

**LONG BEACH CITY COLLEGE DISTRICT
CONTRACTS MANAGEMENT DEPARTMENT**

**4901 EAST CARSON STREET
LONG BEACH, CA 90808
Ph. (562) 938-4843**

**BID C2194 BUILDING MM CONSTRUCTION TRADES 1
MODERNIZATION PROJECT
AT THE
PACIFIC COAST CAMPUS**

ADDENDUM NO. 2

JULY 28, 2020

This Addendum forms a part of the Contract Documents and modifies the original Contract Documents. Acknowledge receipt of the Addendums on Section 1.2 of the Bid Proposal. Failure to do so may result in the bid being deemed non-responsive.

Note: It is the responsibility of all bidders to notify all subcontractors from whom they request bids and from whom they accept bids of all changes contained in this addendum.

ADDENDUM NO. 2 CONTENTS

- I. PRE-BID INQUIRIES (PBI'S) AND RESPONSES**
- II. SPECIFICATION REVISIONS**
- III. DRAWING REVISIONS**
- IV. OTHER REVISIONS**
- V. ATTACHMENTS**

1. PRE-BID INQUIRIES (PBI'S) AND RESPONSES

1. Q: In reference to the Hazmat and Abatement reports included in Attachment I to the General Conditions, are there any provisions for underground utilities that may require hazmat abatement?

A: The possibility exists that subsurface asbestos-containing materials may be impacted by project work. In the event that any suspect materials are encountered during project work, whether subsurface or otherwise, contact Owner and Project Environmental Consultant immediately. Any impacts to subsurface asbestos-containing materials will require an assessment by a Certified Asbestos Consultant, and if Asbestos content is confirmed, will require a Procedure 5 Work Plan, and should not be handled until such time as an SCAQMD-approved Procedure 5 Work Plan is in place. The bidder shall include costs for all required abatement for 200 liner foot of 6" diameter pipe as part of their proposal submission as the subsurface condition are unknown at this time.

2. Q: The project Landscape drawings, Color and Finish Schedule, call out for Integral Colored Concrete paving under keynotes P3 and P4. In past experience, the colored concrete does not add much to the finish look and

is more expensive than standard concrete. Would the District be interested in revising the P3 and P4 finishes to concrete paving without integral color?

A: The bidder shall provide cost that reflects the costs to install integral colored concrete for P3 and P4 as required per the Contract Documents (Reference sheets L1.10, L2.10) in the base bid. The bidder shall also provide alternate cost costs for installing concrete paving without integral color, P2 of the Color and Finish Schedule, for the District's consideration.

Replace the page 24 in the Bid Proposal with attached updated Attachment B - Alternate Bid Items Proposal Form to provide the cost for colored concrete for District's consideration. Per 15.4, the determination of the lowest responsive bid shall be the lowest price proposed for the base bid proposal only.

3. Q: The construction details for the exterior canopies at the new and existing buildings (reference details in sheets A9.35, A9.36, and A9.37) call out for 1/4" perforated aluminum sheets manufactured by McNichols. This is required at all underside of canopies for the project. Would the District be interested in deleting the perforated aluminum sheets and painting the underside of the canopies instead?

A: The bidder shall provide a proposal that reflects the costs to install 1/4" perforated aluminum sheets at all canopies as required per the Bid Documents in the base bid. The bidder shall also identify the costs for deleting the perforated panel and associated framing from all the underside of the exposed canopies, paint and exterior finishes are to be extended to the underside of the canopies and walls with high performance paint and the exterior finishes to match the adjacent surfaces for the District's consideration.

Replace the page 24 in the Bid Proposal with attached updated Attachment B - Alternate Bid Items Proposal Form to provide the cost for deleting the perforated panels and adding painting at the underside of canopies. Per 15.4, the determination of the lowest responsive bid shall be the lowest price proposed for the base bid proposal only.

4. Q: Attachment K – Sequence and Operations and Site Logistics Plan calls out for the parking lot lighting panel located north of Building MM West Wing to be re-routed prior to the start of building construction activities. Please clarify the intent of this note.

A: The intent of this note is for the General Contractor to re-route the parking lot light panel prior to the start of any demolition activities in order to maintain power to the panel and keep parking lot lights outside of the project limits operational for the duration of the project. Reference Electrical Site Demo sheet ED1.1 notes 2 and 3 for more information.

5. Q: Attachment K – Sequence and Operations and Site Logistics Plan calls out for Building MM East Wing power and data feed to be verified and protected in place. Please clarify the intent of this note.

A: The intent of this note is for the General Contractor to include any costs and time in their bid required to verify and protect in place the power and data feed for the occupied spaces in the East and South Wings of the building. The feed must remain operational throughout the entire Project to all the occupied spaces of this building. Reference Electrical Site Demo sheet ED1.1 note 12 for more information.

6. Q: Special Conditions Section 17.20 describes the procedure of OFCI items. Please provide a list of an OFCI items that need to be included in the bid.

A: Please reference all Bid Documents, for example: Architectural sheet A8.20 and all Specifications for any/all Equipment and accessories noting all Owner Furnished Contractor Installed (OFCI) project

items. All other equipment not specifically identified as OFCI shall be procured and installed by the General Contractor. This includes all other equipment called out in the Contract Documents including, but not limited to, schedules in sheets M0.2, E0.3, P0.2, F3.11, and T0.2. Additionally, the roofing material is OFCI per Specification 07 55 20. Also, refer to updated SECTION 274116 - INTEGRATED AUDIO-VIDEO SYSTEMS AND EQUIPMENT for AV scope of work.

7. Q: Specification 013130 lists out the Electronic Project Management Information System, and specifies the software management as Oracle Primavera Unifier. Is this correct?

A: *No. The District has transition from Oracle Unifier to Procore for the Project Management Information System to be used on this project. Specification Section 013130 has been updated and attached to this addendum.*

8. Q: In the title block of the drawings, it says that the drawings were created in Revit. Can the bidders please have access to the Revit model?

A: *Bidders should bid per the documents supplied in the bid package. Revit Model is not part of the bid package.*

9. Q: Attachment K provides a list of equipment to be OFCI. Will this equipment come pre-assembled where the contractor simply puts the equipment in place and hooks up power (where power is needed)?

A: *Equipment will be assembled by others. The General Contractor scope includes coordination of utility feeds, layout of equipment, anchoring and hook-up of equipment listed in attachment K.*

10. Q: The drawings describe metal lockers; however, the specifications describe plastic lockers. Both descriptions have conflicting basis of design. Please advise.

A: *Remove from Bid Documents Specification 10 51 26 in its entirety and replace with Metal Lockers Specification 10 51 13 attached to this addendum.*

11. Q: Section 11 52 13.2.4 calls for a Draper Screen surface model AT1200. This is no longer available. Current model is Clearsound White Weave XT900E. Please confirm design intent.

A: *Contractor to refer to revised Specification 27 41 16, revised and attached, for Draper Screen model number. Delete paragraph 2.4 from Section 11 52 13.*

12. Q: Section 11 52 13.2.3.A calls for Peerless universal mount PRS-UNV. This is discontinued. Please confirm that direct replacement model PRG8-UNV is acceptable.

A: *Contractor to refer to revised Specification 27 41 16 (attached). Delete paragraph 2.3.A from Section 11 52 13.*

13. Q: Sheets TAV3.2 and TAV3.3 note #2 calls for a vibration absorber mount. Detail #5 on sheet AV6.1 does not show this part. Also, this part is not referenced in Section 11 5213. If desired, is Peerless vibration mount ACC845 acceptable?

A: *Provide Chief MFG Vibration Isolating Mount CMA 347. Contractor to refer to revised Specification 27 41 16 attached to this addendum.*

14. Q: Section 11 52 13.2.4 calls for a display enclosure. This part is not shown on AV plans and details. Which displays require this enclosure? Please confirm design intent.

A: *Contractor to refer to revised Specification 27 41 (attached). Delete paragraph 2.4 from Section 11 52 13.*

15. Q: Section 27 41 16.2.3.C.1 calls for projection screens and projector mounts. These appear to be duplicates of those called for in Section 11 52 13. Please confirm design intent.

A: *Contractor to refer to revised Specification 27 41 16 (attached).*

16. Q: Section 27 41 16.2.3.C.1.e calls for screen size 65"x104". This conflicts with Sheet TAV3.2 which calls for screen size 60"x96". Please confirm design intent.

A: *Provide Da-Lite Tensioned Advantage Electrol, 65"x104", (123" Diagonal) per revised specification 27 41 16.*

17. Q: Section 27 41 16.1.1.A calls for all AV equipment to be OFOI unless otherwise specified. This conflicts with Section 27 41 16.2.3.A which calls for all AV equipment to be OFCI unless otherwise specified. Please confirm design intent.

A: *Projection screens, speakers, projector mounts and display mounts to be contractor furnished and contractor installed (CFCI). All other AV electronic equipment, projectors, displays, amplifiers, switchers, transmitters, receivers, control processors, touch panels, etc., to be Owner Furnished Owner Installed (OFOI). Refer to the revised Section 27 41 16 attached.*

18. Q: Section 27 41 16.2.3.A states that speakers are to be CFCI. Section 27 41 16.2.3.B.3.a states that speakers 1-1 to 1-15 are CFCI. However, Section 27 41 16.2.3.B.3.b does not state that speakers 2-1 to 2-4 are CFCI. Please confirm design intent.

A: *Projection screens, speakers, projector mounts and display mounts to be contractor furnished and contractor installed (CFCI). All other AV electronic equipment, projectors, displays, amplifiers, switchers, transmitters, receivers, control processors, touch panels, etc., to be Owner Furnished Owner Installed (OFOI). Refer to the revised Section 27 41 16 attached.*

19. Q: Section 27 41 16.2.3.A states that speakers are to be CFCI. Section 27 41 16.2.3.E.3.a states that speakers 2-1 to 2-8 are CFCI. However, Section 27 41 16.2.3.E.3.b does not state that speakers 3-1 to 3-2 are CFCI. Please confirm design intent.

A: *Projection screens, speakers, projector mounts and display mounts to be contractor furnished and contractor installed (CFCI). All other AV electronic equipment, projectors, displays, amplifiers, switchers, transmitters, receivers, control processors, touch panels, etc., to be Owner Furnished Owner Installed (OFOI). Refer to the revised Section 27 41 16 attached.*

20. Q: Section 27 41 16.2.3.A states that all displays are to be OFCI. Section 27 41 16.2.3.E.1.b and 27 41 16.2.3.E.1.c calls for the displays and mounts to be CFCI. Please confirm design intent.

A: *Projection screens, speakers, projector mounts and display mounts to be contractor furnished and contractor installed (CFCI). All other AV electronic equipment, projectors, displays, amplifiers,*

switchers, transmitters, receivers, control processors, touch panels, etc., to be Owner Furnished Owner Installed (OFOI). Refer to the revised Section 27 41 16 attached.

21. Q: Section 27 41 16.3.12.B please specify quantity and duration (in clock hours) of desired training sessions.

A: Per specifications: Training – provide as needed system training to operator(s) designated by the owner. Include 2 hours training time in the bid for this section.

22. Q: In the Special Conditions Spec 00 73 00, part 17.14.1, it mentions that the District will provide temporary utilities at a cost of \$300/month. Does this \$300 per month include the consumption of water, electrical power, data & telephone as stated in 17.14 or does it only include water & power consumption as stated in 17.14.1?

A: The District will identify location for the Contractor to connect temporary power and water for consumption use during construction phase. The proposed \$300 per month cost is to cover the cost for power and water usage by the contractor during construction.

23. Q: Note 8 and 9 on sheet AD 2.1 calls for sandblasting all the concrete walls at the interior of existing west wing of the building and demolish/remove any/all ceiling finish. The exposed joist and underside of exposed ceiling deck paint finish contains lead and needs to be abated. Can the contractor use appropriate means and method like ice blasting to abate the all ceilings and concrete wall to remove the finish?

A: Yes. The contractor to use appropriate means and methods to safely remove all the existing paint and/or components that requires abatement. The Project scope shall include removal of all the identified items in the Attachment I hazmat reports within the project construction boundary including but not limited to disposal of all hazmat abandoned items including but not limited to paint, oil, gas cylinders, existing HVAC, Electrical, Plumbing and equipment, trash, student project, building, storage containers and any other items left on the project area and shown in Attachment O – Existing Photos that requires to be demolished, abated or safely disposed-off from project site area as required for new construction project scope.

24. Q: Will the District provide as-built drawings of MM?

A: District does not have relevant as-built drawings available that are useful for the bidders for this project. Contractor is responsible for verifying existing field conditions as required to provide complete bid.

25. Q: Are building permits fees and plan check fees by the owner or the contractor?

A: The project bid documents are already reviewed approved by DSA and appropriate agency's having jurisdictions. Further plan check or permit fees are not required unless specifically noted on the bid documents. Refer to Special Condition Section 00 73 300, Article 17.38.1.1 for additional information on required permits.

26. Q: Ref Section 00 72 00 - Article 7. Please confirm that the limitation on the District damages for Contractor's "(iii) loss of productivity" in the event of the District's breach or default of its obligations under the Construction Documents shall not be a limitation on Contractor's ability to recover damages for lost productivity incurred during its performance of the Agreement arising out of the District's breach or default of the same

A: Recovery for District caused delays is limited by the terms of the Agreement and Article 7.4.2 of the General Conditions. Under Article 7.4.2 of the General Conditions, recovery is limited to actual, direct

costs. Contractor's damages, if any, shall be limited to direct, actual and unavoidable additional costs of labor, materials or Construction Equipment directly resulting from such delay, and shall exclude indirect or other consequential damages, including without limitation, home office expenses, bond capacity impairment or loss of prospective economic advantage. Notwithstanding description of productivity losses as being excluded under Paragraph 7 of the Agreement, if: (i) a contractor establishes that a delay is caused by the District, the delay was unreasonable and the delay was not in the contemplation of the District and contractor at the time of contracting; (ii) the contractor establishes loss of productivity actually resulted from such District caused delay; and (iii) the loss of productivity is based on actual productivity during unimpacted Work and productivity during impacted Work, without resort or reference to standardized productivity rates or manuals.

27. Q: Ref. Special Conditions, Attachment G, Section; D—Builder's Risk. "Flood (Optional Coverage) (rain and the accumulation of rain water added to Flood definition)" is listed as an exclusion to the Builder's Risk coverage. However, there are deductibles listed for Water Damage above the exclusions. Can you please clarify what types of Water Damage and/or Flood Damage are covered under the Builder's Risk policy and distinguish between the two types of coverage?

A: *Flood Damage is defined as a general and temporary condition during which the surface of normally dry land is partially or completely inundated, which arises from: a) Rain and resultant runoff; or b) The rising, overflow or breach of any boundary of a natural or man-made body of water; or c) Non-tectonic or seismic sea waves, tide or tidal waters, storm surge, or spray from any of these; whether driven by wind or not; or d) The failure of a cofferdam or similar structure intended to hold water back from an area of construction; or e) Unexpected accumulation of water caused by subsurface seepage or subsurface leakage. As respects piles and other insured property designed to be used in water and purposely placed or stationed in lakes, rivers, streams, harbors or other bodies of water, any LOSS that could be deemed LOSS caused by WATER DAMAGE or LOSS caused by FLOOD under this policy, shall be deemed LOSS caused by FLOOD, and all terms and conditions herein shall apply as if the LOSS were caused by FLOOD. FLOOD does not include the accumulation of water from any source on a roof or other surface of a building, dwelling or structure. Water Damage is defined as all water damage except LOSS caused by or resulting from the peril of FLOOD.*

28. Q: Are parking permits required when parking lots on the Pacific Coast Campus (PCC)?

A: *Yes, parking permits are required for parking and the District will provide parking permits to the General Contractor to distribute to their sub-contractors free of cost. Contractor will be allowed to park in the newly constructed parking structure southeast of construction site on Pacific Coast Highway and Walnut Avenue. The Contractor's site office is proposed to be in Lot #7.*

29. Q: Per 13.2.1 on page 10 of 31 of the Geotechnical and Geohazard Study Report by Koury Engineering & Testing, Inc., The Geotechnical Engineer "recommends" the following: "Within the building pad areas, we recommend complete over excavation of the existing fill and the subgrade to at least 4 feet below existing grades or 2½ feet below footings, whichever is deeper. Where feasible, the over excavation should extend laterally at least 5 feet beyond the building perimeters or edge of footings, whichever is greater." Please advise if this recommendation is a requirement for any excavations within the building pad areas or any other location on site. If over excavation is required, please clarify exact locations and/or parameters for over excavation.

A: *Refer to overexcavation requirements in the geotechnical report and to the foundation notes on Sheet S1.0, foundation plan note 2 on S2.1, foundation plan note 4 on sheet S2.3, foundation plan note 2 on sheet S2.5, and detail 1/S4.1.*

Overexcavation is required, and not limited to the slab and foundations within the new workshop building area shown on S2.1, covered storage shown on S2.5, new CMU site wall, New Trash Enclosure on S2.6, within the Existing MM West Building for a minimum of 2 foot under the slab on grade per summary on page 3 of 106, new footings as shown on Sheet S2.3 and under flatwork/hardscape per Section 13.2.2 of the geotechnical report. For cover storage footings, site wall footings and trash enclosure footings, assume removal of undocumented fill and a minimum of 2 feet of overexcavation below footings, extending laterally 3 feet outside the footings where space permit.

30. Q: Campus work restrictions. (a) Are there campus work hour restrictions? (b) Will on parking be available for field crews?

A: (a) Yes. Refer to 00 73 00 Special Conditions, Article 17.6 for Hours and Days of Work at the Site and Attachment K - Sequence of Operations and Logistics Plan (b) Yes, parking permits are required. See answer to question 29 for additional information.

31. Q: Attachment G, Exhibit B SEWUP Project Insurance Manual, Art. 8.3.6.2: The provision states that Contractor is responsible to procure insurance for materials or equipment in transit and/or stored on site. Can you please clarify whether the Builder's Risk policy provided by the District will insure materials in transit or in storage?

A: The Builder's Risk policy provides for \$2,500,000 for Property in Transit and \$2,500,000 for Property in Temporary Storage or Off-Site staging areas.

32. Q: Current Contract Documents depict a 2" gas line running underground from the POC to the Existing MM West Building on plan. Note 3/P1.1 calls for a 1-1/2" gas line and a "Point of Connection of New 1-1/2" gas to existing gas from campus infrastructure. Please clarify.

A: Follow Pipe tags depicted on P1.1 and P2.0. Provide new 2" gas line running underground from POC to Existing MM West Building on the floor plan.

33. Q: Current Contract Documents show the new gas line POC at the existing gas line from campus infrastructure. It is then routed UG to the Existing MM West Build at which point it comes to an earthquake valve and does not continue. Please confirm the gas line is to be installed from the POC to earthquake valve at the Existing MM West Building only.

A: Route gas underground to Earthquake Valve at existing building MM West and route gas into building and provide stub out inside building. No gas POC required at New Workshop building.

34. Q: Underground Hydronic Piping Material Clarification (Specification Reference 23 21 3.13. (a) Sections 2.3 & 2.5 - Please confirm if all pre-insulated piping to have a minimum 100 or 125 mils thick HDPE casing. (b) Section 3.2-C - Please confirm if all underground CHW Return piping shall be uninsulated.

A: (a) Minimum of 125 mils thick HDPE casing is confirmed. (b) Return underground CHW shall be insulated to match the campus loop.

35. Q: Reference: Plan Note #1 / Provide temporary cooling (Sheet Reference M1.1).

(a) What type(s) of temporary cooling equipment is required? - (e.g., self-contained air-cooled chiller and pump with electric generator).

(b) Please specify the temporary cooling equipment capacity - (i.e., cooling tons, GPM).

(c) Please indicate how the temporary cooling equipment will be controlled - (i.e., manual on-off, time clock, HVAC control sensors).

A: Coordinate sequence the work for CWHW tie-in and the shutdown of the campus hydronic loop to plan this works scope the work during off hours/holidays, when the District is closed and the class schedule is not interrupted and avoid cooling requirements for the Bld QQ/RR building and this requirement. Coordinate the shutdown with the Owners at least three weeks in advance.

36. Q: Please confirm ACT Ceiling are the design intent for Rooms MM143, MM144 and MM145.

A: Confirmed refer to sheet A8.20 at Room Finish Schedule, provide/install ACT-1.

37. Q: Refer to detail A, sheet L9.10, stakes are untreated lodgepole pine. However, specification 32 93 00 2.9 states that stakes would be full treated. Please clarify.

A: Provide untreated lodgepole pine stakes.

38. Q: Please provide the top dressing fertilizer and fertilizer mix material as mentioned in specification 32 93 00 3.12.F.

A: See note H sheet L10.10. Fertilizer recommendation shall be part of Agronomic Soils Report.

39. Q: Refer to Irrigation Pipe and Wire Legend on sheet L6.10, lateral line is purple Sch 40, while in specification 32 84 00 2.2.C indicates it is Class 200. Please Clarify.

A: Provide as per L6.10. Purple pipe is current District Standards.

40. Q: Refer to Irrigation Pipe & Wire Legend on sheet L6.10, backfill for sleeve trench shall be slurry mix or concrete. However, per detail Y on sheet L7.20 and specification 32 84 00 3.3, it is sand backfill. Please clarify.

A: Irrigation sleeves at asphalt crossings shall receive slurry backfill per notes on sheet L6.20.

41. Q: Specification Section 230950 -DDC BACNET CONTROL SYSTEM -For the past several projects on the campus, the specifications 230950 have called for an integration into the LOBOS Energy Efficiency system (Building M, J, and KLAC all had this in the specifications). Siemens assumed it was a campus standard, so always on the lookout for it. However, I have combed through the construction documents and I see nothing for Building MM with regard to the LOBOS integration. Can you confirm that integration to this system is indeed omitted from this project?

A: LOBOS System is not required, provide equivalent system by TRANE Technologies. Revise Section 1.6 APPROVED CONTROL SYSTEM CONTRACTORS AND MANAGERS to Delete Siemens Building Technologies, Inc. as district approved BMS contractor. Siemens system is no longer approved to be used on LBCC. Provide to equivalent system by TRANE Technologies. Contact: Brad Donnelly Cell #(949) 412-5790 for more information and cost proposals.

42. Q: Sheet AD5.1 calls for demo of all the roof penetration related to existing utilities however repair patching of the sheathing and framing is not shown on S2.4. Existing sheathing and framing is also has rain damage and needs repair, please clarify.

A: Include in project scope repair of 25 existing utility penetration as per detail 7/S1.2 and replacement of additional 50 Square foot of roof sheathing plywood for any rain damage in project scope.

II. SPECIFICATION REVISIONS:

1. 01 31 30 - Electronic Project Management Information System
 - Revision to the spec section to include Procure as the PMIS.
2. 03 33 00 – Cast In Place Concrete
 - Part 2, 2.5.A – Add Underlayment Vapor Retarder material specifications.
3. 10 51 13 – Metal Lockers
 - New specification to align with drawings. Remove specification 10 51 26 in its entirety.
4. 27 41 16 – Integrated Audio-Video Systems and Equipment
 - Revised specification in its entirety. Clarify OFOI/OFICI/CFCI designations for AV systems.

III. DRAWING REVISIONS:

1. C3.10: Demo and replace hardscape panel at south end of project boundary. Remove note and keynote “concrete” and P keynote.
2. AD2.0: Demo and replace hardscape panel at south end of project boundary. Note added.
3. L1.10: Demo and replace hardscape panel at south end of project boundary. Note added, remove leader of keynote 5 at/near panel.
4. L2.10: Demo and replace hardscape panel at south end of project boundary. Note added, remove keynotes 5 and M.
5. M2.1: Revisions to duct layouts and diffuser neck sizes. Additional annotations to clarify requirements.

IV. OTHER REVISION:

1. General Conditions, Revised Attachment B - Alternate Bid Items Proposal Form
2. Add to Attachment J, CSWPA Amendment Dated 9-11-19

V. ATTACHMENTS:

1. Section II. Specifications Revisions
2. Section III. Drawing Revisions
3. Section IV. Other Revisions

*****END OF ADDENDUM NO. 2*****

LONG BEACH CITY COLLEGE DISTRICT

Alan Moloney

**Alan Moloney
Deputy Director Purchasing & Contracts**

ATTACHMENTS:

ATTACHMENT ONE

SECTION III. SPECIFICATION REVISIONS

SECTION 013130 - ELECTRONIC PROJECT MANAGEMENT INFORMATION SYSTEM

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This Section is in addition to the Contract General Conditions.
- B. The Contractor shall be required to use the Procore Construction Management System, hereafter referred to as Procore, for electronic construction management document control and communications between the District, Architect of Record, Inspector of Record, other project-related consultants, and Contractor. The system will be maintained and owned by the District but operated collaboratively by the Project Team.
- C. Procore will contain information the following information available to the contractor and project team:
 - 1. Change Orders (CO) and Logs
 - 2. Construction Change Directives (CCD) and Logs
 - 3. Daily Reports
 - 4. Field Observations and Reports
 - 5. Final Completion
 - 6. Incident Reports and Logs
 - 7. Inspection Requests (IR) and Logs
 - 8. IOR Daily Reports
 - 9. Meeting Minutes
 - 10. Notices to Proceed (NTP)
 - 11. Payment Applications
 - 12. Potential Change Orders (PCO) and Logs
 - 13. Requests for Information (RFI) and Logs
 - 14. Submittals and Logs

15. Substantial Completion

16. Project FTP Site

17. Electronic Drawings, Sketches, and Architect's Supplemental Instructions (ASI)

18. Other Documentation as determined by the District's Representative.

D. All Daily Reports, Incident Reports, IRs, Payment Applications, PCOs, RFIs, and Submittals shall be submitted electronically, via the Procore Website. The District will NOT accept faxed and/or computer generated documentation and/or hand written documentation of these documents.

1. The Contractor shall be solely responsible for data entry via the Unifier Website.

2. The Contractor shall be solely responsible for the scanning of sketches / drawings as necessary for the electronic submittal and attachment of required information.

3. The Contractor shall supply field personnel all necessary computer equipment required for electronic data entry.

4. Submittals shall be submitted via Procore, with hard copies provided per Section 013300 Submittal Procedures.

1.2 CONTRACTOR'S RESPONSIBILITIES

A. The Contractor shall have sufficient computer(s) with capabilities to access the system at their on-site and off-site project offices. At the pre-construction meeting, the Contractor shall provide to the District's Representative the email address of up to two Contractor representative(s) that the Contractor designates to have access to Procore. This representative(s) shall have sufficient computer skills required to access the Internet, log on to Procore, and utilize Procore. The District shall provide training and technical support to the Contractor's personnel for use of Procore. The Contractor shall plan on an average of 4-hours training for the Contractor's representative(s) who will be using the system. Having the above capability in place on-site is a condition precedent to processing the Contractor's first payment request.

1.3 OFFICIAL RECORDS

A. The documentation and records maintained on Procore will be the "Official Records" for the project. This documentation shall be the records for the adjudication of any and all disputes.

PART 2 - PRODUCTS (Not Used)

Project No: 5815
July 22, 2020

Building MM – Construction Trades I
Long Beach City College - PCC

PART 3 - EXECUTION (Not Used)

END OF SECTION 013130

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Concrete formwork.
- B. Floors and slabs on grade.
- C. Grade beams and footings.
- D. Concrete reinforcement.
- E. Joint devices associated with concrete work.
- F. Miscellaneous concrete elements, including equipment pads.
- G. Concrete curing.

1.2 RELATED REQUIREMENTS

- A. Section 033511 - Concrete Floor Finishes: Densifiers, hardeners, applied coatings, and polishing.
- B. Section 079200 - Joint Sealants: Products and installation for sealants for saw cut joints and isolation joints in slabs.
- C. Section 079513 - Expansion Joint Cover Assemblies.
- D. Section 321313 - Concrete Paving: Sidewalks, curbs and gutters.

1.3 REFERENCE STANDARDS

- A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; 2010.
- B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).
- C. ACI 301 - Specifications for Structural Concrete; 2010 (Errata 2012).
- D. ACI 302.1R - Guide for Concrete Floor and Slab Construction; 2004 (Errata 2007).
- E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000.
- F. ACI 305R - Hot Weather Concreting; 2010.
- G. ACI 306R - Cold Weather Concreting; 2010.
- H. ACI 308R - Guide to Curing Concrete; 2001 (Reapproved 2008).
- I. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2014 (Errata 2016).
- J. ACI 347R - Guide to Formwork for Concrete; 2014.
- K. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2016.
- L. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2015.
- M. ASTM C172/C172M - Standard Practice for Sampling Freshly Mixed Concrete; 2014a.
- N. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2016.
- O. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2016b.
- P. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens); 2016a.

- Q. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2015a.
- R. ASTM C150/C150M - Standard Specification for Portland Cement; 2016.
- S. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2013.
- T. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2015.
- U. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2014.
- V. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 2013.
- W. ASTM E1155 - Standard Test Method for Determining F(F) Floor Flatness and F(L) Floor Levelness Numbers; 1996 (Reapproved 2008).
- X. ASTM E1155M - Standard Test Method for Determining F(F) Floor Flatness and F(L) Floor Levelness Numbers (Metric); 2014.
- Y. ASTM E1643 - Standard Practice for Selection, Design, Installation and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2011.
- Z. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2011.

1.4 SUBMITTALS

- A. See Section 013300 Submittal Procedures, for submittal procedures.
- B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
- C. Mix Design: Submit proposed concrete mix design.
 - 1. Indicate proposed mix design complies with requirements of ACI 318, Chapter 5 - Concrete Quality, Mixing and Placing.
- D. Samples: Submit samples of underslab vapor retarder to be used.

1.5 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Follow recommendations of ACI 305R when concreting during hot weather.
- C. Follow recommendations of ACI 306R when concreting during cold weather.

PART 2 PRODUCTS

2.1 FORMWORK

- A. Formwork Design and Construction: Comply with guidelines of ACI 347R to provide formwork that will produce concrete complying with tolerances of ACI 117.
- B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
 - 1. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.

2.2 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
 - 1. Type: Deformed billet-steel bars.
 - 2. Finish: Unfinished, unless otherwise indicated.
- B. Steel Welded Wire Reinforcement (WWR): Galvanized, plain type, ASTM A1064/A1064M.
- C. Reinforcement Accessories:
 - 1. Tie Wire: Annealed, minimum 16 gage, 0.0508 inch.

2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
3. Provide stainless steel, galvanized, plastic, or plastic coated steel components for placement within 1-1/2 inches of weathering surfaces.

2.3 CONCRETE MATERIALS

- A. Cement: ASTM C150/C150M, Type II - Moderate Portland type.
 1. Acquire cement for entire project from same source.
- B. Fine and Coarse Aggregates: ASTM C 33.
 1. Acquire aggregates for entire project from same source.
- C. Fly Ash: ASTM C618, Class C or F.
- D. Water: Clean and not detrimental to concrete.

2.4 ADMIXTURES

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Water Reducing and Accelerating Admixture: ASTM C494/C494M Type E.
- C. Water Reducing and Retarding Admixture: ASTM C494/C494M Type D.

2.5 ACCESSORY MATERIALS

- A. Underslab Vapor Retarder: Drago Wrap Vapor Intrusion Barrier, complying with ASTM E1745.
 1. Installation: Comply with ASTM E1643.
 2. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations.
- B. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
 1. Minimum Compressive Strength at 28 Days: 7,000 pounds per square inch.

2.6 BONDING AND JOINTING PRODUCTS

- A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.
- B. Epoxy Bonding System:
 1. Complying with ASTM C881/C881M and of Type required for specific application.
- C. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.
- D. Slab Contraction Joint Device: Preformed linear strip intended for pressing into wet concrete to provide straight route for shrinkage cracking.

2.7 CURING MATERIALS

- A. Evaporation Reducer: Liquid thin-film-forming compound that reduces rapid moisture loss caused by high temperature, low humidity, and high winds; intended for application immediately after concrete placement.
- B. Curing Compound, Naturally Dissipating: Clear, water-based, liquid membrane-forming compound; complying with ASTM C309.
- C. Curing Agent, Water Replacement Type: Clear, water based, liquid water cure replacement agent complying with ASTM C309 standards for water retention, and with ACI 302.1R.
- D. Moisture-Retaining Sheet: ASTM C171.
 1. White-burlap-polyethylene sheet, weighing not less than 10 ounces per linear yard, 40 inches wide.
- E. Water: Potable, not detrimental to concrete.

2.8 CONCRETE MIX DESIGN

- A. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
 - 1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.
- B. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
- C. Normal Weight Concrete:
 - 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: As indicated on drawings.
 - 2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
 - 3. Water-Cement Ratio: Maximum as indicated on drawings percent by weight.
 - 4. Maximum Slump: as indicated on drawings inches.
 - 5. Maximum Aggregate Size: as indicated on drawings inch.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.2 PREPARATION

- A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.
- B. Verify that forms are clean and free of rust before applying release agent.
- C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.
- D. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.
 - 1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
 - 2. Use latex bonding agent only for non-load-bearing applications.
- E. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Lap joints minimum 6 inches. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.
 - 1. Vapor Retarder Over Granular Fill: Install compactible granular fill before placing vapor retarder as indicated on the drawings. Do not use sand.

3.3 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

- A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
- B. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.
- C. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

3.4 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete for floor slabs in accordance with ACI 302.1R.
- C. Notify Architect not less than 48 hours prior to commencement of placement operations.

- D. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- E. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.
- F. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting. See drawings for additional joint preparations as required.
- G. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.5 SLAB JOINTING

- A. Locate joints as indicated on the drawings.
- B. Anchor joint fillers and devices to prevent movement during concrete placement.
- C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.
- D. Saw Cut Contraction Joints: Saw cut joints before concrete begins to cool, as indicated on the drawings.

3.6 FLOOR FLATNESS AND LEVELNESS TOLERANCES

- A. Minimum F(F) Floor Flatness and F(L) Floor Levelness Values for on-grade slabs and elevated slabs before removal of shoring:
 - 1. Exposed to View and Foot Traffic: F(F) of 20; F(L) of 15.
 - 2. Under Thick-Bed Tile: F(F) of 20; F(L) of 15.
 - 3. Under Carpeting: F(F) of 25; F(L) of 20.
 - 4. Under Thin Resilient Flooring and Thinset Tile: F(F) of 35; F(L) of 25.
 - 5. Parking Structure: F(F) of 20; F(L) of 15, on-grade only.
- B. Measure F(F) Floor Flatness and F(L) Floor Levelness in accordance with ASTM E1155 (ASTM E1155M), within 48 hours after slab installation; report both composite overall values and local values for each measured section.
- C. Correct the slab surface if composite overall value is less than specified and if local value is less than two-thirds of specified value or less than F(F) 13/F(L) 10.
- D. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.7 CONCRETE FINISHING

- A. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
 - 1. Surfaces to Receive Thick Floor Coverings: "Wood float" as described in ACI 302.1R; thick floor coverings include quarry tile, ceramic tile, and Portland cement terrazzo with full bed setting system.
 - 2. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI 302.1R; thin floor coverings include carpeting, resilient flooring, seamless flooring, resinous matrix terrazzo, thin set quarry tile, and thin set ceramic tile.
 - 3. Decorative Exposed Surfaces: Trowel as described in ACI 302.1R; use steel-reinforced plastic trowel blades instead of steel blades to avoid black-burnish marks; decorative exposed surfaces include surfaces to be stained or dyed, pigmented concrete, surfaces to receive liquid hardeners, surfaces to receive dry-shake hardeners, surfaces to be polished, and all other exposed slab surfaces.

3.8 CURING AND PROTECTION

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
 - 1. Normal concrete: Not less than 7 days.
- C. Surfaces Not in Contact with Forms:
 - 1. Slabs and Floors To Receive Adhesive-Applied Flooring: Curing compounds and other surface coatings are usually considered unacceptable by flooring and adhesive manufacturers. If such materials must be used, either obtain the approval of the flooring and adhesive manufacturers prior to use or remove the surface coating after curing to flooring manufacturer's satisfaction.
 - 2. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water-fog spray or saturated burlap.
 - a. Spraying: Spray water over floor slab areas and maintain wet.
 - b. Saturated Burlap: Saturate burlap-polyethylene and place burlap-side down over floor slab areas, lapping ends and sides; maintain in place.
 - 3. Final Curing: Begin after initial curing but before surface is dry.
 - a. Moisture-Retaining Sheet: Lap strips not less than 3 inches and seal with waterproof tape or adhesive; secure at edges.
 - b. Curing Compound: Apply in two coats at right angles, using application rate recommended by manufacturer.

3.9 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Section 014000 - Quality Requirements.
- B. Provide free access to concrete operations at project site and cooperate with appointed firm.
- C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
- D. Compressive Strength Tests: ASTM C39/C39M. For each test, mold and cure three concrete test cylinders. Obtain test samples as required per ACI 318 Section 5.6 and in accordance with ASTM C172/C172M.
- E. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
- F. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.

3.10 DEFECTIVE CONCRETE

- A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.
- B. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
- D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

3.11 PROTECTION

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

SECTION 105113 - METAL LOCKERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. All-welded metal lockers.

1.2 SYSTEM DESCRIPTION

- A. Design Requirements:
1. Lockers: CBC Section 11B-225.2.1.
 - a. At least 5%, but no fewer than one of each type of lockers shall comply with CBC Section 11B-811.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of metal locker and bench.
- B. Shop Drawings: For metal lockers. Include plans, elevations, sections, details, and attachments to other work.
1. Provide calculations and details for anchorage of lockers per ASCE 13.5.
 2. Show locker trim and accessories.
 3. Include locker identification system and numbering sequence.
- C. Samples for Initial Selection: For units with factory-applied color finishes.
- D. Samples for Verification: For metal lockers and locker benches, in manufacturer's standard sizes.
- E. Qualification Data: For qualified Installer.
- F. Maintenance Data: For adjusting, repairing, and replacing locker doors and latching mechanisms to include in maintenance manuals.
- G. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

- A. Reference Standards:
1. 2016 California Building Standards Administrative Code, Part 1, Title 24 CBSC.
 2. 2016 California Building Code (CBC), Part 2, Title 24 CBSC. (2015 International Building Code of the International Code Council, with California Amendments).
 3. 2016 California Electrical Code (CEC), Part 3, Title 24 CBSC (2014 National Electrical Code, with California Amendments).
 4. 2016 California Mechanical Code (CMC), Part 4, Title 24 CBSC (2015 Uniform Mechanical Code, with California Amendments).

5. 2016 California Plumbing Code (CPC), Part 5, Title 24, CBSC (2015 Uniform Plumbing Code, with California Amendments).
 6. 2016 California Energy Code, Part 6, Title 24 CBSC.
 7. 2016 California Historical Code, Part 8, Title 24 CBSC.
 8. 2016 California Fire Code, Part 9, Title 24 CBSC. (2015 International Fire Code, with California Amendments).
 9. 2016 California Green Building Standards Code (CALGreen Code), Part 11, Title 24 CBSC.
 10. 2016 California Referenced Standards Code, Part 12, Title 24, CBSC.
 11. NFPA 13 - Automatic Sprinkler Systems (California Amended), 2016 Edition.
 12. NFPA 14 - Standpipe Systems (California Amended), 2013 Edition.
 13. NFPA 17 - Dry Chemical Extinguishing Systems, 2013 Edition.
 14. NFPA 17A - Wet Chemical Extinguishing Systems, 2013 Edition.
 15. NFPA 20 - Stationary Pumps, 2016 Edition.
 16. NFPA 24 - Private Fire Service Mains (California Amended), 2016 Edition.
 17. NFPA 72 - National Fire Alarm and Signaling Code (California Amended).
 18. NFPA 80 - Fire Door and Other Opening Protectives, 2016 Edition.
 19. NFPA 253 - Critical Radiant Flux of Floor Covering Systems, 2015 Edition.
 20. NFPA 2001 - Clean Agent Fire Extinguishing Systems (California Amended), 2015 Edition.
 21. Americans with Disabilities Act (ADA), Title II.
- B. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- C. Source Limitations: Obtain metal lockers, locker benches, and accessories from single source from single manufacturer.
- D. Regulatory Requirements: Where metal lockers and benches are indicated to comply with accessibility requirements, comply with the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities" and ICC/ANSI A117.1.
- E. Preinstallation Conference: Conduct conference at Project site.
- 1.5 DELIVERY, STORAGE, AND HANDLING
- A. Do not deliver metal lockers until spaces to receive them are clean, dry, and ready for their installation.
- B. Deliver master and control keys to Owner by registered mail or overnight package service.
- 1.6 PROJECT CONDITIONS
- A. Field Measurements: Verify actual dimensions of recessed openings by field measurements before fabrication.
- 1.7 COORDINATION
- A. Coordinate sizes and locations of concrete bases for metal lockers.
- B. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of work specified in other Sections to ensure that metal lockers can be supported and installed as indicated.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal lockers that fail in materials or workmanship, excluding finish, within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures.
 - b. Faulty operation of latches and other door hardware.
 - 2. Damage from deliberate destruction and vandalism is excluded.
 - 3. Warranty Period for All-Welded Metal Lockers: Lifetime.
- B. Installer's Warranty: 2 years.

1.9 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Full-size units of the following metal locker hardware items equal to 10 percent of amount installed for each type and finish installed, but no fewer than five units:
 - a. Locks.
 - b. Identification plates.
 - c. Hooks.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. All-Welded Lockers: Subject to compliance with requirements, provide products by one of the following manufacturers
 - 1. DeBourgh Mfg. Co. (Basis of Design).
 - 2. Penco Products, Inc., Subsidiary of Vesper Corporation.
 - 3. Art Metal Products, Div. of Fort Knox Storage Co.
 - 4. Lyons.
 - 5. Or equal.

2.2 MATERIALS

- A. Metallic-Coated Steel Sheet: ASTM A 653, Commercial Steel (CS), Type B; with A60 zinc-iron, alloy (galvannealed) coating designation.
- B. Expanded Metal: ASTM F 1267, Type II (flattened), Class I, 3/4-inch steel mesh, with at least 70 percent open area.
- C. Steel Tube: ASTM A 500, cold rolled.
- D. Fasteners: Zinc- or nickel-plated steel, slotless-type, exposed bolt heads; with self-locking nuts or lock washers for nuts on moving parts.
- E. Anchors: Material, type, and size required for secure anchorage to each substrate.
 - 1. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls, and elsewhere as indicated, for corrosion resistance.

2. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

2.3 ALL-WELDED METAL LOCKERS

- A. Product: Corregidoor Physical Education (PE) Lockers by DeBourgh or equal.
 1. Locker Configuration: As indicated on Drawings.
 2. Locker Construction:
 - a. Lockers to be welded unibody construction with exposed welds sanded smooth.
 - b. No bolts, screws or rivets used in assembly of locker units.
 - c. Ship lockers set-up, ready to be anchored in place in accordance with manufacturer's instructions.
 3. Body of Lockers:
 - a. Sides and Intermediate Partitions: Exterior sides constructed of 16 gauge domestic cold rolled sheet steel for maximum durability with 18 gauge intermediate partitions. Intermediate partitions to be diamond perforated for maximum ventilation.
 - b. Backs: Solid sheet of 18 gauge cold rolled sheet steel welded to frames of sides and intermediate partitions.
 - c. Shelves and Tier Dividers: Constructed of 18 gauge cold rolled sheet steel welded to sides and intermediate partition construction. Shelves provided in lockers 60 inches and taller, located to provide a minimum of 12 inches clearance.
 4. Continuous Door Strike:
 - a. Tier dividers, tops and bottoms constructed to provide four-sided, continuous door strike for a secure, sanitary and intrusion-free locker while door is in closed position.
 5. Doors:
 - a. Doors are 16 gauge CRS formed outer panel with double bends on both sides and a single bend on top and bottom with 18 gauge steel formed stiffener panel.
 - b. Door stiffener runs top to bottom on hinge side of door and is securely welded to outer door to form a reinforced channel for additional torque-free strength and sound reduction when closing door. (Inner panel not available on 9 inch wide or box locker 12 inches high or less).
 6. Door Ventilation:
 - a. Diamond Perforated with 1/2 inch by 1-3/8 inch diamond perforations providing 37% ventilation per square inch.
 - b. Secur-N-Vent doors with three-dimensional vertical vents formed on fronts and backs of door providing 21% ventilation per square inch.
 7. Latching:
 - a. Sentry III Single-Point Latch
 - 1) Eleven gauge stationary latch welded securely to locker frame.
 - 2) Latch extends no more than 1-1/4 inch into locker opening, penetrating through cup.
 - 3) Flush-mounted, recessed stainless steel cup in a formed door with 18 gauge vertical back panel stiffener.
 8. Hinges:
 - a. 16 gauge continuous piano hinge on the right side of the opening.
 - b. Hinges welded to door and riveted to locker frame.
 9. Closed Base:
 - a. Provide 4 inch high, 14 gauge welded steel base enclosed on all four sides securely welded to locker bottom.
 10. Reinforced Bottom:
 - a. Provide 16 gauge spacer channel welded to locker bottom from front to back for a more secure installation Spacer channel to have full height 1/2 inch ID tube welded over anchor holes to eliminate deflection upon locker installation. Spacer channel meets all California installation seismic requirements. (When closed bases are not used).

11. Filler Panels: Manufacturer's standard fabricated from 18 gauge solid steel finished to match lockers.
12. Finish:
 - a. Complete locker unit to be thoroughly cleaned, phosphatized and sealed.
 - b. Finish to be baked powder coat with a minimum 2-3 mil thickness.
 - c. Color of lockers shall be chosen from manufacturer's 25 standard colors.
13. Accessories:
 - a. Hooks:
 - 1) Hooks to be heavy duty forged steel with ball ends and zinc plated.
 - 2) Provide two single ceiling hooks and one double ceiling hook in each locker opening 20 inches or taller.
 - b. Numbering
 - 1) Furnish each locker with black anodized laser-etched aluminum number plate.
 - 2) Locate number plate near center of each door.
 - 3) Owner to furnish numbering sequence.

2.4 FABRICATION

- A. Fabricate metal lockers square, rigid, and without warp and with metal faces flat and free of dents or distortion. Make exposed metal edges safe to touch and free of sharp edges and burrs.
 1. Form body panels, doors, shelves, and accessories from one-piece steel sheet unless otherwise indicated.
 2. Provide fasteners, filler plates, supports, clips, and closures as required for complete installation.
 3. Provide International Symbol of Accessibility.
- B. Fabricate each metal locker with an individual door and frame; individual top, bottom, and back; and common intermediate uprights separating compartments. Factory weld frame members of each metal locker together to form a rigid, one-piece assembly.
- C. All-Welded Construction: Factory preassemble metal lockers by welding all joints, seams, and connections; with no bolts, nuts, screws, or rivets used in assembly of main locker groups. Factory weld main locker groups into one-piece structures. Grind exposed welds flush.
- D. Accessible Lockers: Fabricate as follows:
 1. Locate bottom shelf no lower than 15 inches above the floor.
 2. Where hooks, coat rods, or additional shelves are provided, locate no higher than 48 inches above the floor.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls, floors, and support bases, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install level, plumb, and true; shim as required, using concealed shims.
 - 1. Anchor locker runs at ends and at intervals recommended by manufacturer, but not more than 36 inches o.c. Using concealed fasteners, install anchors through backup reinforcing plates, channels, or blocking as required to prevent metal distortion.
 - 2. Anchor single rows of metal lockers to walls near top and bottom of lockers and to floor.
 - 3. Anchor back-to-back metal lockers to floor.
- B. All-Welded Metal Lockers: Connect groups together with standard fasteners, with no exposed fasteners on face frames.
- C. Equipment and Accessories: Fit exposed connections of trim, fillers, and closures accurately together to form tight, hairline joints, with concealed fasteners and splice plates.
 - 1. Attach hooks with at least two fasteners.
 - 2. Attach door locks on doors using security-type fasteners.
 - 3. Identification Plates: Identify metal lockers with identification indicated on Drawings.
 - a. Attach plates to each locker door, near top, centered, with at least two aluminum rivets.
 - b. Attach plates to upper shelf of each open-front metal locker, centered, with a least two aluminum rivets.
 - 4. Attach recess trim to recessed metal lockers with concealed clips.
 - 5. Attach filler panels with concealed fasteners. Locate filler panels where indicated on Drawings.
 - 6. Attach sloping-top units to metal lockers, with closures at exposed ends.
 - 7. Attach boxed end panels with concealed fasteners to conceal exposed ends of nonrecessed metal lockers.
 - 8. Attach finished end panels with fasteners only at perimeter to conceal exposed ends of nonrecessed metal lockers.

3.3 ADJUSTING, CLEANING, AND PROTECTION

- A. Clean, lubricate, and adjust hardware. Adjust doors and latches to operate easily without binding. Verify that integral locking devices operate properly.
- B. Protect metal lockers from damage, abuse, dust, dirt, stain, or paint. Do not permit use during construction.
- C. Touch up marred finishes, or replace metal lockers that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by locker manufacturer.

END OF SECTION 105113

SECTION 274116 - INTEGRATED AUDIO-VIDEO SYSTEMS AND EQUIPMENT

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. The work under this section includes all final design, all labor, material, equipment, supplies, control and audio system programming, Speaker Alignment, testing, transportation and accessories required to furnish and install a complete-seamless, integrated Audiovisual Systems (AVS) as indicated on the drawings and as specified herein. The AVS shall be defined as all cables, equipment, products, etc., as indicated on the drawings, and mentioned in these specifications. Unless otherwise specified, all AV Equipment shall be Owner Furnished and Owner Installed (O.F.O.I.)
- B. It is the intent of the Drawings and Specifications, for the Contractor to design, provide and install a complete, fully operational, and tested system.
- C. All miscellaneous system components including, but not limited to, plenum cables, speakers, signal converters, interface panels and components, termination equipment, patch panels, backboards, converters, matrix switchers, digital video extenders, controllers, digital signal processors, amplifiers, pre-amps, custom faceplates, mounting hardware, fasteners, racks, cabinets, and any other related items shall be furnished and installed complete under this section, such that the system shall perform all functions listed herein in compliance with all of the specified requirements.
- D. Schedule is paramount to the project's success. With this, the Contractor will have to be a team player, continually working with the team to facilitate expeditious design, procurement, and construction processes.
- E. Project Summary –
 - 1. Machine Tooling MM 140
Machine Tooling room shall receive a multi-media presentation system. There shall be a display system that shall have a wall mounted LED display. The sources to the display shall be from laptop computer inputs, local PC computer, document camera, mobile camera and wireless presentation gateway. There shall be a wireless microphone system for voice reinforcement with a hand-held microphone and over the ear microphone. Sound shall be heard through ceiling mounted pendant speakers and an ADA compliant ALS output connection panel for use with portable ALS systems. The system shall be controlled through a lectern top touch panel interface. The system equipment shall be housed in an instructor's workstation/desk with built-in rack.
 - 2. Computer Lab MM 145 and General Classroom MM 163, Typical
Computer Lab shall receive a multi-media presentation system. There shall be a display system that shall have a ceiling mounted projector and a motorized ceiling mounted projection screen. The sources to the projector shall be from laptop computer inputs, local PC computer, document camera and wireless presentation gateway. Sound shall be heard through ceiling mounted speakers and an ADA compliant ALS output connection panel for use with portable ALS systems. The system shall be controlled through a lectern top touch panel interface. The system equipment shall be housed in an instructor's workstation/desk with built-in rack.

3. **Multidisciplinary Lab MM146**
Multidisciplinary Lab shall receive a multi-media presentation system. There shall be a display system that shall have four (4) wall mounted LED displays. The sources to the display system shall be from laptop computer inputs, local PC computer, document camera and wireless presentation gateway. Sound shall be heard through ceiling mounted pendant speakers, wall mounted speakers located on walls near the displays, and an ADA compliant ALS output connection panel for use with portable ALS systems. The system shall be controlled through a lectern top touch panel interface. The system equipment shall be housed in an instructor's workstation/desk with built-in rack.
4. **HVAC MM147**
HVAC room shall receive a multi-media presentation system. There shall be a display system that shall have three (3) ceiling, pole mounted LED displays. The sources to the displays shall be from laptop computer inputs, local PC computer, document camera, mobile camera and wireless presentation gateway. There shall be a wireless microphone system for voice reinforcement with a hand-held microphone and over the ear microphone. Sound shall be heard through ceiling mounted pendant speakers and an ADA compliant ALS output connection panel for use with portable ALS systems. The system shall be controlled through a lectern top touch panel interface. The system equipment shall be housed in an instructor's workstation/desk with built-in rack.
5. **Construction Technology MM159**
Construction Technology room shall receive a multi-media presentation system. There shall be a display system that shall have four (4) wall mounted LED displays, in environmentally protective cases. The sources to the display shall be from laptop computer inputs, local PC computer, document camera, mobile camera and wireless presentation gateway. There shall be a wireless microphone system for voice reinforcement with a hand-held microphone and over the ear microphone. Sound shall be heard through wall mounted speakers inside Lab and outdoor rated speakers wall mounted facing work yard, and an ADA compliant ALS output connection panel for use with portable ALS systems. The system shall be controlled through a lectern top touch panel interface. The system equipment shall be housed in an instructor's workstation/desk with built-in rack.

1.2 RELATED WORK, STANDARDS, DOCUMENTS AND PUBLICATIONS

- A. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and sections of all Divisions of these specifications.
- B. All applicable portions shall apply to this section as though written herein completely.
- C. Contractor is responsible to reference all Architectural, Mechanical, Electrical, and Structural Drawings for additional information about pathways and or obstructions.

1.3 GENERAL REQUIREMENTS

- A. **Manufacturer:** The term "manufacturer" shall be defined as the company, or group of companies, that produces the products meeting the requirements of Section 2 of this document. The manufacturer shall have a minimum of ten (10) year experience in manufacturing products of this type and shall be ISO 9001 Certified.
- B. **Contractor:** The term "contractor" shall be defined as the company, or group of companies, that installs the products per Section 3 of this document. The contractor selected to provide the installation of this system shall be certified by the manufacturer in all aspects of design, installation and testing of the products described herein.

1. The Contractor shall hold a valid State of California C-7 Low-Voltage license, shall have completed at least ten (10) projects of equal scope, shall have been in business of furnishing and installing systems of this scope and magnitude for at least five (5) years, and capable of being bonded to assure the Owner's Project Manager of performance and satisfactory service during the guarantee period.
2. The Contractor shall hold all other licenses required by the legally constituted authorities having jurisdiction over the work.
3. All work shall be performed under the supervision of a company accredited by the manufacturer and such accreditation must be presented.
4. The Contractor shall be a manufacturer's authorized distributor and warrantee station for the equipment offered and shall maintain a fully equipped service organization capable of furnishing adequate repair service to the equipment. The Contractor must be certified by the manufacturer a minimum of 180 days prior to bid opening.
5. The Contractor selected for this Project must adhere to the engineering, installation and testing procedures and utilize the authorized manufacturer components and distribution channels in provisioning this Project.
6. Personnel: Use adequate numbers of skilled workers who are thoroughly trained and experienced with the specified requirements and the methods needed for proper performance of the AV systems installation work specified herein.
7. Designated Project Engineer: Provide a designated Project Engineer in responsible charge of the Design, CAD, In-House testing and on the on-site commissioning of the Project during all phases of the work of this specification. This Project Engineer shall hold a current AVIXA (InfoComm) CTS-D and Extron AV Associate, certifications minimum and shall be the same individual through the execution of the work unless illness, loss of personnel, or other circumstances reasonably beyond the control of the Contractor intervene.
8. Technicians: shall have at least three (3) years direct experience in similar work. The AVS technicians assigned to this project shall be fully trained, qualified and carry valid and current industry certifications regarding the, installation, operation and testing of audiovisual systems. At least one AVIXA (InfoComm) CTS-I or CTS and Extron AV Associate certifications shall be assigned as Lead Technician to the project.
9. Custom Control System Programmer: Provide at least one (1) full time programmer on staff, capable of on-site custom programming of the custom remote-control system specified herein. Control System Programmer to hold the following certifications: AVIXA (InfoComm) CTS, and Extron Professional Programmer certifications. A programming Sub-Contractor may be used as long as the Programmer has the certifications as listed above.
10. Designated Project Manager: Provide a designated Project Manager in responsible charge of the fabrication shop and on the Project Site during all phases of installation and testing of the work of this specification. The Project Manager shall hold current AVIXA (InfoComm) CTS and shall be the same individual through the execution of the work unless illness, loss of personnel, or other circumstances reasonably beyond the control of the Contractor intervene.

1.4 QUALITY ASSURANCE

- A. To maintain a high degree of quality assurance, the Contractor shall, without exception, use the parts and supplies as specified on the drawings and in this specification.
- B. For any proposed product substitution or when the Contractor intends to include an "or equal" product in the bid pricing, provide a substitution request submittal to the Owner's Project Manager for review no later than fifteen (15) calendar days prior to Bid submittal. This report shall include:
 1. Description of how the proposed product(s) will impact meeting the project completion date, indicate item(s) with lead times and expected delivery date(s).
 2. Itemized cost comparisons between the proposed product(s) and the listed product(s).

3. Detailed technical analysis of the electrical and mechanical specification differences between the proposed product(s) and the listed product(s).
 4. ETL "Verified" or UL "Verified" test lab documentation for the proposed product(s), component(s) and assemblies.
 5. Proposed product identification, manufacturer literature (specifications and cut sheets).
 6. Name, address and contact information of several similar projects where the proposed product(s) have been used.
 7. Name, address and contact information of the proposed product(s) manufacturer's local representative.
 8. Sample proposed product(s) manufacturer's warranty.
- C. The Owner's Design Team/Project Manager must approve any proposed product(s) substitution item in writing. The Owner's Design Team/Project Manager reserves the right to require a complete sample of any proposed product(s) and may request a sample tested by an independent testing consultant to prove equality. The decision of the Owner's Design Team/Project Manager regarding equality of proposed product(s) items will be final.
- D. If a proposed product(s) is given final acceptance by the Owner's Project Manager, the Contractor shall reimburse the Owner's Design Team/Project Manager for the costs to review the proposed product(s) substitution(s), and for any additional engineering charges, and shall pay all charges of other trades resulting from this product(s) use, at no cost to the Owner.
- E. It is a mandatory requirement that a single Contractor perform the work described in this specification.

1.5 BID SUBMITTAL REQUIREMENTS

- A. Pre-Qualification Certificates: Provide current training certificates for design, engineering, installation and testing of the proposed products.
- B. Manufacturer Tests: Contractor shall submit all manufacturer test information prior to installation. If equivalent product(s) are substituted, the equivalent product(s) must show demonstrated and documented equivalence to the product(s) specified.
- C. Bid Forms: Contractor shall submit completed the detailed bid forms provided with this specification. Lump sum bids will not be accepted.
- D. Project Narrative: Contractor shall submit a summary of the scope of work, in Contractor's own words, illustrating a complete and thorough understanding of the project. The narrative shall include, but not be limited to room by room scope of work, project staffing and duration, quality assurance procedures and methodology, problem escalation procedures, and project schedule.
- E. Proposed Solution: The Contractor shall provide manufacturers cut-sheets for all the proposed materials that meet the requirements listed / described in Section 2 of this specification. On each cut sheet, provide an indicating arrow next to each part number of proposed material.
- F. A resume of qualification shall be submitted with the Contractor's bid indicating the following:
1. The Contractor shall hold a valid State of California C-7 Low-Voltage license, shall have completed at least ten (10) projects of equal scope, shall have been in business of furnishing and installing systems of this scope and magnitude for at least five (5) years, and capable of being bonded to assure the Owner's Project Manager of performance and satisfactory service during the guarantee period.
 2. The Contractor shall hold all other licenses required by the legally constituted authorities having jurisdiction over the work.

- 3. A technical resume of experience for the Contractor's Project Manager who will be assigned to this project. This individual will remain as Project Manager for the duration of the project. The Contractor may change Project Managers only with the Owner's Project Manager's written approval.
 - 4. All personnel performing work on this project must have successfully completed the manufacturer's installation training course prior to performance of any work on this project. Accreditation will consist of individual employee certifications issued by the manufacturer. Copies of certification of such training must be presented prior to any work performed on this project. A list of technical product installation training attended by the Contractor's personnel within the past two (2) years that will install the Contractor shall be submitted with the response.
- G. The Contractor shall furnish a letter from the manufacturer, which certifies that the contractor is the Authorized Distributor and that the equipment shall be installed according to manufacturer intended practices. The Contractor shall also furnish a written guarantee from the manufacturer that they will have a service representative assigned to this area for the life of the equipment.
- H. The Contractor shall submit a detailed Bill of Materials developed for the project. The Bill of Materials shall contain a complete list of every component, part or device by part description, manufacturer and manufacturer's part number, quantity and unit of measure. See example format below. Product cut sheets shall be organized to match the order listed in the bill of materials. All cut sheets shall be numbered sequentially with matching page numbers indicated on the Bill of Materials. If more than one-part number appears on a cut sheet, Contractor shall identify the proposed part with a RED arrow or RED circle.

Description	MFG & Part #	Quantity	Unit of Measure	Price
Speaker	Extron	1	Each	\$

- I. This information may be used by the Owner to evaluate the Contractor's general understanding of the project scope during the bid evaluation. Errors/Omissions from this bill of material do not relieve the AVS contractor from providing all material, components, labor, etc., as outlined in this specification and on the drawings to provide a complete and useable AVS system.
 - J. Provide 3 copies of the above information at bid time.
- 1.6 POST AWARD SUBMITTALS: SUBMIT WITHIN THIRTY (30) DAYS OF AWARD.

- A. Submittals shall be in three (3) deliverables, the first submittal shall be equipment cut sheets and equipment index in PDF format. The second submittal shall be electronic reproducible shop drawings including single line block drawings, equipment rack elevations, equipment locations, and mounting details (as pdf). The third submittal shall be control panel layouts, see below in paragraph G:
 - 1. A statement of sub-contractors, franchises, distributorship, dealerships, arrangements and agreements with manufacturers of equipment to be used for this work.
 - 2. Complete bill of quantities, including all material, components, devices and equipment required for this work. The bill of quantities shall be tabulated respective of each and every system as specified, in the order of the specification section 2 below, and shall contain the following information for each item listed:
 - a. Quantity
 - b. Description
 - c. Manufacturer's name and model number
 - d. Manufacturer's specification sheet

- B. Samples approved by the architect, of all finishes/materials which will be visible to the public. Including at least receptacles and controls with associated trim plate and each type of loudspeaker baffle and/or grille.
 - C. Functional Diagrams: single-line block diagram showing interconnection of all components, receptacles, terminal blocks, controls, transformers and loudspeakers in addition to the active elements. Include terminal and cable numbers, all system and component labels. Show detailed system component information including but not limited to manufacturer's name, model number, any specialized part number option and all input and output connection information, for each piece of equipment. No drawing codes shall be permitted. Provide one (1) full-scale original or photograph (not blueprint) copy for each system. All shop drawing shall follow The AVIXA (InfoComm) standard ANSI-J-STD-710 for audio, video, and control.
 - D. Equipment rack elevation drawings scaled (1-1/2" = 1'-0" or larger):
 - 1. Front Elevations: include equipment designation, manufacturer's name, model number, rack location and rack designation.
 - 2. Rear Elevations: include AC power wire-ways and route of wiring harnesses.
 - E. Samples for approval by the architect of all finishes/materials that will be visible to the public including at least receptacles and controls with associated trim plate and each type of loudspeaker baffle and/or grille.
 - F. Contractor fabricated items, detailed drawings showing all components, devices and equipment, including dimensions, component values, terminal designations, types, locations, manufacturer's name and model number.
 - G. The third submittal shall be Control Panel Layouts: Developed drawings of all control system panel layouts after meeting with the Owner to review the system functionality they are expecting.
 - 1. Prior to programming the remote-control system, the Contractor shall submit shop drawings per the project standards showing all control screen layouts, graphical user interfaces (GUI) and control descriptions of all remote-control system functions to the PM for review and comment prior to actual programming of the system. Submit in native file format and hard copy form. Shop drawings shall include control screen layouts of the touch panel pages for each venue, web page layouts (as required in Part 2 below). Submit electronic versions for PM review. The Contractor shall incorporate all PM comments into the programming of the systems.
 - 2. Prior to delivery of the systems to the job site, the Contractor shall demonstrate fully functioning systems in the Contractor's facilities that include the remote-control programming. This demonstration shall coincide with the PM's Representative observation of completed sub-assemblies. The PM will review and comment on the remote-control programming submittal, and the Contractor shall incorporate all PM comments into the programming of the systems.
- 1.7 GENERAL SYSTEM PRODUCT, INSTALLATION AND OVERALL SYSTEM WARRANTY
- A. Prior to Owner acceptance, the Contractor shall provide to the Owner's Project Manager, a manufacturers product and performance warranty. This will require a submittal of the required pre-job certification registration forms as well as the required project closing information. The Owner will only acknowledge acceptance upon submittal of a valid manufacturer's warranty.
 - B. Manufacturer's Site Certifications will not be accepted.

- C. The warranty shall commence from the date of the Owners final written acceptance of the completed project.
- D. All conditions for obtaining the manufacturer's warranty shall be the sole responsibility of the Contractor.
- E. The Contractor shall maintain a competent service organization and shall, if requested, submit a service maintenance agreement to the Owner after the end of the guarantee period.
- F. A typewritten notice shall be posted at the equipment rack that shall indicate the firm, address and telephone number to call when service is necessary. The notice shall be mounted in a neatly finished metal frame with a clear plastic window and securely attached to the inside of the door.

1.8 SPECIFIC SYSTEM PRODUCT, INSTALLATION AND OVERALL SYSTEM WARRANTY

- A. Prior to Owner acceptance, the Contractor shall provide to the Owner's Project Manager, a manufacturers product and performance warranty. This will require a submittal of the required pre-job certification registration forms as well as the required project closing information. The Owner will only acknowledge acceptance upon submittal of a valid manufacturer's warranty.
- B. The warranty shall commence from the date of the Owners final written acceptance of the completed project.
- C. All conditions for obtaining the manufacturer's warranty shall be the sole responsibility of the Contractor.
- D. The Contractor shall maintain a competent service organization and shall, if requested, submit a service maintenance agreement to the Owner after the end of the guarantee period.
- E. A typewritten notice shall be posted at the equipment rack that shall indicate the firm, address and telephone number to call when service is necessary. The notice shall be mounted in a neatly finished metal frame with a clear plastic window and securely attached to the inside of the door.

PART 2 - PRODUCTS AND AUDIOVISUAL SYSTEM SCOPE OF WORK

2.1 ACCEPTABLE MANUFACTURERS

- A. It is the responsibility of the bidder to ensure that the proposed product meets or exceeds every standard set forth in these specifications and the equipment's technical data sheets.
- B. The functions and features specified are vital to the operation of this facility. Therefore, inclusion of a component's manufacturer in the list of acceptable manufacturers does not release the Contractor from strict compliance with the requirements of this specification.

2.2 SYSTEM FUNCTIONS AND CAPABILITIES:

- A. The Audiovisual Systems (AVS) equipment will be housed in the AVS rack. The AVS shall be controlled by a control system for the system functionality.
- B. The AVS shall comply with AVIXA A102.01:2017 Audio Coverage Uniformity in Listener Area.

- C. The AVS shall provide clear, natural sound uniformly distributed throughout the designated areas. The system shall utilize speakers as shown on the plans. These quantities shall be considered as the minimum quantity required. If additional speakers are needed to meet the requirements of section 2.02 sections C thru G below, the Contractor shall include all costs for added speakers in the base bid.
- D. The system shall have adequate dynamic range without audible clipping or distortion to accommodate all types of program material. Audio, Digital Signal Processing shall be employed in the designated rooms to insure smooth frequency response, high acoustical gain before feedback. When at maximum level, the system shall operate without audible distortion, rattles and buzzes. All switching shall be silent and without pops and or transients.
- E. The system frequency response shall be within +/- 2dB from a curve which is flat from 80Hz to 4kHz and decreasing 3dB per octave from a relative level of 0 dB from 4kHz to 10kHz. There shall be a minimum 12dB roll-off above 10 kHz and below 63 Hz. Uniformity of coverage of the system at seated ear height (42") shall be within +/- 3dB in the 4kHz 1/3 octave band at any seat location using pink noise as a test signal.
- F. System noise shall not exceed an equivalent input noise of -120dB based on a 20KHz-noise bandwidth. The predominant noise component in the system output under any operating condition shall be that of the input stage.
- G. The sound level capability of program material levels produced in all seats shall be at least 105dB when measured with a scaled filter. There shall be at least 6dB of amplifier headroom.
- H. The system shall provide clear audio to all areas covered by the system. Each speaker zone shall be wired discretely to the correct zone on the amplifier. See AVS drawings for exact location.
- I. Contractor will review and assess the appropriate Lens Throw length between the video projectors and the projection screens to ensure optimum picture sizing and focus. Make all adjustments necessary, including projector keystone correction (if the projector cannot be placed in the optimum location) and lens shift to achieve the image size and shape required.
- J. Provide full video projector calibration and adjustments for optimal picture quality for all used inputs. Provide proper aspect ratio configuration for 16:9 and 16:10 sources. Set all projector configuration presets required for control system recall coordination and provide with final system documentation.
- K. Verify image Contrast to perform to AVIXA (INFOCOMM) 3M-2011, Projected Image System Contrast Ratio.
- L. Provide full flat panel monitor display calibration and adjustments for optimal picture quality for a single HDMI, DisplayPort (DP) or DVI-D input. Provide proper aspect ratio configuration for 16:9 and 16:10 sources. Use a test generator (I.E. Extron VTG Series, Hall Research PGA-VHD, or Teledyne 780): for all setup verification, and verify proper image configuration with the all inputs. (Contract the Owner's Technical Representative prior to final adjustment to coordinate).
- M. Controls: Adjust all controls to achieve the specified performance. Provide covers for all level controls, as appropriate to prevent unauthorized gain changes. Contractor will confirm that all control system operations are properly programmed and repeatable.
- N. Testing Report: Provide a letter/report documenting the results of these preliminary tests, including amplifier gain/level settings, DSP Gain & EQ filter settings, and AV equalization curves for review by the AV Design Consultant.
- O. See wiring device section of this specification for wiring device plate cover labeling requirements.

- P. See drawings for panel board schedule directory installation requirements.
- Q. See conduit installation section of this specification for conduit labeling requirements.
- R. Software Programming
1. General
 - a. Except when otherwise agreed in writing the client shall retain legal and beneficial ownership of all Intellectual Property, including source code, created by the Contractor, their employees and sub-Contractors.
 - b. The Contractor must allow sufficient time for the programming of all software configurable audio, video and control systems. Contractors must evaluate the systems functional requirements and user interface and then allow time in their bid accordingly. The system description as well as the end user interview will provide the Contractor with the necessary information needed to proceed with the programming. Any questions as to the systems functional requirements must be sent in written RFI form to the Owner and Consultant. All programming schemes must be submitted to the Owner and Consultant for approval before programming starts. This includes the appearance of all user interfaces, touch panel layouts, preset and sub-preset information (acquired through client interviews), and speaker control schemes. The Contractor will also submit a narrative for the control system concept to the Consultant for approval. The Contractor is to interview the Owner and their representatives to acquire the necessary information needed to allow for the proper programming of this system. The Contractor, after interviewing the Owner, will then submit a written report stating his interpretation of the Owner's requirements for approval by Consultant. Only after the Owner and Consultant have approved the programming report may the Contractor proceed with the programming of this system.
 - c. All equipment that is connected to the Owner's local area network and is configurable via the local area network must have its equipment software installed onto Owner furnished dedicated computers by the owners Information Technology Staff unless otherwise indicated. The Contractor is to allot time to test equipment software loaded on the Owner's computers which are to be identified by the Owner and/or Consultant. The computers will be programmed to emulate user interfaces throughout the facility. The Contractor shall coordinate all software deployment over IP with the Owner's Information technology department.
 - d. Control system minimum programming outlined below:
 - 1.) The Contractor shall allot time, as needed for on-site control system programming with the Owner representative.
 - 2.) All serial controlled devices must have bi-directional communication with the control system. All control functions locally available on each device must be accessible via the remote-control system. All locally gestured control functions must mirror on the control system user interface. In other words, if a volume control is adjusted on a DSP interface that adjustment must register on the control interface.
 - 3.) Control system shall be used to power up and down connected equipment where indicated. The control system shall control the volume levels for the program audio, wireless microphones if applicable, select video sources and media input panel (MIP) in the floor boxes and wall plates, transport and control functionality for playback equipment from the wall mounted 7" and 5" and a table top 7" LCD control panel in the room. The control panel may require a POE injector located in the AV rack or behind the display.

2.3 AUDIOVISUAL SYSTEM PRODUCTS

- A. The system shall utilize AV products as shown on the Plans and listed below. These products shall be considered to be the minimum quantity, performance, functionality and quality levels. If additional and/or upgraded components are needed to meet the performance requirements of this specification, the Contractor shall include all costs for such added and/or upgraded components in the base bid. Unless otherwise specified, AV equipment shall be Owner Furnished, Contractor Installed, (O.F.C.I.). **Owner Installed (O.F.O.I.)**

NOTE: All displays **and projectors** are to be O.F.O.I. the GC to provide infrastructure. ~~Speakers are to be C.F.C.I. Projection Screens and Projector mounts are to be C.F.C.I.~~ **All Speakers, Projection Screens, Projector and display mounts are to be C.F.C.I.**

B. Machine Tooling MM 140

1. Display System:
 - a. DISP1-1, 1-Each, Panasonic TH-75EQ1U, 75" Large Format 4K Professional Display.
 - b. 1-Each, Chief Mfg. XSM1U, X-Large Fusion Micro-Adjustable Fixed Wall Display Mount. **(C.F.C.I.)**
2. Digital Video System:
 - a. DTPSWT1-1, 1-Each, Extron IN1608xi IPCP MA 70, Eight Input HDCP-Compliant Scaling Presentation Switcher with DTP Extension, Amplifier & Control Processor.
 - b. DTPTX1-1, 1-Each, Extron DTP2 T 211, 4K/60 HDMI DTP2 Transmitter with Audio Embedding.
 - c. DTPTX2-1, 1-Each, Extron DTP T DWP 4K 232 D, Two Input DTP Transmitter for DisplayPort and HDMI with Audio Embedding - Decorator-Style Wall plate.
 - d. DTPRX1-1, 1-Each, Extron DTP2 R 211, 4K/60 HDMI DTP2 Receiver with Audio De-Embedding.
 - e. WIPS1-1, 1-Each, Extron ShareLink 200, Wireless Collaboration Gateway.
 - f. PC1-1, 1-Each PC Computer with Wireless Keyboard & Mouse.
 - g. BD1-1, 1-Each, Denon Pro DN-500BD, Blu-ray, DVD, and CD media Player.
3. Audio:
 - a. SPKR1-1 to SPKR1-15, 15-Each, Extron SF 26PT, SoundField XD 6.5" Two-Way Pendant Ceiling Speaker. Contractor Furnished, Contractor Installed. (C.F.C.I.)
 - b. SPKR2-1 to SPKR2-4, Extron SF 26CT, SoundField XD 6.5" Two-Way Ceiling Speaker with 8" Composite Back Can and 70/100 V Transformer, White. **(C.F.C.I.)**
 - c. WMRX1-1, 1-Each Shure QLXD124/58 Wireless Microphone System Combo with hand held microphone, belt pack with lapel microphone.
 - d. MIC1-1, 1-Each Shure WH20TQG, Includes miniature 4-pin female connector for Shure bodypack transmitters.
 - e. AMP1-1, 1-Each, Extron XPA 2001 Power Amplifier
 - f. Shelf, 1-Each, Extron RSB 129, Basic Rack Shelf for 9.5" Deep Products.
4. Control:
 - a. TP1-1, 1-Each, Extron TLP Pro 725T, 7" Tabletop TouchLink Pro Touchpanel.
5. Assistive Listening System
 - a. ALS1-1, 1-Each, Custom Rack Panel, 1/8" THICK, with 1/8" TRS Jack, and laser engraved: "ASSISTIVE LISTENING SYSTEM OUTPUT".
6. Misc.:
 - a. 1-Each, Presenter Lectern, with equipment rack and metal door.
 - b. 1-Each, Furman PL-PLUS C, 15A Power Conditioner with Lights, Voltmeter. 1-Each, Presenters Lectern with equipment rack & door.

C. Computer Lab MM 145 and General Classroom MM 163, Typical

1. Display System:
 - a. PROJ1-1, 1-Each, Panasonic PT-RZ660, 6,000 Lumens WUXGA Projector and Lens.
 - b. 1-Each, Chief Mfg. CMA-115, Ceiling Mounting Plate. Contractor Furnished, Contractor Installed. (C.F.C.I.)
 - c. 1-Each, Chief Mfg. RPMAU Elite Universal Projector Mount with Keyed Locking. Contractor Furnished, Contractor Installed. (C.F.C.I.)
 - d. 1-Each, Chief Mfg. CMA347, Vibration Isolating Coupler. (C.F.C.I.)
 - e. SCN1-1, 1-Each, Da-Lite Tensioned Advantage Electrol, 65" x 104", (123" Diagonal) projection screen, matte white with Low Motor Controller and Low Voltage Control Switch. Contractor Furnished and Contractor Installed. (C.F.C.I.)
2. Digital Video System:
 - a. DTPSWT1-1, 1-Each, Extron IN1608xi IPCP MA 70, Eight Input HDCP-Compliant Scaling Presentation Switcher with DTP Extension, Amplifier & Control Processor.
 - b. DTPTX1-1, 1-Each, Extron DTP2 T 211, 4K/60 HDMI DTP2 Transmitter with Audio Embedding.
 - c. DTPRX1-1, 1-Each, Extron DTP2 R 211, 4K/60 HDMI DTP2 Receiver with Audio De-Embedding.
 - d. WIPS1-1, 1-Each, Extron ShareLink 200, Wireless Collaboration Gateway.
 - e. PC1-1, 1-Each PC Computer with Wireless Keyboard & Mouse.
 - f. BD1-1, 1-Each, Denon Pro DN-500BD, Blu-ray, DVD, and CD media Player.
3. Audio:
 - a. SPKR1-1 to SPKR1-4, 4-Each, Extron SF 26CT, SoundField XD 6.5" Two-Way Ceiling Speaker with 8" Composite Back Can and 70/100 V Transformer, White. Contractor Furnished, Contractor Installed. (C.F.C.I.)
4. Control:
 - a. TP1-1, 1-Each, Extron TLP Pro 725T, 7" Tabletop TouchLink Pro Touchpanel.
5. Assistive Listening System
 - a. ALS1-1, 1-Each, Custom Rack Panel, 1/8" THICK, with 1/8" TRS Jack, and laser engraved: "ASSISTIVE LISTENING SYSTEM OUTPUT".
6. Misc.:
 - a. 1-Each, Presenter Lectern, with equipment rack and metal door.
 - b. 1-Each, Furman PL-PLUS C, 15A Power Conditioner with Lights, Voltmeter. 1-Each, Presenters Lectern with equipment rack & door.

D. Multidisciplinary Lab MM146

1. Display System:
 - a. DISP1-1 thru DISP1-4, 4-Each, Panasonic TH-65EQ1U, 65" Large Format 4K Professional Display.
 - b. 4-Each, Chief Mfg. LSM1U, Large Fusion Micro-Adjustable Fixed Wall Display Mount. (C.F.C.I.)
2. Digital Video System:
 - a. DTPSWT1-1, 1-Each, Extron IN1608xi IPCP MA 70, Eight Input HDCP-Compliant Scaling Presentation Switcher with DTP Extension, Amplifier & Control Processor.
 - b. DTPTX1-1, 1-Each, Extron DTP2 T 211, 4K/60 HDMI DTP2 Transmitter with Audio Embedding.
 - c. DTPRX1-1 TO DTPRX1-4, 4-Each, Extron DTP2 R 211, 4K/60 HDMI DTP2 Receiver with Audio De-Embedding.
 - d. DTPDA1-1, 1-Each, Extron DTP HD DA4 4K 230, DTP Distribution Amplifier.
 - e. WIPS1-1, 1-Each, Extron ShareLink 200, Wireless Collaboration Gateway.
 - f. PC1-1, 1-Each PC Computer with Wireless Keyboard & Mouse.
 - g. BD1-1, 1-Each, Denon Pro DN-500BD, Blu-ray, DVD, and CD media Player.

- h. DTPDA1-1, 1-Each, Extron DTP HD DA 4K 230, Four Output DTP Distribution Amplifier.
- i. CAM1-1, Owner furnished mobile camera
- 3. Audio:
 - a. SPKR1-1 to SPKR1-12, 12-Each, Extron SF 26PT, SoundField 6.5" Two-Way Pendant Speaker. Contractor Furnished, Contractor Installed. (C.F.C.I.)
- 4. Control:
 - a. TP1-1, 1-Each, Extron TLP Pro 725T, 7" Tabletop TouchLink Pro Touchpanel.
- 5. Assistive Listening System:
 - a. ALS1-1, 1-Each, Custom Rack Panel, 1/8" THICK, with 1/8" TRS Jack, and laser engraved: "ASSISTIVE LISTENING SYSTEM OUTPUT".
- 6. Misc.:
 - a. 1-Each, Presenter Lectern, with equipment rack and metal door.
 - b. 1-Each, Furman PL-PLUS C, 15A Power Conditioner with Lights, Voltmeter. 1-Each, Presenters Lectern with equipment rack & door.
 - c. 1-Each, Custom Connection Plate for Video Camera.

E. HVAC Room MM147

- 1. Display System:
 - a. DISP1-1 to DISP1-3, 3-Each, Panasonic TH-65EQ1U, 65" Professional Display.
 - b. 3-Each, Chief Mfg. CMA-1156, ceiling mounting plate. Contractor furnished, Contractor Installed. (C.F.C.I.)
 - c. 3-Each, Chief Mfg. LCM1U, FUSION Large Flat Panel Ceiling Mount. Contractor furnished, Contractor Installed. (C.F.C.I.)
- 2. Digital Video System:
 - a. DTPSWT1-1, 1-Each, Extron IN1608xi IPCP MA 70, Eight Input HDCP-Compliant Scaling Presentation Switcher with DTP Extension, Amplifier & Control Processor.
 - b. DTPTX1-1, 1-Each, Extron DTP2 T 211, 4K/60 HDMI DTP2 Transmitter with Audio Embedding.
 - c. DTPRX1-1 TO DTPRX1-3, 3-Each, Extron DTP2 R 211, 4K/60 HDMI DTP2 Receiver with Audio De-Embedding.
 - d. WIPS1-1, 1-Each, Extron ShareLink 200, Wireless Collaboration Gateway.
 - e. PC1-1, 1-Each PC Computer with Wireless Keyboard & Mouse.
 - f. BD1-1, 1-Each, Denon Pro DN-500BD, Blu-ray, DVD, and CD media Player.
 - g. DTPDA1-1, 1-Each, Extron DTP HD DA 4K 230, Four Output DTP Distribution Amplifier.
- 3. Audio:
 - a. SPKR1-1 to SPKR1-9, 9-Each, Extron SF 26PT, SoundField XD 6.5" Two-Way Pendant Ceiling Speaker, Contractor Furnished and Installed. (C.F.C.I.)
 - b. WMRX1-1, 1-Each Shure QLXD124/58 Wireless Microphone System Combo with hand held microphone, belt pack with lapel microphone.
 - c. MIC1-1, 1-Each Shure WH20TQG, Includes miniature 4-pin female connector for Shure bodypack transmitters.
- 4. Control:
 - a. TP1-1, 1-Each, Extron TLP Pro 725T, 7" Tabletop TouchLink Pro Touchpanel.
- 5. Assistive Listening System
 - a. ALS1-1, 1-Each, Custom Rack Panel, 1/8" THICK, with 1/8" TRS Jack, and laser engraved: "ASSISTIVE LISTENING SYSTEM OUTPUT".
- 6. Misc.:
 - a. 1-Each, Presenter Lectern, with equipment rack and metal door.
 - b. 1-Each, Furman PL-PLUS C, 15A Power Conditioner with Lights, Voltmeter. 1-Each, Presenters Lectern with equipment rack & door.

F. Construction Technology Lab MM159

1. Display System:
 - a. DISP1-1 to DISP1-4, 4-Each, Panasonic TH-65EQ1U, 65" Large Format 4K Professional Display.
 - b. 4-Each, TV Shield Pro XX Large, Outdoor Digital Signage and Weatherproof TV Cabinet. **(C.F.C.I.)**
2. Digital Video System:
 - a. DTPSWT1-1, 1-Each, Extron IN1608xi IPCP MA 70, Eight Input HDCP-Compliant Scaling Presentation Switcher with DTP Extension, Amplifier & Control Processor.
 - b. DTPTX1-1, 1-Each, Extron DTP2 T 211, 4K/60 HDMI DTP2 Transmitter with Audio Embedding.
 - c. DTPRX1-1 TO DTPRX1-4, 4-Each, Extron DTP2 R 211, 4K/60 HDMI DTP2 Receiver with Audio De-Embedding.
 - d. WIPS1-1, 1-Each, Extron ShareLink 200, Wireless Collaboration Gateway.
 - e. 1-Each, Extron RSB 129, Basic Rack Shelf for 9.5" Deep Products.
 - f. PC1-1, 1-Each, PC Computer with Wireless Keyboard & Mouse.
 - g. BD1-1, 1-Each, Denon Pro DN-500BD, Blu-ray, DVD, and CD media Player.
 - h. DTPDA1-1, 1-Each, Extron DTP HD DA 4K 230, Four Output DTP Distribution Amplifier.
3. Audio:
 - a. SPKR2-1 to SPKR2-8, 8-Each, Extron SM 26T, Speed Mount Two-Way Surface Mount Speakers with 6.5" Woofer, White. Contractor Furnished, Contractor Installed. **(C.F.C.I.)**
 - b. ~~SPKR3-1 and SPKLR3-2, 2 Each, QSC AD-S10T, 10-inch 2-way, 90° conical DMT Outdoor Rated Wall mount speakers. Contractor Furnished and Contractor installed.~~ **(C.F.C.I.)**
 - c. AMP1-1, 1-Each, Extron XPA-2002 Power Amplifier.
 - d. 1-Each, Extron RSB 129, Basic Rack Shelf for 9.5" Deep Products.
 - e. WMRX1-1, 1-Each Shure QLXD124/58 Wireless Microphone System Combo with hand held microphone, belt pack with lapel microphone.
 - f. MIC1-1, 1-Each Shure WH20TQG, Includes miniature 4-pin female connector for Shure bodypack transmitters.
4. Control:
 - a. TP1-1, 1-Each, Extron TLP Pro 725T, 7" Tabletop TouchLink Pro Touchpanel.
5. Assistive Listening System
 - a. ALS1-1, 1-Each, Custom Rack Panel, 1/8" THICK, with 1/8" TRS Jack, and laser engraved: "ASSISTIVE LISTENING SYSTEM OUTPUT".
6. Misc.:
 - a. 1-Each, Presenter Lectern, with equipment rack and metal door.
 - b. 1-Each, Furman PL-PLUS C, 15A Power Conditioner with Lights, Voltmeter.

G. ADA-COMPLIANT ASSISTIVE LISTENING SYSTEM: A complete system shall be furnished and installed to meet the latest ADA 2016 requirements for hard-of-hearing for each system. Furnish portable receivers in as indicated in the table below. The Portable Assistive Listening System shall be integrated into and work in conjunction with the sound reinforcement systems. Mount the necessary stationary transmitters into the equipment racks or a wall cabinet and adjust as required for total coverage of seating areas Assistive Listening Transmitters shall operate in the RF or IR frequency range.

1. *Note: As per Paragraph C ADA Table 219.3 below, provide the number of receivers, ear sets, rechargeable batteries and charging units and for a fully functional and compliant Assistive Listening System per ADA requirements.
2. ADA Table 219.3 Receivers for Assistive Listening Systems

3. The following equipment to be owner furnished:
Portable Systems: Owner will supply the following equipment and use throughout the building as needed.
 - a. 3-Each, Listen Technologies LT-700-072, Portable Transmitter.
 - b. 3-Each, Listen Technologies LA-263, Line/Microphone Y cable.
 - c. 3-Each, Listen Technologies LA-278, Behind the head microphone
 - d. 17-Each, Listen Technologies LR-400-072, Portable Receiver.
 - e. 17-Each, Listen Technologies LA-164, Ear Speaker.
 - f. 17-Each, Listen Technologies LA-362, NiMH Rechargeable Batteries.
 - g. 4-Each, Listen Technologies LA-166, Hearing Aid Loop.
 - h. 4-Each, Listen Technologies LA-322, 8-unit Charging Unit/Carrying case.

Capacity of Seating in Assembly Area	Minimum Number of Required Receivers	Minimum Number or Required Receivers Required to be Hearing Aid Compatible
50 or less	2	2
51 to 200	2, plus 1 per 25 seats over 50 seats ¹	2
201 to 500	2, plus 1 per 25 seats over 50 seats ¹	1 per 4 receivers ¹
501 to 1000	20, plus 1 per 33 seats over 500 seats ¹	1 per 4 receivers ¹
1001 to 2000	35, plus 1 per 50 seats over 1000 seats ¹	1 per 4 receivers ¹
2001 and over	55, plus 1 per 100 seats over 2000 seats ¹	1 per 4 receivers ¹

4. Note: 1. or fraction thereof.

2.4 GENERAL PRODUCTS FOR SYSTEMS

A. CABLE – ALL SPACES

- B. All Cable to be Contractor Furnished, Contractor Installed and properly labeled with service 12 foot service loop at Instructor’s Station conduit collector box end.

1. HDBaseT, Digital Video Twisted Pair Cable, Extron XTP DTP 24P, Shielded Twisted Pair Cable, Plenum Rated, Extron Only, No Substitution: (Quantity as required). With Only Shielded RJ-45 Connectors, Extron Only, No Substitution.
2. Distributed Loudspeaker 18-2, 18 AWG, 2-conductor Plenum Rated (70 volt): Extron, Belden, or equal.
3. Analog Microphone/Line Level cable, 2-22 (22 AWG conductor, jacketed, shielded, twisted-pair) plenum rated: Extron, Belden or equal.

4. Control System Device Control (RS232, Relay or Contact Closure): (Dual 22 AWG shielded twisted pairs with individual drain wires; each pair is color-coded Red/Black and Green/White to simplify identification.) Plenum Rated: Extron, Belden or equal.
5. All Data Cable installed by DIV 27 Low Voltage Contractor.

PART 1 - EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

- A. The installation, configuration, and wiring of the system shall be executed in accordance with the drawings and the equipment manufacturer's wiring diagrams. Should any variations in these requirements occur, the Contractor shall notify the Owner's Project Manager before making any changes. It shall be the responsibility of the manufacturer-authorized distributor of the approved equipment to install the equipment and guarantee the system to operate as per plans and specifications.
- B. Furnish all conductors, equipment plugs, terminal strips, etc., and labor to install a complete and operable system.
- C. The cables within the rack or cabinets shall be labeled/numbered for identification following the AVIXA (InfoComm) F501.01:2015, Cable Labeling of Audiovisual Systems, standard unless otherwise directed.
- D. Splices of cables in underground pull boxes are not permitted unless otherwise noted on the drawings.
- E. The labor employed by the Contractor shall be regularly employed in the installation and repair of audiovisual systems and shall be acceptable to the Owner's Project Manager to engage in the installation and service of this system.
- F. The Contractor shall thoroughly clean all equipment and materials. All exposed parts of the equipment, cabinets, and other equipment shall be left in a clean condition, unblemished and free of all dirt, dust, smudges, spots, fingerprints, etc. The Contractor shall remove all debris and rubbish created in the course of this project. The Contractor shall thoroughly clean all buildings of any dirt, debris, rubbish, marks, etc., caused by the performance of this work.
- G. The system must meet all local and other prevailing codes.
- H. All cabling installations shall be performed by qualified technicians.
- I. All cabling shall be splice free unless otherwise noted on drawings.
- J. In order to ensure the least amount of cable untwisting, it is required that all cables shall be stripped using a special tool.
- K. The use of lubricants (i.e. Yellow 77) to facilitate the installation of cables in conduits is highly discouraged. If such a lubricant must be used, the AVS Contractor shall verify the acceptability of the lubricant to be used with the cable manufacturer, prior to using such a lubricant. Lubricants that harden after installation are not allowed.
- L. Under no circumstance are "channel locks" or other pliers to be used.
- M. Cables may be run exposed above ceilings, provided the cabling is supported independent of other utilities such as conduits, pipes, and the ceiling support systems. The Contractor shall

include all costs in base bid for any additional supports/seismic bracing required by the Local Authority having Jurisdiction. The cables shall not be laid directly on the ceiling panels. The use of hook and loop ties shall be done in accordance with the cable manufacturer's requirements. The cable jacket composition must meet local and all other prevailing fire and safety codes – "Plenum Rated" cable shall be used.

- N. All fire rated walls penetrated by Contractor shall be sealed by use of a non-permanent fire blanket or other method in compliance with the current edition of NFPA and the NEC or other prevailing code and must be a system listed by UL. The Contractor must not use concrete or other non-removable substance for fire stopping on cable trays, wire ways or conduits. Contractors who use this method will be required to replace all cables affected and provide the original specified access to each effected area. This requirement also applies to maintaining fire ratings of all floors penetrated by conduits or devices designated for use by voice and data cabling.
- O. All equipment racks shall be bolted to the floor by the Contractor in the location shown on drawings. The earthquake mounting brackets that come with each rack kit shall be screwed to studs, not drywall.
- P. Any cable damaged or exceeding recommended installation parameters during installation shall be replaced by the Contractor before final acceptance at no cost to the Owner.
- Q. The cable's minimum bend radius and maximum pulling tension shall not be exceeded.
- R. Cable raceways, when required, shall not be filled greater than 40% of cross sectional area.

3.2 SPECIFIC SYSTEM INSTALLATION REQUIREMENTS

- A. All Audiovisual cabling used throughout this project shall comply with the requirements as outlined in the NEC Articles 725, 760, 770, and 800 and the appropriate local codes. All copper cabling shall bear UL listed type CMP (Plenum Rated). All fiber optic cabling shall bear OFNP (Plenum Rated). Contractor is responsible for installing appropriately rated cable for the environment in which it is installed. For cables run outside of a building to outdoor speakers, the cable shall be Outdoor Plant Rated (OPR) or Direct Burial cable and must be run in conduit point to point. For longer cable runs between buildings fiber optic cable shall be used, the fiber cable shall be run in conduits.
- B. Cable Pathways:
 - 1. In suspended ceiling and raised floor areas where duct, cable trays or conduit are not available, the Contractor shall bundle cabling with half inch hook and loop strips, but not deforming the cable geometry. Cable bundles shall be supported via "J" hooks attached to the existing building structure and framework at a maximum of five (5) foot intervals. Plenum rated hook and loop ties will be used in all appropriate areas. The Contractor shall adhere to the manufacturers' requirements for bending radius and pulling tension of all cables.
 - 2. Cables or J hooks shall not be attached to lift out ceiling grid supports or laid directly on the ceiling grid.
 - 3. Cables or J hooks shall not be attached to or supported by fire sprinkler heads or delivery systems or any environmental sensor located in the ceiling air space.
 - 4. Where additional conduit(s)/sleeve(s) are required, but not provided by the electrical contractor, the Contractor shall be responsible to provide such conduit(s)/sleeve(s). Conduit(s) and sleeve(s) shall be of suitable material, sized, installed, fire-stopped, and grounded as required by the NEC, ANSI/TIA/EIA standards and all other applicable codes and standards. Any conduit(s) and sleeve(s) added by the Contractor shall be approved by the Owner's Project Manager prior to rough-in.

- C. The Contractor shall be responsible for damage to any surfaces or work disrupted as a result of his work. Repair of surfaces, including painting, shall be included as necessary.
- D. Rack mounted equipment shall be grounded via the chassis, in accordance with manufacturer's instructions. The equipment chassis shall be bonded to the rack/cabinet using one of the following methods:
 - 1. If the equipment has a separate grounding hole or stud, use a # 6 AWG ground wire from the chassis ground hole/stud to the rack grounding bus if required.
 - 2. If the manufacturer suggests grounding via the chassis mounting flanges, use tri-lobular thread-forming screws (not self-tapping or sheet metal screws) to attach the equipment to the rack/cabinet rails. If the equipment mounting flanges are painted, remove the paint and apply an anti-oxidant, or use tri-lobular thread-forming screws and two (2) "Type B" internal-external tooth lock washers to safely ground equipment to the rack.
 - 3. All equipment racks shall be grounded to the AC outlet box or building ground by a # 6 AWG Green ground wire attached to the Grounding lug in the rack.

3.3 GENERAL INSTALLATION DESCRIPTION

- A. The labor employed by the Contractor shall be regularly employed in the installation and repair of Audiovisual Systems and shall be acceptable to the owner and architect to engage in the installation and service of this system.
- B. The Contractor shall thoroughly clean all equipment and materials. All exposed parts of the equipment, cabinets, and other equipment shall be left in a clean condition, unblemished and free of all dirt, dust, smudges, spots, fingerprints, etc., The Contractor shall remove all debris and rubbish occasioned by the work from the site. The Contractor shall thoroughly clean all buildings of any dirt, debris, rubbish, marks, etc., Caused by the performance of this work.
- C. Labeling
 - 1. Wiring Labels: At all connection points for all types of cable & wiring, a label strip shall be attached at both ends of the cable following the AVIXA (InfoComm) F501.01:2015 Cable Labeling of Audiovisual Systems, standard unless otherwise directed, indicating the name/number of that cable or wire as follows:
 - a. At internal locations (inside racks, cabinets, or boxes), a pressure sensitive label shall be used.
 - b. At external locations, a printed label covered with clear shrink wrap or approved labeling system shall be used.
 - 2. Equipment Labels: All active components shall have labels at the front and rear.
 - a. Labels shall be applied plumb and neat and shall not cover any equipment lights, recessed controls, or control labels.
 - b. Front labels shall indicate functional use of equipment.
 - c. Rear labels shall indicate system schematic reference designation.
 - 3. Contractor Label: Contractor name plate shall be attached to a blank panel inside each equipment rack or group of racks.
 - a. Name plate shall be printed, self-adhesive type and shall be no larger than 1-3/4" high by 6" wide. Alternatively, name plate may be preprinted onto a 1RU blank panel.
 - b. Name plate shall contain Contractor's name, city/state address and phone number.

- D. Equipment Rack and Equipment Testing and Adjusting Procedures: Conduct procedures in fabrication shop following the AVIXA (InfoComm) 10:2013 Audiovisual Systems Performance Verification procedure. Verify safe and proper operation of all components, devices, or equipment, establish nominal signal levels within the systems and verify the absence of extraneous or degrading signals. Make all preliminary adjustments and document the setting of all controls, parameters of all corrective networks, voltages at key system interconnection points, gains and losses, as applicable. Submit test report with color photographs of each equipment rack, front and back. Perform at least the following procedures:
1. Preliminary: Verify:
 - a. Grounding of devices and equipment. Integrity of signal and electrical system ground connections.
 - b. Proper provision of power to devices and equipment.
 - c. Integrity of all insulation, shield terminations and connections.
 - d. Integrity of soldered connections. Absence of solder splatter, solder bridges.
 - e. Absence of debris of any kind, tools, etc.
 - f. Routing and dressing of wire and cable.
 - g. All wiring, including polarity and continuity, including conformance with wire designations on running sheets, field and shop drawings.
 - h. Mechanical integrity of all support provisions.
 - i. All wiring in racks on horizontal lacing bars and vertical cable paths shall have Velcro cable wraps, no Zip Ties shall be allowed. If Zip Ties are used, they shall be replaced at the Contractor's expense.
 2. Rig temporary power and grounding: Comply with all applicable Codes, regulations and ordinances.
 3. Determine the proper sequence of energizing systems to minimize the risk of damage. Energize. Burn in for at least 48 hours
 4. All equipment racks shall be bolted to the floor by the Contractor (unless noted) once the Owner determines the exact location for each rack. The earthquake mounting brackets that come with each rack kit shall be screwed to studs, not drywall. All equipment shall be serviceable in the rack's final location – the need to unbolt racking equipment to access or service equipment is not acceptable.

3.4 PROJECT DIRECTION

- A. Single Point of Contact: Contractor will provide a single point of contact, i.e., Project Manager, to speak for the Contractor and to provide the following functions:
1. Initiate and coordinate tasks with Owner's Project Manager, and others as specified by Owner's Project Manager.
 2. Provide day-to-day direction and on-site supervision of Contractor personnel.
 3. Ensure conformance with all Contract provisions.
 4. Participate in weekly site project meetings.
 5. This individual will remain as Project Manager for the duration of the project. The Contractor may change Project Managers only with the Owner's Project Manager's written approval.

3.5 PLANNING, ENGINEERING AND SUBMITTALS

- A. Planning meetings and schedule: Within thirty (30) calendar days after the date of award of the Contract, an initial planning meeting will be held with the successful bidder to clarify all requirements (systems, services, distribution methods, etc.), identify responsibilities, and

schedule the events that will transpire during the implementation of the project. Within one (1) week of this initial meeting, the contractor shall provide a written report and project schedule to clearly document the events and responsibilities associated with the project.

- B. Within Thirty (30) calendar days after the date of award of the Contract, the Contractor shall submit three copies of the complete submission to the Owner's Project Manager for review. The submission shall consist of four major sections with each section separated with index tabs. Each page in the submission shall be numbered chronologically and shall be summarized in the index.
1. The first section shall be the "index" which shall include the project title and address, name of the firm submitting the bid and name of the Owner.
 2. The second section shall contain the comparative specification listing, including a complete listing of the characteristics of the equipment to be furnished next to all of the specified equipment's features and functions as stated in the specifications and data sheets.
 3. The third section shall contain an original manufacturer data sheet for every component listed in the drawings or specifications.
 4. The fourth section shall contain a designation schedule for each system component location and complete "E" size (30" x 42"), unless otherwise specified, bond drawings, showing system wiring plans. The drawings shall be professionally drafted, generated on AutoDesk AutoCAD 2010 computer design software. These drawings shall also include:
- C. As-Built/Closeout Documentation: Within fifteen (15) days after the completion of work (signed off by Owner), the Contractor shall provide a complete Contractor-provided set of professionally drafted "E" size (30" x 42"), unless otherwise noted, reproducible bond as-built drawings, generated on AutoDesk AutoCAD 2014 computer design software. Contractor will supply to Owner one set of CDs containing all as-builts.
- D. As-Built Documentation Display in each equipment rack location: Within fifteen (15) days after the completion of work, the Contractor shall install a complete Contractor-provided, professionally drafted as-built floor plan in color in each equipment rack room mounting frame. Each floor plan, generated on AutoDesk AutoCAD 2014 computer design software and printed in black and white, shall depict all audiovisual jack locations in each room with an audiovisual system and all other areas. The Contractor will provide to Owner one set of CDs containing all as-built.
- E. Controls: Adjust all controls to achieve the specified performance. Provide security covers for all level controls, as appropriate to prevent unauthorized gain changes. Contractor will confirm that all control system operations are properly programmed and repeatable.
- F. Testing Report: Provide a letter/report documenting the results of these preliminary tests, including amplifier gain/level settings, crossover filter settings, and AV equalization curves for review by the Owner and the AV Design Consultant.
- G. Qualification for Acceptance: After completing preliminary testing, the Contractor shall furnish the Construction Manager with the letter/report documenting the results of the preliminary tests and five (5) copies of "as-built" wiring diagrams of the entire system including the connection numbers, and their locations. The receipt of this documentation will constitute the Contractor's acknowledgment that the installation is complete and conforms to this specification and is ready to be reviewed and tested by the Owner and the AV Design Consultant.
- H. Acceptance Test: The Consultant, Owner's Representative and/or Construction Manager will be present during the acceptance testing and require the assistance and cooperation of the Contractor. Provide personnel who participated in the actual installation and preliminary testing and adjustment of the audiovisual systems.
1. Equipment cabinet keys and any tamper-proof fastener tools must be available to the Owner and the AV Design Consultant. Delays associated with failure to access the

equipment will be back-charged to the Contractor at the AV Design Consultant's current hourly rates.

2. Each major component shall be demonstrated to function, as specified.
 3. Measurements: Further electrical and acoustical measurements may be performed at the discretion of the Owner and/or Owner's Representatives. Acoustical test equipment will be supplied by the Contractor. Such measurements may include sound pressure levels, uniformity of coverage, distortion, or other pertinent characteristics.
 4. The Contractor shall provide a laptop with all manufacturer supplied configuration software necessary for communicating with DSP Audio Matrix Mixers. A review of system settings may be required for either of the programmable units at the Owner and the AV Design Consultant's request, and settings may be adjusted if necessary.
- I. Such tests may be performed on any piece of equipment or system. If any test shows the equipment or system is defective or does not comply with the specifications, the Contractor shall perform any remedies at his expense and pay the subsequent expenses of any retesting required.
- J. Delays: If the acceptance of the system is delayed because it does not meet the specification requirements, the Contractor shall reimburse the Owner for all expenses of consultants retained to represent the Owner during the final acceptance testing. This will include costs associated with travel to the site and include reimbursable business travel expenses.

3.6 INSTALLATION

- A. All installation shall be done in conformance with ANSI/TIA/EIA and AVIXA (InfoComm) standards and manufacturers installation guidelines. The Contractor shall ensure that the maximum pulling tensions of the specified distribution cables are not exceeded and cable bends maintain the proper radius during the placement of the facilities. Failure to follow the appropriate guidelines will require the Contractor to provide, in a timely fashion, any additional material and labor necessary to properly rectify the situation to the satisfaction and written approval of the Owner's Project Manager. This shall also apply to any and all damages sustained to the cables by the Contractor during the implementation.
1. Bonding and Grounding: The Contractor shall be responsible for providing an approved ground at all racks. The Contractor shall also be responsible for ensuring ground continuity by properly bonding all appropriate cabling, closures, cabinets, service boxes, and racks. All grounds shall consist of #6 AWG copper wire and shall be supplied from an approved building ground and bonded to the main electrical ground. Grounding must be in accordance with the NEC, NFPA, ANSI-J-STD-607-A and all local codes and practices.
 2. Power Separation: The Contractor shall not place any low voltage and speaker cabling alongside power lines, or share the same conduit, channel or sleeve with in racks.
 3. Miscellaneous Equipment: The Contractor shall provide any necessary screws, anchors, clamps, hook & loop ties, distribution rings, wire molding, miscellaneous grounding and support hardware, etc., necessary to facilitate the installation of the System.
 4. Special Equipment and Tools: It shall be the responsibility of the Contractor to furnish any special installation equipment or tools necessary to properly complete the System. This may include, but is not limited to, tools for terminating cables, testing and splicing equipment for copper/fiber cables, communication devices, jack stands for cable reels, or cable winches.
 5. Labeling: The Contractor shall be responsible for printed labels for all cables and cords, distribution frames, and outlet locations, according to the specifications. No labels are to be written by hand. The labeling shall follow the AVIXA (InfoComm) F51.01:2015 standard unless otherwise directed.

3.7 DAMAGES

- A. The Contractor will be held responsible for any and all damages to portions of the building caused by it, its employees or subcontractors; including but not limited to:
1. Damage to any portion of the building caused by the movement of tools, materials or equipment.
 2. Damage to any component of the construction of spaces.
 3. Damage to the electrical distribution system.
 4. Damage to the electrical, mechanical and/or life safety or other systems caused by inappropriate operation or connections made by the Contractor or other actions of Contractor.
 5. Damage to the materials, tools and / or equipment of the Owner, its consultants, agents and leases tenants.

3.8 PENETRATIONS OF WALLS FLOORS AND CEILINGS

- A. Unless specifically shown on the drawings, the Contractor shall make no penetration of floors, walls or ceiling without the prior written approval of the Owner's Project Manager.
- B. Any penetrations through acoustical walls or other walls for cable pathways shall be sleeved by the Contractor. Sleeves shall consist of metallic conduit deburred and grommited on both ends, with flanges or other means to prevent the sleeve from slipping or falling out of the partition. Sleeves shall extend a minimum of 6" on both sides of the partition. Outside perimeter of sleeves shall be sealed against sound, air, heat, or as required by partition design. Inside of sleeve shall be sealed similarly after installation of all cabling. Cables shall be independently supported on either side of the sleeve. Sleeves shall not be used as cable supports. Additional requirements in compliance with applicable code shall apply.
- C. Any penetrations through fire-rated walls for cable pathways/cables shall be sealed by the Contractor as required by code and as directed by Owner's Project Manager. The Contractor shall be required to work together with the General Contractor and the Electrical Contractor to coordinate and develop all fire stopping methods prior to any cable installation. The Contractor shall also, prior to the commencement of on-site activities, submit to Owner's Project Manager, details of any special systems to be used.

3.9 TESTING/WARRANTY

- A. The Contractor shall provide competent, factory-trained engineers and/or technicians, authorized by the manufacturer of the AVS, to technically supervise and participate during all tests for the systems. All performance testing shall follow the AVIXA (InfoComm) 10:2013 Audiovisual Systems Performance Verification procedure.

3.10 COMPLETION OF WORK

- A. At the completion of the System, the Contractor shall restore to its former condition, all aspects of the project site and on a daily basis, shall remove all waste and excess materials, rubbish debris, tools and equipment resulting from or used in the services provided under this Contract. All clean up, restoration, and removal noted above shall be by the Contractor and at no cost to Owner. If the Contractor fails in its duties under this paragraph, Owner may upon notice to the Contractor perform the necessary clean up and deduct the costs thereof from any amounts due or to become due to the Contractor. It shall be the Contractor's responsibility to remove trash from the areas it is working in and bring trash and debris to the Contractor provided dumpster.

3.11 INSPECTION

- A. On-going inspections shall be performed during construction by the Owner's Project Manager. All work shall be performed in a quality manner and the overall appearance shall be clean, neat and orderly.

3.12 MISCELLANEOUS PROJECT REQUIREMENTS SYSTEM DOCUMENTATION, TRAINING, AND FIELD SUPPORT

- A. Operation and Maintenance Manuals: As part of the "Close Out" documents, for each system, provide five (5) copies of system manuals per system. Manuals shall be in adequately sized three-ring binders, clearly labeled on spine. Manuals shall contain the following:
 - 1. Service Reference Cover Sheet: Provide a cover sheet with Audiovisual AVS Contractor name, address, Email, WEB Address, telephone and Fax numbers.
 - 2. System Operation Instructions: Step-by-step operating instructions based on the control system touch panel (if applicable) for the basic day-to-day use of the system including power activation, connection of source devices, adjustment of volume levels, selection of sources, etc. Include illustrations and references to individual equipment manuals as necessary.
 - 3. Equipment Manuals: Include copies of individual equipment operation manuals separated by tabbed dividers. Order the manuals in nominal signal path order (i.e. sources first, amplifiers/loudspeakers last), followed by control system manuals, followed by miscellaneous manuals.
 - 4. Equipment List: List all system equipment including, connectors and specialty hardware, by manufacturer and model and serial number.
 - a. As-built Drawings: Provide reduced 11"x17" foldout "as built" functional diagrams in clear plastic binder sleeves. Fold and insert drawings so that drawing title is clearly visible at the front of the sleeve. Five (5) half or full-size drawing sets are also to be provided for clearer system reference.
 - b. Provide software programmable device configuration files to the Owner for all control system interfaces and computer-based files, and the DSP Audio Matrix Mixer. Store files on site in the system documentation binders in disk sleeves. Provide the files on CD-ROM.
- B. Training: Provide as needed system training to operator(s) designated by the Owner. Training time is to be non-contiguous, in multiple separate sessions. Training sessions are to be videotaped upon Owner request.

3.13 MISCELLANEOUS SUPPORT REQUIREMENTS

- A. Upon approval of shop drawings and equipment submittals, Contractor shall immediately place orders for all required materials, components, and supplies especially long lead items. In addition, Contractor shall secure and forward written confirmations (including orders and shipping dates) direct from each manufacturer/vendor to the Owner's Project Manager.
- B. Contractor shall expedite shipment of all materials, components and supplies, as necessary to ensure the successful completion of the Project by the date required. All costs for expediting shall be included within Contractor's pricing as provided below.
- C. The system/network cost herein shall include administration/maintenance training for at least ten Owner's representatives with a minimum allotment of sixteen hours. All training shall include written and/or video materials that shall remain the property of Owner. If materials are written,

they shall be provided in quantities sufficient for each person trained; if materials are video, one copy of each will be required. The administration/maintenance training shall include, but not be limited to, the following:

1. Review of as-built documentation, including a site demonstration.
2. All warranty information.

3.14 AV SYSTEM AND/OR NETWORK TESTING

- A. Upon completion of installation, Contractor shall execute all of the required tests as summarized in this specification. When all such tests have been completed to Owner's satisfaction and Manufacturer's specifications, Contractor shall give the Owner written notice thereof.
- B. Contractor must assume responsibility of assuring that the AV system and/or network installed operates properly, including any required coordination with other suppliers.

3.15 FINAL ACCEPTANCE

- A. The Owner or Owner's representative may visit the site during the installation of the system to ensure that correct installation practices are being followed.
- B. The Owner or Owner's representative will conduct a final job review once the Contractor has finished the job. This review will take place within one week after the Contractor notifies the owner.
- C. Two copies of all certification data and drawings for all identifications shall be provided to the Owner before the owner's review.
- D. The Owner or Owner's representative will review the installation and certification data prior to the system acceptance.
- E. The Owner or Owner's representative may test some of the systems features to ensure that the certification data is correct. If a substantial discrepancy is found, the Owner reserves the right to have an independent consultant perform a certification of the entire system. If such a procedure is undertaken, the cost of the testing will be billed back to the Contractor.
- F. In the event that repairs, or adjustments are necessary, the AVS Contractor shall make these repairs at his own expense. All repairs shall be completed within 5 days from the time they are discovered.
- G. The Contractor shall hand to the owner a copy of any applicable installation specific software configurations in CD format.

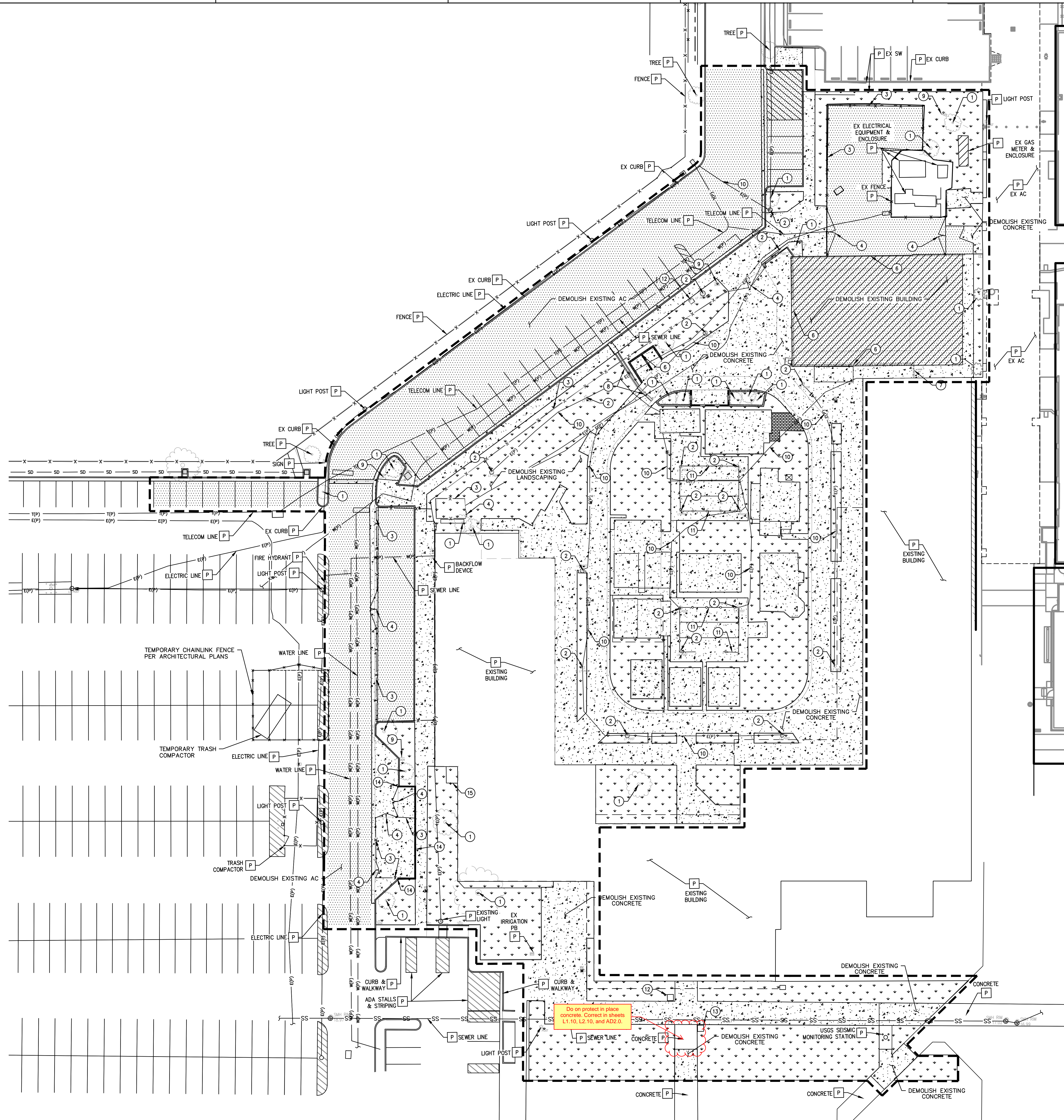
END OF SECTION 274116

ATTACHMENT TWO

SECTION III. DRAWING REVISIONS

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DEMOLITION CONSTRUCTION NOTES

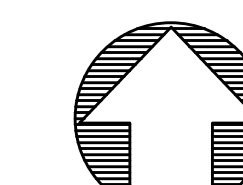
- P PROTECT IN PLACE
- 1 REMOVE EXISTING TREE
- 2 REMOVE EXISTING LIGHT POST
- 3 REMOVE EXISTING FENCE
- 4 REMOVE EXISTING GATE
- 5 REMOVE EXISTING CURB STOP
- 6 REMOVE EXISTING WALL
- 7 REMOVE EXISTING DOOR
- 8 REMOVE EXISTING STORM DRAIN
- 9 REMOVE EXISTING SIGN
- 10 REMOVE EXISTING ELECTRICAL
- 11 REMOVE EXISTING IRON FENCE
- 12 REMOVE EXISTING SIGN, NEW SIGN TO BE RELOCATED
- 13 REMOVE DIRECTIONAL SIGN
- 14 REMOVE EXISTING CMU WALL AND FOOTINGS
- 15 REMOVE COMPRESSOR EQUIPMENT PER ARCHITECTURAL PLANS (AD2.0)

DEMOLITION GENERAL NOTES:

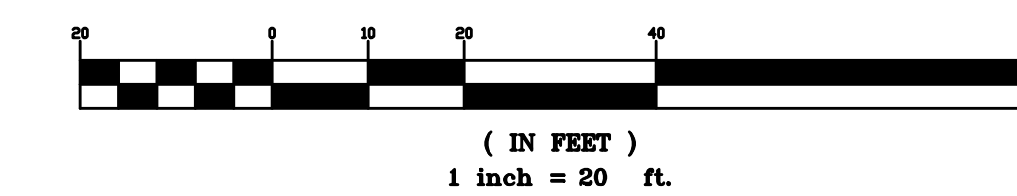
1. ALL DIMENSIONS ON THE PLANS ARE IN FEET OR DECIMALS THEREOF UNLESS SPECIFICALLY CALLED OUT AS FEET AND INCHES.
2. THIS IS NOT A STAKING PLAN BUT A CHECK AND VERIFICATION OF THE MAJOR DIMENSIONS AS SHOWN ON THE ARCHITECTURAL SITE PLAN.
3. ALL DIMENSIONS SHOWN ARE TO FACE OF CURB, FACE OF WALL, PROPERTY OR RIGHT-OF-WAY LINE, OR CENTER OF DRIVEWAYS.
4. SEE INDIVIDUAL FOUNDATION PLANS FOR ALL BUILDING DIMENSIONS.
5. THE CONSTRUCTION SURVEYOR IS RESPONSIBLE TO REPORT ANY AND ALL DISCREPANCIES TO ENGINEER PRIOR TO CONSTRUCTION.
6. CAD FILES ARE AVAILABLE UPON REQUEST FOR CONSTRUCTION STAKING.
7. SEE ARCHITECTURAL PLANS FOR ADDITIONAL DIMENSIONS

DEMOLITION GENERAL NOTES:

- REMOVE EXISTING BUILDING/STRUCTURE
- REMOVE EXISTING LANDSCAPING AND IRRIGATION
- REMOVE EXISTING CONCRETE
- REMOVE EXISTING AC PAVEMENT
- REMOVE EXISTING BRICK
- LIMIT OF DEMOLITION



GRAPHIC SCALE



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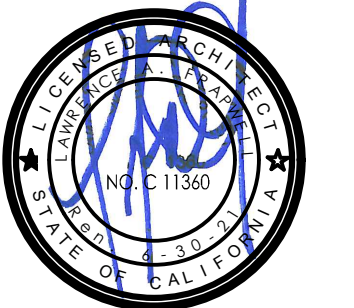
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SEALS / APPROVALS



PROJECT TITLE
**BUILDING MM - CONSTRUCTION
TRADES I**

1305 EAST PACIFIC COAST HIGHWAY
LONG BEACH CA 90806



LONG BEACH
CITY COLLEGE

SUBMITTALS	
#	DATE DESCRIPTION
1	12/09/2019 DSA RESUBMITTAL

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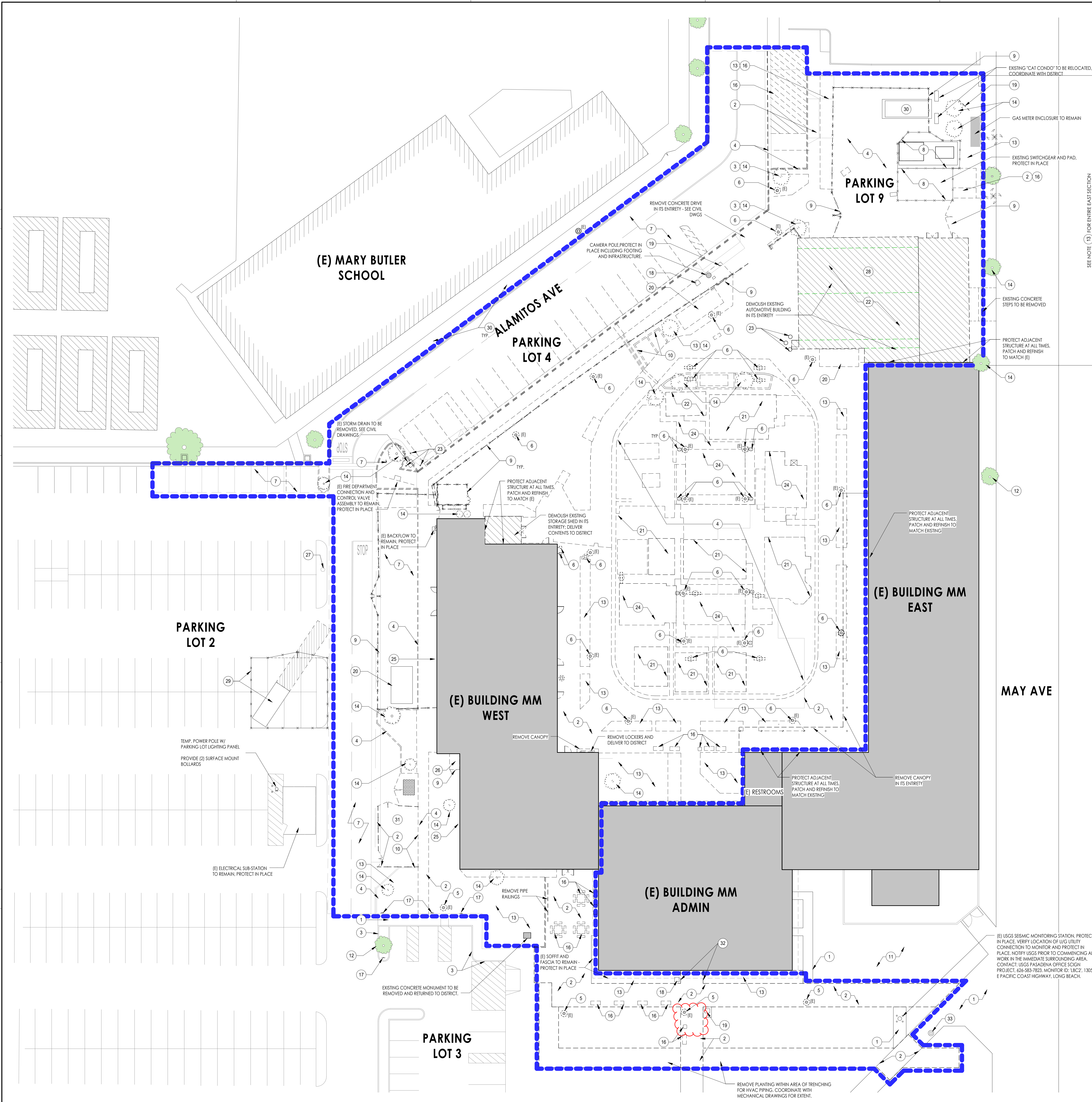
SHEET TITLE

DEMOLITION PLAN

SHEET NUMBER

C3.10

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DEMOLITION GENERAL NOTES

- CONSTRUCTION, ALTERATION, OR DEMOLITION SHALL COMPLY WITH CFC CHAPTER 33 "FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION," COMPLIANCE WITH IFPA 241 STANDARD FOR SAFEGUARDING CONSTRUCTION, ALTERATION AND DEMOLITION OPERATIONS IS REQUIRED AS REFERENCED IN CHAPTER 33.
- PATCH, REPAIR, REPAVE AND REPLANT EXISTING HARDSCAPE AND LANDSCAPE AS NEEDED AT SITE PERIMETER AREAS WHERE DEMOLITION WORK AFFECTS THE EXISTING SITE CONDITION OUTSIDE OF THE LIMIT OF WORK LINE.
- DEMOLITION WORK SHOWN ON THE DRAWINGS IS DIAGNOSTIC. ALL SITUATIONS MAY NOT BE SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE ALL ITEMS THAT WILL INTERFERE WITH NEW CONSTRUCTION. STRUCTURAL ITEMS THAT ARE TO BE REMOVED SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT THROUGH THE SIGN MANAGEMENT TEAM PRIOR TO REMOVAL.
- REFER TO THE FULL SET OF CIVIL, ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, FIRE ALARM, FIRE PROTECTION, AUDIO VISUAL, AND TELECOMMUNICATIONS PLANS FOR DEMOLITION WORK. DEMOLITION WORK SHALL INCLUDE DEMOLITION OF EXISTING STRUCTURES AS NOTED WITHIN THE CONSTRUCTION DOCUMENTS AS WELL AS THE DEMOLITION WORK REQUIRED TO CONSTRUCT THE NEW WORK IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.
- A REPRESENTATIVE OF LONG BEACH CITY COLLEGE SHALL REVIEW ALL ITEMS REMOVED AND SELECT WHICH ITEMS ARE TO BE RETURNED TO THE DISTRICT. ALL REMAINING ITEMS SHALL BE DISPOSED OF BY THE CONTRACTOR AT HIS EXPENSE.
- ITEMS WHICH ARE KNOWN TO BE A PART OF THE DEMOLITION SCOPE OF WORK MAY HAVE BEEN REMOVED PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL GIVE NOTICE TO LONG BEACH CITY COLLEGE FOR THE REMOVAL COST OF SUCH ITEMS.
- THE COLLEGE OR THE COLLEGE'S REPRESENTING CONTRACTOR SHALL FOLLOW THE PROCEDURES AND REGULATIONS SET FORTH BY C.F.C. SECTION 8707 CONCERNING ASBESTOS REMOVAL.
- EXCAVATION OR FILLS FOR BUILDINGS OR STRUCTURES SHALL BE SO CONSTRUCTED OR PROTECTED THAT THEY DO NOT ENDANGER LIFE OR PROPERTY. SLOPES FOR PERMANENT FILLS SHALL NOT BE STEEPER THAN 1 UNIT VERTICAL IN 2 UNITS HORIZONTAL (50% SLOPE). CUT SLOPES FOR PERMANENT EXCAVATIONS SHALL NOT BE STEEPER THAN 1 UNIT VERTICAL IN 2 UNITS HORIZONTAL (50% SLOPE) UNLESS SUBSTITUTING DATA. JUSTIFY STEEPER CUT SLOPES ARE SUBMITTED. CBC SECTION 3304.
- EXISTING FOOTINGS OR FOUNDATIONS WHICH MAY BE AFFECTED BY ANY EXCAVATION SHALL BE UNDERPINNED ADEQUATELY OR OTHERWISE PROTECTED AGAINST SETTLEMENT AND SHALL BE PROTECTED AGAINST LATERAL MOVEMENT. CBC SECTION 3304.
- ALL FILLS USED TO SUPPORT THE FOUNDATIONS OF ANY BUILDING OR STRUCTURE SHALL BE PLACED UNDER THE DIRECTION OF A GEOTECHNICAL ENGINEER. AND THE PLACEMENT OF THE FILL SHALL BE INSPECTED BY THE GEOTECHNICAL ENGINEER OR HIS OR HER QUALIFIED REPRESENTATIVE. IT SHALL BE THE RESPONSIBILITY OF SUCH GEOTECHNICAL ENGINEER TO SEE THAT THE PROCEDURES USED IN PLACING FILLS MEET THE REQUIREMENTS OF THE SPECIFICATIONS AND TO COORDINATE ALL FILL INSPECTION AND TESTING DURING THE CONSTRUCTION INVOLVING SUCH FILLS. CBC SEC. 3304.
- THE REQUIREMENTS FOR PROTECTION OF ADJACENT PROPERTY AND DEPTH TO WHICH PROTECTION IS REQUIRED SHALL BE AS DEFINED IN SEC. 832, CIVIL CODE. CBC SECTION 3307.
- THE WORK OF DEMOLISHING ANY BUILDING SHALL NOT BE COMMENCED UNTIL THE REQUIRED PEDESTRIAN PROTECTION STRUCTURES ARE IN PLACE. CBC SECTION 3302.
- THE DIVISION OF THE STATE ARCHITECT MAY REQUIRE THE PERMITTEE TO SUBMIT PLANS AND A COMPLETE SCHEDULE FOR DEMOLITION. WHERE SUCH ARE REQUIRED, NO WORK SHALL BE DONE UNLESS SUCH PLANS OR SCHEDULE, OR BOTH, ARE APPROVED BY THE BUILDING OFFICIAL. SEC. 3303.1.
- APPROVAL OF THE SAFETY PRECAUTIONS REQUIRED FOR BUILDINGS BEING CONSTRUCTED, ALTERED OR DEMOLISHED MAY BE REQUIRED BY THE FIRE MARSHAL. IN ADDITION TO OTHER APPROVALS REQUIRED FOR SPECIFIC OPERATIONS OR PROCESSES ASSOCIATED WITH SUCH CONSTRUCTION, ALTERATION OR DEMOLITION. C.F.C. SEC. 8703.
- SUITABLE FIREHOSE, AS REQUIRED BY THE FIRE MARSHAL, SHALL BE MAINTAINED AT THE DEMOLITION SITE. SUCH HOSE SHALL BE CONNECTED TO AN APPROVED SOURCE OF WATER AND SHALL NOT IMPEDE FIRE DEPARTMENT USE OF FIRETRUCKS. C.F.C. 8706.5.
- DEMOLITION OPERATIONS INVOLVING CUTTING AND WELDING SHALL BE IN ACCORDANCE WITH SECTION C.F.C. CHAPTER 2A.
- COMBUSTIBLE WASTE MATERIAL, TRASH, AND RUBBISH SHALL NOT BE ACCUMULATED. SUCH MATERIAL SHALL BE REMOVED FROM THE SITE AS OFTEN AS NECESSARY TO MINIMIZE THE HAZARDS THEREOF. "COMBUSTIBLE DEBRIS, RUBBISH AND WASTE MATERIAL SHALL NOT BE DISPOSED OF BY BURNING ON THE SITE UNLESS APPROVED." C.F.C. SEC. 1404.
- EGRESS ROUTES SHALL BE MAINTAINED. WHERE FIRE RESISTIVE CONSTRUCTION TEMPORARY EQUIVALENT PROVISIONS ARE REQUIRED.
- PATCH AND REPAIR SITE UTILITIES OUTSIDE OF 'LIMIT OF WORK' LINE. PER CIVIL AND MEP DRAWINGS.
- GC TO PAY AND COORDINATE WITH NICHOLS SALES & COMPACTORS (626-962-4990, CASHNINSHAKAL.COM) TO MOVE TRASH COMPACTOR TO TEMPORARY AND FINAL LOCATION. GC TO PROVIDE POWER AND INFRASTRUCTURE AT TEMP AND FINAL LOCATION. FINAL LANDING OF POWER AND CONNECTION TO COMPACTOR TO BE BY NICHOLS SALES & COMPACTORS. GC TO REMOVE TEMP POWER, TEMP FRIGHC FOOTING AT TEMP LOCATION AND PATCH ALL THE ASPHALT AND STRIPING TO RETURN THE PARKING LOT TO ITS ORIGINAL CONDITION ONCE THE COMPACTOR IS MOVED TO FINAL LOCATION.

DEMOLITION SITE PLAN KEYNOTES

- EXISTING HARDSCAPE. PROTECT IN PLACE
- DEMOLISH CONCRETE WALK TO EXTENT INDICATED. SEE CIVIL AND LANDSCAPE DRAWINGS
- EXISTING CONCRETE CURB / GUTTER. PROTECT IN PLACE
- DEMOLISH CONCRETE CURB / GUTTER. SEE CIVIL DRAWINGS
- DISCONNECT POLE AND HEAD AND RETURN TO COLLEGE DEMOLISH EXISTING BASE IN ITS ENTIRETY. REMOVE EXISTING CONDUIT BACK TO NEAREST POLE TO REMAIN. ABANDON EXISTING CONDUIT.
- DISCONNECT AND REMOVE EXISTING LIGHT, POLE AND BASE IN DEMO EXISTING BASE IN ITS ENTIRETY. DISCONNECT AND REMOVE EXISTING CONDUCTORS BACK TO SOURCE. ABANDON EXISTING CONDUIT.
- DEMOLISH ASPHALT PAVING. SEE CIVIL DRAWINGS
- (E) CHAINLINK FENCE TO REMAIN. PROTECT IN PLACE
- REMOVE FENCE AND GATES IN THEIR ENTIRETY INCLUDING FOOTINGS
- DEMOLISH MASONRY WALL IN ITS ENTIRETY INCLUDING FOOTINGS
- LANDSCAPE TO REMAIN - PROTECT IN PLACE. REPLACE / REPAIR DAMAGE DURING CONSTRUCTION
- (E) TREE TO REMAIN - PROTECT IN PLACE
- REMOVE PLANTS AND PLANTERS IN THEIR ENTIRETY. SEE LANDSCAPE DRAWINGS
- DEMOLISH TREE IN ITS ENTIRETY. SEE LANDSCAPE DRAWINGS
- (E) STORM DRAIN TO BE REMOVED. SEE CIVIL DRAWINGS
- REMOVE SITE FURNISHINGS AND DELIVER TO DISTRICT
- (E) SIGN. PROTECT IN PLACE
- (E) SIGN. REMOVE IN ITS ENTIRETY INCLUDING FOOTING AND REPLACE W/ (N) SIGN PER DISTRICT DIRECTION
- REMOVE (E) SIGNAGE IN ITS ENTIRETY INCLUDING FOOTING
- REMOVE STORAGE CONTAINER AND DELIVER TO DISTRICT
- DEMOLISH CONCRETE PAD / FOUNDATION INCLUDING FOOTINGS
- DEMOLISH WOOD CANOPY AND FENCING
- (E) BOLLARD TO BE REMOVED
- (E) STRUCTURE TO BE DEMOLISHED. DISCONNECT ALL UTILITIES. CAP ALL PLUMBING TO SOURCE
- REMOVE SURFACE MOUNTED CONDUIT AND FEEDERS BACK TO PANEL. SEE ELECTRICAL DWGS
- REMOVE COMPRESSOR EQUIPMENT. TURN OVER TO DISTRICT. DRAWINGS. REMOVE ALL COMPRESSED AIR PIPING. DEMOLISH CONCRETE EQUIPMENT PAD.
- (E) TEST HYDRANT PER SHEET F-2.0
- DEMOLISH/REMOVE HYDRAULIC LIFT IN ITS ENTIRETY INCLUSIVE (2) MOTOR OIL TANKS
- TEMP. CHAINLINK FENCE ENCLOSURE W/ PRIVACY SLATS & PADLOCK FOR TEMP. TRASH COMPACTOR DURING CONSTRUCTION
- (N) LOCATION OF TRASH COMPACTOR AFTER CONSTRUCTION. SEE 29 FOR DURING CONSTRUCTION
- (E) TRASH COMPACTOR. RELOCATE TO 29 DURING CONSTRUCTION AND TO 30 AFTER CONSTRUCTION
- REMOVE EXISTING HANDRAILS AT ENTRANCE
- EXISTING LIGHT POLE - PROTECT IN PLACE

DEMOLITION SITE PLAN LEGEND

ITEM TO BE REMOVED / DEMOLISHED - REFER TO KEYNOTES - COORDINATE WITH CIVIL, LANDSCAPE, PLUMBING, AND ELECTRICAL DWGS.

IN AREAS TO BE DEMOLISHED AS INDICATED BY KEYNOTES:

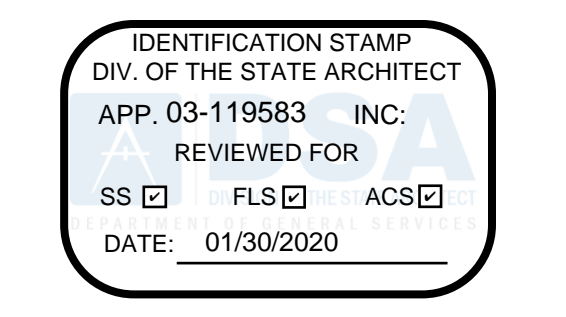
- EXISTING HARDSCAPE CONCRETE, BASE ROCK, AND REBAR TO BE REMOVED. ALL EDGES TO BE SAWCUT WITH A CLEAN EDGE, OR JOINT TO JOINT. PANEL TO PANEL. COORDINATE WITH CIVIL AND LANDSCAPE DWGS.
- SITE WALLS AND THEIR FOOTINGS TO BE REMOVED IN THEIR ENTIRETY.
- EXISTING LANDSCAPE / IRRIGATION TO BE REMOVED IN ITS ENTIRETY. REMOVE TREES, SHRUBS, AND GRASS AS NOTED INCLUDING ROOT MASS UNLESS OTHERWISE INDICATED. COORDINATE WITH DISTRICT REPRESENTATIVE PRIOR TO REMOVING ANY TREES OR IRRIGATION CONTROLS, VALVES, SENSORS, ETC. COORD WITH LANDSCAPE DRAWINGS.

LIMIT OF WORK LINE

EXISTING BUILDING TO BE DEMOLISHED (REMOVED) IN ITS ENTIRETY. REMOVE / DEMOLISH EXISTING FOUNDATION AND SLAB ON GRADE (SOG) IN ITS ENTIRETY. PROVIDE ENGINEERED FILL AS REQUIRED. REFER TO CIVIL DRAWINGS.

REFER TO CIVIL, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

EXISTING STRUCTURE TO REMAIN - PROTECT IN PLACE



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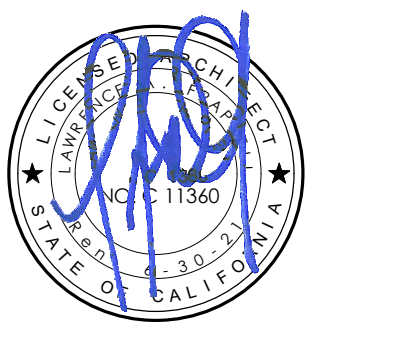
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PROJECT TITLE
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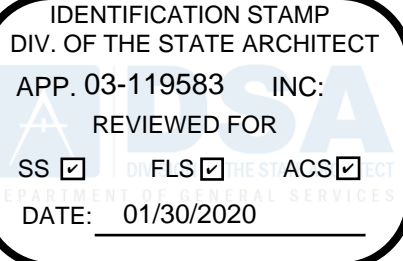
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SHEET NUMBER

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SHEET TITLE

HARDSCAPE PLAN

SHEET NUMBER

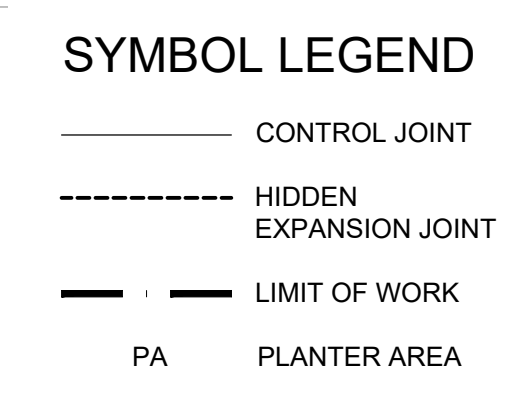
L1.10

HARDSCAPE LEGEND	
SYMBOL	DESCRIPTION
1	CONSTRUCT PEDESTRIAN RATED CONCRETE PAVING
2	CONSTRUCT VEHICULAR RATED CONCRETE PAVING
3	CONSTRUCT SAWCUT CONTRACTION JOINT
4	CONSTRUCT DOWELED CONSTRUCTION JOINT
5	CONSTRUCT NEW TO EXISTING PAVING CONNECTION
6	FURNISH AND INSTALL PEDESTRIAN RATED CONCRETE PAVERS
7	FURNISH AND INSTALL DECOMPOSED GRANITE PAVING
8	CONSTRUCT P.I.P. CONCRETE BAND AT PAVERS
9	CONSTRUCT CONCRETE PAVING AT CURB CONNECTION
10	CONSTRUCT COBBLE MAINTENANCE BAND
11	FURNISH AND INSTALL SITE FURNISHINGS PER SITE FURNISHINGS SCHEDULE
12	FURNISH AND INSTALL CHAIN LINK FENCE - A/L4.20
13	FURNISH AND INSTALL DOUBLE CHAIN LINK GATE - C/L4.20
14	FURNISH AND INSTALL SINGLE CHAIN LINK GATE - B/L4.20

REFERENCE KEYNOTES	
SYMBOL	DESCRIPTION
A	BUILDING - PER ARCHITECT'S PLANS
B	CONCRETE CURB - PER CIVIL ENGINEER'S PLANS
C	PARKING LOT STRIPING - PER ARCHITECT'S PLANS
D	SLIDING CHAIN LINK FENCE PER ARCHITECTURE DRAWINGS
E	EXISTING SEISMIC UTILITY - PROTECT IN PLACE
F	TRASH COMPACTOR - PER ARCHITECT'S PLANS
G	TRASH ENCLOSURE - PER ARCHITECT'S PLANS
H	NOT USED
I	CANOPY STRUCTURE - PER ARCHITECT'S PLANS
J	DRIVEWAY BIB - PER CIVIL ENGINEER'S PLANS
K	SITE LIGHTINGS - PER ARCHITECT'S PLANS
L	GUTTER - PER CIVIL ENGINEER'S PLANS
M	EXISTING CONCRETE WALKWAY TO BE PROTECTED IN PLACE

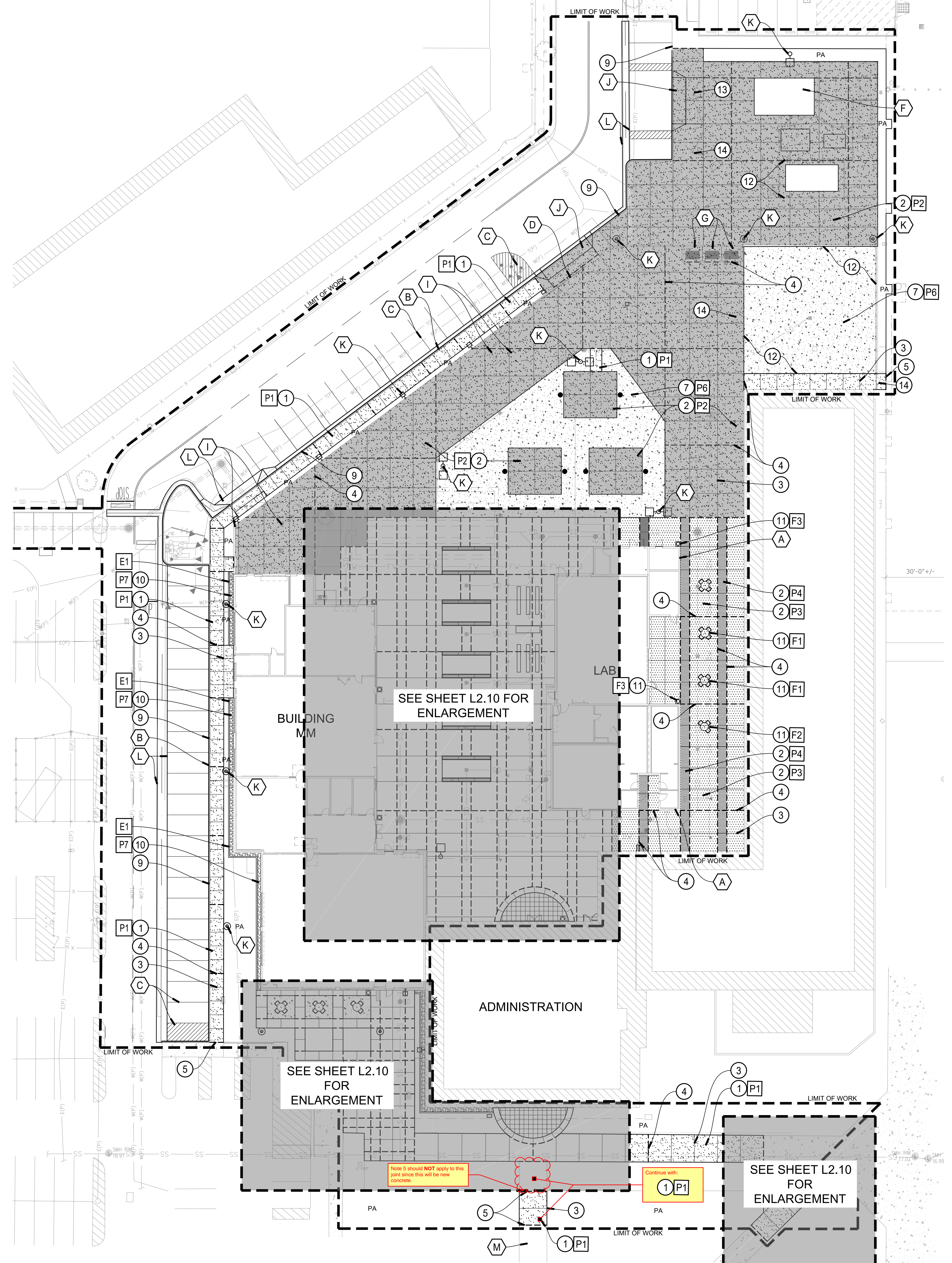
COLOR AND FINISH SCHEDULE							
SYMBOL	KEY	DESCRIPTION	MANUFACTURER	COLOR	FINISH	COMMENTS	DETAILS
PAVING:							
[Pattern]	P1	CONCRETE PAVING (PEDESTRIAN)	--	NATURAL GRAY	MEDIUM BROOM	JOINTS: SAW CUT CONTRACTION & DOWELED CONSTRUCTION JOINTS	A, L4.10
[Pattern]	P2	CONCRETE PAVING (VEHICULAR)	--	NATURAL GRAY	MEDIUM BROOM	JOINTS: SAW CUT CONTRACTION & DOWELED CONSTRUCTION JOINTS	A, L4.10
[Pattern]	P3	INTEGRAL COLOR CONCRETE PAVING	L.M. SCOFIELD (800) 800-9900	LIMESTONE C-20	TOP CAST #05	JOINTS: SAW CUT CONTRACTION & DOWELED CONSTRUCTION JOINTS	A, L4.10
[Pattern]	P4	INTEGRAL COLOR CONCRETE BAND	L.M. SCOFIELD (800) 800-9900	SHADOW SLATE C-31	TOP CAST #05	JOINTS: SAW CUT CONTRACTION & DOWELED CONSTRUCTION JOINTS	A, L4.10
[Pattern]	P5	PRECAST CONCRETE PAVERS	ACKERSTONE (951) 674-0047	33% PEWTER 33% CHARCOAL 33% TAN	STANDARD THROUGH MIX HOLLAND STONE 2, COLOR WITH CHAMFER.	8 cm. 4"x4" STACKED BOND PATTERN	C, L4.10
[Pattern]	P6	DECOMPOSED GRANITE PAVING	SOUTHWEST BOULDER & STONE OR APPROVED EQUAL	PALM SPRINGS GOLD FINES	--	STABILIZED	D, L4.10
[Pattern]	P7	COBBLE AT MAINTENANCE BAND	SOUTHWEST BOULDER & STONE OR APPROVED EQUAL	ARIZONA COBBLE	--	3/4"-1.5" DIA.	G, L4.10
WALL:							
[Pattern]	W1	P.I.P. CONCRETE LOW WALL	--	NATURAL GRAY	LIGHT SAND BLAST	INSTALL SKATE DETERRENTS	E, L4.10
MOW CURB:							
[Pattern]	E1	CONCRETE MOW CURB	--	NATURAL GRAY	SMOOTH HARD TROWEL FINISH TO MATCH EXISTING	JOINTS TO MATCH EXISTING	G, L4.10

NOTES:
1) CONTRACTOR SHALL PREPARE 4" SQ. AND 3" TALL AND LONG SAMPLES OF ALL PAVING AND WALL FINISHES, PER SPECIFICATIONS, AND MOCK UP REQUIREMENT NOTES ON SHEET L3.10, FOR REVIEW AND APPROVAL BY OWNER AND LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
2) PROVIDE AN ISOLATION JOINT WHERE PAVING ABUTS VERTICAL SURFACES SUCH AS BUILDINGS, WALLS, STEPS, ETC.

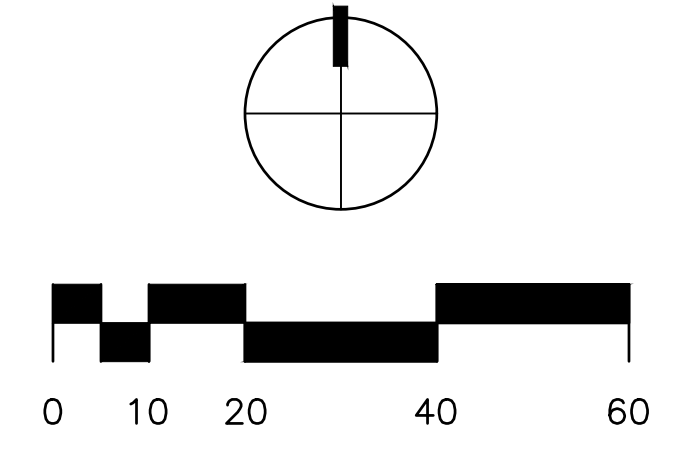


SITE FURNISHINGS LEGEND								
SYMBOL	KEY	DESCRIPTION	MANUFACTURER	MODEL	COLOR	FINISH	COMMENTS	QTY
[Symbol]	F1	STANDARD (4) SEAT TABLE + BUILT IN SEATS	QCP (866) 703-3434	QR-42FC STANDARD WITH UMBRELLA HOLE	LATTE	CRAFTSMAN ETCH	SURFACE MOUNTED PER MANUF. RECOMMENDATIONS	TABLE: 5
[Symbol]	F2	ACCESSIBLE (3) SEAT TABLE + BUILT IN SEATS	QCP (866) 703-3434	QR-42FC3-ADA STANDARD WITH UMBRELLA HOLE	LATTE	CRAFTSMAN ETCH	SURFACE MOUNTED PER MANUF. RECOMMENDATIONS	TABLE: 2
[Symbol]	F3	TRASH RECEPTACLE	TOTER (800) 424-0422	#840SK W/ LBCC LOGO (40) GALLON	BROWN STONE	--	OWNER FURNISHED AND INSTALLED	7
[Symbol]	F4	OUTDOOR CLASSROOM WORK TABLE	QCP (866) 703-3434	--	LATTE	CRAFTSMAN ETCH	CUSTOM TABLE - SEE DETAIL 'K' ON SHEET L4.10	1
[Symbol]	F5	OUTDOOR CLASSROOM BENCH	QCP (866) 703-3434	--	LATTE	CRAFTSMAN ETCH	CUSTOM BENCH - SEE DETAIL 'J' ON SHEET L4.10	6

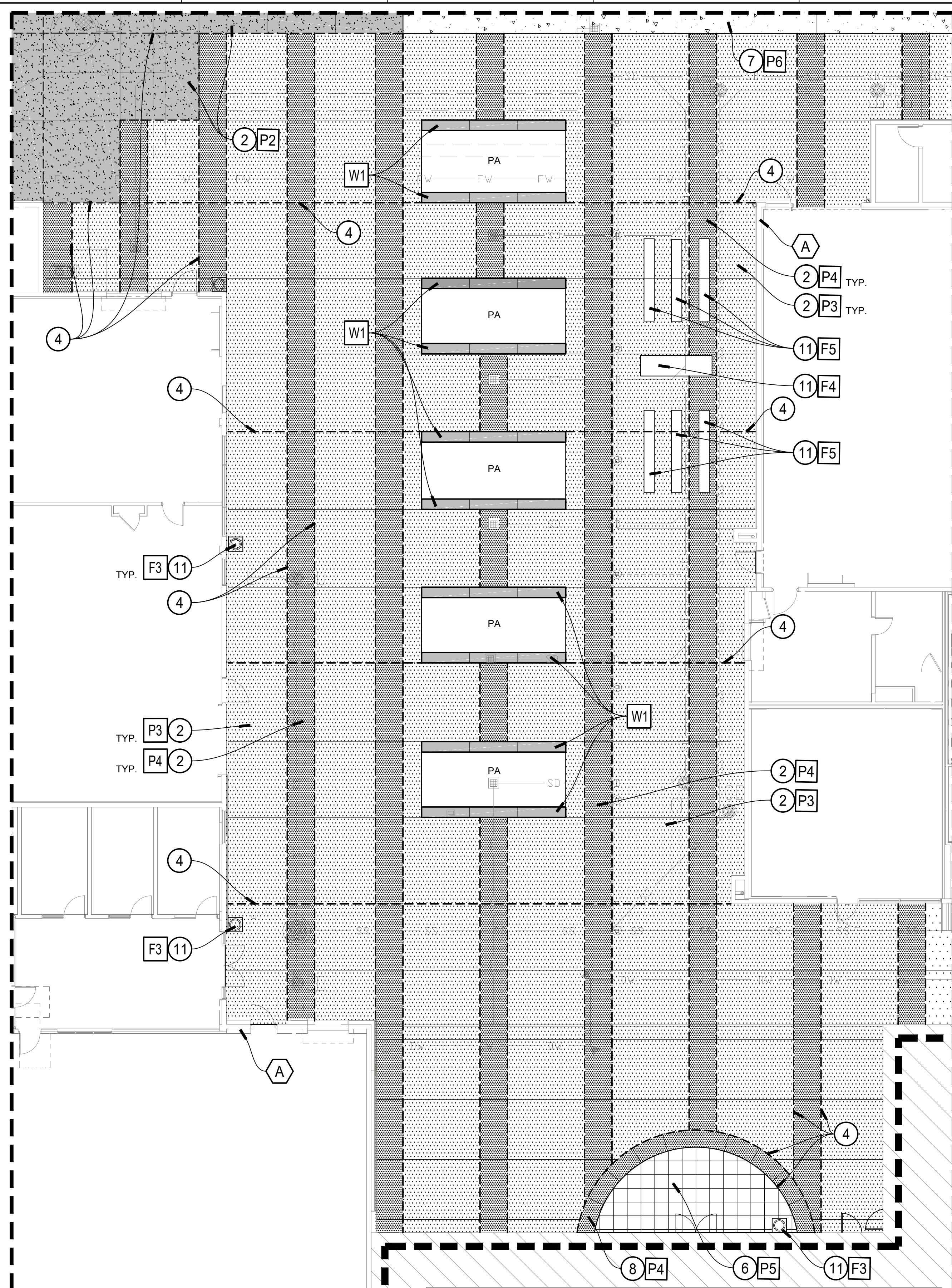
ACCESSIBLE SEATING CALCULATIONS:
TOTAL SEATS: 28
REQUIRED ACCESSIBLE SEATS: 1.4 (5%)
PROVIDED ACCESSIBLE SEATS: 2



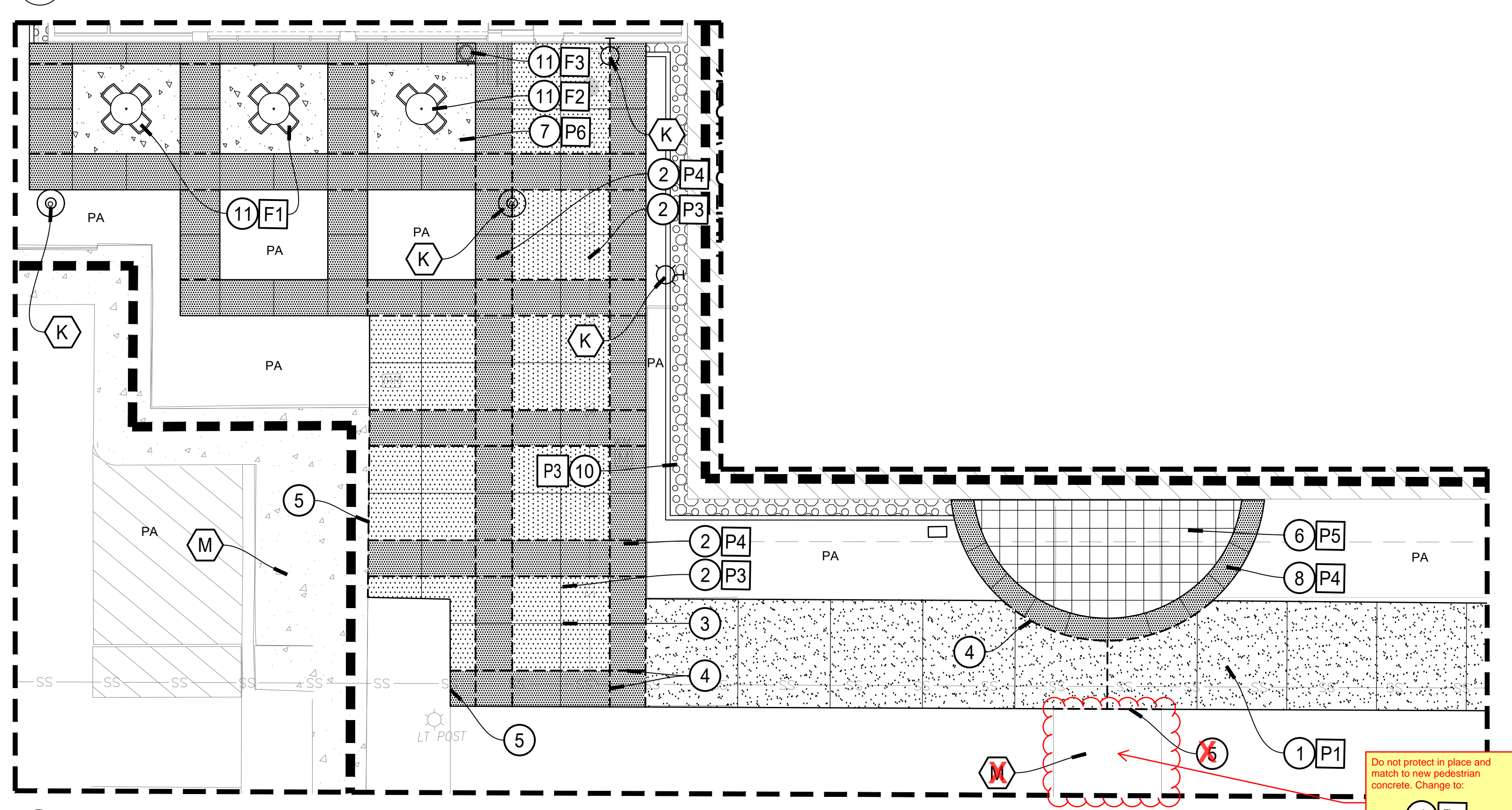
FOR HARDSCAPE ENLARGEMENT PLANS - SEE SHEET L2.10
FOR HARDSCAPE LAYOUT PLAN - SEE SHEET L3.10
FOR HARDSCAPE DETAILS - SEE SHEET L4.10
FOR SPECIFICATIONS - SEE BOOK SPECIFICATIONS



DSA RESUBMITTAL



A TRADES CLASS PATIO ENLARGEMENT
SCALE: 1" = 10'-0"



B ARRIVAL PLAZA ENLARGEMENT
SCALE: 1" = 10'-0"

Do not protect in place and match to new pedestrian concrete. Change to: 1 P1

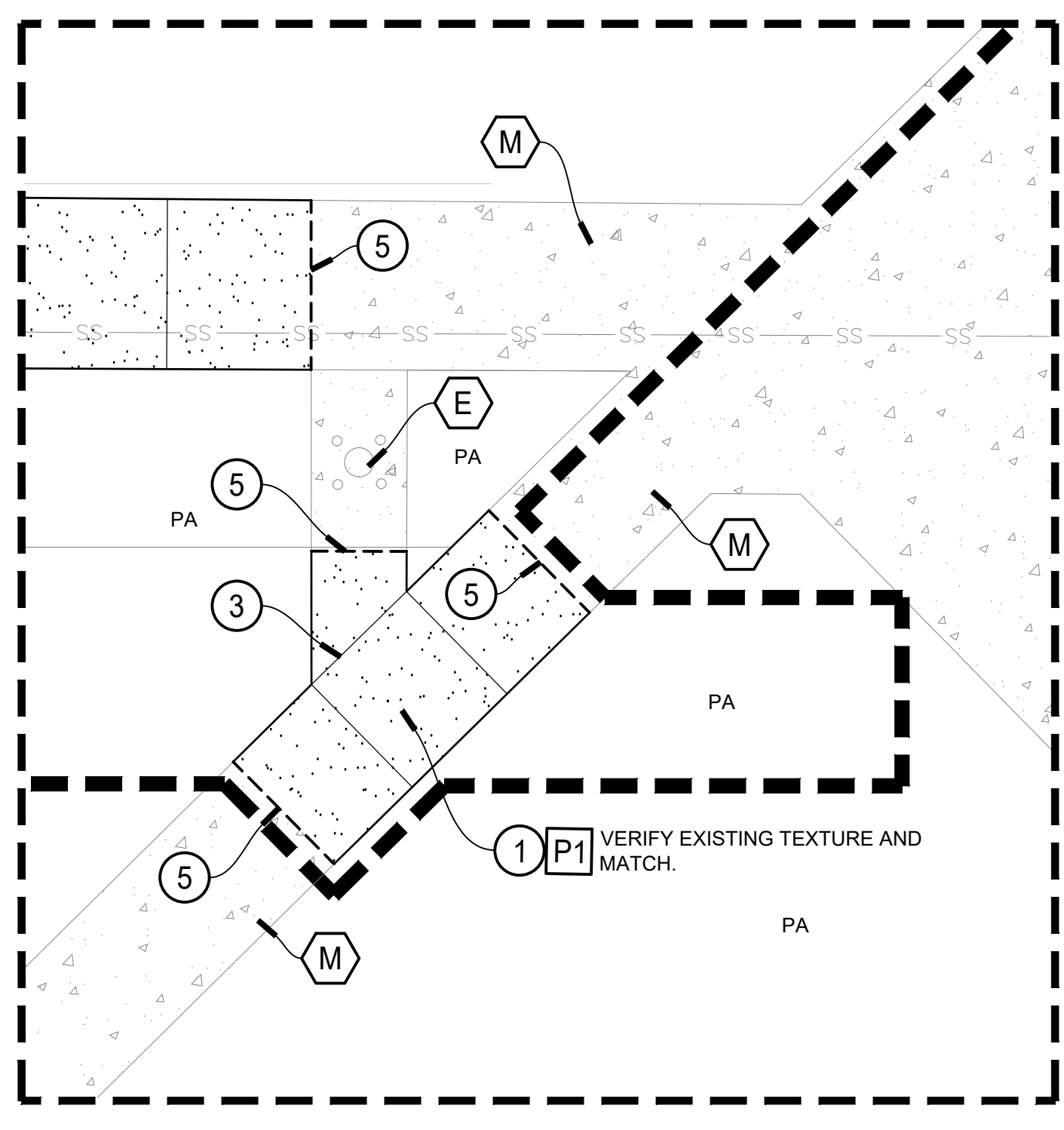
SYMBOL	DESCRIPTION
1	CONSTRUCT PEDESTRIAN RATED CONCRETE PAVING
2	CONSTRUCT VEHICULAR RATED CONCRETE PAVING
3	CONSTRUCT SAWCUT CONTRACTION JOINT
4	CONSTRUCT DOWELLED CONSTRUCTION JOINT
5	CONSTRUCT NEW TO EXISTING PAVING CONNECTION
6	FURNISH AND INSTALL PEDESTRIAN RATED CONCRETE PAVERS
7	FURNISH AND INSTALL DECOMPOSED GRANITE PAVING
8	CONSTRUCT P.I.P. CONCRETE BAND AT PAVERS
9	CONSTRUCT CONCRETE PAVING AT CURB CONNECTION
10	CONSTRUCT COBBLE MAINTENANCE BAND
11	FURNISH AND INSTALL SITE FURNISHINGS PER SITE FURNISHINGS SCHEDULE
12	FURNISH AND INSTALL CHAIN LINK FENCE - A/L4.20
13	FURNISH AND INSTALL DOUBLE CHAIN LINK GATE - C/L4.20
14	FURNISH AND INSTALL SINGLE CHAIN LINK GATE - B/L4.20

SYMBOL	DESCRIPTION
A	BUILDING - PER ARCHITECT'S PLANS
B	CONCRETE CURB - PER CIVIL ENGINEER'S PLANS
C	PARKING LOT STRIPING - PER ARCHITECT'S PLANS
D	SLIDING CHAIN LINK FENCE PER ARCHITECTURE DRAWINGS
E	EXISTING SEISMIC UTILITY - PROTECT IN PLACE
F	TRASH COMPACTOR - PER ARCHITECT'S PLANS
G	TRASH ENCLOSURE - PER ARCHITECT'S PLANS
H	NOT USED
I	CANOPY STRUCTURE - PER ARCHITECT'S PLANS
J	DRIVEWAY BIB - PER CIVIL ENGINEER'S PLANS
K	SITE LIGHTINGS - PER ARCHITECT'S PLANS
L	GUTTER - PER CIVIL ENGINEER'S PLANS
M	EXISTING CONCRETE WALKWAY TO BE PROTECTED IN PLACE

SYMBOL	KEY	DESCRIPTION	MANUFACTURER	COLOR	FINISH	COMMENTS	DETAILS
PAVING:							
	P1	CONCRETE PAVING (PEDESTRIAN)		NATURAL GRAY	MEDIUM BROOM	JOINTS: SAW CUT CONTRACTION & DOWELED CONSTRUCTION JOINTS	A, L4.10
	P2	CONCRETE PAVING (VEHICULAR)		NATURAL GRAY	MEDIUM BROOM	JOINTS: SAW CUT CONTRACTION & DOWELED CONSTRUCTION JOINTS	A, L4.10
	P3	INTEGRAL COLOR CONCRETE PAVING	L.M. SCOFIELD (800) 800-9900	LIMESTONE C-20	TOP CAST #05	JOINTS: SAW CUT CONTRACTION & DOWELED CONSTRUCTION JOINTS	A, L4.10
	P4	INTEGRAL COLOR CONCRETE BAND	L.M. SCOFIELD (800) 800-9900	SHADOW SLATE C-31	TOP CAST #05	JOINTS: SAW CUT CONTRACTION & DOWELED CONSTRUCTION JOINTS	A, L4.10
	P5	PRECAST CONCRETE PAVERS	ACKERSTONE (951) 674-0047	33% PEWTER 33% CHARCOAL 33% TAN	STANDARD THROUGH MIX	8 cm. 4"x4" HOLLAND STONE 2, STACKED BOND PATTERN	C, L4.10
	P6	DECOMPOSED GRANITE PAVING	SOUTHWEST BOULDER & STONE OR APPROVED EQUAL	PALM SPRINGS GOLD FINES	--	STABILIZED	D, L4.10
	P7	COBBLE AT MAINTENANCE BAND	SOUTHWEST BOULDER & STONE OR APPROVED EQUAL	ARIZONA COBBLE	--	3/4" - 1.5" DIA.	G, L4.10
WALL:							
	W1	P.I.P. CONCRETE LOW WALL		NATURAL GRAY	LIGHT SAND BLAST	INSTALL SKATE DETERRENTS	E, L4.10
MOW CURB:							
	E1	CONCRETE MOW CURB		NATURAL GRAY	SMOOTH HARD TROWEL FINISH TO MATCH EXISTING	JOINTS TO MATCH EXISTING	G, L4.10

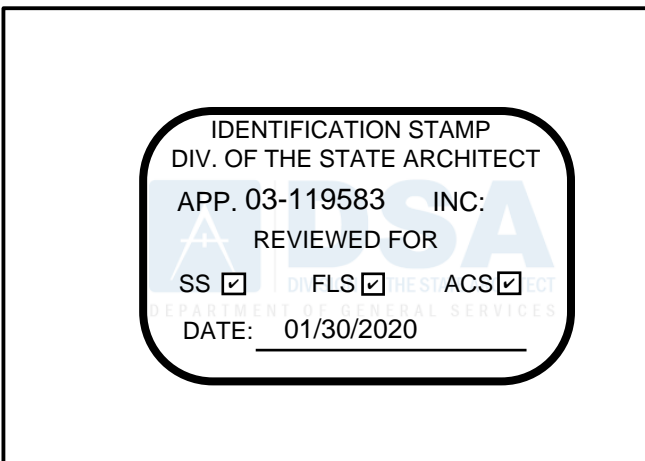
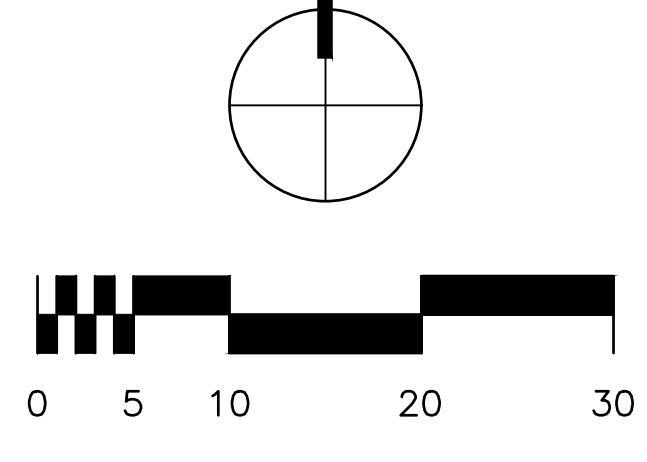
SYMBOL	KEY	DESCRIPTION	MANUFACTURER	MODEL	COLOR	FINISH	COMMENTS	QTY
SEE H, L4.10	F1	STANDARD (4) SEAT TABLE + BUILT IN SEATS	OCP (866) 703-3434	QR-42FC STANDARD WITH UMBRELLA HOLE	LATTE	CRAFTSMAN ETCH	SURFACE MOUNTED PER MANUF. RECOMMENDATIONS	TABLE: 5
SEE I, L4.10	F2	ACCESSIBLE (3) SEAT TABLE + BUILT IN SEATS	OCP (866) 703-3434	QR-42FC3-ADA STANDARD WITH UMBRELLA HOLE	LATTE	CRAFTSMAN ETCH	SURFACE MOUNTED PER MANUF. RECOMMENDATIONS	TABLE: 2
	F3	TRASH RECEPTACLE	TOTER (800) 424-0422	#840SK W/ LBCC LOGO (40) GALLON	BROWN STONE	--	OWNER FURNISHED AND INSTALLED	7
SEE K, L4.10	F4	OUTDOOR CLASSROOM WORK TABLE	OCP (866) 703-3434	--	LATTE	CRAFTSMAN ETCH	CUSTOM TABLE - SEE DETAIL 'K' ON SHEET L4.10	1
SEE J, L4.10	F5	OUTDOOR CLASS ROOM BENCH	OCP (866) 703-3434	--	LATTE	CRAFTSMAN ETCH	CUSTOM BENCH - SEE DETAIL 'J' ON SHEET L4.10	6

ACCESSIBLE SEATING CALCULATIONS:
TOTAL SEATS: 28
REQUIRED ACCESSIBLE SEATS: 1.4 (5%)
PROVIDED ACCESSIBLE SEATS: 2

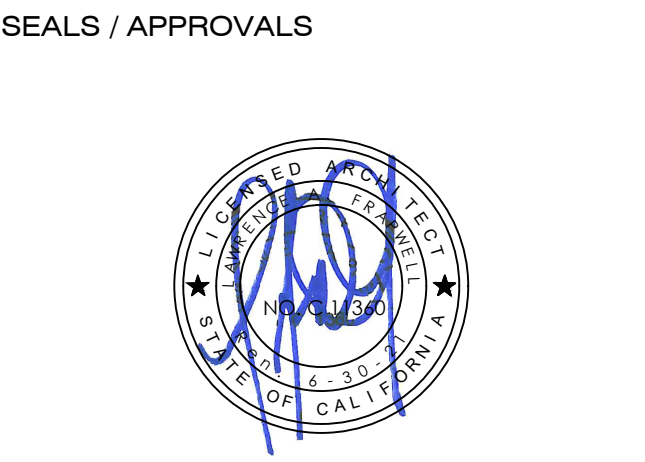


B ENLARGEMENT AT SEISMIC EQUIPMENT
SCALE: 1" = 10'-0"

FOR HARDSCAPE PLAN - SEE SHEET L1.10
FOR HARDSCAPE LAYOUT PLAN - SEE SHEET L3.10
FOR HARDSCAPE DETAILS - SEE SHEET L4.10
FOR SPECIFICATIONS - SEE BOOK SPECIFICATIONS



115 22nd street
Newport Beach, CA 92663
o: 949.675.6442



PROJECT TITLE
BUILDING MM - CONSTRUCTION TRADES I



SUBMITTALS	
#	DATE DESCRIPTION
1	12/09/2019 DSA RESUBMITTAL

PROJECT IDENTIFICATION
THE DRAWINGS IN THE SHEET INDEX WERE ORIGINALLY CREATED BY AUTODESK REVIT V. 2016 UNLESS OTHERWISE NOTED.
THE ORIGINAL SIZE OF THIS SHEET IS 30" X 42"

DRAWN BY: RIA
CHECKED BY: RIA

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SHEET TITLE
HARDSCAPE ENLARGEMENT PLAN

SHEET NUMBER
L2.10

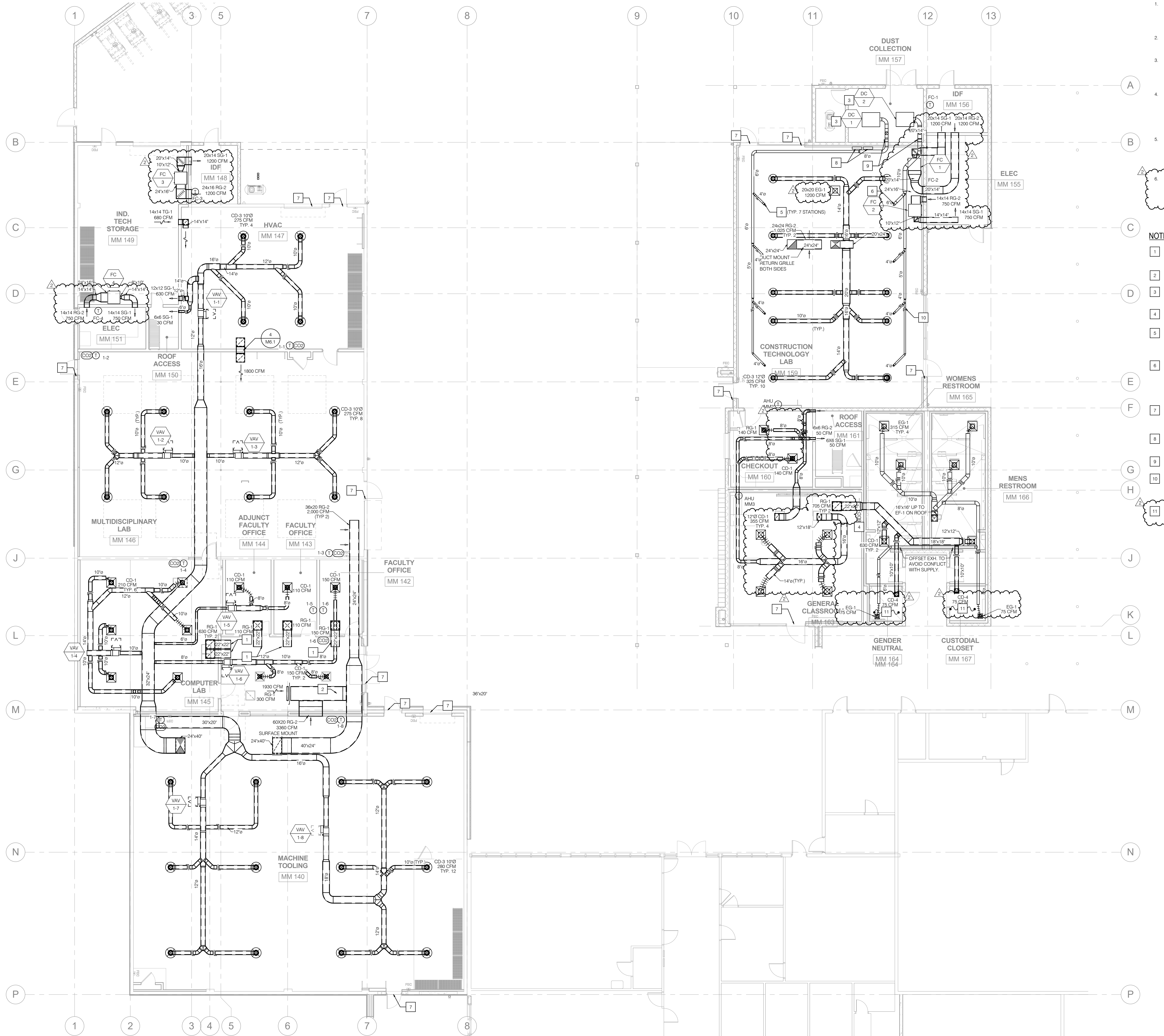
DSA RESUBMITTAL

GENERAL NOTES

- ALL DUCTWORK CONNECTED TO PERMANENT DUST COLLECTION SYSTEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH NFPA 664, 2012 EDITION AND 2016 CMR SECTION 506. DUCTWORK SHALL BE SEAMLESS WELDED SHEET METAL.
- DUST COLLECTOR DUCTWORK SHALL BE BONDED AND GROUNDED IN ACCORDANCE WITH NFPA 664 SECTION 7.9.2(1).
- DUCT DIMENSIONS SHOWN ARE NET CLEAR DIMENSIONS. WHERE DUCT LINING IS INDICATED ON DRAWINGS OR IN SPECIFICATIONS, CONTRACTOR SHALL ADJUST SHEET METAL DIMENSIONS TO MAINTAIN MINIMUM NET CLEAR DIMENSIONS SHOWN.
- ALL EXPOSED SUPPLY AND RETURN DUCTWORK SHALL BE ROUTED ABOVE THE CEILING PLANE SET BY THE UNISTRUT GRID. ALL ROUND CEILING DIFFUSERS SHALL BE COORDINATED WITH UNISTRUT GRID TO BE CENTERED ON GRID OPENINGS AND MOUNTED SUCH THAT THE TOP OF THE DIFFUSER IS LEVEL WITH THE BOTTOM OF THE UNISTRUT GRID.
- DUST COLLECTOR DUCTWORK SHALL BE PROVIDED WITH ROUND ACCESS DOORS AT EACH CHANGE IN DIRECTION AND AT 10'-0" MAX SPACING IN STRAIGHT DUCT RUNS. ACCESS DOORS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA ROUND INDUSTRIAL DUCT CONSTRUCTION STANDARDS.
- WHERE ROUND FLEX DUCT IS SHOWN ATTACHING TO RECTANGULAR GRILLE CONNECTION, PROVIDE SQUARE TO ROUND TRANSITIONS AS REQUIRED. GRILLE DIMENSIONS (LXW) SHALL BE EQUAL TO DIAMETER OF SPECIFIED DUCT CONNECTION UNLESS OTHERWISE NOTED.

NOTES

- PROVIDE ACOUSTICAL SOUND BOOT AT RETURN GRILLE PER DETAIL S-M-6. RETURN BOOT SHALL EXTEND THROUGH FULL HEIGHT PARTITION.
- PROVIDE 36"x24" OPENING IN RETURN DUCT ABOVE CEILING. PROVIDE WIRE MESH SCREEN AT OPENING.
- DUST COLLECTOR TO BE PROVIDED WITH INTEGRAL EXPLOSION VENT. REFER TO SCHEDULES ON M0.2 FOR ADDITIONAL REQUIREMENTS.
- PROVIDE WITH COUNTERWEIGHTED BACKDRAFT DAMPER SET FOR 0.02" WG OPENING PRESSURE.
- PROVIDE REDUCING WYE FITTING WITH TWO (2) 2" DIAMETER EXHAUST PORTS. AT EACH PORT, PROVIDE FLEXIBLE DUCT DOWN TO WORK TABLE. COORDINATE WITH COLLEGE FOR REQUIRED MOUNTING HEIGHT OF WYE FITTING. EACH 2" PORT SHALL BE BALANCED TO 175CFM.
- PROVIDE REDUCING WYE FITTING WITH ONE (1) 4" DIAMETER EXHAUST PORT AND ONE (1) 2" EXHAUST PORT. AT EACH BRANCH OF THE WYE, PROVIDE BLAST GATE FOR AIR BALANCING AND FLEXIBLE DUCT DOWN TO WORK TABLE. 2" PORT SHALL BE BALANCED TO 175CFM. 4" PORT SHOULD BE BALANCED TO 350 CFM AND CONNECTED TO EQUIPMENT.
- PROVIDE DOOR SENSOR AND INTEGRATE INTO BMS. RESET COOLING TEMPERATURE SETPOINT OF ZONE TO 90°F AND HEATING TEMPERATURE SETPOINT TO 55°F AFTER 5 MINUTES IF DOOR IS OPEN.
- DUST COLLECTOR CONTROL PANELS FOR DC-1 AND DC-2. PROVIDE NEMA 1 ENCLOSURE FOR EACH. INCLUDE DUST COLLECTOR START/STOP BUTTONS.
- EXPLOSION ISOLATION VALVE. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- PROVIDE FACTORY FABRICATED LOW LEAKAGE BLAST GATE AT BRANCH DUCT FOR BALANCING IN LIEU OF MANUAL BALANCING DAMPER. TYPICAL FOR ALL DUST COLLECTOR EXHAUST DUCTWORK.
- PROVIDE 12"x12" FACE SIZE FOR SUPPLY AND RETURN GRILLES IN THIS ROOM.



CONSULTANTS



SEALS / APPROVALS



PROJECT TITLE
MM BUILDING - CONSTRUCTION TRADES I
1305 EAST PACIFIC COAST HIGHWAY
LONG BEACH, CA 90804



SUBMITTALS		
#	DATE	DESCRIPTION
1	12/09/19	DSA RESUBMITTAL
2	7/23/2020	Addendum #2

PROJECT IDENTIFICATION 19099
THE DRAWINGS IN THIS SHEET INDEX WERE ORIGINALLY CREATED IN AUTODESK REVIT V. 2016 UNLESS OTHERWISE NOTED.
THE ORIGINAL SIZE OF THIS SHEET IS 30" X 42"
SCALE 1/8" = 1'-0"
DRAWN BY G Jacob
DESIGNED BY S Newnam
CHECKED BY _____
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SHEET TITLE
DUCTING - FLOOR PLAN

SHEET NUMBER

M2.1

DSA RESUBMITTAL

ATTACHMENT THREE

SECTION IV. OTHER REVISIONS

NOT APPLICABLE
ATTACHMENT B
ALTERNATE BID ITEMS PROPOSAL

PROJECT: BID C2194 BUILDING MM CONSTRUCTION TRADES ONE MODERNIZATION

Bidder Name: _____

Bidders must provide a proposal price for each Alternate Bid Item set forth herein; failure to do so will result in rejection of the Bid Proposal for non-responsiveness. The amount proposed for each Alternate Bid Item by the above-identified Bidder is set forth herein below:

1. **Alternate Bid Item No.1. [Replace Integral Color Concrete (P3 & P4) with Concrete Paving-Vehicular (P2). Reference sheets L1.10, L2.10; Color and Finish Notes for P2-P4.]**

- Add to Base Bid Proposal Amount
- Deduct From Base Bid Proposal Amount

(Check appropriate box indicating additive or deductive cost; failure to do so will result in rejection of Bid Proposal for non-responsiveness)

\$, , .

Dollars

(in words; printed or typed)

2. **Alternate Bid Item No.2. [On exterior canopies for the new and existing buildings, replace 1/4" perforated steal with high performance paint. Reference A9.35, A9.36, and A9.37.]**

- Add to Base Bid Proposal Amount
- Deduct From Base Bid Proposal Amount

(Check appropriate box indicating additive or deductive cost; failure to do so will result in rejection of Bid Proposal for non-responsiveness)

\$, , .

Dollars

(in words; printed or typed)

3. **Alternate Bid Item No.3. [INSERT ALTERNATE DESCRIPTION]**

- Add to Base Bid Proposal Amount
- Deduct From Base Bid Proposal Amount

(Check appropriate box indicating additive or deductive cost; failure to do so will result in rejection of Bid Proposal for non-responsiveness)

\$, , .

Dollars

(in words; printed or typed)

Dated _____

By: _____
(Signature of Bidder's Authorized Officer or Representative)

(Typed or Printed Name)

Title: _____

**AMENDMENT
TO COMMUNITY AND STUDENT WORKFORCE PROJECT AGREEMENT**

Long Beach Community College District, and the Los Angeles/Orange Counties Building and Constructions Trades Council on behalf of itself and on behalf of the Unions, hereby agree to amend their Community and Student Workforce Project Agreement ("CSWPA") under Section 20.1 of the CSWPA, as follows:

1. Section 5.5(a) of the CSWPA is deleted in its entirety and is replaced with the following language:

The Parties agree that, to the extent allowed by law, and as long as they possess the requisite skills and qualifications, the Unions will exert their best efforts to refer and/or recruit sufficient numbers of skilled craft "District Residents" as defined herein, to fulfill the requirements of the Contractors. In recognition of the fact that the District and the communities surrounding Project Work will be impacted by the construction of the Project Work, the Parties agree to support the hiring of workers from the residents of these surrounding areas, as well as veterans and students of the District, particularly Career Technical Education ("CTE") students who have received a certificate, an AA/AS degree, or who have completed and received a completion certificate from the District's apprenticeship or pre-apprenticeship preparation program utilizing the multi-craft core curriculum, regardless of their residence ("Student Graduates"). Towards that end, the Unions shall first, exert their best efforts to encourage and provide referrals and utilization of qualified workers residing in those first-tier ZIP codes, as set forth in Attachment C attached hereto, including veterans and Student Graduates, regardless of their residence. If the Unions cannot provide the Contractors in the attainment of a sufficient number of District Residents from within the first-tier ZIP codes, the Unions shall second, exert their best efforts to then recruit and identify for referral District Residents residing in second tier ZIP codes which reflect the Gateway Cities, as set forth in Attachment C attached hereto. If the Unions still have not provided the Contractors in the attainment of a sufficient number of District Residents, the Unions shall then third, exert their best efforts to recruit and identify for referral District Residents residing within Los Angeles County. For dispatch purposes, workers referred from any of the above three tiers, as well as veterans and Student Graduates, regardless of where they reside, shall be considered to be District Residents.

2. Section 2.5 of the CSWPA is deleted in its entirety and is replaced with the following language:

"District Residents" for purposes of this CSPWA is defined as those residents living within the zip codes described in Attachment C, as well as any veterans of the U.S. Armed Forces, current District students, and Student Graduates, regardless of their residence.

3. In Section 8.6(a) of the CSWPA, the word "Counsel" is corrected to "Council."

4. A new sub-section "d" is added to Section 15 of the CSWPA as follows:

The Unions agree to support the operation of apprenticeship and pre- apprenticeship referral programs with the geographical area of the District, to enhance the training and employment of current District students and Student Graduates. The Unions also agree to place on their referral roles and in their apprenticeship training programs qualified District students and Student Graduates.

5. Section 21.1 of the CSWPA is deleted in its entirety and is replaced with the following:

Duration and Extension. This CSWPA commences on May 1, 2016 ("Effective Date"), and terminates on June 30, 2041.

(a) During the term of this CSWPA, specifically by March 31, 2025 and thereafter every five years, the Parties agree to meet and discuss the terms of this CSWPA. As result of such meetings, the Parties may, but shall not be obligated to, mutually agree to amendments to this CSWPA.

(b) This CSWPA shall continue in full force and effect for each covered Project until final acceptance by the District. Either Party desiring to renew, extend, or negotiate changes to this CSWPA upon expiration shall make such intention known to the other Party by written notice not less than six months prior to the expiration of this CSWPA.

(c) Any Covered Project awarded and commenced during the term of this CSWPA shall continue to be covered hereunder until completion of the Project, notwithstanding the expiration of this CSWPA.

It is agreed that all notices shall be provided to the District at:

Robert Rapoza
Director, Business Support Services
Long Beach Community College District
4901 E. Carson Street, Mail Code G4
Long Beach, CA 90808

It is agreed that all notices shall be provided to the Council and to the Local Unions to:

Ron Miller
Executive Director
Los Angeles/Orange Counties Building and Construction Trades Council
1626 Beverly Blvd.
Los Angeles, California 90026

6. A new Article 24 titled "Taxpayer Protection Provisions" is added to the CSWPA as follows:

The Parties understand that the following taxpayer protection provisions are included in this CSWPA pursuant to Section 2500 of the Public Contract Code:

- (a) This CSWPA prohibits unlawful discrimination, or discrimination based on membership in a labor organization, in hiring and dispatching workers for Project Work.
- (b) This CSWPA provides that all qualified contractors and subcontractors are permitted to bid for and be awarded work for Project Work without regard to whether they are otherwise parties to collective bargaining agreements.
- (c) This CSWPA contains a protocol concerning drug testing for workers who will be employed on the Projects.
- (d) This CSWPA contains guarantees against work stoppages, strikes, lockouts, and similar disruptions of the Projects.
- (e) This CSWPA provides that disputes arising from this CSWPA shall be resolved by a neutral arbitrator.

7. The list of Projects contained in Attachment A of the CSWPA is hereby amended to add the following Projects:

	Project	Estimated Construction Start Date	Estimated Construction Costs
9.	Building G/H – Performing Arts	2021-2022	\$31,203,195
10.	Building MM – Construction Trades Phase 2	2022-2023	\$12,300,255
11.	Building OO – Classroom Building*	2023-2024	\$70,839,820
12.	Building E – College Center	2022-2023	\$22,409,810
13.	Building FF – Demolish Fine Arts/Senior Center	2023-2024	\$1,520,160
14.	Building O2 – Economic & Workforce Development, Foundation	2025-2026	\$20,884,920
15.	Joint Use Facility	2027-2028	\$17,073,438
16.	Building K – Art	2027-2028	\$15,544,320
17.	Building R – Primary Gymnasium	2029-2030	\$36,263,295
18.	Building Q – Secondary Gym	2032-2033	\$14,898,640
19.	Building B – Classroom	2034-2035	\$24,332,340
20.	Building F – Demolish Family/Consumer Ed	2034-2035	\$2,238,800
21.	Building O1 – IITS/Warehouse	2036-2037	\$15,878,185
22.	Building S – Stadium	2037-2038	\$53,857,280
23.	Building CDC – Child Development Center	2037-2038	\$12,613,410

*The Building OO – Classroom Building was included in the Project list for the original CSWPA. Construction was delayed on this Project and is therefore repeated on the Project list.

8. Except as expressly amended by this Amendment, the CSWPA remains in full force and effect as originally executed.

9. This Amendment may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Facsimile and electronic signatures are to be deemed equivalent to original "wet ink" signatures under this Amendment.

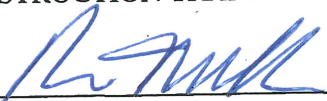
Dated: 9/11, 2019

LONG BEACH COMMUNITY COLLEGE DISTRICT

By: 
Dr. Reagan Romali
Superintendent/President

Dated: 9-19, 2019

LOS ANGELES/ORANGE COUNTIES BUILDING
AND CONSTRUCTION TRADES COUNCIL

By: 
Ron Miller
Executive Secretary