitted by Design-Build Entity as a part of the Post-Removal Work Submittals. At the conclusion of the work, Design-Build Entity will provide documentation that the hazardous wastes were disposed of at an appropriate EPA-approved waste disposal facility. The documentation will be submitted as part of the Post-Removal Work Submittals.

- 3.3.5 Shipment Containers: All waste shipping containers must be individually labeled with appropriate signage and warnings, as required by applicable regulations, codes, and ordinances. All waste hauling vehicles and/or waste debris bins must, at all times, be enclosed and sealed while in transport to the disposal facility.

END OF DOCUMENT

## DOCUMENT 01 91 13

### GENERAL COMMISSIONING REQUIREMENTS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Commissioning is a systematic process of verifying that the building systems perform interactively according to the Construction Documents and the County's operational needs. The commissioning process shall encompass and coordinate the system documentation, equipment startup, control system calibration, testing and balancing, performance testing, and training. Commissioning during the construction and post-occupancy phases is intended to achieve the following specific objectives according to the Contract Documents:
1. Verify that the applicable equipment and systems are installed in accordance with the contact documents and according to the manufacturer's recommendations.
  2. Verify and document proper integrated performance of equipment and systems.
  3. Verify that Operations & Maintenance documentation is complete.
  4. Verify that all components requiring servicing can be accessed, serviced and removed without disturbing nearby components including ducts, piping, cabling, or wiring.
  5. Verify that the County's operating personnel are adequately trained to enable them to operate, monitor, adjust, maintain, and repair building systems in an effective and energy-efficient manner.
  6. Document the successful achievement of the commissioning objectives listed above.
- B. Various sections of the project specifications require equipment startup, testing, and adjusting services. Requirements for startup, testing, and adjusting services specified in the technical sections of these specifications are intended to be provided in coordination with the commissioning services and are not intended to duplicate services. Design-Build Entity shall coordinate the work required by individual specification sections with the commissioning services requirements specified herein.
- C. The commissioning process does not take away from or reduce the responsibility of Design-Build Entity to provide a finished and fully functioning product.

##### 1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division Specification Sections, apply to this Section.
- B. Related Sections include the following:
1. Document 01 11 10 (Summary of Work).
  2. Divisions 2 – 48, where indicated or applicable as developed by Design-Build Entity.

### 1.3 DEFINITIONS

- A. Basis of Design (BoD) document: A document that records concepts, calculations, decisions, and product selections used to meet the OPR (defined below) and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.
- B. Building Envelope: All parts for the exterior shell of a building that provide insulation and air and water resistance such as roofing, windows, flashing, exterior wall cladding, ground contact water proofing, etc.
- C. Commissioning: A quality-focused process for enhancing the delivery of a project. The process focuses upon verifying and documenting that the facility and all of its systems and assemblies are planned, designed, installed, tested, operated, and maintained to meet the County's Project Requirements.
- D. Construction Checklist: A form used by Design-Build Entity to verify that appropriate components are On Site, ready for installation, correctly installed and functional.
- E. Control System: A component of environmental, HVAC, security and fire systems for reporting, monitoring, and issuing of commands.
- F. Deficiency or Commissioning Issue: A condition identified by the Commissioning Agent or other member of the Commissioning Team that adversely affects the commissionability, operability, maintainability, or functionality of a system, equipment, or component. A condition that is in conflict with the Contract Documents and/or performance requirements of the installed systems and components.
- G. CxA: Commissioning Authority. The entity retained by the County who leads, plans, schedules, and coordinates the commissioning team to implement the commissioning process.
- H. Functional Testing: Generally, refers to testing of a complete system and demonstrates control of equipment and the interaction of equipment or systems. Performed by Design-Build Entity and witnessed by the CxA.
- I. Installation Verification: Observations or inspections that confirm the system or component has been installed in accordance with the contract documents and to industry accepted best practices.
- J. Integrated System Testing: Integrated Systems Testing procedures entail testing of multiple integrated systems performance to verify proper functional interface between systems. Typical Integrated Systems Testing includes verifying that building systems respond properly to loss of utility, transfer to emergency power sources, re-transfer from emergency power source to normal utility source; interface between HVAC controls and Fire Alarm systems for equipment shutdown, interface between Fire Alarm system and elevator control systems for elevator recall and shutdown; interface between Fire Alarm System and Security Access Control Systems to control access to spaces during fire alarm conditions; and other similar tests as determined for each specific project.
- K. Issues Log: A formal and ongoing record of problems or concerns and their resolution that have been raised by members of the commissioning team during the course of the commissioning process. Maintained by the CxA.

- L. County's Project Requirements ("OPR"): A collection of documents that details the functional requirements of Project and expectations of how it will be used and operated. This document includes Project and design goals, measurable performance criteria, budgets, schedules, success criteria, and supporting information.
- M. County: Project Owner or designated representative.
- N. Issues Log: A formal and ongoing record of problems or concerns and their resolution that have been raised by members of the commissioning team during the course of the commissioning process. Maintained by the CxA.
- O. Pre-Functional Checklists ("PFC"): Refers to checklists prepared by the CxA and provided to Design-Build Entity to document the complete installation of equipment or systems. Pre-functional checklists are completed by Design-Build Entity prior to startup.
- P. Pre-Functional Test ("PFT"): An inspection or test that is done before functional testing. PFT's include installation verification and system and component startup tests.
- Q. Sampling: Functionally testing only a fraction of the total number of identical or near identical pieces of equipment.
- R. Seasonal Performance Tests: Functional Tests that are deferred until the system(s) will experience conditions closer to their design conditions.
- S. Site Observation Visit: On Site inspections and observations made by the Commissioning Agent for the purpose of verifying component, equipment, and system installation, to observe Design-Build Entity testing, equipment startup procedures, or other purposes.
- T. Startup: The initial starting or activating of dynamic equipment or the initial energization and programming of control systems.
- U. Systems, Subsystems, and Equipment: Where these terms are used together or separately, they shall mean "as-built" systems, subsystems, and equipment.
- V. Testing, Adjusting, and Balancing ("TAB"): A systematic process or service applied to heating, ventilating, and air-conditioning ("HVAC") systems and other environmental systems to achieve and document air and hydronic flow rates. The standards and procedures for providing these services are referred to as "Testing, Adjusting, and Balancing" and are described in the Procedural Standards for the Testing, Adjusting, and Balancing of Environmental Systems, published by NEBB or AABC.
- W. Training Plan: A written document that details the expectations, schedule, and deliverables of commissioning process activities related to training of Project operating and maintenance personnel, users, and occupants.
- X. Trending: The monitoring by a building management system or other electronic data gathering equipment and analyzing of the data gathered over a period of time to verify proper equipment or systems sequence of operations.
- Y. Warranty Phase Commissioning: Commissioning efforts executed after a project has been completed and accepted by the County. Warranty Phase Commissioning includes follow-up on verification of system performance, measurement and verification tasks and assistance in identifying warranty issues and enforcing warranty provisions of the construction contract.

- Z. Warranty Visit: A commissioning meeting and site review where all outstanding warranty issues and deferred testing is reviewed and discussed.

#### 1.4 COMMISSIONING TEAM

- A. A project team created to coordinate the commissioning effort that coordinates and communicates with the rest of the project team, attend meetings, and solve problems. This team includes representatives from Design-Build Entity, Subcontractors, and County.
- B. Design-Build Entity shall in addition to their representative also appoint a representative from each Subcontractor involved in commissioned systems including mechanical, electrical, controls, Test and Balance, plumbing, building envelope, and low voltage systems.
- C. With these fundamental practices in mind, the commissioning process described herein has been developed to recognize that, in the execution of the Commissioning Process, the Commissioning Agent must develop effective methods to communicate with every member of the construction team involved in delivering commissioned systems while simultaneously respecting the exclusive contract authority of the Construction Project Manager ("CM"). Thus, the procedures outlined in this specification must be executed within the following limitations:
  - 1. No communications (verbal or written) from the Commissioning Agent shall be deemed to constitute direction that modifies the terms of any contract between the County and Design-Build Entity.
  - 2. Commissioning Issues identified by the Commissioning Agent will be delivered to the Construction Manager and copied to the designated Commissioning Representatives for Design-Build Entity and Subcontractors on the Commissioning Team for information only in order to expedite the communication process. These issues must be understood as the professional opinion of the Commissioning Agent and as suggestions for resolution.
  - 3. In the event that any Commissioning Issues and suggested resolutions are deemed by the Construction Manager to require either an official interpretation of the construction documents or require a modification of the contract documents, the Construction Manager will issue an official directive to this effect.
  - 4. All parties to the Commissioning Process shall be individually responsible for alerting the Construction Manager of any issues that they deem to constitute a potential contract change prior to acting on these issues.
  - 5. Authority for resolution or modification of design and construction issues rests solely with the Construction Manager, with appropriate technical guidance from the Architect/Engineer and/or Commissioning Agent.

#### 1.5 COUNTY'S RESPONSIBILITIES

- A. Participate in resolution of issues that may occur as a result of the commissioning process.
- B. Assign operation and maintenance personnel and schedule them to participate in commissioning team activities including, but not limited to, the following:
  - 1. Coordination meetings.

2. Training in operation and maintenance of systems, subsystems, and equipment.
3. Testing meetings.
4. Demonstration of operation of systems, subsystems, and equipment.

#### 1.6 DESIGN-BUILD ENTITY'S AND SUBCONTRACTORS' RESPONSIBILITIES

- A. Provide utility services required for the commissioning process.
- B. Design-Build Entity is responsible for construction means, methods, job safety, or management function related to commissioning on the job site.
- C. Design-Build Entity shall assign representatives with expertise and authority to act on behalf of Design-Build Entity and schedule them to participate in and perform commissioning team activities including, but not limited to, the following:
  1. Participate in construction-phase commissioning meetings including controls coordination meeting to review and resolve any issues with the sequence of operations.
  2. Participate in maintenance orientation and inspection.
  3. Participate in operation and maintenance training sessions.
  4. Certify that Work is complete and systems are operational according to the Contract Documents, including calibration of instrumentation and controls.
  5. Perform quality control of all Work and certify it is complete prior to request for inspection.
  6. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.
- D. Design-Build Entity shall integrate all commissioning activities into Design-Build Entity's Project Master Schedule.
- E. Subcontractors shall assign representatives with expertise and authority to act on behalf of Subcontractors and schedule them to participate in and perform commissioning team activities including, but not limited to, the following:
  1. Participate in construction-phase coordination meetings.
  2. Participate in maintenance orientation and inspection.
  3. Complete pre-functional checklists for all equipment. Submit completed forms with startup reports immediately after starting up.
  4. Schedule and perform duct air leakage testing as specified in the technical specification sections with CxA as witness.
  5. Provide flushing plans, disinfection reports, and water treatment reports to the CxA for review.

6. Participate in pre-TAB meeting and job site inspections to verify TAB readiness.
7. Provide draft completed TAB report to CxA for review. CxA will identify up to twenty percent (20%) of TAB report for TAB contractor to demonstrate compliance to the completed TAB report.
8. Participate in procedures meeting for testing.
9. Perform point-to-point, calibration, and checkout of the building automation system and provide completed report to the CxA for review.
10. Participate in final review at acceptance meeting.
11. Provide schedule for operation and maintenance data submittals, equipment startup, and testing to CxA for incorporation into the commissioning plan. Update schedule on a weekly basis throughout the construction period.
12. Provide information to the CxA for developing construction-phase commissioning plan.
13. Participate in training sessions for operation and maintenance personnel.
14. Verify that all systems function correctly by testing each mode of operation, alarm, and system function.
15. Gather and submit operation and maintenance data for systems, subsystems, and equipment to the CxA, as specified.
16. Perform quality control of all Work and certify it is complete prior to request for inspection.
17. Provide technicians who are familiar with the construction and operation of installed systems and who shall develop specific test procedures and participate in testing of installed systems, subsystems, and equipment.
18. Perform seasonal testing, at the direction of the CxA, to prove functional performance of the HVAC and controls in the opposite season.

#### 1.7 ARCHITECT AND DESIGN ENGINEER RESPONSIBILITIES

- A. Responsible for developing the Construction Documents and clarifying the design intent during the construction phase of the Project.
- B. Performs construction observation.

#### 1.8 CXA'S RESPONSIBILITIES

- A. Organize and lead the commissioning team.
- B. Prepare a Commissioning Plan. Collaborate with design team, County, Design-Build Entity, and Subcontractors to develop test and inspection procedures. Identify commissioning team member responsibilities, by name, firm, and trade specialty, for performance of each commissioning task.

- C. Work with Design-Build Entity to schedule commissioning activities. Design-Build Entity shall integrate all commissioning activities into the Project Master Schedule. All parties will address scheduling issues in a timely manner in order to expedite the commissioning process.
- D. Review and comment on submittals for compliance with the approved Project documents and identify any potential conflicts.
- E. Conduct commissioning team meetings for the purpose of coordination, communication, and conflict resolution; discuss progress of the commissioning processes. The CxA shall prepare and distribute minutes to commissioning team members and attendees within five (5) workdays of the commissioning meeting.
- F. At the beginning of the construction phase, conduct an initial construction-phase coordination meeting for the purpose of reviewing the commissioning activities and establishing tentative schedules for permanent power; operation and maintenance data submittals; operation and maintenance training sessions; TAB Work; and Project completion.
- G. Periodically observe and inspect construction and report progress and deficiencies. In addition to compliance with the Contract Documents, inspect systems and equipment installation for adequate accessibility for maintenance and component replacement or repair.
- H. Prepare Project-specific pre-functional checklists and functional test procedures checklists.
- I. Compile test data, inspection reports, and certificates and include them in the systems manual and commissioning report.
- J. Review and comment on operation and maintenance documentation for compliance with the Contract Documents. Operation and maintenance documentation requirements are specified in Division 01 Document "Operation and Maintenance Data."
- K. Review Design-Build Entity's operation and maintenance training program. Operation and maintenance training is specified in Document 01 79 00 (Demonstration and Training).
- L. Prepare commissioning status reports.
- M. Assemble the final commissioning documentation, including the Commissioning Report including applicable Project Record Documents.

#### 1.9 COMMISSIONING DOCUMENTATION

- A. Commissioning Plan: A document, prepared by CxA, that outlines the process, schedule, allocation of resources, and documentation requirements of the commissioning effort, and shall include, but is not limited to the following:
  - 1. Description of the organization, layout, and content of commissioning documentation to be provided along with identification of responsible parties.
  - 2. Identification of systems and equipment to be commissioned.
  - 3. Description of the level of commissioning for each system

4. Description of schedules for testing procedures along with identification of parties involved in performing and verifying tests.
  5. Identification of items that must be completed before the next operation can proceed.
  6. Description of responsibilities of commissioning team members.
  7. Description of observations to be made.
  8. Description of requirements for operation and maintenance training, including required training materials.
  9. Provide a schedule for commissioning activities with specific dates coordinated with overall Construction Schedule.
  10. Define the process for completing pre-functional and startup checklists for systems, subsystems, and list of specific equipment requiring these checklists.
  11. Include step-by-step procedures for functional testing systems, subsystems, and equipment with descriptions for methods of verifying relevant data, recording the results obtained, and listing parties involved in performing and verifying tests.
- B. Pre-Functional Checklists: CxA shall develop pre-functional checklists for all equipment to be commissioned. Pre-Functional Checklists shall be completed and signed by Design-Build Entity, verifying that systems, subsystems, equipment, and associated controls are ready for testing. The Commissioning Agent may spot check Pre-Functional Checklists to verify accuracy and readiness for testing. Inaccurate or incomplete Pre-Functional Checklists shall be returned to Design-Build Entity for correction and resubmission.
- C. Site Visit Reports: CxA shall record test data, observations, and measurements on site visit forms. Updated Issues Log, photographs, and other means appropriate for the application shall be included with Site Visit Report.
- D. Startup Reports: Design-Build Entity/Manufacturer-created forms that document that factory startup procedures have been followed for all equipment and systems to be commissioned. Provided by Subcontractors.
- E. Functional Performance Testing: CxA shall develop functional performance test procedures for all equipment and systems to be commissioned.
- F. Site Visit Reports: CxA shall record test data, observations, and measurements on site visit forms. Photographs and other means appropriate for the application shall be included with data.
- G. Test and Inspection Reports: CxA shall compile test and inspection reports and test and inspection certificates and include them in Systems Manual and commissioning report.
- H. Commissioning Schedule: CxA shall review and provide input to the Project Master Schedule and Construction Schedule for commissioning activities.
- I. Issues Log: CxA shall prepare and maintain an issues log that describes installation and performance issues that are at variance with the Contract Documents. CxA will identify and track issues as they are encountered, documenting the status of unresolved and resolved issues.

1. Creating an Issues Log Entry:
  - a. Identify the issue with unique numeric or alphanumeric identifier by which the issue may be tracked.
  - b. Assign a descriptive title of the issue.
  - c. Identify issue date.
  - d. Identify test number of tests being performed at the time of the observation, if applicable, for cross-reference.
  - e. Identify system, subsystem, and equipment to which the issue applies.
  - f. Identify location of system, subsystem, and equipment.
  - g. Include information that may be helpful in diagnosing or evaluating the issue.
  - h. Note recommended corrective action.
  - i. Identify commissioning team member responsible for corrective action.
  - j. Identify expected date of correction.
  - k. Identify person documenting the issue.

2. Documenting Issue Resolution:
  - a. Log date correction is completed, or the issue is resolved.
  - b. Describe corrective action or resolution taken. Include description of diagnostic steps taken to determine root cause of the issue, if any.
  - c. Identify changes to the Contract Documents that may require action, if any.
  - d. State that correction was completed and system, subsystem, and equipment are ready for retest, if applicable.
  - e. Identify person(s) who corrected or resolved the issue.
  - f. Identify person(s) documenting the issue resolution.

J. Commissioning Report: CxA shall document results of the commissioning process including performance of systems, subsystems, equipment, and issues. The commissioning report shall indicate whether systems, subsystems, and equipment have been completed and are performing according to the OPR, BoD, and Contract Documents. The commissioning report shall include, but is not limited to, the following:

1. Discussion of performance of commissioned systems including any variance from OPR, BoD, and the Contract Documents; record of conditions; and, if appropriate, recommendations for resolution. This report shall be used to evaluate systems, subsystems, and equipment and shall serve as a future reference document during

County occupancy and operation. It may also include a recommendation for accepting or rejecting systems, subsystems, and equipment.

2. Commissioning Plan.
  3. Testing plans and reports.
  4. Issues log.
  5. Completed test checklists.
  6. Listing of off-season tests not performed and a schedule for their completion.
- K. Systems Manual: CxA shall gather required information and compile Systems Manual. Systems manual shall include, but is not limited to, the following:
1. As-built system narratives, schematics, and list of installed equipment
  2. Operation and maintenance data

#### 1.10 CXA SUBMITTALS

- A. Commissioning Plan: CxA shall submit a draft commissioning plan. Deliver one (1) copy to Design-Build Entity and one to County. Present submittal in sufficient detail to evaluate data collection and arrangement process. One (1) copy, with review comments, will be returned to the CxA for preparation of the final commissioning plan.
- B. Pre-Functional Checklists: CxA shall submit sample checklists and forms to Design-Build Entity and subcontractors for review, comment, and approval. Design-Build Entity completed pre-functional checklists are required to be submitted for review and approved prior to proceeding with functional performance testing.
- C. Functional Test Plan: CxA shall submit draft Functional Test Plan and checklists for comment. The final Functional Test Plan will be submitted and used for functional testing.
- D. Site Visit Reports: CxA shall submit Site Visit Reports as they are created.
- E. Final Commissioning Report: CxA shall submit the draft commissioning report. One (1) copy, with review comments, will be returned to the CxA for preparation of final submittal. The final report submittal must address previous review comments.
- F. The CxA will provide Design-Build Entity or appropriate Subcontractor with a specific request for the type of submittal documentation the CxA requires facilitating the commissioning work. These requests will be integrated into the normal submittal process and protocol of the construction team. At minimum the request will include the manufacturer and model number, the manufacturer printed installation and detailed startup procedures, sequences of operation, O&M data, performance data, any performance test procedures, control drawings, and details. In addition, the factory checkout sheets or field technicians shall be submitted for review.

#### 1.11 COORDINATION

- A. Scheduling: Design-Build Entity shall work with the Commissioning Agent to incorporate the commissioning activities into the Construction Schedule. The Commissioning Agent

will provide sufficient information (including, but not limited to, tasks, durations, and predecessors) on commissioning activities to allow Design-Build Entity to schedule commissioning activities. All parties shall address scheduling issues and make necessary notifications in a timely manner in order to expedite the Project and the commissioning process. Design-Build Entity shall update the Construction Schedule as directed by the County.

- B. Coordinating Meetings: CxA shall conduct coordination meetings of the commissioning team as needed to review progress on the commissioning plan, to discuss scheduling conflicts, and to discuss upcoming commissioning process activities.
- C. Pretesting Meetings: CxA shall conduct pretest meetings with the commissioning team to review startup reports, coordinate controls sequence of operations, review pretest inspection results, review testing and balancing procedures, review testing personnel and instrumentation requirements, and manufacturers' authorized service representative services for each system, subsystem, equipment, and component to be tested.
- D. Testing Coordination: CxA shall coordinate with the County and Design-Build Entity to plan the sequence of testing activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

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

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 PRE-FUNCTIONAL CHECKLISTS AND FACTORY STARTUP REPORTS

- A. The following procedures apply to all equipment to be commissioned.
- B. Pre-Functional Checklists are developed by the CxA and completed by the appropriate installing Subcontractors for all major equipment and systems being commissioned before functional testing can begin. The checklist captures equipment nameplate and characteristics data, confirming the as-built status of the equipment or system. These checklists also ensure that the systems are complete and operational, so that the functional performance testing can be scheduled. Design-Build Entity and vendors shall execute factory startup and provide the CxA with a copy of the signed and dated completed startup checklists which will be submitted with the Pre-Functional Checklists.
- C. Startup and Initial Checkout Plan: Design-Build Entity shall develop detailed startup plans for all equipment. The primary role of Design-Build Entity in this process is to ensure that there is written documentation that each of the manufacturer recommended procedures have been followed and completed. Parties responsible for startup shall be identified in the Startup Plan and in the checklist forms.
  - 1. The full startup plan shall at a minimum consist of the following items:
    - a. The Pre-Functional Checklists.
    - b. The manufacturer's standard written startup procedures are copied from the installation manuals with check boxes by each procedure and a signature block added by hand at the end.

- c. The manufacturer's normally used field checkout sheets.
- D. The Commissioning Agent will review/approve the full startup plan.
- E. Execution of Pre-Functional Checklists and Startup.
  - 1. Pre-Functional checklists will be provided to the Project site by the CxA.
  - 2. Design-Build Entity shall maintain a master copy of signed checklists.
  - 3. The installing Subcontractor shall update the checklists as work is completed. Only individuals that have direct knowledge and witnessed that a line-item task on the Pre-Functional Checklist was actually performed shall initial or check that item off.
  - 4. The CxA will periodically review the checklists for completeness and report on progress at the Cx meetings.
- F. Building Automation System ("BAS") Startup Testing, Adjusting, and Calibration
  - 1. Work and/or systems installed under this Section shall be fully functioning prior to Demonstration and Acceptance Phase. Design-Build Entity shall start, test, adjust, and calibrate all Work and/or systems under this Contract, as described below:
    - a. Inspect the installation of all devices. Review the manufacturer's installation instructions and validate that the device is installed in accordance.
    - b. Verify proper electrical voltages and amperages and verify that all circuits are free from faults.
    - c. Verify integrity/safety of all electrical connections.
    - d. Coordinate with TAB subcontractor to fine tune control settings that are determined from balancing and testing procedures. Record the following control settings as obtained from TAB contractor, and note any TAB deficiencies in the BAS, Pre-Functional Checklists and initiate an associated Action Item:
      - 1) Optimum duct static pressure setpoints for VAV air handling units.
      - 2) Minimum outside air damper settings for air handling units.
      - 3) Optimum differential pressure setpoints for variable speed pumping systems.
      - 4) Calibration parameters for flow control devices such as VAV boxes and flow measuring stations.
      - 5) BAS contractor shall provide access to the front-end Building Automation System as a minimum to the TAB and CxA to facilitate calibration. Connection for any given device shall be local to it (i.e.: at the VAV box or at the thermostat). Shall be made at front

end and shall allow querying and editing of parameters required for proper calibration and startup.

- e. Test, calibrate, and set all digital and analog sensing, and actuating devices. Calibrate each instrumentation device by making a comparison between the BAS display and the reading at the device, using an instrument traceable to the National Bureau of Standards, which shall be at least twice as accurate as the device to be calibrated (e.g., if field device is +/-0.5% accurate, test equipment shall be +/-0.25% accurate over same range). Record the measured value and displayed value for each device in the BAS Pre-Functional Report.
- f. Check each digital control point by making a comparison between the control command at the controller and the status of the controlled device. Check each digital input point by making a comparison of the state of the sensing device and the OI display. Record the results for each device in the BAS Pre-Functional Checklists.
- g. Verify proper sequences by using the approved checklists to record results and submit with BAS Pre-Functional Checklists. Verify proper sequence and operation of all specified functions. There is inherent duplication between the functional performance testing of the Testing Contractor, and the thorough checking testing of the sequences by the BAS. Generally, the sequence checkouts indicated as the responsibility of the Testing Contractor under functional testing, must first be tested by the BAS under pre-functional testing.
- h. Verify proper systems operation under emergency power. Cooperate and coordinate with Testing Contractor and CxA for comprehensive building power outage tests.
- i. Verify all safety devices trip at appropriate conditions. Adjust setpoints accordingly.
- j. Verify that all alarm thresholds for all analog devices are entered. Request direction from County as to alarm threshold parameters.
- k. Tune all control loops to obtain the fastest stable response without hunting, offset or overshoot. Record tuning parameters and response test results for each control loop in the BAS Pre-Functional Report. Except from a startup, maximum allowable variance from set point for controlled variables under normal load fluctuations shall be as follows. Within two (2) minutes of any upset (for which the system has the capability to respond to) in the control loop, tolerances shall be maintained (exceptions noted):
  - 1) Duct air temperature:  $\pm 1^{\circ}\text{F}$ .
  - 2) Space Temperature:  $\pm 2^{\circ}\text{F}$ .
  - 3) Hot water temperature:  $\pm 2^{\circ}\text{F}$ .
  - 4) Duct pressure:  $\pm 0.25''$  w.g.
  - 5) Water pressure:  $\pm 1$  psid.

- 6) Air flow control:  $\pm 5\%$  of setpoint velocity. For min OA flow loops being reset from CO<sub>2</sub>, response to upset max time is one (1) hour.
- 7) Space Pressurization (on active control systems):  $\pm 0.02$ " wg with no door or window movements.

G. For interface and DDC control panels:

1. Ensure devices are properly installed with adequate clearance for maintenance and clearly labeled in accordance with the record drawings.
2. Ensure terminations are safe, secure, and labeled in accordance with the record drawings.
3. Check power supplies for proper voltage ranges and loading.
4. Ensure wiring and tubing are run in a neat and workman-like manner, either bound or enclosed in trough.
5. Check for adequate signal strength on communication networks.
6. Check for stand-alone performance of controllers by disconnecting the controller from the LAN. Verify the event is enunciated at OIs. Verify that the controlling LAN reconfigures as specified in the event of a LAN disconnection.
7. Ensure that controller memory and control network through-put are adequate to support the extensive trending requirements. Reconfigure the system to provide a reliable and robust system as necessary.
8. Ensure all outputs and devices fail to their proper positions/states.
9. Ensure buffered and/ or volatile information is held through power outage.
10. With all system and communications operating normally, sample and record update/enunciation times for critical alarms fed from the panel to the OI.
11. Check for adequate grounding of all DDC panels and devices.

H. For Operator Interfaces:

1. Verify all elements on the graphics are functional and properly bound to physical devices and/or virtual points and that hot links or page jumps are functional and logical.
2. Output all specified system reports for review and approval.
3. Verify the alarm printing and logging is functional and per requirements.
4. Verify trend archiving to disk and provide a sample to the CxA for review.
5. Verify paging/dial out alarm enunciation is functional.
6. Verify functionality of remote OIs and that a robust connection can be established consistently.

7. Verify that required third party software applications required with design build are installed and functional.
8. Verify proper interface with fire alarm system.
- I. Submit Startup Test Report. Report shall be completed, submitted, and approved prior to functional testing.
- J. Deficiencies, Non-Conformance, and Approval in Checklists and Startup.
  1. Design-Build Entity shall clearly list any outstanding items of the initial startup and pre-functional procedures that were not completed successfully, at the bottom of the procedures form or on an attached sheet. The procedures form and any outstanding deficiencies are provided to the CxA within two (2) days of test completion.
  2. The CxA reviews the report and reports to the County. The CxA shall work with Design-Build Entity and vendors to correct and retest deficiencies or uncompleted items.

### 3.2 FUNCTIONAL PERFORMANCE TESTING

#### A. Common Elements for All Systems

1. Have the required submitted documentation convenient to testing area. Validate that all required documentation has been submitted and is per the contract requirements (very cursory review). CxA shall review the content of the documentation and validate that it is per Contract Documents.
2. CxA shall review the startup documentation at the start of functional performance testing. Review the startup tests and checklist documentation. CxA shall validate that startup is acceptably executed and complete. CxA shall ensure that any items indicated as outstanding in the checklists is entered as an Action Item and enter one if it is not. The checklists and startup tests/measurements shall be spot checked at the beginning of FPT to ensure accuracy. CxA shall complete a test that indicates he has reviewed the Pre-Functional Checklists and finds them acceptable and note any outstanding items.
3. CxA shall check for and as applicable direct Design-Build Entity to demonstrate that access is sufficient to perform required maintenance.
4. CxA shall validate that all prerequisite work is complete and confirm via a test record that confirms such.
5. Specifically check labeling and ensure conformance to contract requirements.
6. Check proof indication, alarming on failure and restart/acknowledgement as applicable.
7. CxA shall observe operating conditions encountered at the start of FPT. CxA shall examine normal functionality and record parameters as a test.
8. All dynamic systems powered by electricity shall be tested to simulate a power outage to ensure proper sequencing. Those on emergency power or uninterruptible power shall be tested on all sources.

9. CxA shall inspect the installation and compare it to contract requirements. Record the inspection as a test.
  10. Capacities and adjusted and balanced conditions as applicable will generally be checked.
  11. Verify all sequence modes and sequences of operation. CxA must initiate all modes and may not refer to or rely on a pre-functional test done by the BAS. Some examples of generic modes that apply to most systems include:
    - a. Off Mode
    - b. Failed Mode: Proof, safety, power outage etc. See below for crash testing.
    - c. Start Sequence in various modes.
    - d. Stop sequences in various modes.
  12. All adjusted, balanced, controlled systems shall be assessed to determine the optimal setting for the system as applicable. The optimal settings should be determined to establish reliable, efficient, safe, and stable operation. CxA is responsible for placing systems in optimal condition for occupancy and not simply relying on initial design estimated settings.
  13. Dynamic Graphics: The graphic for all components, systems, and areas sampled and required to be represented by a graphic shall be checked for adequacy and accuracy. Furthermore, when setpoints are required to be adjustable, verify that they can be adjusted directly from the graphic screen.
  14. All interfaces between two (2) systems or equipment of different manufacturers must be checked for accuracy and functionality.
  15. "Crash Testing": CxA shall analyze systems to identify possible conditions where functionality may be compromised. CxA shall design non-destructive tests that will demonstrate either the automated response to the conditions or so that team can identify the best method for responding or fixing the condition. All tests and findings shall be documented.
- B. Objectives and Scope. The objective of functional performance testing is to demonstrate that each system is operating according to the Contract Documents. Each system will be tested to verify that the system response is as designed. HVAC systems will be checked for conformance to the design sequences of operation and stable control, lighting control will be checked in each type of lighting area, security system cameras will be verified functional and able to see the correct areas. Proper system responses to such conditions as power failure, out of limit condition, equipment failure, etc. shall also be tested.
  - C. Early duct air leakage tests shall be performed to ensure green and Building Code compliance. Point-to-point testing will be performed by controls contractor on all applicable systems, with results given to CxA prior to functional performance testing.
  - D. Development of Test Procedures: The test procedures are written by the CxA based upon the final operational sequences from available Project documentation. The CxA shall develop specific test procedures and forms to verify and document proper operation of each system. Prior to execution, the CxA shall provide a copy of the test procedures to Design-Build Entity who shall review the tests for feasibility, safety, equipment, and

warranty protection. The test procedure checklists developed by the CxA shall include the following information:

1. System and equipment or component name(s).
2. Equipment location and ID number.
3. Date.
4. Project name.
5. Participating parties.
6. Reference to the specification section describing the test requirements, if applicable.
7. A copy of the specific sequence of operations.
8. Prerequisites for the test.
9. Special cautions, alarm limits, etc.
10. Specific step-by-step procedures to execute the test.
11. Acceptance criteria of proper performance with a Yes/No/NA check box.
12. A section for comments.

E. Test Methods.

1. Systems Functional Performance Testing shall be achieved by manual testing (i.e., persons manipulate the equipment and observe performance) and/or by monitoring the performance and analyzing the results using the control system's trend log capabilities or by standalone data loggers. Design-Build Entity and Commissioning Agent shall determine which method is most appropriate for tests that do not have a method specified.
  - a. Simulated Conditions: Simulating conditions (not by an overwritten value) shall be allowed, although timing the testing to experience actual conditions is encouraged wherever practical.
  - b. Overwritten Values: Overwriting sensor values to simulate a condition, such as overwriting the outside air temperature reading in a control system to be something other than it really is, shall be allowed, but shall be used with caution and avoided when possible. Such testing methods often can only test a part of a system, as the interactions and responses of other systems will be erroneous or not applicable. Simulating a condition is preferable. e.g., for the above case, by heating the outside air sensor with a hair blower rather than overwriting the value or by altering the appropriate setpoint to see the desired response. Before simulating conditions or overwriting values, sensors, transducers, and devices shall have been calibrated.

- c. Simulated Signals: Using a signal generator which creates a simulated signal to test and calibrate transducers and DDC constants is generally recommended over using the sensor to act as the signal generator via simulated conditions or overwritten values.
  - d. Altering Setpoints: Rather than overwriting sensor values, and when simulating conditions is difficult, altering setpoints to test a sequence is acceptable. For example, to see the Air Conditioning compressor lockout initiate at an outside air temperature below 12 C (54 F), when the outside air temperature is above 12 C (54 F), temporarily change the lockout setpoint to be 2 C (4 F) above the current outside air temperature.
  - e. Indirect Indicators: Relying on indirect indicators for responses or performance shall be allowed only after visually and directly verifying and documenting, over the range of the tested parameters, that the indirect readings through the control system represent actual conditions and responses. Much of this verification shall be completed during the system's startup and initial checkout.
2. Functional testing is performed by the contractors with the method and degree of testing as defined in this specification for each system. Each function and test shall be performed under conditions that simulate actual conditions as close as is practically possible. Design-Build Entity executing the test shall provide all necessary materials, system modifications, etc. to produce the necessary flows, pressures, temperatures, etc. to execute the test according to the specified conditions. At completion of the test, Design-Build Entity shall return all affected building equipment and systems to their pre-test condition.
  3. Multiple identical pieces of equipment may be functionally tested using a sampling strategy. The sampling strategy will be defined in these specifications with the commissioned systems list.
- F. Coordination and Scheduling: Design-Build Entity shall provide sufficient notice to the CxA regarding their completion schedule for the Pre-Functional Checklists and startup of all equipment and systems. The CxA will schedule functional tests through the County's Representative and Design-Build Entity upon receipt of the Inspection Request Form.
  - G. Problem Solving: The CxA will recommend solutions to problems found; however, the burden of responsibility to solve, correct, and retest problems is with Design-Build Entity and County's consultants.

### 3.3 OPERATION AND MAINTENANCE TRAINING REQUIREMENTS

- A. Before the operation and maintenance training, CxA shall review training preparation for compliance with Project documents.
- B. Training is required per contract specifications. At a minimum, training is required for Mechanical systems, Lighting, and Controls systems.
- C. The CxA requires submission of training records including attendance lists to verify appropriate people received the training.

### 3.4 COSTS OF COMMISSIONING WORK

- A. The cost to Design-Build Entity and Subcontractors to comply with the Specified requirements and to support the work of the CxA shall be included in Design-Build Entity's and Subcontractor's bid price.
- B. It is Design-Build Entity's responsibility to perform quality control and pre-test all building equipment and systems. The CxA shall confirm function of each system. If a device, piece of equipment, sequence, or system fails a test, corrections shall be made immediately and retested. Corrections that cannot be corrected immediately or that delay completion of CxA testing shall be reimbursed by Design-Build Entity.

3.5 COMMISSIONED SYSTEMS

System	Equipment	Level
HVAC System	Boilers	5
	Pumps	5
	Rooftop air conditioning units	5
	Spit systems	5
	Smoke exhaust fan	5
	Pressurization fan	5
	Exhaust fans	5
	Test and balance report values	3
Building Management System	Sequences of operation, monitored points, and alarms	5
	Metering/monitoring devices and equipment	5
	Software commissioning, GUI presentation commissioning, system access performance criteria, software tools/source code commissioning, instrument data sheets, middleware commissioning, Internet Protocol commissioning	5
Electrical System	Sweep or scheduled lighting controls	3
	Day-light dimming controls	3
	Lighting occupancy sensors	3
Plumbing System	Domestic water heaters	5
	Thermostatic mixing valves	5
Irrigation	Irrigation Controls	3
Renewable Energy	Photovoltaics	4

System	Equipment	Level
Security Alarm Systems	Security cameras and monitoring system personal duress alarm system; Intercom system; Paging system	3
Security Electronics	Security plumbing fixture water management system	1
	Door controls	1
	Fire alarm system	1
	Distributed radio antenna system	1
	Video Surveillance System	1
	Access control system	1

Levels Defined:

Level 1 - The CxA will periodically observe and inspect the installation of equipment and systems and review Project documentation (test reports) to verify operational requirements meet the Contract Documents.

Level 2 - The CxA will periodically observe and inspect the installation of equipment and systems and review Project documentation (test reports). The CxA may spot check some of the system functions verify operational requirements are met.

Level 3 - The CxA will periodically observe and inspect the installation of equipment and systems and review Project documentation (test reports) and will witness Design-Build Entity and/or Subcontractor performance testing of the system. Design-Build Entity shall test up to twenty percent (20%) of the system to prove operational requirements are met. The test sections shall be chosen at random by the CxA. Failure of any test section shall require retesting of that section and an additional test section equivalent in scope.

Level 4 - The CxA will periodically observe and inspect the installation of equipment and systems and review Project documentation (test reports) and will witness Design-Build Entity and/or Subcontractor performance testing of the system. Design-Build Entity shall test up to fifty percent (50%) of the system to prove operational requirements are met. The test sections shall be chosen at random by the CxA. Failure of any test section shall require retesting of that section and an additional test section equivalent in scope.

Level 5 - The CxA will periodically observe and inspect the installation of equipment and systems and review Project documentation (test reports) and will witness Design-Build Entity and/or Subcontractor performance testing of the system. Design-Build Entity shall test up to one hundred percent (100%) of the system to prove operational requirements are met. The test sections shall be chosen at random by the CxA. Failure of any test section shall require retesting of that section and an additional test section equivalent in scope.

3.6 METHODS OF TESTING

A. HVAC Systems

1. CxA may witness duct air leakage testing during rough-in. Design-Build Entity to forward all duct air leakage reports to CxA for review.
2. CxA will visit the site during rough-in of ductwork, piping, and equipment to verify proper maintenance clearances and access are being maintained.

3. The CxA may witness Design-Build Entity, Subcontractor, and/or factory startup of equipment.
4. The TAB contractor shall re-measure up to twenty percent (20%) of the TAB report values for the CxA to observe.
5. Stand-alone controls will be tested independent of item B below.
6. Design-Build Entity will demonstrate to the CxA that the operation of each system through all modes, alarms, and operating parameters meet the Contract Documents.

B. Building Management System

1. After receipt of the controls contractor's calibration and point-to-point reports by the CxA, the controls contractor will re-measure some of the points for the CxA to verify that the calibration and communication is correct. The points to be verified will be selected by the CxA.
2. Controls contractor shall provide an as-built shop drawing to the CxA for use in executing FPT.
3. All of the user graphics interfaces and displayed operating points will be demonstrated for the CxA by the control's contractor.
4. Controls contractor shall manipulate the system to demonstrate that it performs all of the specified modes of operation.
5. Points selected by the CxA will be trended for one (1) to two (2) weeks by the controls contractor to verify control operation and response. System to in auto without alarms.

C. Electrical Systems

1. During the installation the CxA will perform the following for the electrical systems:
  - a. Periodically observe the installation of equipment.
  - b. Review the completed Pre-Functional Checklists ("PFC").
  - c. Verify the PFC's by observing the completed work and comparing to the values listed in the PFC.
  - d. Review the factory authorized programming and checkout report of the lighting control panels and devices.
  - e. The electrical systems contractor is to provide NETA certified third party testing of the power distribution system and provide the CxA with a certified test report.
  - f. CxA will review the contractor who provided as-builts for proper identification and labeling of all equipment, piping and devices.

2. To test the performance of the lighting control system the CxA will perform the following tasks:
  - a. Witness the electrical systems contractor testing each scene from each wall station.
  - b. Verify these scenes match the design intent from the Contract Documents.
  - c. Witness the contractor testing the integration to the other integrated systems such as audio visual and monitoring abilities from the BMS.
  - d. Verify this integration allows control and/or monitoring from the other systems.
  - e. Verify connectivity to the emergency lighting circuits.
  - f. Witness the electrical systems contractor testing the emergency lighting circuits.
3. Upon completion of the emergency power system, factory startup and electrical systems contractor pretesting, the CxA will witness a contractor test to verify complete system power loss and verify proper power provision of critical systems. The test will not be scheduled until all other systems dependent on emergency power have been tested and approved.

D. Plumbing

1. Domestic hot water will be tested by the CxA by measuring the hot water temperature at a percentage of the fixtures along with the time it takes to reach that temperature.
2. Design-Build Entity shall demonstrate domestic hot water boilers, pumps, and controls through all modes of operation and alarms.
3. Design-Build Entity shall demonstrate to the CxA that the sanitary sewer and domestic booster pump operation through all modes and alarms meets approved sequence of operations.
4. After Design-Build Entity and/or plumbing contractor has adjusted all fixtures for proper flush and sink fixture metering, the CxA will test plumbing fixtures for proper operation.
5. The Design-Build Entity and/or plumbing contractor shall demonstrate the water management system to the CxA.
6. The CxA will test the compressed air and vacuum systems for proper operation.

E. Irrigation

1. The CxA will witness the Design-Build Entity and/or subcontractor demonstration of the irrigation controller and coverage using the Design Build Entity's as-built drawings.

- F. Security ACAMS (Access Control and Alarm Monitoring System), Video Surveillance Systems
1. Receive all installation and Pre-Functional Test documentation from systems contractor(s).
  2. Confirm all IP and MAC addresses have been requested from the County's IT department and installed by the systems contractor.
  3. Verify cable and system component installation complies with the specifications and drawings.
  4. Verify that the access control and video system software is the correct version and is programmed and operational.
  5. Verify correct panel and door hardware power supplies and batteries are connected and operational.
  6. Verify card reader operation at the door is per the specification.
  7. Verify door alarms for forced, held open, closed, and reader reset functions are operational.
  8. Verify intrusion and duress alarm's function.
  9. Verify camera field of view meets County's requirements.
  10. Verify camera recording and video storage meets specifications.
- G. Design-Build Entity Commissioned Systems Readiness Letter

**Systems Functional Testing Readiness Certification and  
Notification Letter for Commissioning**

This letter shall serve as certification that all applicable systems checked below have been fully tested to perform as specified in the Construction Documents, in accordance with Functional Testing Checklists, and that all functional testing prerequisites as outlined in the Commissioning Specifications and Commissioning Plan have been completed and submitted for review. The CxA is hereby officially notified to begin onsite functional testing of the following systems:

<b>Systems Ready for Functional Testing</b> <i>(Completed by General Design-Build Entity or CM at Risk as systems become available and are ready for testing – meeting all criteria explained here within)</i>		
<b>Check Applicable System</b>	<b>Systems</b>	<b>Date Design-Build Entity is Requesting for CxA On Site Functional Testing **</b>
<input type="checkbox"/>	<b>TAB Verification</b>	
<input type="checkbox"/>	<b>BMS, BAS, DDC or EMS</b>	
<input type="checkbox"/>	<b>HVAC Systems</b>	
<input type="checkbox"/>	<b>Plumbing Systems</b>	
<input type="checkbox"/>	<b>Emergency Power Systems</b>	
<input type="checkbox"/>	<b>Lighting Control Systems</b>	
<input type="checkbox"/>	<b>Renewable Energy Systems</b>	
<input type="checkbox"/>	<b>Communication Systems</b>	
<input type="checkbox"/>	<b>Electronic Safety and Security Systems</b>	
<input type="checkbox"/>	<b>Irrigation</b>	

**\*\* = Systems Technician Required** – Design-Build Entity certifies that a systems technician familiar with and capable of operating each system to be commissioned will be available On Site throughout functional testing performed by the CxA. For BMS, BAS, DDC or EMS systems this must be the commissioning technician/programmer.

**Failed Functional Testing** – If CxA arrives On Site, on the date indicated above, for functional testing which cannot be completed due to systems readiness failure, systems technician no-show, or other circumstances not caused by the CxA resulting in failed functional testing; it is understood that the CxA's client (listed below) will be invoiced for expenses incurred by CxA. Design-Build Entity also agrees to reimburse said client for incurred expenses. CxA expenses will be invoiced as follows:

- Travel expenses as applicable
- \$2,200/day for each On Site CxA

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Signature of CxA's Client or Representative Print Name Date

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Signature of Design-Build Entity Print Name Date

Commissioning Activity Schedule							
Commissioning (Cx) Construction Phase Activity		Building System			Parallel Construction Site Activity	Duration of Cx Activity	CxA Required Site Visit
			MEPCx	Security Cx			
1	Cx Kick-off Meeting		●		Design-Build Entity mobilized onsite	1 day	●
2	CxA identifies submittals required for Cx		●		Design-Build Entity provides a submittal list for CxA review	1 day	
3	CxA reviews submittals		●		A/E reviews submittals	In process	
4	CxA begins to receive O & M Manuals		●		Subcontractors sends O & M Manuals to Design-Build Entity	In process	
5	Mechanical equipment site verification, update Cx Equipment List & update Cx Issues Log		●		Mechanical equipment set	1 day	●
6	CxA provided jobsite Pre-Functional Checklist Binder to CM or Design-Build Entity		●		CM or GC to receive PFC binder from CxA 1 month prior to MEP equipment startup	5 days	
7	CxA to start development of Cx Functional Test Checklists		●		Submittal reviews complete	14 days	
8	CxA notified that permanent power is installed		●		Permanent power installed	1 day	
9	CxA receives copies of the field Duct Leakage Testing Report		●		Duct leakage testing completed	1 day	
10	CxA conducts onsite functional testing procedures meeting with CM, GC, MEP and low voltage subcontractors		●		1 month prior to Cx Functional Testing	1 day	●
11	CxA issues Functional Test Checklists to CM, GC, MEP and low voltage subcontractors		●		1 Month prior to Cx Functional Testing	1 day	
12	CxA receives jobsite Pre-Functional Checklist Binder w/ completed, signed and dated checklists		●		2 Weeks prior to Cx Functional Testing	1 day	
13	Building LEED flush-out schedule received by CxA ( <i>if applicable</i> )		●		CM or GC coordinates LEED flush-out schedule with Cx functional testing activities	TBD	
14	CxA receives field TAB Report reviewed by Engineer of Record		●		1 Week prior to Cx Functional Testing	1 day	

Commissioning Activity Schedule						
Commissioning (Cx) Construction Phase Activity		Building System		Parallel Construction Site Activity	Duration of Cx Activity	CxA Required Site Visit
			MEPCx Security Cx			
15	CxA receives signed notification letter that BMS, MEP systems are completed and ready for Cx Functional Testing		●	1 Week prior to Cx Functional Testing	1 day	
16	Start functional testing on BMS, HVAC, domestic hot water, lighting controls and irrigation control systems		●	Scheduled after CxA receives the following functional testing prerequisites: a. Pre-functional checklist completed and signed. b. CxA received TAB report. c. CxA received signed notification letter that BMS, MEP systems are completed and ready for Cx functional testing.		
17	CxA verification of the TAB report air and water values		●	TAB subcontractor meets CxA onsite to verify TAB report	1 day	○
18	BMS functional testing		●	Controls subcontractor meets CxA onsite to perform Functional Testing of BMS after BMS point-to-point & checkout is completed	1 day	○
19	HVAC functional testing		●	Controls subcontractor meets CxA onsite to perform functional testing of HVAC systems	2 days	○
20	Domestic hot water functional testing		●	Plumbing subcontractor meets CxA onsite to perform functional testing of domestic hot water	½ day	○
21	Lighting controls functional testing		●	Electrical lighting controls contractor and electrical contractor meets CxA onsite to perform functional testing of lighting controls	1 day	○
22	Irrigation controls		●	Irrigation subcontractor meets CxA onsite to perform functional testing of irrigation controls and systems	½ day	○
23	CxA receives building systems County training schedule		●	Cx functional testing completed	1 day	

Commissioning Activity Schedule							
Commissioning (Cx) Construction Phase Activity		Building System		Parallel Construction Site Activity	Duration of Cx Activity	CxA Required Site Visit	
			MEPCx				Security Cx
24	CxA receives written notification that security systems subcontractor reviewed and performed test run of CxA Functional Checklists			●	1 Week prior to Cx Functional Testing	1 day	○
25	Security Systems Functional Testing			●	Security systems subcontractor meets CxA onsite to perform Functional Testing of low voltage systems	3 days	●
26	CxA confirms all Cx Issues are resolved		●		CM receives responses addressing Cx issues	60 days	○
27	Cx Systems Manual		●		Cx systems O & M Manuals sent to CxA	14 days	○
28	Cx Warranty Review		●		10 months from date of County's occupancy	1 day	○

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