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www.dardenarchitects.com
6790 North West Avenue Fresno, California 93711

BID ADDENDUM 4 – DSA ADDENDUM NO. 11 DATE: 10/16/2026

PROJECT:
SANGER EDUCATION COMPLEX – PHASE 3b
Development of Building L, associated site development work and Alternate Bid 1
1850 S. Fowler Ave, Fresno, CA 93727



OWNER:
SANGER UNIFIED SCHOOL DISTRICT
1905 Seventh Street
Sanger, CA 93657

ARCHITECT:
DARDEN ARCHITECTS, INC.
Attention: Mike Fennacy
6790 N. West Avenue
Fresno, California 93711
T. (559) 448-8051
F. (559) 446-1765

DARDEN PROJECT NO. 2171.L
DSA APPL. NO. 02-120779

It will be the responsibility of the General Contractor to submit the information contained in this addendum to all its subcontractors and suppliers. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject Bidder to disqualification.

The following additions, deletions, and revisions to the SHEETS and Project Manual are hereby made and do become a part of these Contract Documents.

INDEX OF ADDENDA TRANSMITTED HEREWITH

CHANGES TO SPECIFICATIONS

SPECIFICATIONS ..... AD11-SP01 thru AD11-SP07

CHANGES TO SHEETS:

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SPECIFICATIONS:

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11 61 43 – PORTABLE SEATING PLATFORMS AND SEAT SYSTEMS ..... 10 pages
32 84 00 – LANDSCAPE IRRIGATION SYSTEM ..... 14 pages

DRAWINGS:

ARCHITECTURAL ..... 8 SHEETS
FIRE PROTECTION ..... 4 SHEETS
PLUMBING ..... 4 SHEETS
MECHANICAL ..... 11 SHEETS
LANDSCAPE AND IRRIGATION ..... 11 SHEETS

CHANGES TO SPECIFICATIONS:

AD11-SP01 Refer to the attached Section 01 81 23 – NOISE AND VIBRATION CONTROL

1. The Contractor shall engage the services of a National Environmental Balancing Bureau (NEBB) Certified Sound and Vibration (S&V) Firm to perform all noise and vibration measurements required by Section 01 81 23. Include the cost of the NEBB Certified S&V Firm in the Proposal.
2. Omit Part 3 of Section 01 81 23 in its entirety and replace it with the attached Part 3 – COMMISSIONING FOR NOISE AND VIBRATION CONTROL.
3. The requirements of Section 01 81 23 for noise and vibration control as they relate to HVAC and Plumbing have been incorporated into the design in conjunction with the Acoustical Consultant, and are defined on the Mechanical and Plumbing Plans and Specifications. Section 01 81 23 applies to the Work of Divisions 22 and 23.

AD11-SP02 Refer to Section 09 91 00 - PAINTING

1. Refer to Paragraph 3, x, E, 5 (Interior Metal).
2. Add new Paint System l. "M-9 Slip-Resistant Epoxy (Steel Walking Surfaces)" as indicated below.
3. Paint System M-9 is to be used in the Black Box, all steel plate walking surfaces at catwalks, catwalk bridges, and the tension grid perimeter steel elements.

M-9 Slip-Resistant Epoxy, Minimum ODFT 12.0 MILS.

1st Coat Epoxy Mastic Primer AMERLOCK 2, 4.0–6.0 mils DFT.
2nd Coat Epoxy Mastic AMERLOCK 2, 4.0–6.0 mils DFT, with aluminum oxide anti-slip aggregate broadcast to refusal into the wet film. Remove loose aggregate after cure.
3rd Coat Epoxy Mastic AMERLOCK 2, 3.0–4.0 mils DFT, applied over the aggregate to encapsulate it. Color: Flat Black, or as selected by Architect.

Surface Preparation: SSPC-SP6 Commercial Blast Cleaning, with a 2.0–3.0 mil anchor profile. Where shop-primed, the shop primer shall be compatible with the epoxy system. Otherwise, steel plate shall be delivered unprimed.

Aggregate: aluminum oxide, 36 to 60 mesh, as recommended by the coating manufacturer. Apply it uniformly so the slip resistance and appearance are consistent across all walking surfaces.

Slip Resistance: the finished surface shall achieve a static coefficient of friction of not less than 0.50 per ASTM D2047.

Sample: before field application, provide a 12" x 12" steel sample panel of the complete system showing aggregate density, texture and sheen, for Architect's review. The approved sample establishes the standard for the Work.

1. Galvanized Steel: where steel plate is galvanized, prepare surfaces in accordance with ASTM D6386 and the coating manufacturer's recommendations before priming.
2. VOC: all coatings shall comply with San Joaquin Valley Air Pollution Control District Rule 4601 limits for industrial maintenance coatings.

AD11-SP03 Refer to Section 27 41 16 - PRODUCTION AV SYSTEMS

1. Refer to Article 1.9 QUALITY ASSURANCE, paragraph E Specialty subcontractors.
2. Add EKC Enterprises Inc to the list of qualified specialty subcontractors.

AD11-SP04 Refer to Section 23 09 23 - DIRECT DIGITAL CONTROL AND ENERGY MANAGEMENT SYSTEM

1. Per Specification section 23 09 23, 1.1, A, the EMS shall be Distech per SUSD standards without substitution and integrate into the existing campus EMS.

AD11-SP05 Refer to Section 23 00 01:

1. Refer to Paragraph 2.1.A.2. Revise to read as follows:

"2. Underground Chilled and Hot Water Piping:

a. General: Underground chilled and hot water lines shall be Ferro-Therm, as manufactured by Thermacor Process. All straight sections, fittings and other accessories shall be factory-fabricated to job dimensions. Each system layout shall be computer-analyzed by the piping system manufacturer to determine stress on the carrier pipe and anticipated thermal movement of the service pipe. The system design shall be in conformance with ANSI B31.1. Provide manufacturer's shop drawings with dimensioned piping layout and details of all expansion fittings, elbows, building entry points and all other pertinent information needed to verify that the type of materials being offered is in accordance with the specifications.

b. Jacket: Seamless high density polyethylene (HDPE) in accordance with ASTM D1248, Type 3, Class C. Minimum jacket thickness shall be 125 mils.

c. Carrier Pipe: ASTM A-53, Grade B, electric-resistance welded black steel with beveled ends for field welded joints. Schedule 40. Butt welding fittings shall conform to ANSI Standard B16.9.

d. Insulation: Polyurethane foam completely filling the annular space between the carrier pipe and the outer jacket to a minimum thickness of 1.38 inch. The in-place density shall be 2 pounds per cubic foot; the thermal conductivity factor shall be 0.15 BTU/(Hr.)(Sq. Ft.)(°F/In.); and shall have a closed cell content of 90%. Exposed insulation at unit ends shall be sealed with factory applied high temperature elastomer vapor barrier sealant.

e. Fittings: Fittings shall be factory fabricated and preinsulated with polyurethane foam insulation. The insulation shall be protected with a 1-piece, seamless, molded HDPE jacket of the same type, thickness and quality as that of the straight units of preinsulated pipe. Field fabrication, alteration or insulation of fittings is not permitted.

f. Expansion Fittings and Elbows: Prefabricated expansion fittings, elbows and tees shall be furnished and installed where shown. Preinsulated fittings that must provide compensation for pipe expansion and/or contraction shall be externally insulated with flexible polyurethane foam insulation. The straight units adjoining expansion fittings shall also be insulated with flexible polyurethane foam insulation to the extent shown on the drawings. Expansion fittings and elbows shall be properly designed in accordance with stress limits indicated by ANSI B31.1 Code for Pressure Piping. The pipe manufacturer shall furnish pipe stress calculations and expansion details stamped by a registered professional engineer showing that the piping design meets this code."

2. Refer to Paragraph 2.1.A.3. Omit this paragraph in its entirety.

AD11-SP06 Refer to the attached Section 32 84 00 – LANDSCAPE IRRIGATION SYSTEM:

1. Omit Section 32 84 00 – LANDSCAPE IRRIGATION SYSTEM in its entirety and replace it with the attached Section 32 84 00 – LANDSCAPE IRRIGATION SYSTEM, identified as AD11.
2. Refer to AD11-L01 through AD11-L11 for the associated Landscape and Irrigation sheets.

AD11-SP07 Refer to the attached Section 11 61 43 – PORTABLE SEATING PLATFORMS AND SEAT SYSTEMS:

1. Omit Section 11 61 23 – PORTABLE SEATING PLATFORMS AND SEAT SYSTEMS in its entirety and replace it with the attached Section 11 61 43 – PORTABLE SEATING PLATFORMS AND SEAT SYSTEMS.
2. Refer to Paragraph 2.1.A. StageRight, Inc., Sightline Commercial, and Wenger Corporation are pre-approved to bid the platform work in this Section.
3. Refer to Paragraph 2.1.B. Series Seating and Wenger Corporation are pre-approved to bid the portable seating work in this Section.

CHANGES TO SHEETS:

ARCHITECTURAL:

AD11-A01 Refer to Sheet SD/A016 – Partial Site Demolition Plan:

1. Add the attached new Sheet SD/A016 – SITE DEVELOPMENT, PARTIAL SITE DEMOLITION PLAN, identified as DSA Addendum No. 11, to the Contract Documents.
2. Sheet SD/A016 indicates the selective demolition within and adjacent to the Building L limit of work, including removal of concrete walks and curbs, and the removal and reinstallation of one (1) existing site light. Refer to AD11-E05.

AD11-A02 Refer to Sheet SD/A106.4:

1. Omit Sheet SD/A106.4 and replace with the attached Sheet SD/A106.4, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.
3. Site improvement elements have been revised.

AD11-A03 Refer to Sheet SD/A206.4:

1. Omit Sheet SD/A206.4 and replace with the attached Sheet SD/A206.4, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.
3. Site improvement elements have been revised.

AD11-A04 Refer to Sheet X/A201 – Interior Finish Schedule:

1. Omit Sheet X/A201 and replace with the attached Sheet X/A201, identified as DSA Addendum No. 11.
2. Notes have been added to the sheet. Changes are clouded and identified with Delta 11.

AD11-A05 Refer to Sheet X/A508:

1. Refer to Detail K1-X/A508 and associated Structural Detail 6-X/S527.
2. This detail applies to all Water Chiller Concrete Pads and other locations where Detail K1-X/A508 is referenced.
3. On previous projects, shop drawings incorrectly depicted a WT member as shown in Detail 8-X/S523. The WT was subsequently installed and later removed during construction. Verify that shop drawings conform to Structural Detail 6-X/S527 to avoid this issue

AD11-A06 Refer to Sheet L/A105.4:

1. Omit Sheet L/A105.4 and replace with the attached Sheet L/A105.4, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.
3. Any exposed concrete shall be sealed with a Clear Floor Sealer.

AD11-A07 Refer to Sheet L/A141.4

1. WOOD ATHLETIC FLOORING – SLEEPER SPACING
2. Refer to details N11-L/A141.4 and E11-L/A141.4 and revise the spacing of the sleepers to be 16" o.c. as required by Section 09 64 66, Paragraph 3.3.C.2.

AD11-A08 Refer to Sheet L/A201.4:

1. Omit Sheet L/A201.4 and replace with the attached Sheet L/A201.4, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.
3. The soffit lights shown on the electrical plans are now indicated on the architectural ceiling plan.
4. The soffit vents between the lights have been added.

AD11-A09 Refer to Sheet L/A202.4:

1. Omit Sheet L/A202.4 and replace with the attached Sheet L/A202.4, identified as DSA Addendum No. 11.

2. Changes are clouded and identified with Delta 11.
3. The soffit lights shown on the electrical plans are now indicated on the architectural ceiling plan.
4. The soffit vents between the lights have been added.

AD11-A10 Refer to Sheet L/A604.4 – Interior Elevations.

1. Some bidders have asked questions about the door marks in the interior elevations.
2. Refer to the Floor Plans for the Door Marks, and the Opening Schedules for the Door Type information. Door Marks are not indicated in the Interior Elevations.

AD11-A11 Refer to Sheet L/A801.4:

1. Refer to the Black Box Theater L115, and add a note that states.
2. RESILIENT WOOD FLOOR, Masonite over Plywood

AD11-A12 Refer to Sheet L/A806.4:

1. Omit Sheet L/A806.4 and replace with the attached Sheet L/A806.4, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.
3. "CFS" Clear Floor Sealer has been added to the exposed concrete areas.

STRUCTURAL:

AD11-S01 Refer to Sheet L/S301.4:

1. Refer to Section A, between Grid Line L8 and L12.
2. Add a note pointing to the equipment base, and add the note

   Refer to Structural Detail **16-X/S531** for concrete housekeeping pad requirements.

FIRE PROTECTION:

AD11-FP01 Refer to Sheet L/F100:

1. Omit Sheet L/F100 and replace with the attached Sheet L/F100, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.
3. Level 1: (14) fire sprinklers have been added. A fire sprinkler has been added to each individual toilet stall in all restrooms.

AD11-FP02 Refer to Sheet L/F101:

1. Omit Sheet L/F101 and replace with the attached Sheet L/F101, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.
3. Refer to AD11-FP01 for a description of the Level 1 revisions.

AD11-FP03 Refer to Sheet L/F102:

1. Omit Sheet L/F102 and replace with the attached Sheet L/F102, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.
3. Refer to AD11-FP01 for a description of the Level 1 revisions.

AD11-FP04 Refer to Sheet L/F201:

1. Omit Sheet L/F201 and replace with the attached Sheet L/F201, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.
3. Level 2: (10) end-of-line branch line restraints have been added to the branch lines.
4. The branch line under the Roof Equipment Door in Mechanical Room L205 has been revised so that it does not obstruct the clearances required under the door.

PLUMBING:

AD11-P01 Refer to Sheet SD/P102:

1. Omit Sheet SD/P102.
2. Plumbing sheet SD/P102 is not in the scope of this project

AD11-P02 Refer to Sheet X/P102:

1. Omit Sheet X/P102 and replace with the attached Sheet X/P102 per revision Delta 11 dated 10/16/26.

AD11-P03 Refer to Sheet X/P201:

1. Omit Sheet X/P201 and replace with the attached Sheet X/P201 per revision Delta 11 dated 10/16/26.

AD11-P04 Refer to Sheet L/P101.4:

1. Omit Sheet L/P101.4 and replace with the attached Sheet L/P101.4 per revision Delta 11 dated 10/16/26.

AD11-P05 Refer to Sheet L/P301.4:

1. Omit Sheet L/P301.4 and replace with the attached Sheet L/P301.4 per revision Delta 11 dated 10/16/26.

MECHANICAL:

AD11-M01 Refer to Sheet L/M203.4:

1. For Mechanical Unit AH-L1, sheet L/M203.4 calls out Detail J/X/M102 as if it is to be mounted on a curb.
2. AH-L1 will require an 8" factory curb, mounted to 4-inch-tall concrete house-keeping pad. The extra vertical distance is required to allow for the condensate trap to be installed. The concrete housekeeping pad is required to add more mass to help diffuse vibration from the unit. Refer to Structural Detail 16-X/S531 for concrete housekeeping pad requirements.

AD11-M02 Refer to Sheet L/M401.4

1. Provide an outside air intake hood and a relief air discharge hood at the locations indicated on Drawing L/M401.4 at grid lines L11 and LD.

2. The basis of design shall be Greenheck Models FGI and FGR, complete with curb cap and birdscreen.
3. Throat sizes shall be as indicated on Sheet L/M401.4. Refer to Detail A-X/M102 in this Addendum. Include all required accessories and appurtenances necessary for a complete and operational installation. Manufacturer and model information for the intake and relief hoods is provided herein as the basis of design.
4. Provide ROOF ACCESSORIES, Manufactured Equipment Curbs. See Detail E7-X/A508.

AD11-M03 Refer to Mechanical Drawings L/M201.4 and L/M202.4

1. Refer to Mechanical Drawing L/M201.4, Keynote #1, and Mechanical Drawing L/M202.4, Keynote #11.
2. These Keynotes govern.
3. Provide 1" acoustic duct lining on all rectangular supply ductwork downstream of VAV boxes, from the VAV box discharge to the last branch takeoff / diffuser connection, whether or not lining is graphically indicated on the plans.
4. Round branch runouts to grilles and diffusers shall be internally lined. If not lined provide exterior duct wrap insulation per Section 23 07 13.

AD11-M04 Refer to Sheet SD/M101.4:

1. Omit Sheet SD/M101.4 and replace with the attached Sheet SD/M101.4 per revision Delta 11 dated 10/16/26.

AD11-M05 Refer to Sheet X/M104:

1. Omit Sheet X/M104 and replace with the attached Sheet X/M104 per revision Delta 11 dated 10/16/26.

AD11-M06 Refer to Sheet X/M201:

1. Omit Sheet X/M201 and replace with the attached Sheet X/M201 per revision Delta 11 dated 10/16/26.

AD11-M07 Refer to Sheet X/M202:

1. Omit Sheet X/M202 and replace with the attached Sheet X/M202 per revision Delta 11 dated 10/16/26.

AD11-M08 Refer to Sheet X/M203:

1. Omit Sheet X/M203 and replace with the attached Sheet X/M203 per revision Delta 11 dated 10/16/26.

AD11-M09 Refer to Sheet L/M201.4:

1. Omit Sheet L/M201.4 and replace with the attached Sheet L/M201.4 per revision Delta 11 dated 10/16/26.

AD11-M10 Refer to Sheet L/M202.4:

1. Omit Sheet L/M202.4 and replace with the attached Sheet L/M202.4 per revision Delta 11 dated 10/16/26.

AD11-M11 Refer to Sheet L/M301.4:

1. Omit Sheet L/M301.4 and replace with the attached Sheet L/M301.4 per revision Delta 11 dated 10/16/26.

AD11-M12 Refer to Sheet L/M302.4:

1. Omit Sheet L/M302.4 and replace with the attached Sheet L/M302.4 per revision Delta 11 dated 10/16/26.

AD11-M13 Refer to Sheet L/M401.4:

1. Omit Sheet L/M401.4 and replace with the attached Sheet L/M401.4 per revision Delta 11 dated 10/16/26.

AD11-M14 Refer to Sheet L/M601.4:

1. Omit Sheet L/M601.4 and replace with the attached Sheet L/M601.4 per revision Delta 11 dated 10/16/26.

ELECTRICAL:

AD11-E01 **Refer to Sheet** X/E103

1. Refer to the note Future 'MSEV'.
2. For clarification, MSEV is to be provided under a future contract and is not part of this bid.

AD11-E02 **Refer to Sheet** L/T201.4

1. Note 7 on sheet L/T201.4 remains applicable to the incoming telephone service entrance.
2. Provide the entrance conduit, surge protection and 110-style punch block on the fire rated backboard.
3. Per the riser diagram on sheet X/T203, the copper pairs and 110 block are dedicated to the elevator(s) and other devices requiring analog phone lines.
4. Telephone outlets at user locations shall be single data ports served from the network.

AD11-E03 **Refer to Sheets L/T201.4, L/T202.4 and L/T203.4 Access Control and Security Systems**

1. The infrastructure shown on the Electrical and Communication drawings is for the District's access control and security systems. The District's security vendor, Sonitrol, will furnish and install the security devices and head-end equipment.
2. The Contractor shall furnish and install all pathways, back boxes, cabling, and power described below, complete and ready for Sonitrol to install its devices.
3. **Pathways**: Install an EMT conduit pathway with a pull string from each security device back box to a termination point 12" above the finished ceiling. Unless noted otherwise below, provide continuous ½" EMT conduit.
4. **Security Device Infrastructure**: At each security device location shown on the drawings, or determined at the coordination meetings, provide the following:

   Security Keypad: Mount at +5'-0" AFF to the bottom, approximately 18" to 28" from the edge of the wall or door opening. Provide (1) Cat 6 cable and (1) 18/2 AWG power cable. Provide (1) 1" conduit to the accessible ceiling space.

   Security Door Contact: Provide cabling as confirmed by Sonitrol. Provide (1) ¾" conduit to the accessible ceiling space.

   Security Break Glass Detector: Provide cabling as confirmed by Sonitrol. Provide (1) ¾" conduit to the accessible ceiling space.

   Security Camera: Provide a recessed 5" square outlet box with a single-gang ring, (1) Cat 6 cable, and (1) 1-¼" minimum conduit stub to the accessible ceiling space.

Vape Sensor (VS): At each location indicated as "VS" on the Electrical plans, provide (1) Cat 6 cable, a back box as confirmed by Sonitrol, and (1) ¾" conduit to the accessible ceiling space. Vape sensors are ceiling-mounted (CLG) unless noted otherwise.

Security Head-End Equipment: Provide (1) 4" conduit from the accessible ceiling space to the Telecommunications Room (IDF) for the security system cabling. Provide a dedicated 120V circuit and (1) 120V quad receptacle adjacent to the head-end equipment.

5. For all security devices, verify back box requirements with Sonitrol before rough-in.

6. **Security Cameras**: No security camera locations are shown on the drawings. The Contractor shall provide infrastructure for ten (10) interior and five (5) exterior camera locations. Exterior locations shall have weatherproof back boxes and sealed conduit penetrations through the building envelope. Camera locations shall be determined at the coordination meetings with the District.

7. **Vape Sensors**: Vape sensor locations are indicated as "VS" on the Electrical plans. The Contractor shall provide infrastructure per Item 4.e for ten (10) vape sensor locations total: two (2) in each of the four (4) multi-stall restrooms (8 total) and one (1) in each of the two (2) single-use restrooms (2 total). Where the Electrical plans show only one (1) VS in a multi-stall restroom, provide a second location as determined at the coordination meetings with the District.

8. **Cable Confirmation**: Before ordering any security cabling, the Contractor shall submit a cable schedule listing cable types, quantities, and device locations, and shall confirm in writing with Sonitrol that the cabling is correct for the devices to be installed. Cabling ordered or installed without this confirmation shall be replaced at no additional cost to the Owner if it does not meet Sonitrol's requirements.

9. **Cable Support**: Above accessible acoustical and gypsum board ceilings, support all security cabling with J-hooks. In areas with non-accessible ceilings, provide dedicated conduit pathways to maintain cable support and access continuity.

10. **Coordination Meetings**: Before installing any pathways or back boxes, and after the metal framing is nearly complete, hold a series of coordination meetings with the District and Sonitrol to review and confirm the following:
    a. Security / intrusion alarm system pathways and back boxes.
    b. Security camera locations, including wall, mount and ceiling locations.
    c. Data outlet locations and adjacent power outlets.
    d. Wall monitor locations and the placement of instructional technology monitors and associated power/data outlets.

e. Wall-mounted phone locations.
f. Wireless access point (AP) rough-in locations.
g. Vape sensor rough-in locations in restrooms.
h. Clock speaker rough-in locations.

11. Allow Sonitrol two (2) months for its review and coordination. Infrastructure installed before this coordination is complete shall be relocated or replaced at no additional cost to the Owner.

12. Security devices, keypads, cameras, vape sensors, head-end equipment, and system programming are not in Contract and will be provided by Sonitrol under a separate contract with the District.

13. Access control and security system specifications are not part of this Contract. The Architect/Owner may provide specifications for future systems as they deem necessary.

AD11-E04 **Refer to Sheets** L/T201.4, L/T202.4, L/T203.4 and X/T203 – Communications

1. The Contractor shall provide the complete communications installation shown on the Drawings and Specifications. Refer to the Telecom Device Cable and Rough-In Schedule and the Communications Riser Diagram on the Drawings, and to Specification Section 27 13 00, for requirements.
2. The following are Owner-Furnished, Owner-Installed (OFOI) and are not in Contract:
   a. Wireless access points (WAPs).
   b. Network switches.
   c. Telephones.
   d. Security cameras.
3. At each OFOI device location, the Contractor shall provide all back boxes, conduit, cabling, terminations, and testing shown on the Drawings and specified in Section 27 13 00, complete and ready for the Owner to install the device.
4. All other equipment, cabling, electronics, racks, patch panels, and communications components shown on the Drawings or specified are Contractor-furnished and Contractor-installed.
5. Before ordering, the Contractor shall coordinate the size and configuration of the equipment racks with the Owner. This includes rack unit (RU) capacity for the Owner-furnished network switches, patch panels, cable management, and power. Racks ordered without this coordination shall be replaced at no additional cost to the Owner if they do not meet the Owner's requirements.
6. For security and access control system infrastructure, refer to AD11-E03, “Access Control and Security Systems”.

AD11-E05 **Refer to Sheets** X/E103, SD/E101, SD/E201, SD/E202, X/E202 and SD/A016 - **Existing Electrical Equipment and Site Electrical Shown as Existing**

1. Transformer TS1 and Panels HS1 and LS1 (SD/E202): For clarification, Reference Note #5 adjacent to Transformer TS1 and Panels HS1 and LS1 indicates that this equipment is existing to remain. It is not shown on the single line diagrams because it is not part of this Contract. No additional information for this equipment is required.
2. Future "MSEV" (X/E103 and SD/E202): The MSEV shown on Sheets X/E103 and SD/E202 is future work and is not in Contract. No work is required at the MSEV or the future EV charging stations (EVCS) under this Contract.
3. PV and EV Conduits (SD/E201): The PV and EV conduits shown on Sheet SD/E201 are not part of the scope of this Contract.
4. Base Bid – Existing Site Lighting (SD/E101 and SD/A016): Existing site lighting within and adjacent to the Building L limit of work is existing to remain and shall be protected in place, except as follows:
   a. One (1) existing site light at the north edge of the Building L limit of work shall be removed and reinstalled in the same location. Remove the existing pole, fixture and concrete foundation, and dispose of the foundation off site. Provide a new concrete pole base per Detail 2/X/E202. Reinstall the existing pole and fixture on the new base. Re-establish all associated conduits and conductors, and restore the light to full operation. Refer to Sheet SD/A016, Selective Demolition notes.
5. Alternate No. 1 – North Parking Lot (SD/E101 and SD/E201): New site lighting for the North Parking Lot is part of the Alternate No. 1 scope. The Electrical drawings for this area will be reissued in Addendum No. 12. Bidders shall base their Alternate No. 1 pricing on the reissued drawings.
6. All equipment, conduit and site lighting indicated as existing to remain shall be protected in place for the duration of the Work. Any damage caused by construction operations shall be repaired or replaced to its original condition at no additional cost to the Owner.

LANDSCAPE AND IRRIGATION:

AD11-L01 **Refer to Sheet SD/LI100:**

1. Omit Sheet SD/LI100 and replace with the attached Sheet SD/LI100, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.

AD11-L02 **Refer to Sheet SD/LI101:**

1. Omit Sheet SD/LI101 and replace with the attached Sheet SD/LI101, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.

AD11-L03 Refer to Sheet SD/LI102:

1. Omit Sheet SD/LI102 and replace with the attached Sheet SD/LI102, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.

AD11-L04 Refer to Sheet SD/LI106:

1. Omit Sheet SD/LI106 and replace with the attached Sheet SD/LI106, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.

AD11-L05 Refer to Sheet SD/LI200:

1. Omit Sheet SD/LI200 and replace with the attached Sheet SD/LI200, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.

AD11-L06 Refer to Sheet SD/LI201:

1. Omit Sheet SD/LI201 and replace with the attached Sheet SD/LI201, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.

AD11-L07 Refer to Sheet SD/LI202:

1. Omit Sheet SD/LI202 and replace with the attached Sheet SD/LI202, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.

AD11-L08 Refer to Sheet SD/LP101:

1. Omit Sheet SD/LP101 and replace with the attached Sheet SD/LP101, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.

AD11-L09 Refer to Sheet SD/LP102:

1. Omit Sheet SD/LP102 and replace with the attached Sheet SD/LP102, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.

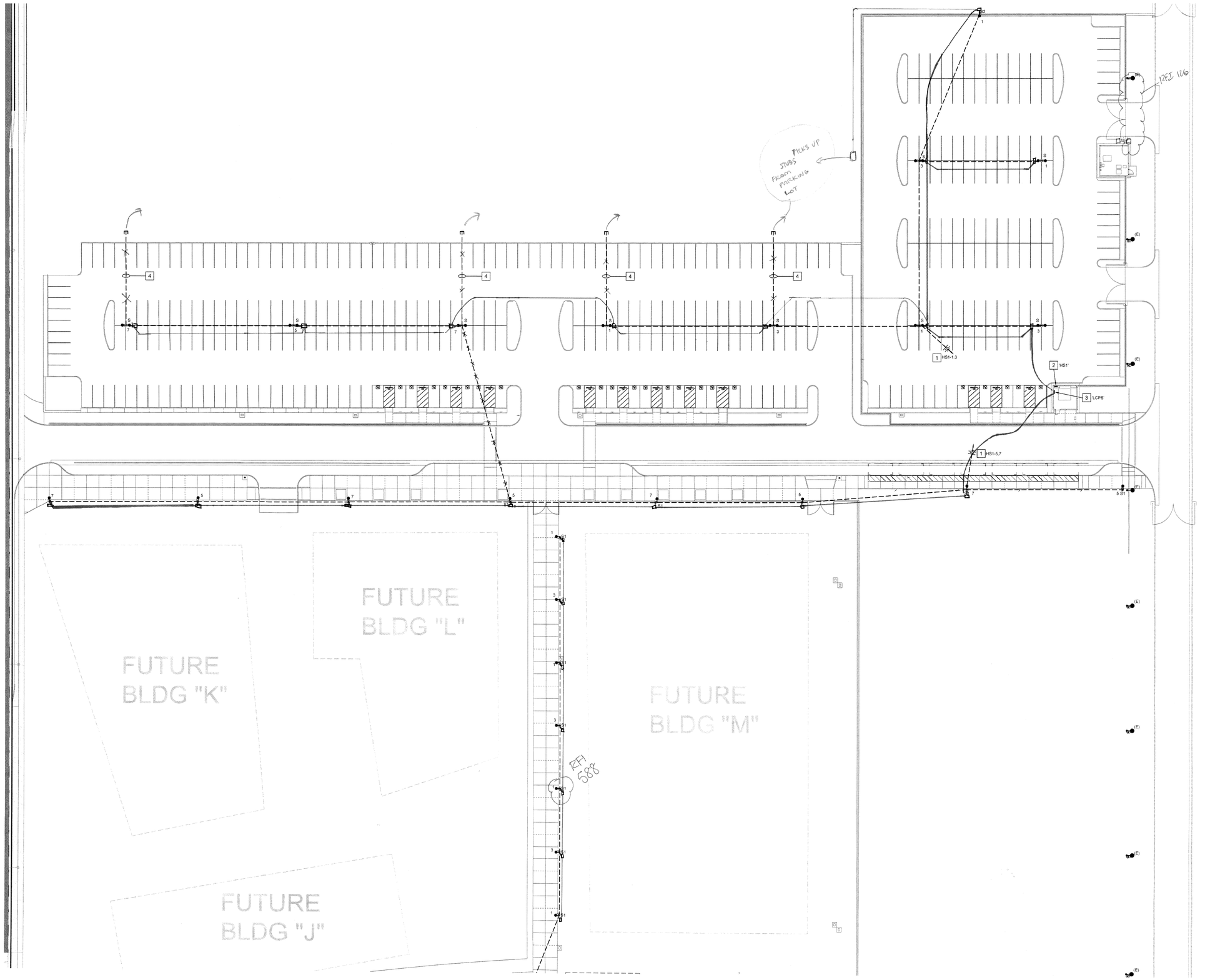
AD11-L10 Refer to Sheet SD/LP106:

1. Omit Sheet SD/LP106 and replace with the attached Sheet SD/LP106, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.

AD11-L11 Refer to Sheet SD/LP200:

1. Omit Sheet SD/LP200 and replace with the attached Sheet SD/LP200, identified as DSA Addendum No. 11.
2. Changes are clouded and identified with Delta 11.

END OF ADDENDUM NO. 11



PARTIAL SITE LIGHTING PLAN (NORTH)

SCALE: 1"=30'-0"

NORTH

DSA File No.:
DSA File 10-H15

DSA Application No.:
02-119023

Agency Approval

Sheet Reference Notes

1. ROUTE BRANCH CIRCUIT(S) THROUGH LIGHTING CONTROL PANEL, SEE LIGHTING CONTROL DIAGRAM ON SHEET X/E302.
2. LIGHTING PANELBOARD, SEE SINGLE LINE DIAGRAM SHEETS X/E102, X/E103, X/E104, AND X/E105, AND PANEL SCHEDULE SHEETS X/E107 THROUGH X/E114.
3. LIGHTING CONTROL PANEL 'LCPS', SEE LIGHTING CONTROL DIAGRAM ON SHEET X/E302.
4. (1) 1" C.O. STUB FOR FUTURE SITE LIGHTING.

NOTE:
FUTURE MEANS - NOT PART OF THE DSA APPLICATION

NOTES:
CONTRACTOR SHALL NOT ROUTE CONDUITS THROUGH ANY AREAS PLANNED FOR BUILDINGS / OR FLATWORK INDICATED AS BID ALTERNATES. REFER TO ARCHITECTURAL PLANS FOR EXACT LIMITS OF WORK BOUNDARIES ASSOCIATED WITH EACH BID ALTERNATE. PROVIDE ROUTING OF CONDUITS AS REQUIRED TO CLEAR AREAS DESIGNATED AND ASSOCIATED WITH EACH BID ALTERNATE.
CONTRACTOR TO PROVIDE SHOP DRAWING OF ALL PROPOSED CONDUIT ROUTING ON SITE, FOR ARCHITECT AND ENGINEER REVIEW PRIOR TO INSTALLATION OF ANY WORK.

PROVIDE CONCRETE MOW STRIP AROUND ALL SITE UTILITY ITEMS. SEE DETAIL L6-SD/A409 FOR THE ARCHITECTURAL MOW STRIP DETAIL.

1. SEE SHEET X/E106 FOR LIGHTING FIXTURE SCHEDULE.
2. REFER TO SHEET X/E201 FOR CONDUIT IN TRENCH DETAIL AND TYPICAL SITE DETAILS.
3. REFER TO SHEET X/E202 FOR POLE MOUNTED FIXTURE CONCRETE BASE DETAILS.

General Notes

thoma ENGINEERING
THOMA ELECTRIC, INC.
P.O. Box 1167 - 3562 Empleo St.
San Luis Obispo, CA 93406
Phone: (805) 543-3890
Fax: (805) 543-3829
cao@thomaelec.com

WILLIAM A. THOMA No. E 10757 REGISTERED PROFESSIONAL ENGINEER ELECTRICAL STATE OF CALIFORNIA
EXPIRES: 06/30/23
Consultant THOMA #19-8130

SEC - HIGH SCHOOL
Sanger Unified School District
1850 S Fowler, Fresno, CA
Project

SITE DEVELOPMENT
PARTIAL SITE LIGHTING PLAN (NORTH)
Drawing

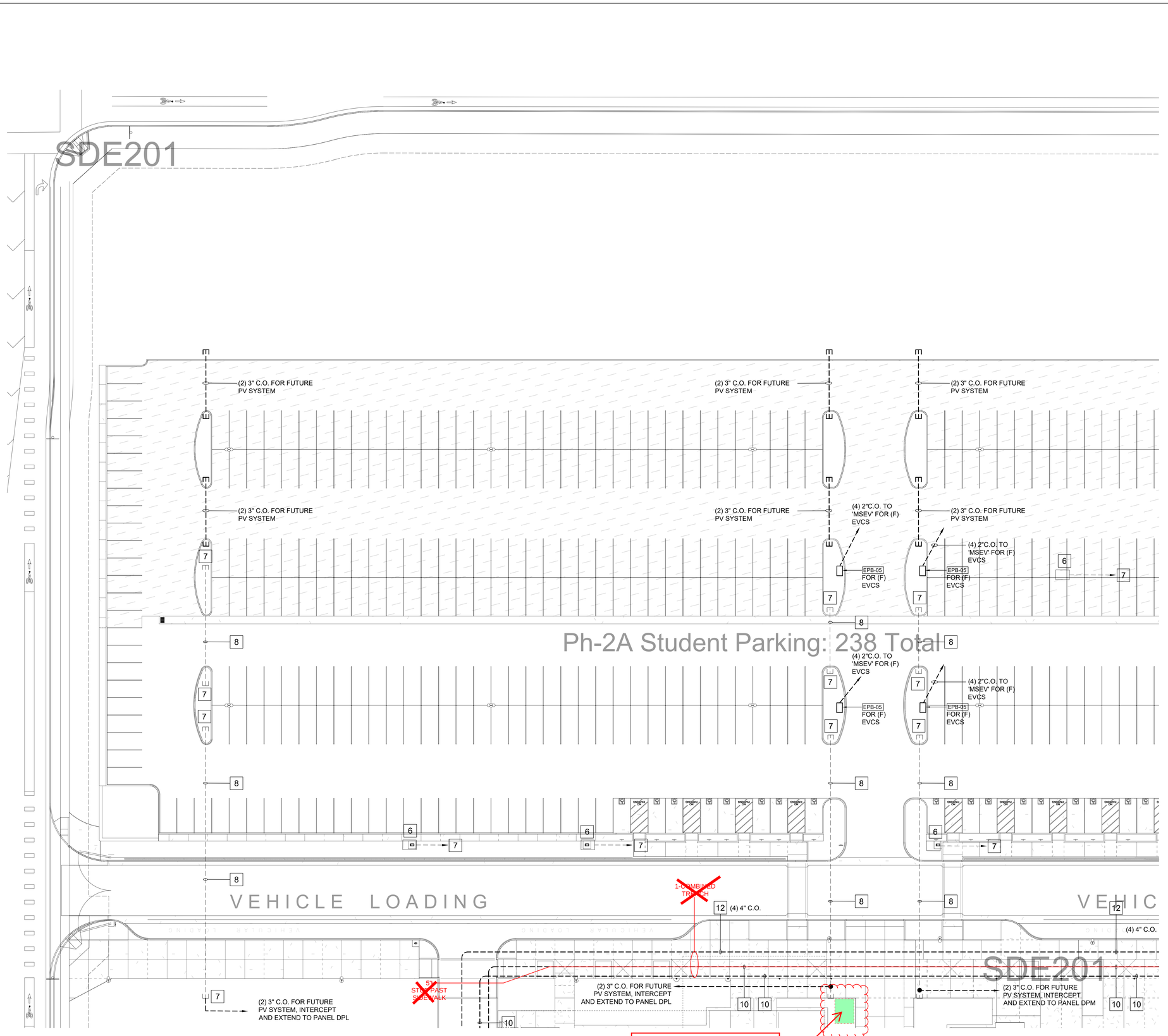
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LICENSED ARCHITECT RODNEY K. FENWICK No. C23724 STATE OF CALIFORNIA
Architect

No.	Revision/Submission	Date

SL-54
RFI 42
Revision

	Designed By:	Copyright 2019 Darden Architects
Scale: As Indicated	Drawn By:	
Project Number: 1866	Checked By:	SD/E101
Date: 10/08/2021	Reviewed By:	AD11

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PARTIAL SITE ELECTRICAL PLAN

SCALE: 1"=20'-0"

NORTH

DSA File No.:
DSA File

DSA Application No.:
DSA App

Agency Approval

Sheet Reference Notes

1. ELECTRICAL / DISTRIBUTION PANEL, SEE SINGLE LINE DIAGRAM SHEETS X/E102, X/E103, AND X/E104.
2. PAD MOUNTED TRANSFORMER, SEE SINGLE LINE DIAGRAM SHEETS X/E101, X/E102, X/E103, AND X/E104.
3. UNDERGROUND FEEDER, SEE SINGLE LINE DIAGRAM.
4. PAD MOUNTED MEDIUM VOLTAGE SECTIONALIZING SWITCH, SEE SINGLE LINE DIAGRAM SHEETS X/E101, X/E102 AND REFER TO SPECIFICATIONS.
5. EXISTING ELECTRIC EQUIPMENT TO REMAIN, PROTECT IN PLACE.
6. EXISTING ELECTRICAL PULLBOX TO REMAIN, PROTECT IN PLACE.
7. EXISTING CONDUIT STUB TO REMAIN, CONFIRM LOCATION AND PROTECT IN PLACE.
8. EXISTING POWER DISTRIBUTION SYSTEM CONDUITS TO REMAIN, CONTRACTOR TO CONFIRM EXACT LOCATION AND PROTECT IN PLACE.
9. INTERCEPT EXISTING CONDUITS, EXTEND TO NEW EQUIPMENT AND INSTALL FEEDER AS PER SINGLE LINE DIAGRAM.
10. UNDERGROUND POWER DISTRIBUTION SYSTEM FEEDER / CONDUIT ONLY STUB, SEE SINGLE LINE DIAGRAM.
11. CAST OUTLET BOX WITH GFI RECEPTACLE AND WHILE IN USE CAST TYPE COVER, SEE DETAIL 6-X/E206 FOR MOUNTING.
12. UNDERGROUND MEDIUM VOLTAGE FEEDER / SPARE CONDUITS, SEE SINGLE LINE DIAGRAM.
13. FUTURE SPORTS LIGHTING CABINET LOCATION.

ASB BY WILD ELECTRIC

NOTES:
CONTRACTOR SHALL NOT ROUTE CONDUITS THROUGH ANY AREAS PLANNED FOR BUILDINGS / OR FLATWORK INDICATED AS BID ALTERNATES, REFER TO ARCHITECTURAL PLANS FOR EXACT LIMITS OF WORK BOUNDARIES ASSOCIATED WITH EACH BID ALTERNATE. PROVIDE ROUTING OF CONDUITS AS REQUIRED TO CLEAR AREAS DESIGNATED AND ASSOCIATED WITH EACH BID ALTERNATE AND FUTURE BUILDING FOOTPRINTS.
CONTRACTOR TO PROVIDE SHOP DRAWING OF ALL PROPOSED CONDUIT ROUTING ON SITE, FOR ARCHITECT AND ENGINEER REVIEW PRIOR TO INSTALLATION OF ANY WORK.

PROVIDE CONCRETE MOW STRIP AROUND ALL SITE UTILITY ITEMS, SEE DETAIL L6-SD/A309 FOR THE ARCHITECTURAL MOW STRIP DETAIL.

THE EXACT QUANTITY, LOCATION AND DEPTHS OF EXISTING UNDERGROUND PIPING AND CONDUITS IS UNKNOWN. VERIFY AND MAINTAIN EXISTING UTILITIES IN SERVICE AND PROTECT THEM AGAINST DAMAGE DURING DEMOLITION AND EXCAVATION OPERATIONS.

REPAIR AND RECONNECT ALL EXISTING UNDERGROUND PIPING UNCOVERED AND DAMAGED BY NEW WORK AS REQUIRED TO MAINTAIN PROPER SYSTEM FUNCTIONS. RE-TEST ALL SYSTEMS DAMAGED BY NEW WORK.

LOCATIONS OF EXISTING UNDERGROUND (UG) UTILITY SYSTEMS SHALL BE DETERMINED BY CALLING UNDERGROUND SERVICE ALERT (USA). WHEN PLANNING UNDERGROUND WORK, AND BEFORE YOU DIG, CONTACT UNDERGROUND SERVICE ALERT (USA) AT LEAST 48 HOURS PRIOR TO EXCAVATION (WEEKENDS EXCLUDED) FOR THE LOCATION OF UNDERGROUND GAS AND ELECTRIC LINES OR EQUIPMENT.

SAWCUT AND PATCH ALL SURFACES TO MATCH EXISTING SURFACES (CONCRETE, AC PAVING, ETC.) COMPLETE FIELD VERIFICATION OF THIS WORK IS REQUIRED.

General Notes

thoma ENGINEERING
THOMA ELECTRIC, INC.
P.O. Box 1167 - 3562 Empleo St.
San Luis Obispo, CA 93406
Phone: (805) 543-3850
Fax: (805) 543-3829
cad@thomaelec.com

REGISTERED PROFESSIONAL ENGINEER WILLIAM A. THOMA ELECTRICAL STATE OF CALIFORNIA

EXPIRES: 06/30/25
Consultant THOMA #22-8060

SANGER EDUCATION COMPLEX-PHASE 3
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727
Project

SITE DEVELOPMENT

PARTIAL SITE ELECTRICAL PLAN
Drawing

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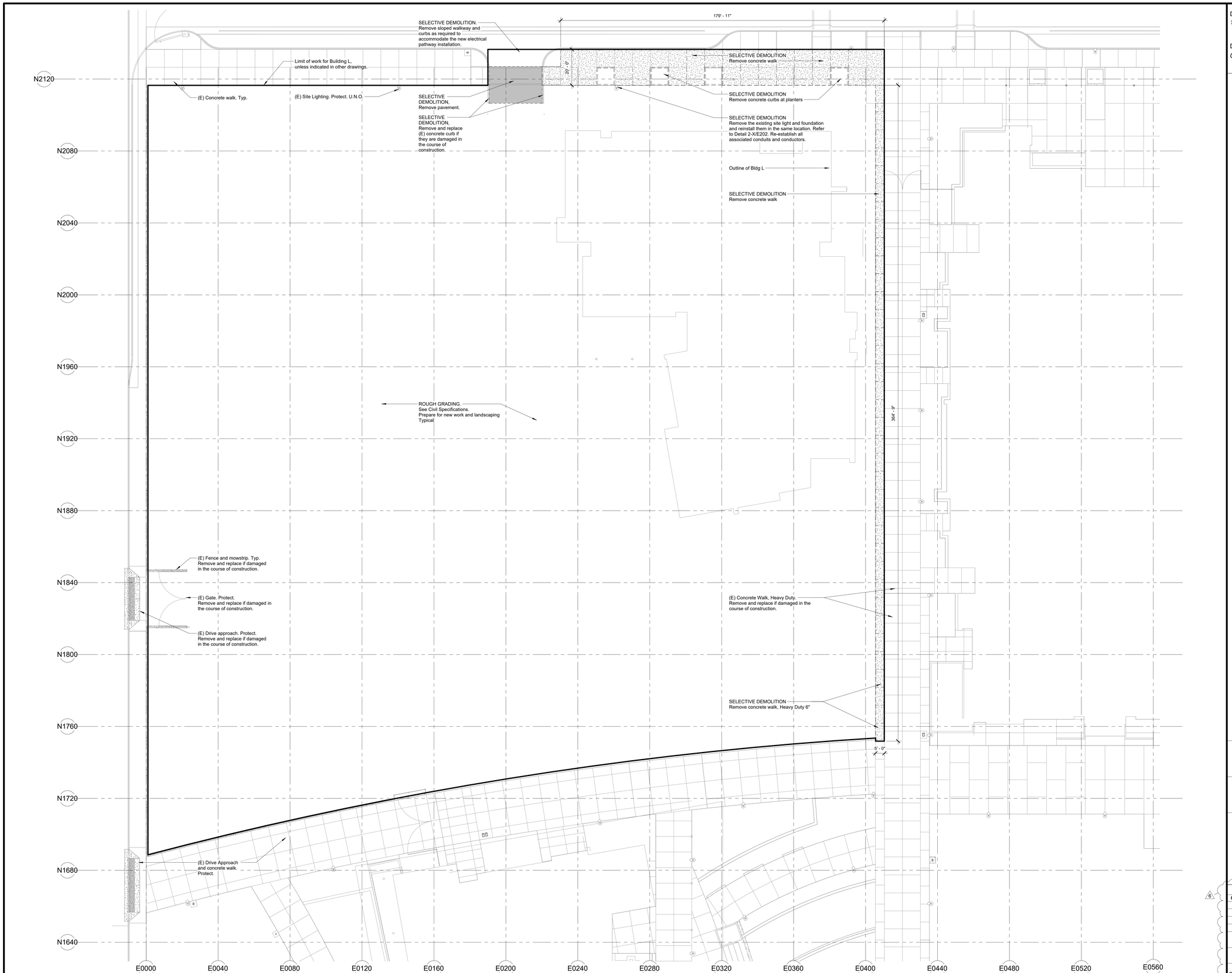
LICENSED ARCHITECT RICHARD K. DARDEN No. C23724 REN. 4-30-25 STATE OF CALIFORNIA

Architect

No.	Revision/Submission	Date

Revision

	Designed By:	Copyright 2021 Darden Architects
Scale: As indicated	Drawn By:	*SD/E201*
Project Number: 2171	Checked By:	
Date: 10/16/23	Reviewed By:	AD11



1 PARTIAL SITE PLAN
1" = 20'-0"

DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

Sanger Education Complex – Phase III
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727
Project

SITE DEVELOPMENT
PARTIAL SITE DEMOLITION PLAN
Drawing

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LICENSED ARCHITECT MICHAEL K. FERNOW No. C23724 Exp. 4-30-27 STATE OF CALIFORNIA
Architect

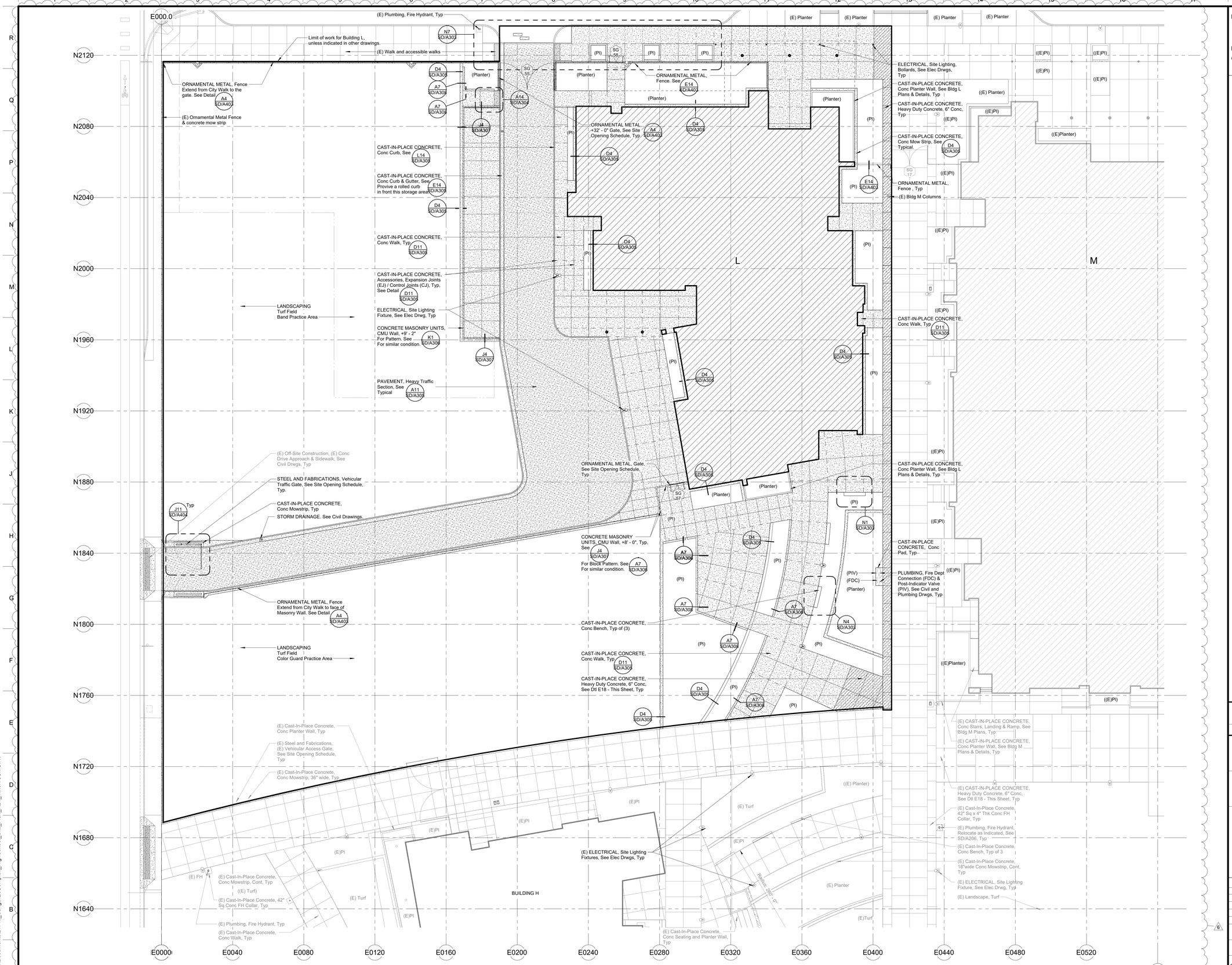
No.	Revision/Submission	Date
6	DSA Addendum 11	10/16/2026

Revision

	Designed By: Designer	Copyright 2021 Darden Architects
Scale: 1" = 20'-0"	Drawn By: Author	
Project Number: 2171	Checked By: Checker	
Date: 12/22/2022	Reviewed By: Approver	

SD/A016
AD11

10/16/2026 1:12:39 PM
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DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

SYMBOLS

- PAVEMENT, Typical Paving Section. See Detail A8 / SD/A305
- PAVEMENT, Heavy Paving Section. See Detail A11 / SD/A305
- CAST-IN-PLACE CONCRETE, 4" Concrete Walk over 6" 90% Compacted Fill. See **Detail** D11 / SD/A305 for Concrete Walk Details
- CAST-IN-PLACE CONCRETE, Heavy Duty Concrete 6" Concrete (3500 psi) with #3 reinforcement bars @ 18" o.c. placed over a 4" thick layer of class 2 aggregate base. Prepare and compact 12" soil layer to an R-Value = 30 See **Detail** D11 / SD/A305
- CAST-IN-PLACE CONCRETE. Dashed Lines indicate expansion joints. Solid lines indicate control joints. See Detail D11 / SD/A305 and Specifications for additional requirements.
- L — Building Designation
- 358 — Finish Grade Contour
- Building Outline
- CB — STORM DRAINAGE, Catch Basin or Drain Box
- Property Line
- DB — STORM DRAINAGE, Drain Box
- Limits of Construction (Project Area)
- DI — STORM DRAINAGE, Drain Inlet
- X—X—X Staging Fence (Project Area)
- TD — STORM DRAINAGE, Trench Drain
- Existing Site Improvements
- FH — PLUMBING, Fire Hydrant
- Covered Area
- FDC — PLUMBING, Fire Department Connection (Siamese)
- 101 a — Site Gate Opening. See SD/A501
- PIV — PLUMBING, Post Indicator Valve
- Grade Break
- CO — PLUMBING, Clean Out,
- Existing
- CO — CIVIL, Sewer Clean Out,
- Drainage Swale
- SOV — PLUMBING, Shut Off Valve,
- Slope Dn — General Direction of Slope
- ELECTRICAL, Pole Light Fixture,
- ELECTRICAL, Existing Light Pole
- ELECTRICAL, Bollard Light Fixture,
- ELECTRICAL & MECHANICAL, Utility Box
- ELECTRICAL, Light Fixture, Directional
- ELECTRICAL, Elec Pull-Box, See Elec Drwgs, Typ
- ELECTRICAL, Pole Light Fixture,

ABBREVIATIONS

(E)	Existing	EMS	Energy Management System	P1-P4	Elec Utility Box
AC-A	Accessible Parking, Standard Accessible Stall	E	Electrical Power	PIV	Post Indicator Valve
AC-V	Accessible Parking, Van Accessible Stall	EJ	Expansion Joint, 1/2"	PL	Planter
AC	Air Conditioning System	F	Fire Protection	R	Radius
AD	Area Drain, (See Plumbing)	FD	Floor Drain	RWL	Rain Water Leader
BW	Back of Walk	FDC	Fire Dept Connection	SD	Storm Drain
C	Concrete	FF	Finish Floor	SL	Site Lighting
CB	Catch Basin	FG	Finish Grade	S	Signal
CJ	Control Joint	FL	Flow Line	SS	Sanitary Sewer
CM	Communications	FMFCD	Fresno Metropolitan Flood Control District	TB	Top of Bench
CO	Clean Out	FS	Floor Sink	TC	Top of Curb
COB	Clean Out Box	G	Gas	TD	Trench Drain
CW	Cold Water	GT	Gutter	TG	Top of Grate
DB	Drain Box	GB	Grade Break	TF	Top of Fence
DI	Drain Inlet	RG	Rough Grade	TL	Top of Lid
DS	Drainage Swale	HPG	High Pressure Gas	TLB	Top of Light Base
EVCS	Electric Vehicle Charging	HL	Hydronics Line	TW	Top of Wall
EV-A	EVCS, Ambulatory Stall	INV N	Invert North	Typ.	Typical
EV-F	Future EVCS Stall	INV NE	Invert Northeast	UNO	Unless Noted Otherwise
EV-A	EVCS, Standard Accessible Stall	MH	Manhole	VG	Valley Gutter
EV-V	EVCS, Van Accessible Stall	MS	Mow Strip	W	Waste
		OC	On Center		
		P	Pavement		

NOTES

1. CAST-IN-PLACE CONCRETE, See symbol legend for expansion joints notes. Provide Expansion Joints where walk abuts other site vertical elements; columns, benches, building slabs.
2. CAST-IN-PLACE CONCRETE, Provide 12" x 6" mow strips around all site utilities boxes, valves, pipes, pole bases, etc. See Detail L6-SD/A309
3. ELECTRICAL, See Electrical Drawings
4. LANDSCAPING, See Landscape and Irrigation Drawings
5. Refer to CIVIL Drawings for Vertical Controls and Grading; also refer to J14 / SD/A309
6. No Selective Demolition shall begin until the plans, including the selective demolition work, have been approved by DSA
7. Site Gates and Doors, See Opening Schedule on Drawing Sheet SD/A401
8. CAST-IN-PLACE CONCRETE, Where New Concrete Walk Sections abutts (E) Concrete provide REINFORCEMENT Dowells per D11-SD/A305; Dtl EC - Typical

E18 — Site Plan Legend
No Scale

Sanger Education Complex – Phase III
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727
Project

SITE DEVELOPMENT
PARTIAL SITE PLAN - ALTERNATE BID NO. 4
Drawing

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LICENSED ARCHITECT MICHAEL K. P. FINNEY No. C23724 Ren. 4/30/27 STATE OF CALIFORNIA

Architect

No.	Revision/Submission	Date
3	ADDENDUM 3	12/11/2023
6	DSA Addendum 11	10/16/2026

Revision

Designed By: Designer
Drawn By: Author
Checked By: Checker
Reviewed By: Approver

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Scale: 1" = 20'-0"
Project Number: 2171
Date: 12/22/2022

SD/A106.4
AD11

A1
1" = 20'-0"
PARTIAL SITE PLAN

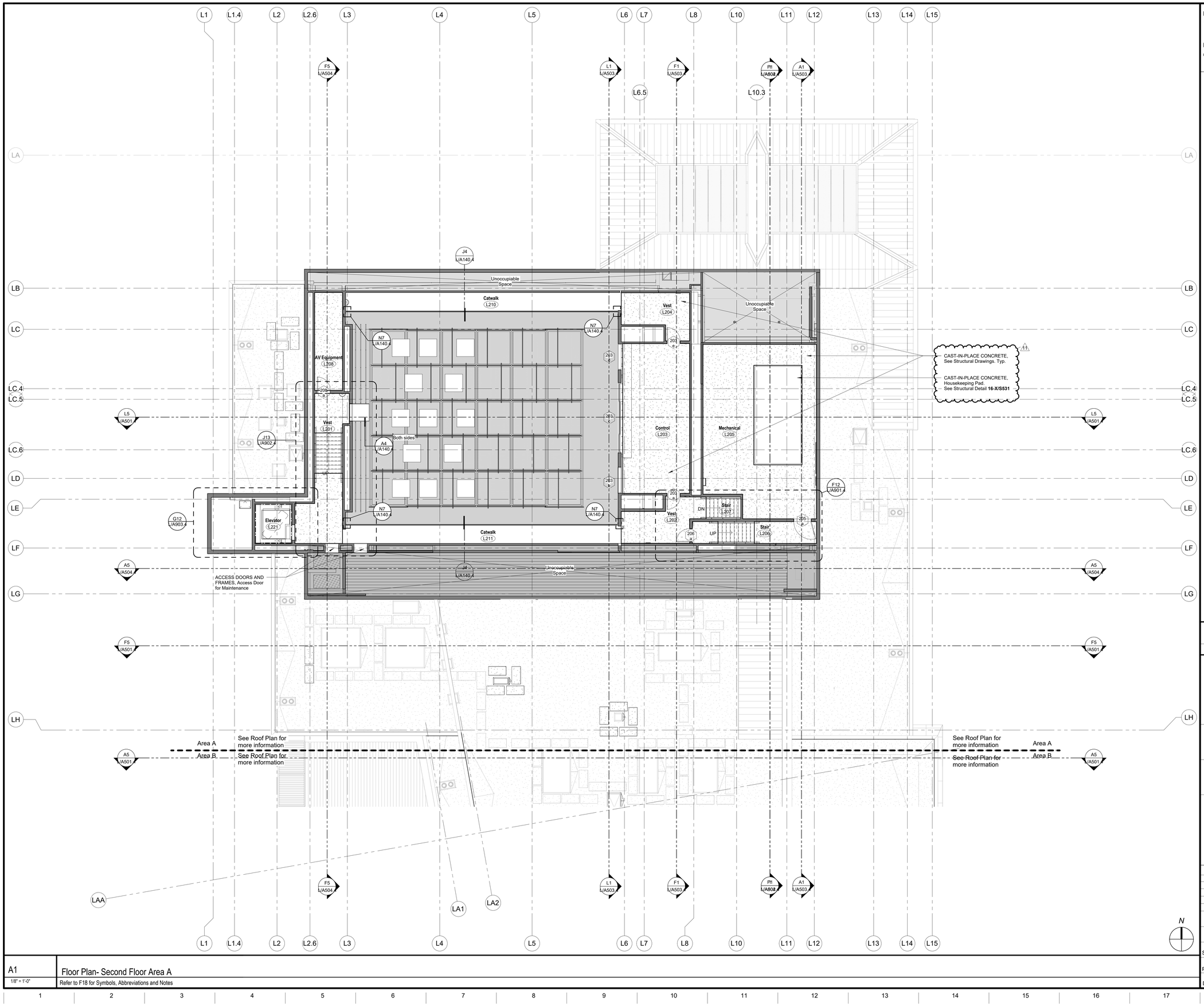
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N2040
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E0280
E0320
E0360
E0400
E0440
E0480
E0520
E0560
L
M
(Rough-Graded Earthwork)
(Turf)
(Planter)
(PI)
(PIV)
(FDC)
(E)FH
BUILDING H
See Bldg L Dims
See Bldg M Dims
See Overall Site Dimension Plan SD/A300)
(See Overall Site Plan SD/A300)
N 2135' - 0"
E 527' - 8 3/4"
N 2135' - 6"
E 261' - 6"
N 2116' - 6"
E 313' - 2"
N 2116' - 6"
E 339' - 9"
N 2116' - 6"
E 366' - 4"
N 2116' - 6"
E 392' - 11"
N 2106' - 6"
E 400' - 6"
N 2116' - 6"
E 478' - 2 1/4"
N 2116' - 6"
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N 2117' - 0"
E 21' - 11 3/4"
N 2115' - 6"
E 20' - 3"
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E 140' - 6"
N 2091' - 4"
E 233' - 0"
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N 1971' - 3 1/2"
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N 1957' - 5 1/2"
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R 10' - 0"
R 30' - 0"
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R 208' - 3"
R 218' - 3"
R 228' - 3"
R 240' - 0"
R 260' - 0"
R 2062' - 0"
R 2062' - 0"
R 2062

APPROVED
DIV. OF THE STATE ARCHITECT
APP: 02-120779 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 02/13/2024

Interior Finish Schedule- Building L

| Room Number | Room Name | Floor Finishes: CAST-IN-PLACE CONCRETE, Concrete Slab | TILE, Ceramic Tile, SYS-IFA (Conc Sub Floor - Thin Set) | TILE, Ceramic Tile, SYS-IFB (Conc Sub Floor - Mortar Bed) | TILE, Ceramic Tile, SYS-IFC (Conc Sub Floor - Showers) | RESILIENT WOOD FLOOR, Gymnasium Wood Floor System | RESILIENT WOOD FLOOR, Theater System | RESILIENT BASE AND ACCESSORIES, Rubber Tread and Risers | RESILIENT SHEET , Vinyl Sheet, RS-1 | RESILIENT TILE, Luxury Vinyl Tile, RT-1 | RESILIENT TILE, Luxury Vinyl Tile, RT-2 | RESILIENT TILE, Luxury Vinyl Tile, RT-4 | RESILIENT TILE, Rubber Tile, RT-3 | RESILIENT ATHLETIC FLOORING, Rubber | RESILIENT ATHLETIC FLOORING, Vinyl | RESINOUS FLOORING, Type 1 | RESINOUS FLOORING, Type 2 (Extreme Temperature Fluctuations) | CARPET, Modular, MT-1 | CARPET, Modular, MT-2 | CARPET, Modular Tile, MT-3 | CARPET, Walk-off, WO-1 | Base Finishes: CAST-IN-PLACE CONCRETE, Concrete Curb | RESILIENT BASE AND ACCESSORIES, Rubber Wall Base, 4" | RESILIENT BASE AND ACCESSORIES, Rubber Wall Base, 6" | TILE, Ceramic Tile, SYS-IWD (WR Gyp Bd - Thin Set) | TILE, Ceramic Tile, SYS-IWF (Mtl Stud Walls - Mortar Bed) | RESILIENT WOOD FLOOR, Perimeter Vented Base | RESINOUS FLOORING, Base | RESILIENT SHEET , Integral Base | Wall Finishes: CEMENT PLASTER, System, | GYPSUM BOARD, Wallboard, (Texture GB-2) | GYPSUM BOARD, Wallboard, (Texture GB-3) | GYPSUM BOARD, Water Resistant, (Texture GB-2) | GYPSUM BOARD, Abuse Resistant (Texture GB-1) To 8'-0" AFF, UNO | TILE, Ceramic Tile, SYS-IWD (WR Gyp Bd - Thin Set). | TILE, Ceramic Tile, SYS-IWF (Mtl Stud Walls - Mortar Bed). | METAL PANELS, Interior Acoustical Wall Liner Panel | WALL COVERINGS, Vinyl Covered Tackboard over Gypsum Board (GB-3) | FRP Panels over Gypsum Board, Water Resistant (GB-3) | WALL COVERINGS, Custom Graphic Vinyl Wall Covering over Gypsum Board (GB-1) | WALL COVERINGS, Ultra High Impact Panels | WALL COVERINGS, Acoustical Panels, High Impact, over Gypsum Board (GB-3) | ATHLETIC EQUIPMENT, Wall Padding | FOOD SERVICE EQUIPMENT, Wall Flashing, See FOOD SERVICE drawings | ROUGH CARPENTRY, 3/4" Plywood over Gypsum Board | MILLWORK, Wall Casing | WALL COVERINGS, Glass Marker Wall System | ACOUSTICAL CEILINGS, Acoustical Wall System | MCM PANEL | WALL AND CORNER GUARDS, Impact Resistant Wall Coverings | Ceiling Finishes: ACOUSTICAL CEILINGS, Suspension System, | CEMENT PLASTER, System | GYPSUM BOARD, Wallboard (Texture GB-1). | GYPSUM BOARD Abuse Resistant, (Texture GB-2) | METAL DECK, Metal Deck and Steel Beams | METAL DECK, Acoustical Metal Deck | INSULATION, Black Faced Acoustic Insulation (Acoustical Blanket) | THEATER, Pipe Grid and Accessories | Miscellanous Finishes: STEEL AND FABRICATIONS, (Exposed to view) | METAL DOORS AND FRAMES, Doors, Panels and Frames | WOOD DOORS, | WALL AND CORNER GUARDS, Corner Guard, Type 1 | WALL AND CORNER GUARDS, Corner Guard, Type 2 | MISCELLANEOUS SPECIALITIES, Metal Louver Wall System | MILLWORK, Wood | STEEL AND FABRICATIONS, Guardrails | CAST IN PLACE CONCRETE, Concrete Bench and Base | Remarks |
|---|---|---



DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

SYMBOLS

- Concrete Masonry Unit Wall. 8" wide
- Concrete Wall, or Column. Size as indicated.
- Stud Wall, Studs and Interior Wall materials continuous from floor to underside of floor or roof deck. Studs at 16" o.c. unless otherwise noted. Interior Wall materials shall include Batt Insulation, Sound Deadening Board, Plywood Sheathing, Gypsum Board, and Cement Plaster/ Ceramic Tile setting bed where occurs.
- Stud Wall. Studs and finish material continuous from floor to minimum 6" above ceiling. Studs to be braced to underside of roof framing or deck if not required to be continuous to roof framing or deck. Studs at 16"o.c. Unless Otherwise Noted. See Structural for bracing and extent of Structural Sheathing.
- 1 Hr. Corridor Wall - Fire Partition (1 Hr. Fire Resistive Construction, 20 Min. Door Assemblies, 45 Min. Window Assemblies)
- 1 Hr. Fire Barrier - (1 Hr. Fire Resistive Construction, 60 Min. Door / Window Assemblies)
- 2 Hr. Fire Barrier - (1 Hr. Fire Resistive Construction, 90 Min. Door / Window Assemblies)
- LANDSCAPING, Planter with CAST-IN-PLACE CONCRETE Walls with LANDSCAPING, Topsoil and amendments. See A11 X/A511 H11 X/A511
- a ### — Cabinet Group No. Refer to Modular Casework Schedule and Lab Casework Schedule.
- 0 — Reference Grid
- 101 a — Opening Group No. Refer to Door or Window Opening Schedules
- Room name 101 — Room Designation
- # # a — Wall Assembly Symbols. Refer to Sheet X/A101
- Reference Point
- A — Indicates 48" x 30" Clear floor or ground space
- Indicates 60" clear turning space

MINIMUM DOOR CLEARANCES (18" @ Interior, 24" @ Exterior; 5' - 0"; 4' - 0")

ABBREVIATIONS

FEBC FIRE PROTECTION SPECIALTIES, Fire Extinguisher/Blanket Cabinet, Type FEBC-#, Unless Noted Otherwise. Provide Fire Rated Cabinet at Rated Walls. Provide Surface Mounted Cabinet at Rated Walls Where Stud Depth is Less than 6" and at Masonry Walls, See A7 X/A605

FEC-# FIRE PROTECTION SPECIALTIES, Fire Extinguisher Cabinet, Type FEC-#, Unless Noted Otherwise. Provide Fire Rated Cabinet at Rated Walls, See A7 X/A605

EQ	Equal	FOM	Face of Masonry	UNO	Unless Noted Otherwise
DS	Downspout	FOS	Face of Stud	RO	Rough Opening
FF	Face of Finish	FS	Floor Sink	Typ	Typical
FOC	Face of Concrete	HB	Hose Bib	Sim	Similar
FD	Floor Drain	MO	Masonry Opening	OH	Opposite Hand

NOTES

1. All Exterior Walls shall be Wall Assembly Type 6.B* E.M Unless Noted Otherwise.
2. All Interior Walls shall be Wall Assembly Type 6.D I.M Unless Noted Otherwise.
3. All Dimensions are to Face of Stud (FOS) or Center Line, Unless Noted Otherwise.
4. All Elevation Dimensions are above Finish Floor at each floor level, Unless Noted Otherwise.
5. Dimensions noted as "+/-" are nominal.
6. Floor Drains (FD) and Floor Sinks (FS) shall be set -3/4" and a min. of 3'-0" from nearest wall, Unless Noted Otherwise. Floor slopes to drain shall not exceed 1.9% in any direction.
7. For room signage refer to the SIGNAGE SCHEDULE AND PLANS
8. FIRE RESISTIVE ASSEMBLIES:
   a. All Through Penetrations and Wall Membrane Penetrations through Walls of Fire Resistive Construction shall be protected in accordance with their Fire Resistive Ratings.
   b. All walls of fire and/or smoke resistive construction shall be permanently identified with signs or stenciling in lettering not less than 3 inches (76 mm) in height with a minimum 3/8 inch (9.5 mm) stroke in a contrasting color incorporating the following wording: FIRE AND/OR SMOKE BARRIER "#" HOUR RATED. PROTECT ALL OPENINGS. signs or stenciling shall be located above ceilings on both sides of the wall, located 15'-0" from ends of wall and at intervals not to exceed 30'-0" horizontally along the wall or partition. Note: "#" indicates the hourly rating of the wall or partition.
9. FIRE RESISTIVE CONSTUCTION: Refer to X/A101 through X/A105 for Typical Details. Refer to to the Regulatory Floor Plans for the Rated Horizontal Assembly location(s).
10. FIRE ASSEMBLIES FOR STRUCTURAL STEEL: Refer to detail A7 - X/A102 for fire assembly requirements for all concealed and exposed horizontal, vertical and diagonal structural steel members.

F18 — Floor Plan Legend

No Scale



Area A Key Plan - Building L

SANGER EDUCATION COMPLEX - PHASE 3
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727
Project

BUILDING L
SECOND FLOOR PLAN - AREA A
Drawing

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LICENSED ARCHITECT REGINALD K. P. FENTON No. C23724 Exp. 4-30-23 STATE OF CALIFORNIA

Architect

No.	Revision/Submission	Date
11	DSA ADDENDUM 11	10/16/2026

Revision

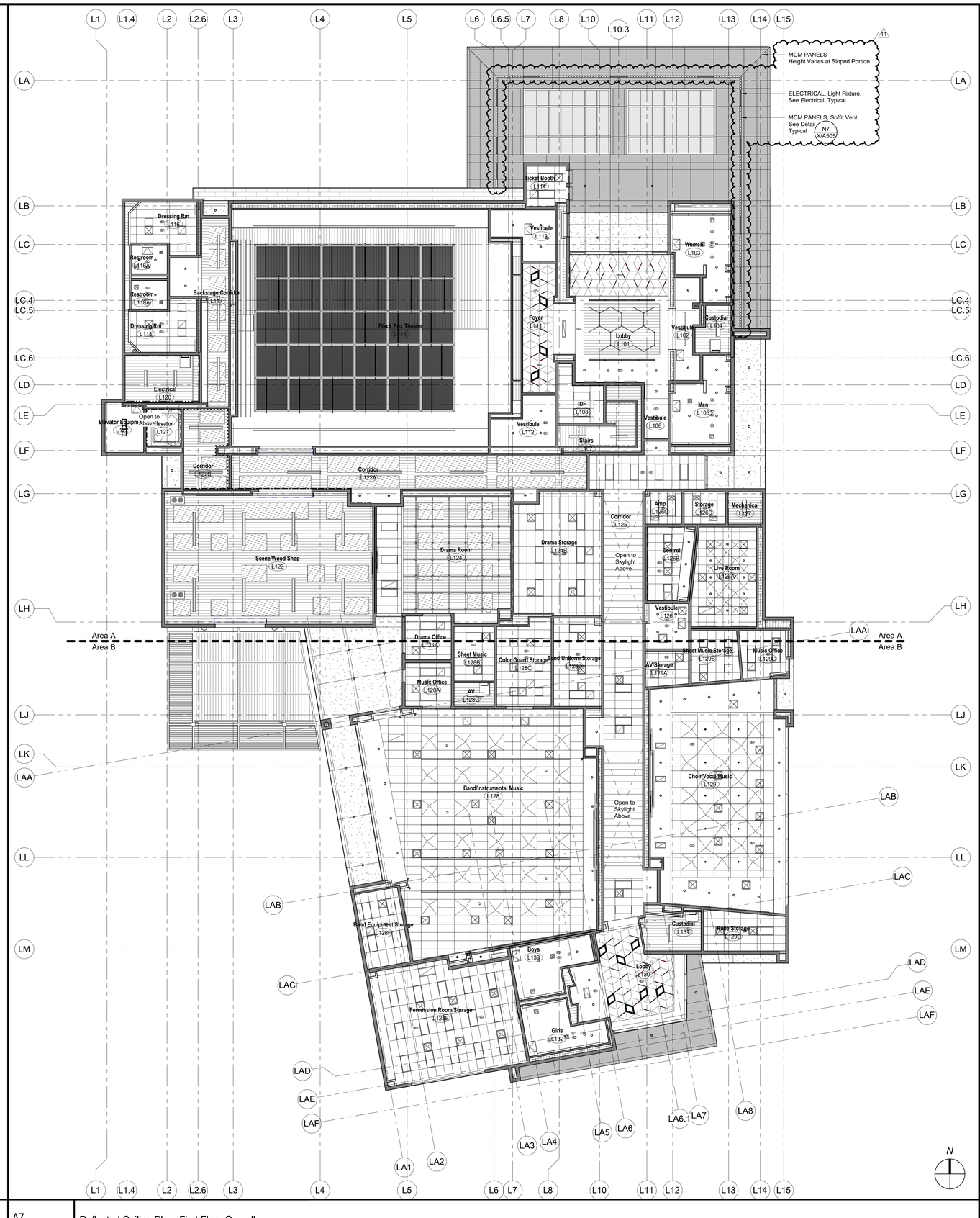
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Scale: As indicated	Drawn By: -	
Project Number: 2171	Checked By: MF	*L/A105.4*
Date: 12/22/22	Reviewed By: MF	AD11

A1 — Floor Plan- Second Floor Area A

1/8" = 1'-0"

Refer to F18 for Symbols, Abbreviations and Notes

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DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

SYMBOLS

- MECHANICAL, Air Supply Grill
- MECHANICAL, Air Return Grill
- MECHANICAL, Strip Grill
- MECHANICAL, Exhaust Fan
- FIRE PROTECTION, Fire Sprinkler Head. Refer to Fire Protection Drawings.
- OD PLUMBING, Overflow Drain
- PLUMBING, Roof Drain, Refer to Plumbing.
- SD ELECTRICAL, Fire Alarm Device
- SV ELECTRICAL, Fire Alarm Device, Audio/Visual
- (RA) ROOF ACCESSORIES, Roof Hatch
- ACOUSTICAL CEILINGS, Suspended Ceiling Compression Strut/ Splay Wire location
- ELECTRICAL, Light Fixture, Recessed, Unless Noted Otherwise. (p) = Pendant Mounted (s) = Surface Mounted
- ELECTRICAL, Light Fixture. Wall Mounted
- ELECTRICAL, Light Fixture, Linear
- STEEL AND FABRICATIONS, Access Ladder
- VS ELECTRICAL, Vape Sensor. Refer to ELECTRICAL for Data outlet. Device to be OFOI .
- CEMENT PLASTER, Cement Plaster System
- GYPSUM BOARD, Refer to Interior Finish Schedule. Support Gyp. Bd. from METAL FRAMING. See Structural detail **16-X/S603** for typical soffit framing and metal framing attachment to Metal deck.
- FIBER-CEMENT PANELS
- ACOUSTICAL CEILINGS, ACT-II, ACT-IV, ACT-IX, ACT XV, ACT-XVII
- ACOUSTICAL CEILINGS, ACT-III
- ACOUSTICAL CEILINGS, ACT-X
- ACOUSTICAL CEILINGS, ACT-XII
- ACOUSTICAL CEILINGS, ACT-XIII
- INSULATION, Acoustical Blanket, 1" Thick, Stick Pinned to Metal Deck
- METAL DECK/ ACOUSTICAL METAL DECK, Open to above. Refer to Interior Finish Schedule for Deck type. See Interior Finish Schedule for INSULATION, Black Faced Acoustic Insulation locations.
- MCM, Metal Panels @ Canopy
- PERFORATED METAL PANELS See Roof Plan for more information. See Detail A4 X/A513, A11 X/A513, A1 X/A513
- TRANSLUCENT PANELS, Skylight Panel System, See Detail A9 X/A514, F4 X/A514, F11 X/A514, F14 X/A514, L14 X/A514
- ACOUSTICAL CEILINGS, ACT-XI
- ACOUSTICAL CEILINGS, ACT-XVI
- ACCESS DOORS AND FRAMES, Ceiling Access. 20" x 30" minimum. Contractor to field verify clear headroom of not less than 30 inches.
- 1 Hr. Corridor Wall - (1 Hr. Fire Resistive Construction, 20 Min. Door Assemblies, 45 Min. Window Assemblies)
- 1 Hr. Fire Barrier - (1 Hr. Fire Resistive Construction, 60 Min. Door Assemblies)
- 1 Hr. Occupancy Separation / Fire Partition - (1 Hr. Fire Resistive Construction, 45 Min. Door Assemblies, 45 Min. Window Assemblies)
- MISCELLANEOUS SPECIALTIES, Unistrut Support System Refer to Drawing X/A606 for details
- Reference Point

ABBREVIATIONS

Clg.	Ceiling	OF	Over Flow
Ht.	Height	UNO	Unless Noted Otherwise
LO	Louver Opening	ACT	ACOUSTICAL CEILINGS, Tile, Suspended,
Typ.	Typical	CP	CEMENT PLASTER, System
Sim.	Similar	GB	GYPSUM BOARD, Type 'X', UNO
OH	Opposite hand	GLB	GLUE-LAMINATED CONSTRUCTION, Beam
DS	Downspout	MD	METAL DECK

NOTES

1. ACOUSTICAL CEILINGS, For typical suspended ceiling support and bracing, Refer to N11 X/A602, A1 X/A602, N1 X/A603, J14 X/A602, A11 X/A602, A14 X/A602, E18 X/A602
2. Gypsum Board Ceilings Noted As "CLG HT Varies", Gypsum Board is attached to bottom side of framing/ joists, UNO
3. Ceiling Heights indicated are above Finish Floor at each floor level, UNO.
4. Where Fire Sprinklers occur at Acoustic Tile, Sprinkler Heads shall be centered in the Tile.
5. Not all fire Sprinkler Head locations are shown to provide code required coverage. But locations shown are intended to convey design intent. Coordinate with FIRE PROTECTION.
6. See Structural drawings and details for the framing of soffits and ceilings.
7. Single Lights or Single Rows of Lights at Soffits/ Ceilings shall be centered, UNO.
8. For ACOUSTICAL CEILINGS at Unistrut Grid Support Refer to Sheet X/A606
9. MCM PANELS, For Typical attachment, See, J11 E14 X/A504, J14 X/A504, N11 X/A504, A11 X/A504

E18 — Reflected Ceiling Legend

No Scale

SANGER EDUCATION COMPLEX - PHASE 3
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727
Project

BUILDING L
OVERALL - FIRST REFLECTED CEILING PLAN
Drawing

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LICENSED ARCHITECT MICHAEL K. FERNANDEZ No. C23724 Exp. 4-30-27 STATE OF CALIFORNIA

Architect

No.	Revision/Submission	Date
11	DSA ADDENDUM 11	10/16/2026

Revision

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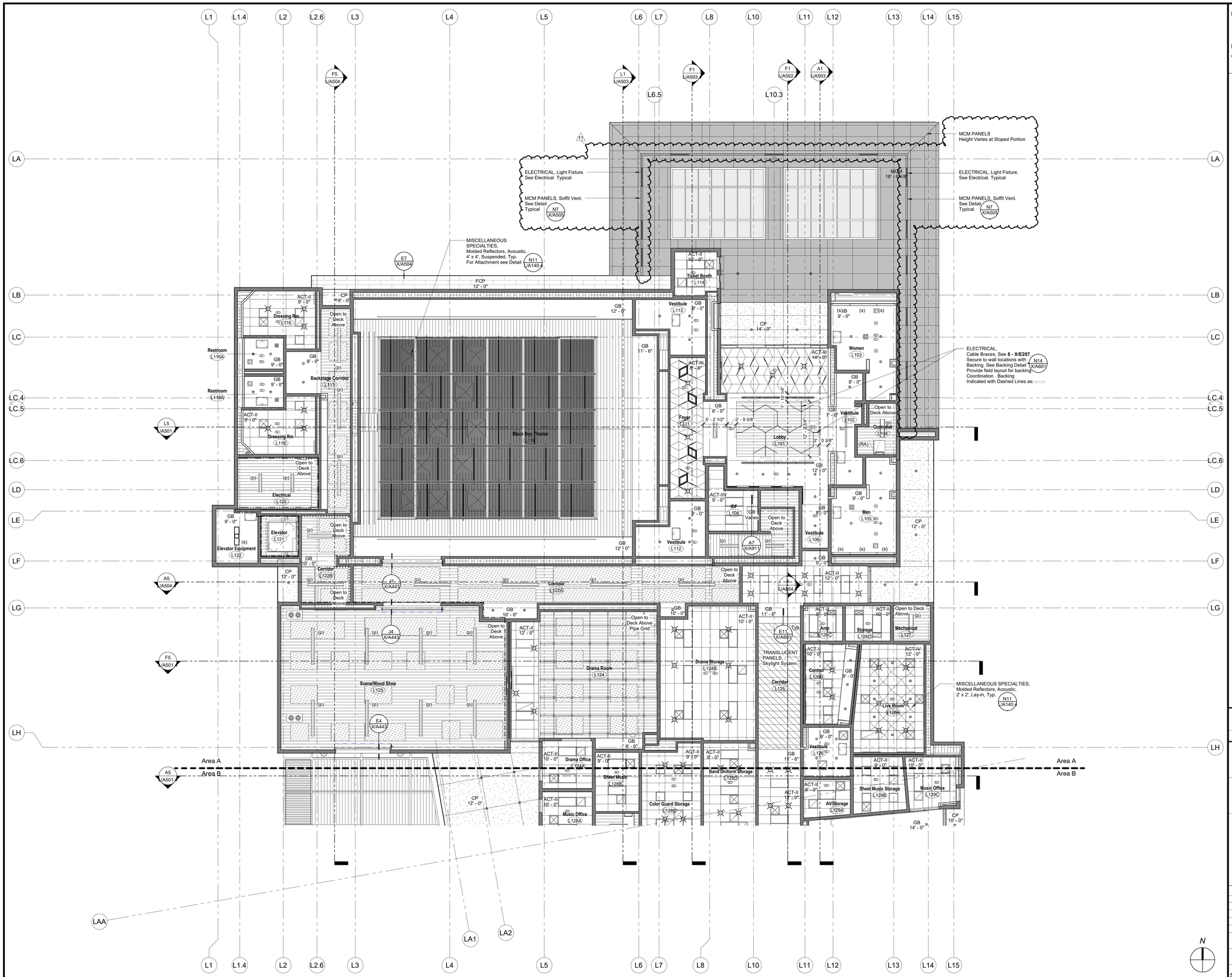
Designed By: -
Drawn By: -
Checked By: MF
Reviewed By: MF

Scale: As indicated
Project Number: 2171
Date: 12/22/22

L/A201.4
AD11

A7
3/32" = 1'-0"
Reflected Ceiling Plan- First Floor Overall

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DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

SYMBOLS

- MECHANICAL, Air Supply Grill
- MECHANICAL, Air Return Grill
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- ELECTRICAL, Light Fixture. Wall Mounted
- ELECTRICAL, Light Fixture, Linear
- STEEL AND FABRICATIONS, Access Ladder
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- CEMENT PLASTER, Cement Plaster System
- GYPSUM BOARD, Refer to Interior Finish Schedule. Support Gyp. Bd. from METAL FRAMING. See Structural detail **16-X/S603** for typical soffit framing and metal framing attachment to Metal deck.
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- ACOUSTICAL CEILINGS, ACT-X
- ACOUSTICAL CEILINGS, ACT-XII
- ACOUSTICAL CEILINGS, ACT-XIII
- INSULATION, Acoustical Blanket, 1" Thick, Stick Pinned to Metal Deck
- METAL DECK/ ACOUSTICAL METAL DECK, Open to above. Refer to Interior Finish Schedule for Deck type. See Interior Finish Schedule for INSULATION, Black Faced Acoustic Insulation locations.
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- 1 Hr. Fire Barrier - (1 Hr. Fire Resistive Construction, 60 Min. Door Assemblies)
- 1 Hr. Occupancy Separation / Fire Partition - (1 Hr. Fire Resistive Construction, 45 Min. Door Assemblies, 45 Min. Window Assemblies)
- MISCELLANEOUS SPECIALTIES, Unistrut Support System Refer to Drawing X/A606 for details
- Reference Point

ABBREVIATIONS

Clg.	Ceiling	OF	Over Flow
Ht.	Height	UNO	Unless Noted Otherwise
LO	Louver Opening	ACT	ACOUSTICAL CEILINGS, Tile, Suspended,
Typ.	Typical	CP	CEMENT PLASTER, System
Sim.	Similar	GB	GYPSUM BOARD, Type 'X', UNO
OH	Opposite hand	GLB	GLUE-LAMINATED CONSTRUCTION, Beam
DS	Downspout	MD	METAL DECK

NOTES

1. ACOUSTICAL CEILINGS, For typical suspended ceiling support and bracing, Refer to N11 X/A602 A1 X/A602 N1 X/A603 J14 X/A602 A11 X/A602 A14 X/A602 E18 X/A602
2. Gypsum Board Ceilings Noted As "CLG HT Varies", Gypsum Board is attached to bottom side of framing/ joists, UNO
3. Ceiling Heights indicated are above Finish Floor at each floor level, UNO.
4. Where Fire Sprinklers occur at Acoustic Tile, Sprinkler Heads shall be centered in the Tile.
5. Not all fire Sprinkler Head locations are shown to provide code required coverage. But locations shown are intended to convey design intent. Coordinate with FIRE PROTECTION.
6. See Structural drawings and details for the framing of soffits and ceilings.
7. Single Lights or Single Rows of Lights at Soffits/ Ceilings shall be centered, UNO.
8. For ACOUSTICAL CEILINGS at Unistrut Grid Support Refer to Sheet X/A606
9. MCM PANELS, For Typical attachment, See, J11 X/A504 E14 X/A504 J14 X/A504 N11 X/A504 A11 X/A504

E18 — Reflected Ceiling Legend
No Scale

SANGER EDUCATION COMPLEX - PHASE 3
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727
Project

BUILDING L
FIRST REFLECTED CEILING PLAN - AREA A
Drawing

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No.	Revision/Submission	Date
11	DSA ADDENDUM 11	10/16/2026

Revision

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Designed By: -
Drawn By: -
Checked By: MF
Reviewed By: MF

Scale: 1/8" = 1'-0"
Project Number: 2171
Date: 12/22/22

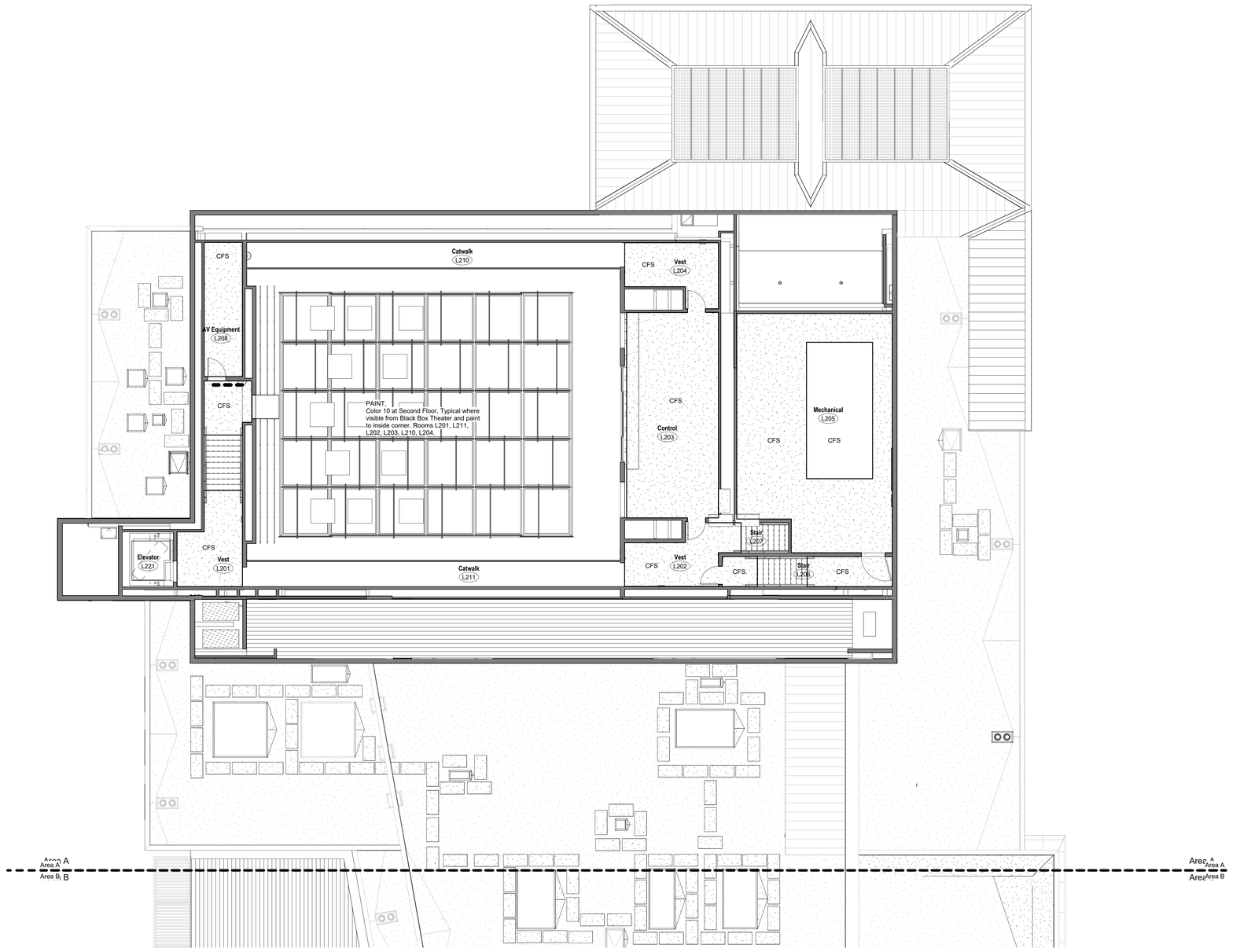
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AD11

A1
1/8" = 1'-0"

Reflected Ceiling Plan- First Floor Area A

Refer to E18 for Symbols, Abbreviations, and Notes.

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DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

LEGEND

All Gypsum Board to be PAINT, Color 1, unless noted otherwise.

PAINT, Color 2	PAINT, Color 2 (Elevation and Plan View)
PAINT, Color 3	PAINT, Color 3 (Elevation and Plan View)
PAINT, Color 4	PAINT, Color 4 (Elevation and Plan View)
PAINT, Color 5	PAINT, Color 5 (Elevation and Plan View)
PAINT, Color 6	PAINT, Color 6 (Elevation and Plan View)
PAINT, Color 7	PAINT, Color 7 (Elevation and Plan View)
PAINT, Color 8	PAINT, Color 8 (Elevation and Plan View)

NOTES

1. The intent of this drawing is to clarify and detail the color and patterns of finishes. All information regarding construction conditions, casework, framing and ceiling details, etc. shall be per Architectural plans, unless otherwise noted.
2. This Drawing is provided for the convenience of the Contractor. Field verify all conditions and dimensions prior to fabrication, installation or application.
3. Refer to appropriate Specification Sections for Materials, Systems and Types.
4. Refer to Interior Finish Schedule for Paint Finish.
5. Refer to Interior Color Schedule for additional Information on Manufacturer, Pattern and Color.
6. WALL COVERINGS, Ultra High Impact Panels, Colors typical where occurs. Refer to Interior Elevations and J7 / M/A812
7. GYPSUM BOARD, Wall and Soffit adjacent to METAL PANELS, Interior Acoustical Wall Panel to be Color 3, Typical
8. GYPSUM BOARD, behind WALL COVERINGS, Ultra High Impact Panels to be Color 3, Typical.
9. GYPSUM BOARD, Paint Color 4 to occur behind louver wall system and ACT Type XII Wall Mounted in Flat Finish (DW-1).

ABBREVIATIONS

CFS CAST-IN-PLACE CONCRETE, Clear Floor Sealer

11

G18 — Accent Paint Legend

No Scale

SANGER EDUCATION COMPLEX - PHASE 3
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727
Project

BUILDING L
INTERIOR DESIGN- ACCENT PAINT SECOND FLOOR AREA A
Drawing

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LICENSED ARCHITECT MICHAEL K. FERRO No. C23724 Exp. 4-30-27 STATE OF CALIFORNIA

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Designed By: -
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Checked By: MF
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Scale: As indicated
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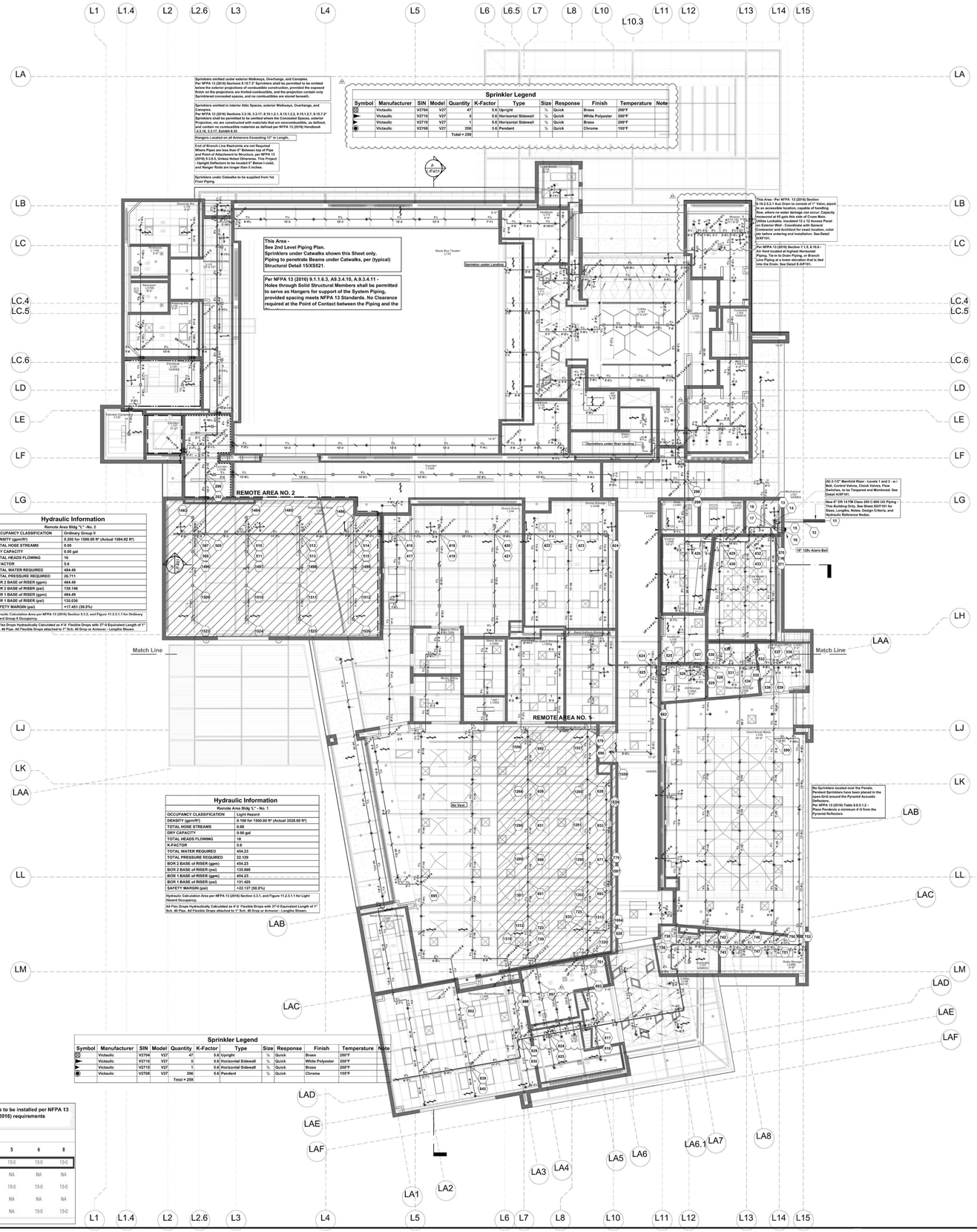
L/A806.4
AD11

A1
1/8" = 1'-0"

Accent Paint - Second Floor Area A
See G18 for Accent Paint Legend

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Scale 1/8" = 1'-0" | Scale 1/4" = 1'-0"



DSA File No.:
DSA File

DSA Application No.:
02-120779

Agency Approval

Sprinkler Components Legend

FLEXIBLE GROOVED COUPLING
PIPING W/ GROOVED FITTINGS
PIPING W/ THREADED FITTINGS
PIPING W/ PENDENT SPRINKLER (Varies - See Details)
PIPING W/ UPRIGHT SPRINKLER (Varies - See Details)
SEISMIC SWING JOINT
HYDRAULIC NODE REF
FIRE PENETRATION THRU RATED WALL
FLEX DROP W/ PENDENT SPRINKLER

Sprinkler Brace / Hanger Legend

"Details are specific to construction type"

Symbol	Description	Detail Reference
	LATERAL SEISMIC BRACE (Perpindicular)	Sheets X/F103 -104
	LONGITUDINAL SEISMIC BRACE (Parallel)	Sheets X/F103 -104
	4-WAY SEISMIC BRACE (Parallel / Perpindicular)	Sheets X/F103 -104
	END OF LINE / BRANCH LINE RESTRAINT	Sheets X/F103 -104
	PIPE HANGER	Sheets X/F103 -104

Project Information — Building " L"

Construction Type	Building Stories/Height	Occupancy Classification	Building Area:
Type II-B	2	Group E / A1	1st Floor = 21,893 sqft. 2nd Floor = 3,015 sqft. Covered = 5,267 sqft. Total = 30,085 sqft.

Building is typical Steel Beam / Girder and Non-Combustible Joist Member Construction.
All Design and Installation shall conform to NFPA 13 (2016), NFPA 24 (2016), CFC (2019), and City of Fresno Fire Prevention District / Building Department Standards.
In sloped areas, Fire Sprinkler Piping Mains to follow the slope of the Roof as shown.
All Electrical Rooms / Equipment Rooms / Storage Rooms (limited to Class I-IV Commodities a maximum of 10'-0 this project) and to be an Ordinary Group II Occupancy.
Per NFPA 13 (2016) Table 8.6.2.2.1 (b) - The maximum Pendent Sprinkler in an Ordinary Group I or II Occupancy to be 130 sqft, with a maximum distance between Sprinklers of 15'-0.
Per NFPA 13 (2016) Table 8.6.2.2.1 (a) - The maximum Pendent Sprinkler in an Light Hazard Occupancy to be 225 sqft, with a maximum distance between Sprinklers of 15'-0.
Per NFPA 13 (2016) Section A.5.2 - All unused Attics to be a Light Hazard Occupancy.
Per NFPA 13 (2016) Section 8.6.2.2.1 (a) - Light Hazard Occupancy (unused Attics) with Combustible Obstructed Construction with Members less than 3'-0 on center, to have a maximum Sprinkler spacing of 130 sqft, with a maximum Sprinkler spacing of 15'-0. (NOT APPLICABLE THIS PROJECT)
Per NFPA 13 (2016) Section 8.5.4.2 - Sprinkler Deflectors shall be aligned parallel to ceilings, roofs, or the incline of stairs. Upright Sprinklers shall be installed with the frame arms parallel to the piping, unless listed otherwise.
Per NFPA 13 (2016) Figure 11.2.3.1.1 - Light Hazard Occupancy to be Hydraulically Calculated at a Density of .10 / 1500 sqft. minimum utilizing most demanding Sprinkler Spacing.
Per NFPA 13 (2016) Figure 11.2.3.1.1 - Ordinary Hazard Group 1 Occupancy to be Hydraulically Calculated at a Density of .15 / 1500 sqft. minimum utilizing most demanding Sprinkler Spacing.
Per NFPA 13 (2016) Figure 11.2.3.1.1 - Ordinary Hazard Group II Occupancy to be Hydraulically Calculated at a Density of .20 / 1500 sqft. minimum utilizing most demanding Sprinkler Spacing.
Per NFPA 13 (2016) Section 11.2.3.2.3.1 - Where listed Quick Response Sprinklers are used, a reduction in the Hydraulically Calculated System Area of Operation shall be permitted to be reduced without revising the Density as indicated in Figure 11.2.3.2.3.1. - FOR LIGHT HAZARD ONLY.
Per NFPA 13 (2016) Section 11.2.3.2.4 - System Area of Operation shall be increased by 30% without revising the density when the Roof Slope exceeds 1 in 6 (a rise of 2 units in a single run of 12 units, a Roof Slope of 16.7%) in non-storage applications. (NOT APPLICABLE THIS PROJECT)
Per NFPA 13 (2016) Section 8.16.2.5.2.3 - System(s) to be equipped with Auxiliary Drains. If trapped water in Existing Branch Line contains less than 5'-0 gallons an Auxiliary Drain shall not be required if Branch Line can be drained by the removal of a single Pendent Sprinkler.
Per NFPA 13 (2016) Handbook Sections 8.15.1.2.3 - 8.15.1.2.5, A.8.15.1.2.1, Exhibit 8.33, 8.15.1.2.1, 8.15.1.2.2, 8.15.1.2.10-12, 8.15.1.2.14 - No Sprinkler protection required for Non-Combustible Construction type attics, and/or concealed spaces as defined.
Per NFPA 13 (2016) Section 8.15.7.2, A.8.15.7.2 - Sprinklers protection not required for exterior projections are constructed with materials that are Non-Combustible.
Any Electrical Equipment Rooms to have no pass-through Piping. Coordinate with Electrical Contractor to ensure no Piping is installed above Electrical Equipment as per NFPA 72 (2016), and CFC (2019).
No Hangers or Braces are to be connected to the Deck.
Per NFPA 13 (2016) Section 9.3.6.5 - Where Branch lines are supported by rods less than 6" long, from the top of the Pipe to the point of attachment to the Building Structure, no End-of Line Restraints required.

Per NFPA 13 (2016) Table 9.3.6.4 (a) Max. Spacing of Steel Branch Line Restraints (ft)
This project: Use the values for Cp .50

Pipe (in.)	Seismic Coefficient (Cp) Cp __ 0.50		
1"	43	21	14
1-1/4"	46	23	15
1-1/2"	49	24	16
2"	53	26	17

RATED WALL LEGEND
1 HR RATED BARRIER
1 HR RATED CORRIDOR
2 HR FIRE BARRIER

Installation Contractor to verify all Hanger types, locations, and configurations with Project Structural Engineers before Installation.
All Hanger and Bracing Components are to be installed per NFPA 13 (2016), CBC / CFC (2019), and Manufacturer Installation Instructions.

General Notes

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101 Fresno, CA 93720
(559) 431-0101 FAX (559) 431 - 1362
22040

Consultant

Sanger Education Complex - Phase III
Sanger Unified School District
1760 S. Fowler, Fresno Ca.
93727

Project

Building L - Overall First Floor Fire Protection Piping

Drawing

darden architects
ARCHITECTURE PLANNING INTERIORS
www.dardenarchitects.com
6790 N. West Ave. • Fresno, CA 93711 • T. 559.448.8051

Architect

No.	Revision/Submission	Date
1	ADDENDUM NO. 11 - REVISIONS	10-16-26

Revision

Designed By: EL
Drawn By: LEG
Checked EL
Reviewed By: MC
Scale: As Noted
Project Number: 2171
Date: 8/11/23
Sheet: of:

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SCA-

OVERALL FIRST FLOOR FIRE PROTECION PIPING PLAN

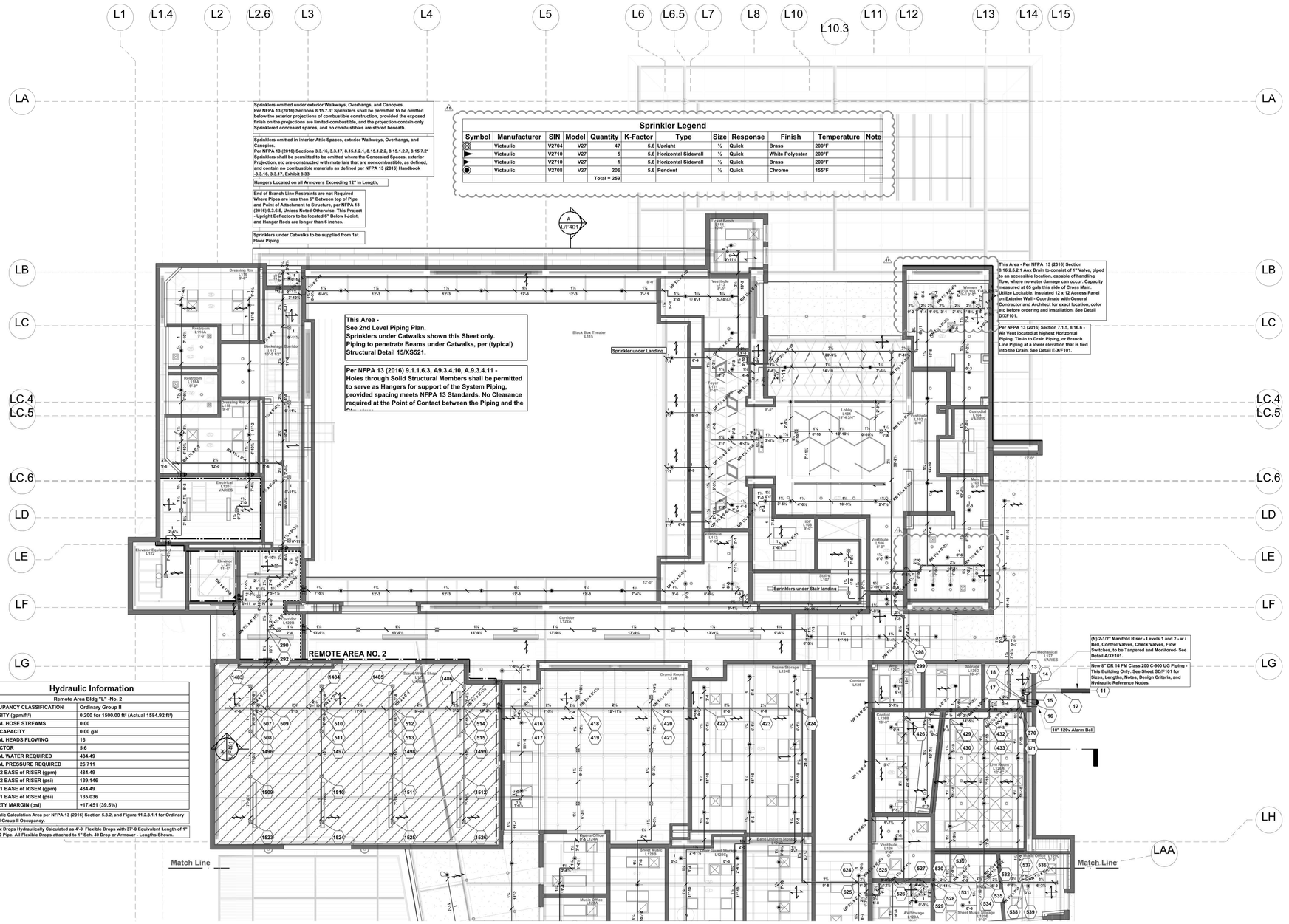
3/32" = 1'-0"

L/F100-

AD11

0 5' 25'
Scale 1/8" = 1'-0"

0 1' 12'
Scale 1/4" = 1'-0"



Hydraulic Information

Remote Area Bldg "L" -No. 2

OCCUPANCY CLASSIFICATION	Ordinary Group II
DENSITY (gpm/ft²)	0.200 for 1500.00 ft² (Actual 1584.92 ft²)
TOTAL HOSE STREAMS	0.00
DRY CAPACITY	0.00 gal
TOTAL HEADS FLOWING	16
K-FACTOR	5.6
TOTAL WATER REQUIRED	484.49
TOTAL PRESSURE REQUIRED	26.711
BOR 2 BASE of RISER (gpm)	484.49
BOR 2 BASE of RISER (psi)	139.146
BOR 1 BASE of RISER (gpm)	484.49
BOR 1 BASE of RISER (psi)	135.036
SAFETY MARGIN (psi)	+17.451 (39.5%)

Hydraulic Calculation Area per NFPA 13 (2016) Section 5.3.2, and Figure 11.2.3.1.1 for Ordinary Hazard Group II Occupancy.

All Flex Drops Hydraulically Calculated as 4'-0 Flexible Drops with 37'-0 Equivalent Length of 1" Sch. 40 Pipe. All Flexible Drops attached to 1" Sch. 40 Drop or Armover - Lengths Shown.

Table 9.2.2.1(a) Maximum Distance Between Hangers (ft-in.)

All Hangers to be installed per NFPA 13 (2016) requirements

	Nominal Pipe Size (in.)											
	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8
Steel pipe except threaded lightwall	NA	12-0	12-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0
Threaded lightwall steel pipe	NA	12-0	12-0	12-0	12-0	12-0	12-0	NA	NA	NA	NA	NA
Copper tube	8-0	8-0	10-0	10-0	12-0	12-0	12-0	15-0	15-0	15-0	15-0	15-0
CPVC	5-6	6-0	6-6	7-0	8-0	9-0	10-0	NA	NA	NA	NA	NA
Ductile-iron pipe	NA	NA	NA	NA	NA	NA	15-0	NA	15-0	NA	15-0	15-0

SCALE 1/8" = 1'-0"

PARTIAL FIRST FLOOR FIRE PROTECTION PIPING PLAN (NORTH)

DSA File No.:
DSA File

DSA Application No.:
02-120779

Agency Approval

Sprinkler Components Legend

FLEXIBLE GROOVED COUPLING
PIPING W/ GROOVED FITTINGS
PIPING W/ THREADED FITTINGS
PIPING W/ PENDENT SPRINKLER (Varies - See Details)
PIPING W/ UPRIGHT SPRINKLER (Varies - See Details)
SEISMIC SWING JOINT
HYDRAULIC NODE REF
FIRE PENETRATION THRU RATED WALL
FLEX GROP W/ PENDENT SPRINKLER

Sprinkler Brace / Hanger Legend

"Details are specific to construction type"

Symbol	Description	Detail Reference
	LATERAL SEISMIC BRACE (Perpindicular)	Sheets X/F103 -104
	LONGITUDINAL SEISMIC BRACE (Parallel)	Sheets X/F103 -104
	4-WAY SEISMIC BRACE (Parallel / Perpindicular)	Sheets X/F103 -104
	END OF LINE / BRANCH LINE RESTRAINT	Sheets X/F103 -104
	PIPE HANGER	Sheets X/F103 -104

Project Information — Building "L"

Construction Type	Building Stories/Height	Occupancy Classification	Building Area:
Type II-B	2	Group E / A1	1st Floor = 21,893 sqft. 2nd Floor = 3,015 sqft. Covered = 5,267 sqft. Total = 30,085 sqft.

Building is typical Steel Beam / Girder and Non-Combustible Joist Member Construction.
All Design and Installation shall conform to NFPA 13 (2016), NFPA 24 (2016), CFC (2019), and City of Fresno Fire Prevention District / Building Department Standards.
In sloped areas, Fire Sprinkler Piping Mains to follow the slope of the Roof as shown.
All Electrical Rooms / Equipment Rooms / Storage Rooms (limited to Class I-IV Commodities a maximum of 10'-0 this project) and to be an Ordinary Group II Occupancy.
Per NFPA 13 (2016) Table 8.6.2.2.1 (b) - The maximum Pendent Sprinkler in an Ordinary Group I or II Occupancy to be 130 sqft, with a maximum distance between Sprinklers of 15'-0.
Per NFPA 13 (2016) Table 8.6.2.2.1 (a) - The maximum Pendent Sprinkler in an Light Hazard Occupancy to be 225 sqft, with a maximum distance between Sprinklers of 15'-0.
Per NFPA 13 (2016) Section A.5.2 - All unused Attics to be a Light Hazard Occupancy.
Per NFPA 13 (2016) Section 8.6.2.2.1 (a) - Light Hazard Occupancy (unused Attics) with Combustible Obstructed Construction with Members less than 3'-0 on center, to have a maximum Sprinkler spacing of 130 sqft, with a maximum Sprinkler spacing of 15'-0. (NOT APPLICABLE THIS PROJECT)
Per NFPA 13 (2016) Section 8.5.4.2 - Sprinkler Deflectors shall be aligned parallel to ceilings, roofs, or the incline of stairs. Upright Sprinklers shall be installed with the frame arms parallel to the piping, unless listed otherwise.
Per NFPA 13 (2016) Figure 11.2.3.1.1 - Light Hazard Occupancy to be Hydraulically Calculated at a Density of .10 / 1500 sqft. minimum utilizing most demanding Sprinkler Spacing.
Per NFPA 13 (2016) Figure 11.2.3.1.1 - Ordinary Hazard Group 1 Occupancy to be Hydraulically Calculated at a Density of .15 / 1500 sqft. minimum utilizing most demanding Sprinkler Spacing.
Per NFPA 13 (2016) Figure 11.2.3.1.1 - Ordinary Hazard Group II Occupancy to be Hydraulically Calculated at a Density of .20 / 1500 sqft. minimum utilizing most demanding Sprinkler Spacing.
Per NFPA 13 (2016) Section 11.2.3.2.3.1 - Where listed Quick Response Sprinklers are used, a reduction in the Hydraulically Calculated System Area of Operation shall be permitted to be reduced without revising the Density as indicated in Figure 11.2.3.2.3.1. - FOR LIGHT HAZARD ONLY.
Per NFPA 13 (2016) Section 11.2.3.2.4 - System Area of Operation shall be increased by 30% without revising the density when the Roof Slope exceeds 1 in 6 (a rise of 2 units in a single run of 12 units, a Roof Slope of 16.7%) in non-storage applications. (NOT APPLICABLE THIS PROJECT)
Per NFPA 13 (2016) Section 8.16.2.5.2.3 - System(s) to be equipped with Auxiliary Drains. If trapped water in Existing Branch Line contains less than 5'-0 gallons an Auxiliary Drain shall not be required if Branch Line can be drained by the removal of a single Pendent Sprinkler.
Per NFPA 13 (2016) Handbook Sections 8.15.1.2.3 - 8.15.1.2.5, A.8.15.1.2.1, Exhibit 8.33, 8.15.1.2.1.1, 8.15.1.2.2, 8.15.1.2.10-12, 8.15.1.2.14 - No Sprinkler protection required for Non-Combustible Construction type attics, and/or concealed spaces as defined.
Per NFPA 13 (2016) Section 8.15.7.2, A.8.15.7.2 - Sprinklers protection not required for exterior projections are constructed with materials that are Non-Combustible.
Any Electrical Equipment Rooms to have no pass-through Piping. Coordinate with Electrical Contractor to ensure no Piping is installed above Electrical Equipment as per NFPA 72 (2016), and CFC (2019).
No Hangers or Braces are to be connected to the Deck.
Per NFPA 13 (2016) Section 9.3.6.5 - Where Branch lines are supported by rods less than 6" long, from the top of the Pipe to the point of attachment to the Building Structure, no End-of Line Restraints required.

Per NFPA 13 (2016) Table 9.3.5.4 (a) Max. Spacing of Steel Branch Line Retraints (ft)
This project: Use the values for Cp .50

Pipe (in.)	Seismic Coefficient (Cp) Cp = 0.50		
1"	43	21	10
1-1/4"	46	23	11
1-1/2"	49	24	12
2"	53	26	13

RATED WALL LEGEND
1 HR RATED BARRIER
1 HR RATED CORRIDOR
2 HR FIRE BARRIER

Installation Contractor to verify all Hanger types, locations, and configurations with Project Structural Engineers before Installation.
All Hanger and Bracing Components are to be installed per NFPA 13 (2016), CBC / CFC (2019), and Manufacturer Installation Instructions.

General Notes

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101 Fresno, CA 93720
(559) 431-0101 FAX (559) 431-1362
22040
Exp. 9-30-27

Consultant

Sanger Education Complex - Phase III
Sanger Unified School District
1760 S. Fowler, Fresno Ca.
93727

Project

Building L - Partial (North) First Floor Fire Protection Piping Plan

Drawing

darden architects
ARCHITECTURE PLANNING INTERIORS
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6790 N. West Ave. • Fresno, CA 93711 • T. 559.448.8051

Architect

No.	Revision/Submission	Date
1	ADDENDUM NO. 11 - REVISIONS	10-16-26

Revision

Designed By: EL
Drawn By: LEG
Checked EL
Reviewed By: MC

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Scale: As Noted
Project Number: 2171
Date: 8/11/23

L/F101-

Sheet: ____ of: ____

AD11

Scale 1/8" = 1'-0" (0, 5', 25')

Scale 1/4" = 1'-0" (0, 1', 12')

BOR 2 BASE of RISER (gpm)	454.49
BOR 2 BASE of RISER (psi)	139.146
BOR 1 BASE of RISER (gpm)	484.49
BOR 1 BASE of RISER (psi)	135.036
SAFETY MARGIN (psi)	+17.451 (39.5%)

Hydraulic Calculation Area per NFPA 13 (2016) Section 5.3.2, and Figure 11.2.3.1.1 for Ordinary Hazard Group II Occupancy.

All Flex Drops Hydraulically Calculated as 4'-0 Flexible Drops with 37"-0 Equivalent Length of 1" Sch. 40 Pipe. All Flexible Drops attached to 1" Sch. 40 Drop or Armover - Lengths Shown.



Hydraulic Information

Remote Area Bldg "L" - No. 1	
OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft²)	0.100 for 1500.00 ft² (Actual 3528.00 ft²)
TOTAL HOSE STREAMS	0.00
DRY CAPACITY	0.00 gal
TOTAL HEADS FLOWING	18
K-FACTOR	5.6
TOTAL WATER REQUIRED	454.23
TOTAL PRESSURE REQUIRED	22.129
BOR 2 BASE of RISER (gpm)	454.23
BOR 2 BASE of RISER (psi)	135.068
BOR 1 BASE of RISER (gpm)	454.23
BOR 1 BASE of RISER (psi)	131.420
SAFETY MARGIN (psi)	+22.127 (50.0%)

Hydraulic Calculation Area per NFPA 13 (2016) Section 5.3.1, and Figure 11.2.3.1.1 for Light Hazard Occupancy.

All Flex Drops Hydraulically Calculated as 4'-0 Flexible Drops with 37"-0 Equivalent Length of 1" Sch. 40 Pipe. All Flexible Drops attached to 1" Sch. 40 Drop or Armover - Lengths Shown.

Sprinkler Legend

Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
	Victaulic	V2704	V27	47	5.6	Upright	½	Quick	Brass	200°F	
	Victaulic	V2710	V27	5	5.6	Horizontal Sidewall	½	Quick	White Polyester	200°F	
	Victaulic	V2710	V27	1	5.6	Horizontal Sidewall	½	Quick	Brass	200°F	
	Victaulic	V2708	V27	206	5.6	Pendent	½	Quick	Chrome	155°F	
				Total = 259							

Table 9.2.2.1(a) Maximum Distance Between Hangers (ft-in.)

All Hangers to be installed per NFPA 13 (2016) requirements

	Nominal Pipe Size (in.)										
	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8
Steel pipe except threaded lightwall	NA	12-0	12-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0
Threaded lightwall steel pipe	NA	12-0	12-0	12-0	12-0	12-0	12-0	NA	NA	NA	NA	NA
Copper tube	8-0	8-0	10-0	10-0	12-0	12-0	12-0	15-0	15-0	15-0	15-0	15-0
CPVC	5-6	6-0	6-6	7-0	8-0	9-0	10-0	NA	NA	NA	NA	NA
Ductile-iron pipe	NA	NA	NA	NA	NA	NA	15-0	NA	15-0	NA	15-0	15-0

SCALE 1/8" = 1'-0"

PARTIAL FIRST FLOOR FIRE PROTECTION PIPING (SOUTH)

DSA File No.:
DSA File

DSA Application No.:
02-120779

Agency Approval

Sprinkler Components Legend

- FLEXIBLE GROOVED COUPLING
- PIPING W/ GROOVED FITTINGS
- PIPING W/ THREADED FITTINGS
- PIPING W/ PENDENT SPRINKLER (Varies - See Details)
- PIPING W/ UPRIGHT SPRINKLER (Varies - See Details)
- SEISMIC SWING JOINT
- HYDRAULIC NODE REF
- FIRE PENETRATION THRU RATED WALL
- FLEX GROP W/ PENDENT SPRINKLER

Sprinkler Brace / Hanger Legend

"Details are specific to construction type"

Symbol	Description	Detail Reference
	LATERAL SEISMIC BRACE (Perpindicular)	Sheets X/F103 -104
	LONGITUDINAL SEISMIC BRACE (Parallel)	Sheets X/F103 -104
	4-WAY SEISMIC BRACE (Parallel / Perpindicular)	Sheets X/F103 -104
	END OF LINE / BRANCH LINE RESTRAINT	Sheets X/F103 -104
	PIPE HANGER	Sheets X/F103 -104

Project Information — Building "L"

Construction Type	Building Stories/Height	Occupancy Classification	Building Area:
Type II-B	2	Group E / A1	1st Floor = 21,893 sqft. 2nd Floor = 3,015 sqft. Covered = 5,267 sqft. Total = 30,085 sqft.

Building is typical Steel Beam / Girder and Non-Combustible Joist Member Construction.
All Design and Installation shall conform to NFPA 13 (2016), NFPA 24 (2016), CFC (2019), and City of Fresno Fire Prevention District / Building Department Standards.
In sloped areas, Fire Sprinkler Piping Mains to follow the slope of the Roof as shown.
All Electrical Rooms / Equipment Rooms / Storage Rooms (limited to Class I-IV Commodities a maximum of 10'-0 this project) and to be an Ordinary Group II Occupancy.
Per NFPA 13 (2016) Table 8.6.2.2.1 (b) - The maximum Pendent Sprinkler in an Ordinary Group I or II Occupancy to be 130 sqft, with a maximum distance between Sprinklers of 15'-0.
Per NFPA 13 (2016) Table 8.6.2.2.1 (a) - The maximum Pendent Sprinkler in an Light Hazard Occupancy to be 225 sqft, with a maximum distance between Sprinklers of 15'-0.
Per NFPA 13 (2016) Section A.5.2 - All unused Attics to be a Light Hazard Occupancy.
Per NFPA 13 (2016) Section 8.6.2.2.1 (a) - Light Hazard Occupancy (unused Attics) with Combustible Obstructed Construction with Members less than 3'-0 on center, to have a maximum Sprinkler spacing of 130 sqft, with a maximum Sprinkler spacing of 15'-0. (NOT APPLICABLE THIS PROJECT)
Per NFPA 13 (2016) Section 8.5.4.2 - Sprinkler Deflectors shall be aligned parallel to ceilings, roofs, or the incline of stairs. Upright Sprinklers shall be installed with the frame arms parallel to the piping, unless listed otherwise.
Per NFPA 13 (2016) Figure 11.2.3.1.1 - Light Hazard Occupancy to be Hydraulically Calculated at a Density of .10 / 1500 sqft. minimum utilizing most demanding Sprinkler Spacing.
Per NFPA 13 (2016) Figure 11.2.3.1.1 - Ordinary Hazard Group 1 Occupancy to be Hydraulically Calculated at a Density of .15 / 1500 sqft. minimum utilizing most demanding Sprinkler Spacing.
Per NFPA 13 (2016) Figure 11.2.3.1.1 - Ordinary Hazard Group II Occupancy to be Hydraulically Calculated at a Density of .20 / 1500 sqft. minimum utilizing most demanding Sprinkler Spacing.
Per NFPA 13 (2016) Section 11.2.3.2.3.1 - Where listed Quick Response Sprinklers are used, a reduction in the Hydraulically Calculated System Area of Operation shall be permitted to be reduced without revising the Density as indicated in Figure 11.2.3.2.3.1. - FOR LIGHT HAZARD ONLY.
Per NFPA 13 (2016) Section 11.2.3.2.4 - System Area of Operation shall be increased by 30% without revising the density when the Roof Slope exceeds 1 in 6 (a rise of 2 units in a single run of 12 units, a Roof Slope of 16.7%) in non-storage applications. (NOT APPLICABLE THIS PROJECT)
Per NFPA 13 (2016) Section 8.16.2.5.2.3 - System(s) to be equipped with Auxiliary Drains. If trapped water in Existing Branch Line contains less than 5'-0 gallons an Auxiliary Drain shall not be required if Branch Line can be drained by the removal of a single Pendent Sprinkler.
Per NFPA 13 (2016) Handbook Sections 8.15.1.2.3 - 8.15.1.2.5, A.8.15.1.2.1, Exhibit 8.33, 8.15.1.2.1.1, 8.15.1.2.2, 8.15.1.2.10-12, 8.15.1.2.14 - No Sprinkler protection required for Non-Combustible Construction type attics, and/or concealed spaces as defined.
Per NFPA 13 (2016) Section 8.15.7.2, A.8.15.7.2 - Sprinklers protection not required for exterior projections are constructed with materials that are Non-Combustible.
Any Electrical Equipment Rooms to have no pass-through Piping. Coordinate with Electrical Contractor to ensure no Piping is installed above Electrical Equipment as per NFPA 72 (2016), and CFC (2019).
No Hangers or Braces are to be connected to the Deck.
Per NFPA 13 (2016) Section 9.3.6.5 - Where Branch lines are supported by rods less than 6" long, from the top of the Pipe to the point of attachment to the Building Structure, no End-of Line Restraints required.

Per NFPA 13 (2016) Table 9.3.6.4 (a) Max. Spacing of Steel Branch Line Restraints (ft)

This project: Use the values for Cp .50

Pipe (in.)	Seismic Coefficient (Cp)		
	Cp = 0.50	Cp = 0.70	Cp = 0.80
1"	43	31	27
1-1/4"	46	33	29
1-1/2"	49	41	29
2"	53	38	33

RATED WALL LEGEND	
1 HR RATED BARRIER	
1 HR RATED CORRIDOR	
2 HR FIRE BARRIER	

Installation Contractor to verify all Hanger types, locations, and configurations with Project Structural Engineers before Installation.
All Hanger and Bracing Components are to be installed per NFPA 13 (2016), CBC / CFC (2019), and Manufacturer Installation Instructions.

General Notes

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101 Fresno, CA 93720
(559) 431-0101 FAX (559) 431-1362
22040

Consultant

Sanger Education Complex - Phase III
Sanger Unified School District
1760 S. Fowler, Fresno Ca.
93727

Project

Building L - Partial (South) First Floor Fire Protection Piping Plan

Drawing

darden architects
ARCHITECTURE
PLANNING
INTERIORS
www.dardenarchitects.com
6790 N. West Ave. • Fresno, CA 93711 • T. 559.448.8051

Architect

No.	Revision/Submission	Date
1	ADDENDUM NO. 11 - REVISIONS	10-16-26

Revision

Designed By: EL
Drawn By: LEG
Checked EL
Reviewed By: MC

Scale: As Noted
Project Number: 2171
Date: 8/11/23

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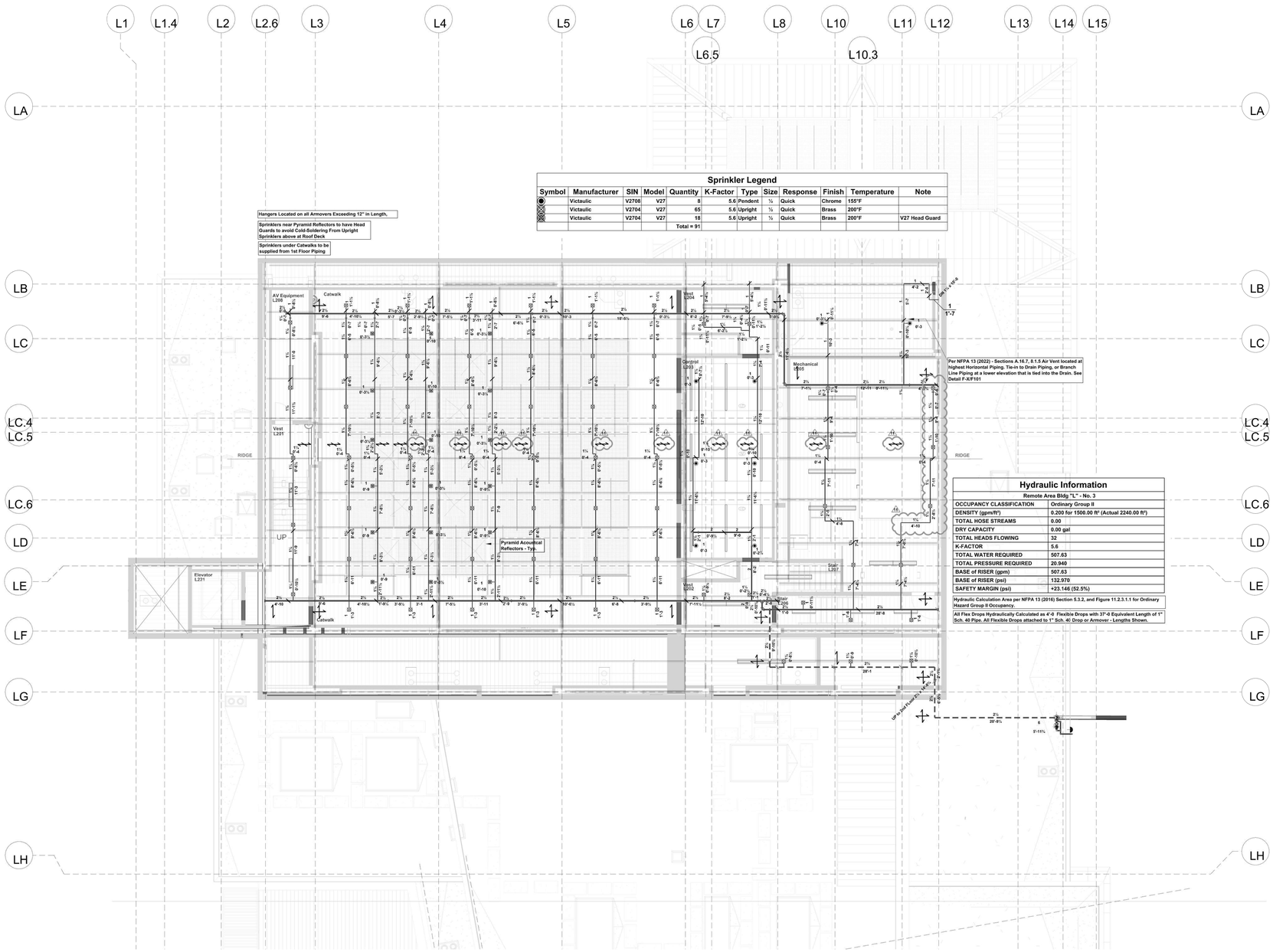
L/F102-

Sheet: ____ of: ____

AD11

Scale 1/8" = 1'-0" (0 5' 25')

Scale 1/4" = 1'-0" (0 1' 12')



Sprinkler Legend

Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
	Victaulic	V2708	V27	8	5.6	Pendent	½	Quick	Chrome	155°F	
	Victaulic	V2704	V27	65	5.6	Upright	½	Quick	Brass	200°F	
	Victaulic	V2704	V27	18	5.6	Upright	½	Quick	Brass	200°F	V27 Head Guard
				Total = 91							

Hydraulic Information

Remote Area Bldg "L" - No. 3	
OCCUPANCY CLASSIFICATION	Ordinary Group II
DENSITY (gpm/ft²)	0.200 for 1500.00 ft² (Actual 2240.00 ft²)
TOTAL HOSE STREAMS	0.00
DRY CAPACITY	0.00 gal
TOTAL HEADS FLOWING	32
K-FACTOR	5.6
TOTAL WATER REQUIRED	507.63
TOTAL PRESSURE REQUIRED	20.940
BASE of RISER (gpm)	507.63
BASE of RISER (psi)	132.970
SAFETY MARGIN (psi)	+23.146 (52.5%)

Hydraulic Calculation Area per NFPA 13 (2016) Section 5.3.2, and Figure 11.2.3.1.1 for Ordinary Hazard Group II Occupancy.

All Flex Drops Hydraulically Calculated as 4'-0 Flexible Drops with 37'-0 Equivalent Length of 1" Sch. 40 Pipe. All Flexible Drops attached to 1" Sch. 40 Drop or Armover - Lengths Shown.

Table 9.2.2.1(a) Maximum Distance Between Hangers (ft-in.)

All Hangers to be installed per NFPA 13 (2016) requirements

	Nominal Pipe Size (in.)											
	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8
Steel pipe except threaded lightwall	NA	12-0	12-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0
Threaded lightwall steel pipe	NA	12-0	12-0	12-0	12-0	12-0	12-0	NA	NA	NA	NA	NA
Copper tube	8-0	8-0	10-0	10-0	12-0	12-0	12-0	15-0	15-0	15-0	15-0	15-0
CPVC	5-6	6-0	6-6	7-0	8-0	9-0	10-0	NA	NA	NA	NA	NA
Ductile-iron pipe	NA	NA	NA	NA	NA	NA	15-0	NA	15-0	NA	15-0	15-0

SCA-

PARTIAL SECOND FLOOR FIRE PROTECTION PIPING PLAN (NORTH)

1/8" = 1'-0"

DSA File No.:
DSA File

DSA Application No.:
02-120779

Agency Approval

Sprinkler Components Legend

- FLEXIBLE GROOVED COUPLING
- PIPING W/ GROOVED FITTINGS
- PIPING W/ THREADED FITTINGS
- PIPING W/ PENDENT SPRINKLER (Varies - See Details)
- PIPING W/ UPRIGHT SPRINKLER (Varies - See Details)
- SEISMIC SWING JOINT
- HYDRAULIC NODE REF
- FIRE PENETRATION THRU RATED WALL
- FLEX DROP W/ PENDENT SPRINKLER

Sprinkler Brace / Hanger Legend

"Details are specific to construction type"

Symbol	Description	Detail Reference
	LATERAL SEISMIC BRACE (Perpindicular)	Sheets X/F103 -104
	LONGITUDINAL SEISMIC BRACE (Parallel)	Sheets X/F103 -104
	4-WAY SEISMIC BRACE (Parallel / Perpindicular)	Sheets X/F103 -104
	END OF LINE / BRANCH LINE RESTRAINT	Sheets X/F103 -104
	PIPE HANGER	Sheets X/F103 -104

Project Information — Building " L"

Construction Type	Building Stories/Height	Occupancy Classification	Building Area:
Type II-B	2	Group E / A1	1st Floor = 21,893 sqft. 2nd Floor = 3,015 sqft. Covered = 5,267 sqft. Total = 30,085 sqft.

Building is typical Steel Beam / Girder and Non-Combustible Joist Member Construction.
All Design and Installation shall conform to NFPA 13 (2016), NFPA 24 (2016), CFC (2019), and City of Fresno Fire Prevention District / Building Department Standards.
In sloped areas, Fire Sprinkler Piping Mains to follow the slope of the Roof as shown.
All Electrical Rooms / Equipment Rooms / Storage Rooms (limited to Class I-IV Commodities a maximum of 10'-0 this project) and to be an Ordinary Group II Occupancy.
Per NFPA 13 (2016) Table 8.6.2.2.1 (b) - The maximum Pendent Sprinkler in an Ordinary Group I or II Occupancy to be 130 sqft, with a maximum distance between Sprinklers of 15'-0.
Per NFPA 13 (2016) Table 8.6.2.2.1 (a) - The maximum Pendent Sprinkler in an Light Hazard Occupancy to be 225 sqft, with a maximum distance between Sprinklers of 15'-0.
Per NFPA 13 (2016) Section A.5.2 - All unused Attics to be a Light Hazard Occupancy.
Per NFPA 13 (2016) Section 8.6.2.2.1 (a) - Light Hazard Occupancy (unused Attics) with Combustible Obstructed Construction with Members less than 3'-0 on center, to have a maximum Sprinkler spacing of 130 sqft, with a maximum Sprinkler spacing of 15'-0. (NOT APPLICABLE THIS PROJECT)
Per NFPA 13 (2016) Section 8.5.4.2 - Sprinkler Deflectors shall be aligned parallel to ceilings, roofs, or the incline of stairs. Upright Sprinklers shall be installed with the frame arms parallel to the piping, unless listed otherwise.
Per NFPA 13 (2016) Figure 11.2.3.1.1 - Light Hazard Occupancy to be Hydraulically Calculated at a Density of .10 / 1500 sqft. minimum utilizing most demanding Sprinkler Spacing.
Per NFPA 13 (2016) Figure 11.2.3.1.1 - Ordinary Hazard Group 1 Occupancy to be Hydraulically Calculated at a Density of .15 / 1500 sqft. minimum utilizing most demanding Sprinkler Spacing.
Per NFPA 13 (2016) Figure 11.2.3.1.1 - Ordinary Hazard Group II Occupancy to be Hydraulically Calculated at a Density of .20 / 1500 sqft. minimum utilizing most demanding Sprinkler Spacing.
Per NFPA 13 (2016) Section 11.2.3.2.3.1 - Where listed Quick Response Sprinklers are used, a reduction in the Hydraulically Calculated System Area of Operation shall be permitted to be reduced without revising the Density as indicated in Figure 11.2.3.2.3.1. - FOR LIGHT HAZARD ONLY.
Per NFPA 13 (2016) Section 11.2.3.2.4 - System Area of Operation shall be increased by 30% without revising the density when the Roof Slope exceeds 1 in 6 (a rise of 2 units in a single run of 12 units, a Roof Slope of 16.7%) in non-storage applications. (NOT APPLICABLE THIS PROJECT)
Per NFPA 13 (2016) Section 8.16.2.5.2.3 - System(s) to be equipped with Auxiliary Drains. If trapped water in Existing Branch Line contains less than 5'-0 gallons an Auxiliary Drain shall not be required if Branch Line can be drained by the removal of a single Pendent Sprinkler.
Per NFPA 13 (2016) Handbook Sections 8.15.1.2.3 - 8.15.1.2.5, A.8.15.1.2.1, Exhibit 8.33, 8.15.1.2.1.1, 8.15.1.2.2, 8.15.1.2.10-12, 8.15.1.2.14 - No Sprinkler protection required for Non-Combustible Construction type attics, and/or concealed spaces as defined.
Per NFPA 13 (2016) Section 8.15.7.2, A.8.15.7.2 - Sprinklers protection not required for exterior projections are constructed with materials that are Non-Combustible.
Any Electrical Equipment Rooms to have no pass-through Piping. Coordinate with Electrical Contractor to ensure no Piping is installed above Electrical Equipment as per NFPA 72 (2016), and CFC (2019).
No Hangers or Braces are to be connected to the Deck.
Per NFPA 13 (2016) Section 9.3.6.5 - Where Branch lines are supported by rods less than 6" long, from the top of the Pipe to the point of attachment to the Building Structure, no End-of Line Restraints required.

Per NFPA 13 (2016) Table 9.3.6.4 (a) Max. Spacing of Steel Branch Line Retraints (ft)

This project: Use the values for Cp .50

	Seismic Coefficient (Cp)		
Pipe (in.)	Cp ___ 0.50	Cp ___ 0.70	Cp ___ 0.100
1"	43	31	21
1-1/4"	46	33	23
1-1/2"	49	35	25
2"	53	38	27

RATED WALL LEGEND

- 1 HR RATED BARRIER
- 1 HR RATED CORRIDOR
- 2 HR FIRE BARRIER

Installation Contractor to verify all Hanger types, locations, and configurations with Project Structural Engineers before Installation.
All Hanger and Bracing Components are to be installed per NFPA 13 (2016), CBC / CFC (2019), and Manufacturer Installation Instructions.

General Notes

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101
Fresno, CA 93720
(559) 431-0101 FAX (559) 431-1362
22040

Consultant

Sanger Education Complex - Phase III
Sanger Unified School District
1760 S. Fowler, Fresno Ca.
93727

Project

Building L - Overall Second Floor Fire Protection Piping Plan

Drawing

darden architects
ARCHITECTURE
PLANNING
INTERIORS
www.dardenarchitects.com
6790 N. West Ave. • Fresno, CA 93711 • T. 559.448.8051

Architect

No.	Revision/Submission	Date
1	ADDENDUM NO. 11 - REVISIONS	10-16-26

Revision

Designed By: EL
Drawn By: LEG
Checked EL
Reviewed By: MC

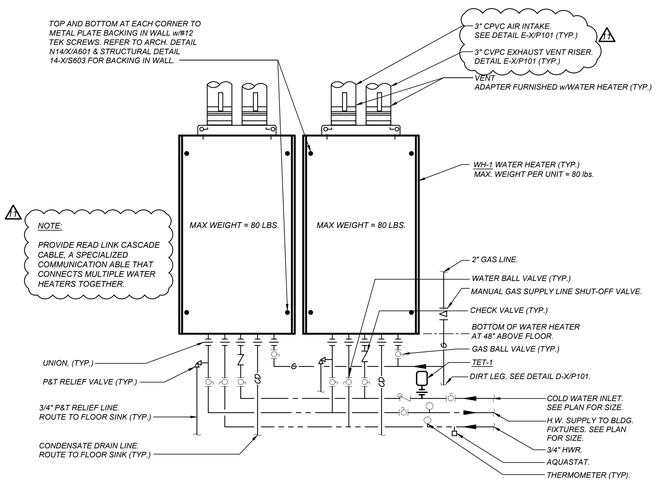
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Project Number: 2171
Date: 8/11/23

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AD11

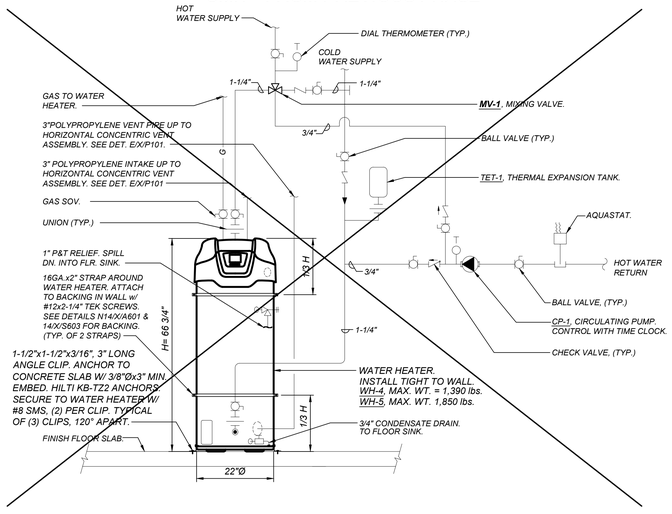


(2) TANKLESS WATER HEATERS (WH-2)

A X/P102

SCALE: NONE

OMIT - FROM PREVIOUS PHASE

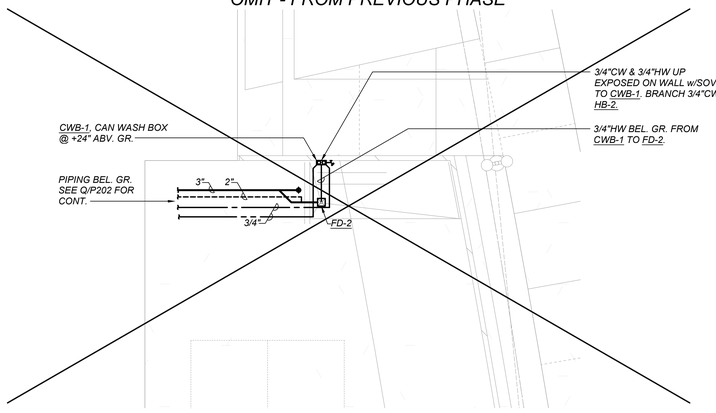


GAS WATER HEATER (WH-4 & WH-5)

C X/P102

SCALE: DIAGRAMATIC

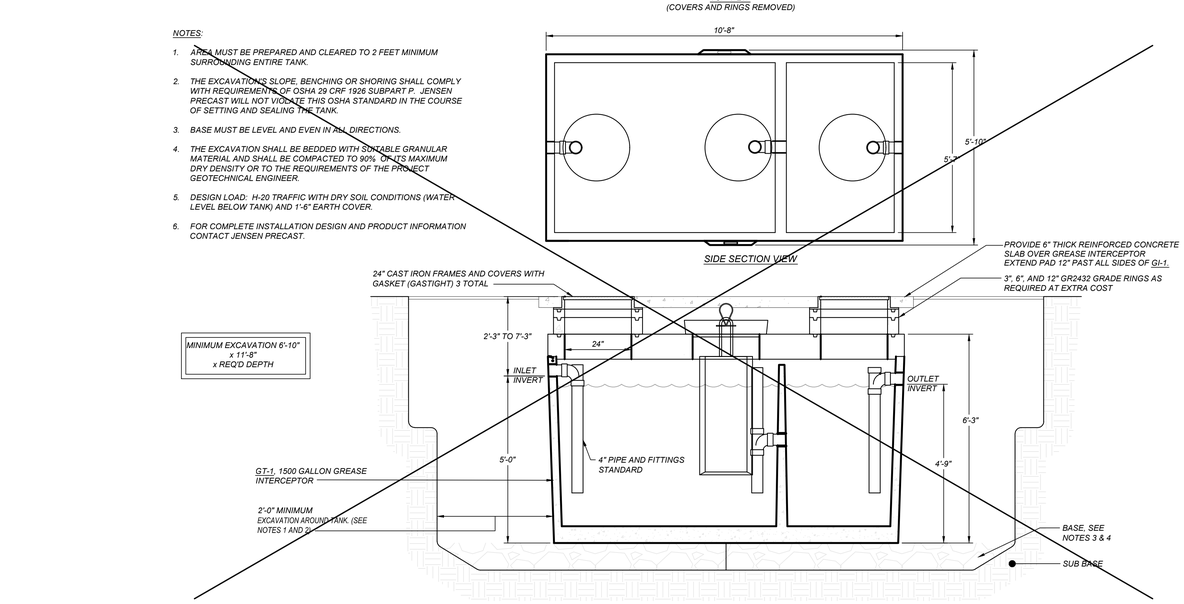
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ENLARGED PLUMBING PLAN - BLDG. Q CAN WASH

F X/P102

SCALE: 1/8"=1'-0"



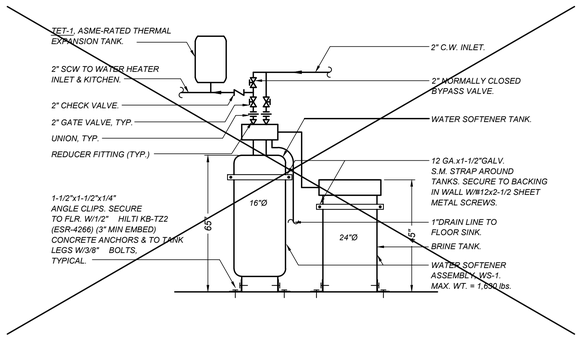
OMIT - FROM PREVIOUS PHASE

GREASE INTERCEPTOR DETAIL

B X/P102

SCALE: NONE

OMIT - FROM PREVIOUS PHASE

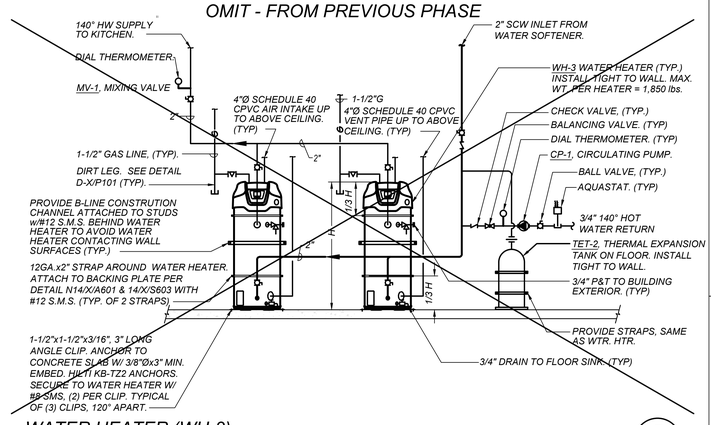


WATER SOFTENER DETAIL

D X/P102

SCALE: NONE

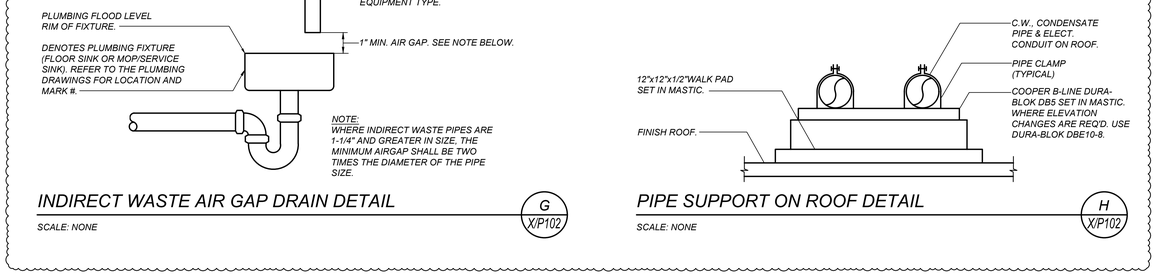
OMIT - FROM PREVIOUS PHASE



WATER HEATER (WH-3)

E X/P102

SCALE: NONE



INDIRECT WASTE AIR GAP DRAIN DETAIL

G X/P102

SCALE: NONE

PIPE SUPPORT ON ROOF DETAIL

H X/P102

SCALE: NONE

DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

General Notes

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101 Fresno, CA 93727
(559) 431-6181 22040 FAX (559) 431-1342

REGISTERED PROFESSIONAL ENGINEER MICHAEL D. CAMPBELL No. 22040 Exp. 9-30-27 MECHANICAL STATE OF CALIFORNIA

Consultant

SANGER EDUCATION COMPLEX - PHASE 3
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727
Project

TYPICAL INFORMATION
PLUMBING DETAILS
Drawing

darden architects
ARCHITECTURE PLANNING INTERIORS
www.dardenarchitects.com
6790 N. West Ave. • Fresno, CA 93711 • T. 559.448.8051

LICENSED ARCHITECT RODNEY K. FENSKE No. C23724 Exp. 4-30-27 STATE OF CALIFORNIA

Architect

No.	Revision/Submission	Date
11	*DSA Addendum #11*	*10/15/26*

Revision

	Designed By:	Copyright 2021 Darden Architects
Scale:	Drawn By: LEG	
Project Number: 2171	Checked By:	X/P102
Date: 08/11/23	Reviewed By:	AD11

15 October 2026 4:19 PM P:\2022\22040 Sanger USD Ed Center Phase 3\4~Drawings\3 P\X/P102 - DETAILS.dwg dcvd s

22040

PLUMBING FIXTURE SCHEDULE

WC-1
"KOHLER" K-84325 KINGSTON ULTRA, 1.28 GPF, WALL MOUNTED ELONGATED WATER CLOSET., "CHURCH" #295SSC OPEN-FRONT SEAT WITH CHECK STAINLESS STEEL HINGE POSTS AND FASTENERS AND SELF-SUSTAINING HINGES, LESS COVER, BOLT CAPS, "ZURN" #Z6000AV-HET, (OR #Z6000AV-HET-TPO WITH TRAP PRIMER WHERE INDICATED ON DRAWINGS), AQUAVANTAGE DIAPHRAGM FLUSH VALVE, (1.28 GALLONS/FLUSH)., "JAY R. SMITH" SERIES #410 COMPACT VERTICAL SUPPORT CARRIER, SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS, 1" C.W., 4" S., 2" V.

WC-2
"KOHLER" #K-84325 KINGSON ULTRA, 1.28 GPF, ACCESSIBLE WALL MOUNTED ELONGATED WATER CLOSET, "CHURCH" #295SSC OPEN-FRONT SEAT WITH CHECK STAINLESS STEEL HINGE POSTS AND FASTENERS AND SELF-SUSTAINING HINGES, LESS COVER, BOLT CAPS, "ZURN" #Z6000AV-HET (OR #Z6000AV-HET-TPO WITH TRAP PRIMER WHERE INDICATED ON DRAWINGS), AQUAVANTAGE DIAPHRAGM FLUSH VALVE, (1.28 GALLONS/FLUSH), MOUNT FLUSH VALVE HANDLE ON WIDE SIDE OF STALL OR ROOM, "JAY R. SMITH" SERIES #410 COMPACT VERTICAL SUPPORT CARRIER, SEE ARCHITECTURAL DRAWINGS FOR ACCESSIBLE MOUNTING HEIGHTS, 1" C.W., 4" S., 2" V.

U-1
"KOHLER" #K-4991-ET BARDON, ACCESSIBLE WALL MOUNTED URINAL, WITH STAINLESS STEEL STRAINER, "ZURN" #Z6003AV-ULF AQUAVANTAGE DIAPHRAGM FLUSH VALVE, (0.125 GALLONS/FLUSH), "JAY R. SMITH" #637 SUPPORT CARRIER WITH BOTTOM PLATE FOR FLOOR AND WALL ATTACHMENT. SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS, ACCESSIBLE MOUNTING HEIGHT SHALL BE 17" AFF TO LIP, SEE ARCHITECTURAL DRAWINGS FOR STANDARD MOUNTING HEIGHTS, 3/4" C.W., 2" S., 1-1/2" V., 2" W.C.O.

L-1
"KOHLER" #K-2032 (20" X 18") GREENWICH, ACCESSIBLE WALL HUNG VITREOUS CHINA LAVATORY WITH BACKSPLASH AND WALL BRACKET, 4" CENTER FAUCET HOLES, "CHICAGO" 857-E2805-665PSHAB SELF CLOSING METERING FAUCET WITH 0.5 GPM VANDAL RESISTANT AERATOR. ADJUST FAUCET TO STAY OPEN FOR 10-15 SECONDS. "MCGUIRE" 155 GRID DRAIN, "JAY R. SMITH" #700-Z FLOOR MOUNTED, CONCEALED ARM CARRIER. SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS, ACCESSIBLE MOUNTING HEIGHT SHALL BE 29" AFF TO BOTTOM OF APRON, LOOSE KEY COMPRESSION ANGLED WALL STOPS WITH SUPPLY, 17 GA. C.P. P-TRAP/TAILPIECE WITH ESCUTCHEON, (WRAP C.W. AND TRAP/TAILPIECE PER SPECIFICATIONS)1/2" C.W., 2" S., 1- 1/2" V.

L-2
"KOHLER" #K-2032 (20" X 18") GREENWICH, ACCESSIBLE WALL HUNG VITREOUS CHINA LAVATORY, WITH BACKSPLASH AND WALL BRACKET, 4" CENTER FAUCET HOLES, "CHICAGO" #2200-4E39VPABCP SINGLE LEVER FAUCET WITH 0.35 GPM VANDAL RESISTANT AERATOR, "LEONARD" #170-LF-BP-BRKT, POINT-OF-USE THERMOSTATIC MIXING VALVE WITH COLD WATER BYPASS AND WALL MOUNTING BRACKET. SET FAUCET SUPPLY TEMPERATURE TO 110 DEG., "MCGUIRE" 155 GRID DRAIN, "JAY R. SMITH" #700-Z FLOOR MOUNTED, CONCEALED ARM CARRIER. SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS, ACCESSIBLE MOUNTING HEIGHT SHALL BE 29" AFF TO BOTTOM OF APRON, (2) LOOSE KEY COMPRESSION ANGLED WALL STOPS WITH SUPPLIES, 17 GA. C.P. P-TRAP/TAILPIECE WITH ESCUTCHEON, (WRAP C.W., H.W. AND TRAP/TAILPIECE PER SPECIFICATIONS)1/2" H.W./C.W., 2" S., 1- 1/2" V.

S-1
"JUST" # SL-ADA-2125-A-GR, ACCESSIBLE COUNTER MOUNTED 18 GAUGE TYPE 304 STAINLESS STEEL (16"X 22" X 6 ½"DEEP BOWL SIZE) SINGLE BOWL SINK WITH REAR CENTER DRAIN OUTLET, # 335-GS DRAIN WITH BASKET STRAINER, "CHICAGO" #786-GN8AE35-369AB VANDAL RESISTANT FAUCET WITH LEVER HANDLES, GOOSENECK SWING SPOUT AND 1.5 GPM AERATOR, "LEONARD" #170-LF-BP-BRKT, POINT-OF-USE THERMOSTATIC MIXING VALVE WITH COLD WATER BYPASS AND WALL MOUNTING BRACKET. SET FAUCET SUPPLY TEMPERATURE TO 115 DEG., (2) LOOSE KEY ANGLED WALL STOPS WITH SUPPLIES, 17 GA. C.P. TRAP/TAILPIECE WITH ESCUTCHEON, (WRAP C.W., H.W. AND TRAP/TAILPIECE PER SPECIFICATIONS) 1/2" H.W./C.W., 2" W., 1-1/2" V., 2" W.C.O.

S-2
"JUST" # SL-ADA-2131-A-GR, ACCESSIBLE COUNTER MOUNTED 18 GAUGE TYPE 304 STAINLESS STEEL ACCESSIBLE SINGLE BOWL SINK, 16" X 28" X 6 ½" DEEP BOWL SIZE, WITH RIGHT CENTER DRAIN OUTLET, #335-GS DRAIN BODY WITH BASKET STRAINER, "CHICAGO" #350-GN8AE35ABCP COLD WATER ONLY GOOSENECK FAUCET WITH LEVER HANDLE AND 1.5 GPM AERATOR, , (1) LOOSE KEY ANGLED WALL STOP WITH SUPPLY, 17 GA. C.P. TRAP/TAILPIECE WITH ESCUTCHEON, (WRAP C.W.. AND TRAP/TAILPIECE PER SPECIFICATIONS) 1/2" C.W., 2" W., 1-1/2" V., 2" W.C.O.

S-5
"JUST MANUFACTURING" #J-ADA-7220, ACCESSIBLE WALL MOUNTED 14 GAUGE, TYPE 304 STAINLESS STEEL, 3-STATION WASH TROUGH SINK, (72" X 20"), WITH
#J-35-SSF DRAIN, (3) CHICAGO FAUCET MODEL # 225-261ABCP BACKSPLASH MOUNT FAUCETS WITH LEVER HANDLES, 1.5 GPM, SINK BACKSPLASH TO BE DRILLED TO ACCEPT FAUCETS, 14 GAUGE TYPE 304 SUPPORT BRACKETS AND WALL CLIPS INCLUDED, (3) LOOSE KEY ANGLED WALL STOPS WITH SUPPLIES, 17 GA. C.P. TRAP/TAILPIECE WITH ESCUTCHEON, (WRAP C.W. AND TRAP/TAILPIECE PER SPECIFICATIONS) , 1/2" H.W./C.W., 2" S., 1-1/2" V., 2" W.C.O. OPERATING WEIGHT = 165 LBS. SECURE SUPPORT BRACKETS AND WALL CLIPS TO BACKING SUPPORT PLATE

1

S-6
"ELKAY" CUSTOM FABRICATED SCULLERY SINK, SINGLE COMPARTMENT, FLOOR MOUNTED. 14 GAUGE STAINLESS STEEL, 33"X27-1/2"X24" DEEP BOWL WITH 8" INTEGRAL BACKSPLASH. THREE FAUCET HOLES WITH FAUCET HOLES DRILLED 8" CENTERS FOR GOOSNECK FAUCET AND PULL-DOWN EMERGENCY EYE AND FACE WASH, EEW-1
PROVIDE WITH STAINLESS STEEL BODY DRAIN AND TAILPIECE, SECURE SUPPORT BRACKETS AND WALL CLIPS TO BACKING SUPPORT PLATE PER DETAILS.
FAUCET: ZURN MODEL #Z841C4-XL POLISHED CHROME, BACKSPLASH MOUNTED FAUCET WITH 8" SWIVEL GOOSENECK AND 4" WRIST BLADE HANDLES, 8" CENTERS, 1.5 GPM NON-AERATED LAMINAR FLOW, LOOSE KEY ANGLED WALL STOPS WITH SUPPLIES, 17 GA C.P. TRAP/TAILPIECE WITH ESCUTCHEON, (WRAP C.W. AND TRAP/TAILPIECE PER SPECIATIONS), 1/2" HW/C.W, 2" S, 1-1/2" V, 2" WCO.
HOT WATER OUTLET TEMPERATURE AT 105°F-110°F.

MS-1
"KOHLER" #K-6710 WHITBY, FLOOR MOUNTED ENAMELED CAST IRON 28" X 28" MOP SINK, WITH #K-8940 RIM GUARD, AND #K-9146 GRID DRAIN, "CHICAGO" # 897-CP FAUCET WITH VACUUM BREAKER AND TOP BRACE, "FLORESTONE" #MR-0360 5 FT. HOSE WITH WALL BRACKET, AND "FLORESTONE" #MR-372 MOP HANGER,
3" P-TRAP, 3/4" H.W./C.W., 3" S., 2" V., 3" W.C.O.

DF-1
"ELKAY" #LZWS-LRPM28K, ACCESSIBLE IN-WALL MOUNTED WITH RECESSED CHILLER, 18 GAUGE STAINLESS STEEL DUAL (HI-LO) BARRIER-FREE DRINKING FOUNTAINS WITH BOTTLE FILLING STATION, NO-TOUCH SENSOR ACTIVATED BOTTLE FILLER, MOUNTING FRAME, STAINLESS STEEL LOUVER, AND WATER FILTER. PROVIDE ADDITIONAL 12 PACK WATER FILTERS (#51300C-12PK). UNIT REQUIRES 120V, 1.0 FLA, 370 WATTS ELECTRICAL POWER. (1) SERVICE STOP,
(2) 17 GA. C.P. TRAP/TAILPIECE, 1/2" C.W., 2" S., 1-1/2" V.

WHB-1
"GUY GRAY" #FR-1212SHA, FIRE RESISTANT RECESSED METAL WASHING MACHINE BOX WITH INTEGRAL WATER HAMMER ARRESTORS AND QUARTER TURN BALL VALVES, 1/2" H.W./C.W., 2" S. STANDPIPE DRAIN, 1-1/2" V.

FD-1
"JAY.R. SMITH" # 2005Y02-P050, CAST IRON FLOOR DRAIN. WITH 5" DIAMETER NICKEL BRONZE GRATE OR 2005-B WITH SQUARE GRATE (SEE PLANS), 1/2" TRAP PRIMER CONNECTION, 2" S., 2" P-TRAP AND 2" V. BELOW SLAB.

FS-1
"JAY.R. SMITH" #3140Y02-12, CAST IRON FLOOR SINK, (12-1/2" X 12-1/2" X 6" DEEP) WITH ACID RESISTANT COATED INTERIOR, FLASHING CLAMP, NICKEL BRONZE RIM AND HALF GRATE, # 2697 AUXILLARY TRAP PRIMER CONNECTION, 1/2" C.W., 2" S., 2" P-TRAP AND 1-1/2" V BELOW SLAB.

HB-1
"WOODFORD" # 24P, WALL MOUNTED BENT NOSE ROUGH CHROME PLATED BRASS LOOSE TEE KEY HOSE BIBB WITH INTEGRAL VACUUM BREAKER, 3/4" C.W.

HB-2
"WOODFORD" # Y24, STANDPIPE MOUNTED BENT NOSE ROUGH CHROME PLATED BRASS LOOSE TEE KEY HOSE BIBB, WITH INTEGRAL VACUUM BREAKER, 3/4" C.W.

BP-1
"WILKINS" #975XLU-AG REDUCED PRESSURE, LEAD FREE CAST BRONZE BACKFLOW PREVENTER WITH BALL VALVES, WITH AIR GAP DRAIN PAN, UNION CONNECTIONS, SEE PLAN FOR SIZE.

TP-1
"PRECISION PLUMBING PRODUCTS" #MPB-500 ELECTRONIC TRAP PRIMER IN WALL BOX WITH "PPP" #D-814SS STAINLESS STEEL ACCESS DOOR WITH CYLINDER LOCK, PROVIDE FIRE RATED ACCESS DOOR WHERE LOCATED IN FIRE SEPARATION WALLS SOLENOID VALVE ACTIVATED, 120V/1ø, , 1/2" C.W. W/ BALL VALVE TO PRIMER INLET.

TP-2
"PRECISION PLUMBING PRODUCTS" SERIES #PT-4, OR #PT-6, OR #PT-8, OR #PT-10, OR #PT-12, OR #PT-1320, ELECTRONIC OPERATED TRAP PRIMER SYSTEM IN RECESSED WALL CABINET, (MODEL NUMBER DEPENDING ON THE NUMBER OF DRAINS SERVED) , FACTORY ASSEMBLED AND PRE-PIPED WITH COPPER MANIFOLD, INLET BALL VALVE, ELECTRIC SOLENOID VALVE, TIMER, AND VACUUM BREAKER. PROVIDE STAINLESS STEEL ACCESS DOOR WITH CLYLINDER LOCK, (ACCESS SIZED PER TRAP PRIMER MODEL NUMBER USED). PROVIDE FIRE RATED ACCESS DOOR WHERE LOCATED IN FIRE SEPARATION WALLS. REFER TO DRAWINGS FOR NUMBER OF DRAINS SERVED, 3/4" C.W.

WHA
"SIOUX CHIEF" HYDRA-RESTER MODEL 654-AS (PDI C), SEAMLESS COPPER CHAMBER APPROVED FOR CONCEALED INSTALLATIONS,

RO-1
"J.R. SMITH" #1310Y-E-C-R-CIDG, CAST IRON BODY ROOF DRAIN, WITH 12" DIAMETER GALVANIZED CAST IRON DOME, EXTENSION, SUMP RECEIVER, AND UNDERDECK CLAMP, OVERFLOW DRAIN TO BE "J.R. SMITH" #1310Y-WD4-E-C-R-CIDG, WITH 4" HIGH EXTERIOR WATER DAM HEIGHT. SEE PLAN FOR SIZES.

DC-1
"JAY R. SMITH" #1775-U, STAINLESS STEEL DOWNSPOUT COVER FOR OVERFLOW DRAIN DAYLIGHT WITH VANDAL PROOF SCREWS. SEE PLAN FOR PIPE SIZE.

GPR-1 (BUILDING L)
"ELSTER-AMERICAN METER" #1813-C, GAS PRESSURE REGULATOR, 1-1/4" INLET AND OUTLET SIZE, WITH 5/16" ORIFICE, SPRING NO. 70017P044, 1600 CFH CAPACITY AT 5 PSIG INLET PRESSURE, OUTLET PRESSURE SET AT 8" W.C.

WH-1
"NAVIAN" #NPE-240A2, (1) GAS-FIRED, LOW NOx, CONDENSING INDOOR TANKLESS WATER HEATER, WITH INTEGRAL HOT WATER RETURN CIRCULATING PUMP AND BUFFER TANK, STAINLESS STEEL HEAT EXCHANGERS, DUAL MICROPROCESSOR, #NR-10DU REMOTE CONTROLLER, ELECTRIC IGNITION, FULLY MODULATING, LEAK DETECTOR, AIR INTAKE FILTER, 120V, 200 WATTS, 2 AMPS, 199,900 MAXIMUM BTUH INPUT, 6.2 GPM CONTINUOUS FLOW RATE AT 120 DEGREES F. SUPPLY TEMPERATURE. PROVIDE CPVC EXHAUST AND AIR INTAKE VENTING COMPONENTS FOR DIRECT VENT SYSTEM WITH CONCENTRIC VENT KIT THROUGH ROOF. OPERATING WEIGHT = 77 LBS.

WH-2
"NAVIAN" #NPE-240A2, (2) GAS-FIRED, LOW NOx, CONDENSING INDOOR TANKLESS WATER HEATERS MANIFOLDED TOGETHER, WITH INTEGRAL HOT WATER RETURN CIRCULATING PUMP AND BUFFER TANK, STAINLESS STEEL HEAT EXCHANGERS, DUAL MICROPROCESSORS, #NR-10DU REMOTE CONTROLLERS, ELECTRIC IGNITION, FULLY MODULATING, LEAK DETECTOR, AIR INTAKE FILTER, 120V, 200 WATTS, 2 AMPS EACH, 199,900 MAXIMUM BTUH INPUT EACH, 6.2 GPM CONTINUOUS FLOW RATE EACH (12.4 GPM TOTAL) AT 120 DEGREES F. SUPPLY TEMPERATURE. PROVIDE CPVC EXHAUST AND AIR INTAKE VENTING COMPONENTS FOR DIRECT VENT SYSTEM WITH CONCENTRIC VENT KIT THROUGH ROOF FOR EACH HEATER. OPERATING WEIGHT = 77 LBS. EACH.

IWH-1
"CHRONOMITE" MIGHTY MITE # R-48L/277 TANKLESS ELECTRIC WATER HEATER, LOW FLOW ACTIVATION. 61° TEMP. RISE AT 1.5 GPM FLOW RATE. 13,300 WATTS, 48 AMPS, 277V/1PH.

TET-1
"THERM-X-TROL" #ST-12-C, STAINLESS STEEL CONNECTIONS, POTABLE WATER APPROVED IN-LINE EXPANSION TANK, 6.4 GALLON TANK VOLUME, ASME RATED. OPERATING WEIGHT = 69 LBS.

RR-1
ZURN #Z-122-G-DP-EB 12" DIAMETER DECK RECEPTOR WITH GALVANIZED CAST IRON BODY WITH COMBINATION MEMBRANE FLASHING CLAMP/DECK RECEPTOR FRAME AND INTERNAL DOME STRAINER, TOP SET DECK PLACE AND TOP-SET ADJUSTABLE EXTENSION ASSEMBLY AS REQUIRED.

1

EEW-1
HAWS AXION 7610 PULL-DOWN EMERGENCY EYE AND FACE WASH, WALL MOUNTED CONFIGURATION. OUTLET TEMPERATURE 80°F

MV-2
LEONARD EMERGENCY MIXING VALVE TA-300-LF-STSTL-REC THERMOSTATIC MIXING VALVE WITH COLD WATER BY-PASS , ANSI Z358.1, ASSE 1071 COMPLIANT.
MV-1 SHALL BE LOCATED IN A STAINLESS STEEL RECESSED CABINET **S-6** SINK, FULL PORT UNION END BALL VALVES TO SERVE EEW-1. FLOW CAPACITY 9 GPM. COLD WATER BY-PASS CAPACITY 4.0GPM. SET EYEWASH TEMP. @ 80°F. REFER TO DETAIL

DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

General Notes

LAWRENCE ENGINEERING GROUP
4918 E. Clinton Way, Suite 101 Fresno, CA 93727
(559) 431-0101 22040 FAX (559) 431-1342

LICENSED PROFESSIONAL ENGINEER MICHAEL D. CRAWFORD Exp. 9-30-23 MECHANICAL STATE OF CALIFORNIA

Consultant

SANGER EDUCATION COMPLEX - PHASE 3
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727
Project

TYPICAL INFORMATION
PLUMBING SCHEDULES
Drawing

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6790 N. West Ave. • Fresno, CA 93711 • T. 559.448.8051

LICENSED ARCHITECT MICHAEL K. FERRARO No. C23724 REN. 4-30-25 STATE OF CALIFORNIA

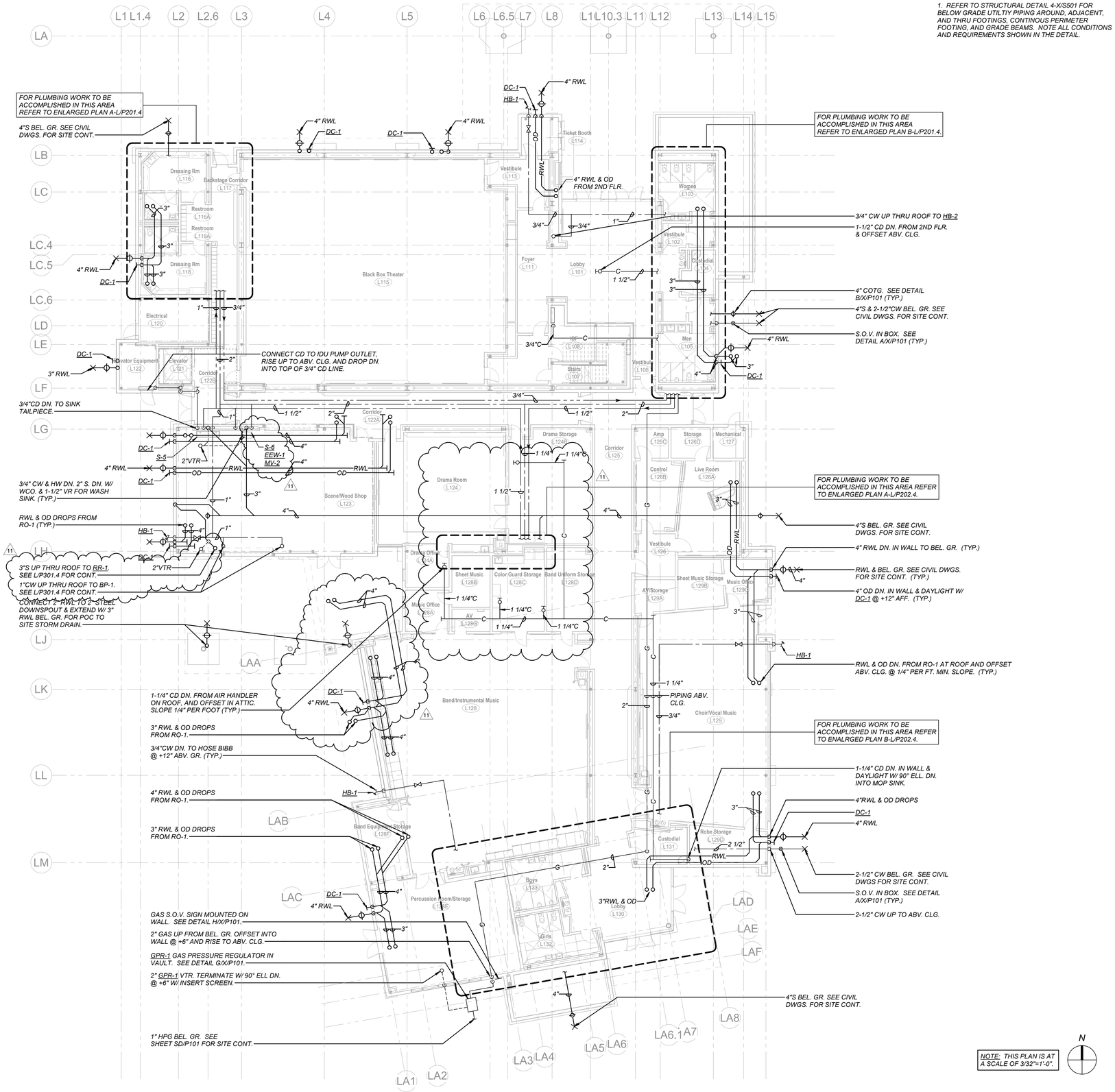
Architect

No.	Revision/Submission	Date
11	*DSA Addendum #11*	*10/15/26*

Revision

	Designed By:	Copyright 2021 Darden Architects
Scale:	Drawn By: LEG	
Project Number: 2171	Checked By:	*X/P201*
Date: 08/11/23	Reviewed By:	AD11

15 October 2026 4:19 PM P:\2022\22040 Sanger USD Ed Center Phase 3\4-Drawings\5 P\P201 SCHEDULES.dwg david s



SHEET NOTES: (THIS SHEET ONLY)

1. REFER TO STRUCTURAL DETAIL 4-X/S501 FOR BELOW GRADE UTILITY PIPING AROUND, ADJACENT, AND THRU FOOTINGS, CONTINOUS PERIMETER FOOTING, AND GRADE BEAMS. NOTE ALL CONDITIONS AND REQUIREMENTS SHOWN IN THE DETAIL.

DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

General Notes

LAWRENCE ENGINEERING GROUP
4919 E. Clinton Way, Suite 101 Fresno, CA 93727
(559) 431-9161 FAX (559) 431-1562
22040

Consultant

Sanger Education Complex - Phase III
Sanger Unified School District
1850 S Fowler, Fresno CA

Project

BUILDING L
FIRST FLOOR OVERALL PLUMBING PLAN

Drawing

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No.	Revision/Submission	Date
11	Addendum #11	10/15/26

Revision

Designed By: DO
Drawn By: LEG
Checked By: DO
Reviewed By: MC

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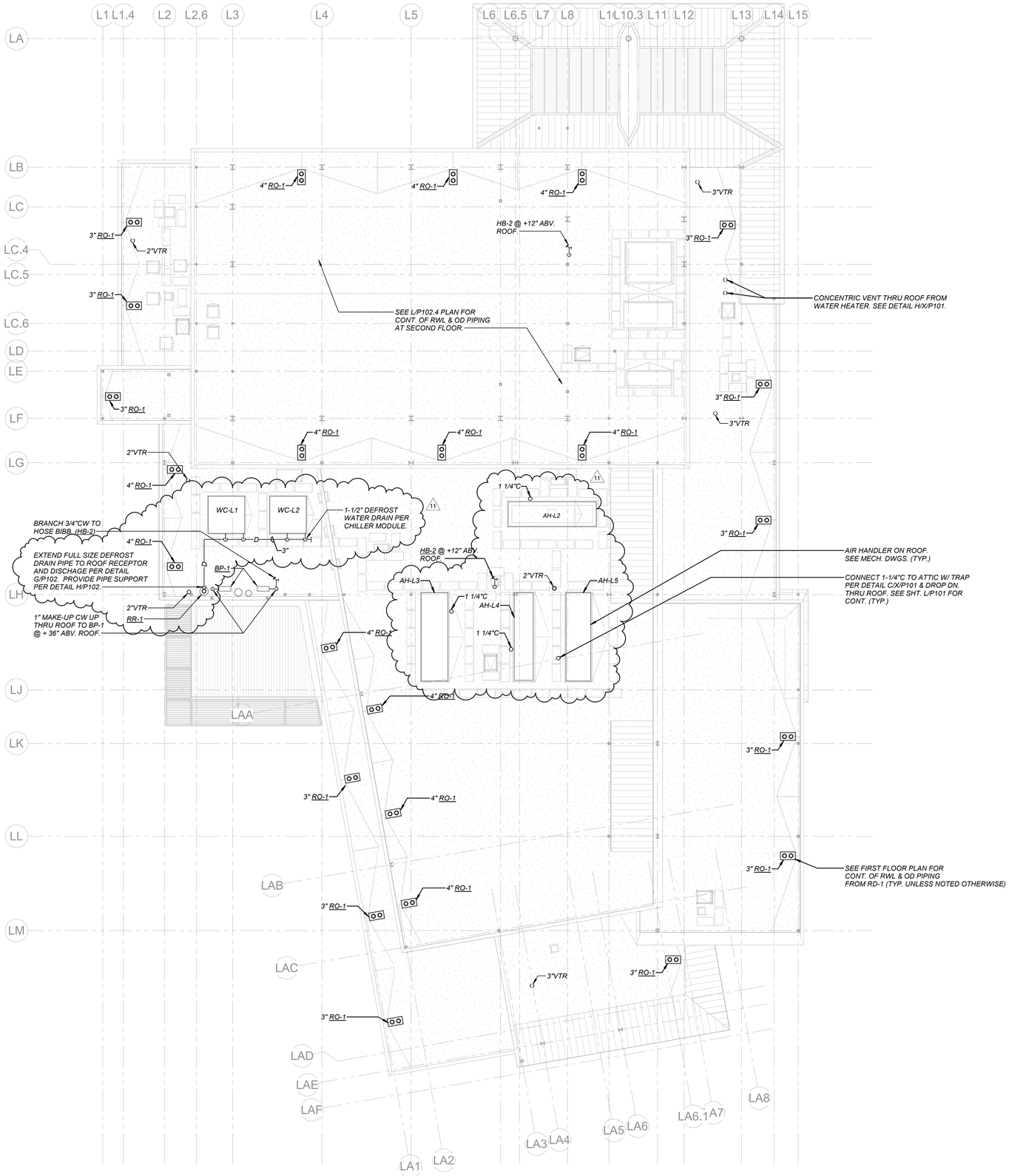
Scale: 3/32" = 1'-0"
Project Number: 2171
Date: 08/11/2023

L/P101.4
AD11

A1
3/32" = 1'-0"

Overall First Floor Plumbing Plan - Bldg. L

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NOTE: THIS PLAN IS AT A SCALE OF 3/32"=1'-0".

N

DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

General Notes

LAWRENCE ENGINEERING GROUP
4713 S. Clinton Way, Suite 101 Fresno, CA 93727
(559) 431-0101 FAX (559) 431-1342
22040

Consultant

Sanger Education Complex - Phase III
Sanger Unified School District
1850 S Fowler, Fresno CA

Project

BUILDING L
OVERALL PLUMBING ROOF PLAN

Drawing

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No.	Revision/Submission	Date
11	Addendum #11	10/15/26

Revision

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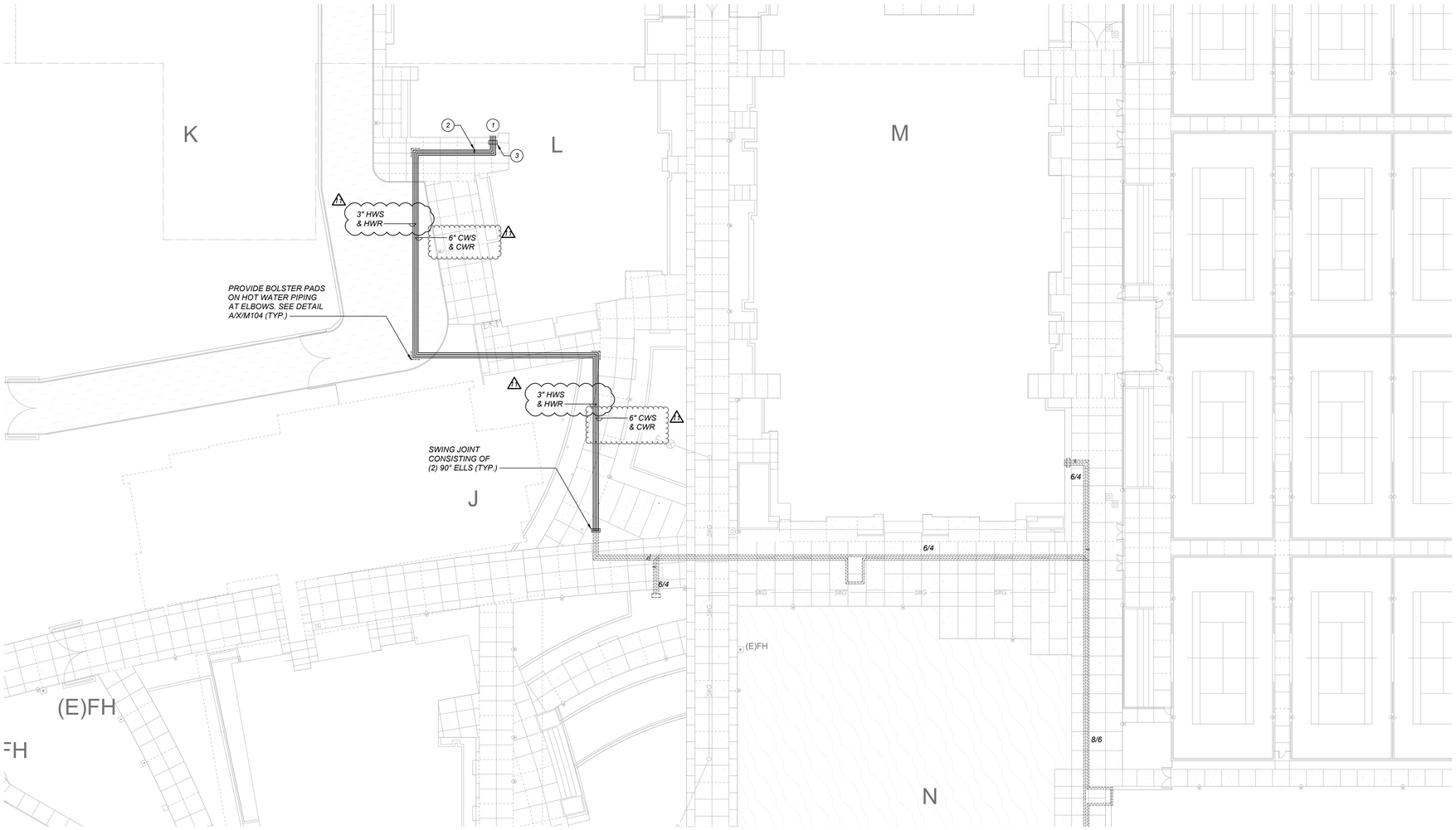
Designed By: DO
Drawn By: LEG
Checked By: DO
Reviewed By: MC

Scale: 3/32" = 1'-0"
Project Number: 2171
Date: 08/11/2023

L/P301.4
AD11

A1
3/32" = 1'-0"
Overall Plumbing Roof Plan

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N

ENLARGED HVAC SITE PLAN

SCALE: 1"=30'-0"

DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

KEYNOTES: (THIS SHEET ONLY)

1. *SEE SHEET L/M302 FOR PIPING SUPPLY & RETURN TO BLDG. "L".*
2. *PROVIDE ANCHOR POINTS FOR HWS & R PIPING AT THIS LOCATION.*
3. *PROVIDE ISOLATION VALVES BEFORE BUILDING ENTRY.*

General Notes

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101, Fresno, CA 93727
(559) 431-0151 FAX (559) 431-1342
22040

MICHAEL D. CANTRELL — No. M1 23 — Exp. 9-30-27 — MECHANICAL — STATE OF CALIFORNIA

Consultant

SANGER EDUCATION COMPLEX - PHASE 3
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727

Project

SITE DEVELOPMENT
ENLARGED HVAC SITE PLAN

Drawing

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LICENSED ARCHITECT — REGINALD K. FARROW — No. C23724 — Rev. 4-30-27 — STATE OF CALIFORNIA

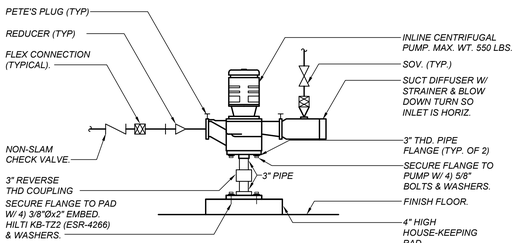
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No.	Revision/Submission	Date
11	*DSA Addendum #11*	*10/15/26*

Revision

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Project Number: 2171	Checked By:	*SD/M101.4*
Date: 08/11/23	Reviewed By:	AD11

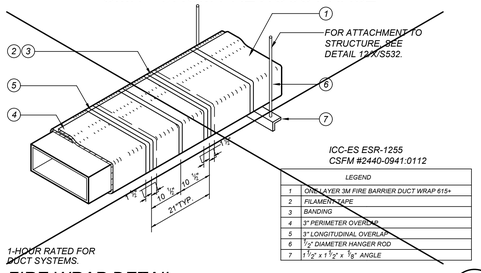
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INLINE PUMP w/ SUCTION DIFFUSER — H / X/M104

SCALE: NONE

OMIT - FROM PREVIOUS PHASE



ICC-ES ESR-1255
CSFM #2440-0941:0112

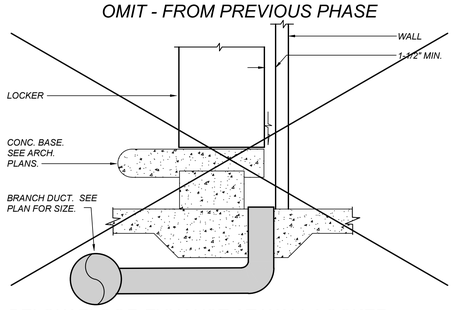
LEGEND	
1	ONE LAYER 3M FIRE BARRIER DUCT WRAP 615+
2	FILAMENT TAPE
3	BANDING
4	3" PERIMETER OVERLAP.
5	3" LONGITUDINAL OVERLAP.
6	1/2" DIAMETER HANGER ROD
7	1 1/2" x 1 1/2" x 1/8" ANGLE

1-HOUR RATED FOR DUCT SYSTEMS.

FIRE WRAP DETAIL — J / X/M104

SCALE: NONE

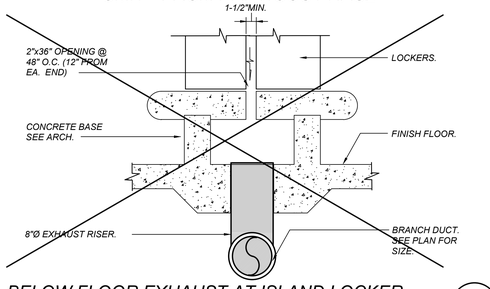
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BELOW FLOOR EXHAUST AT WALL LOCKER — K / X/M104

SCALE: NONE

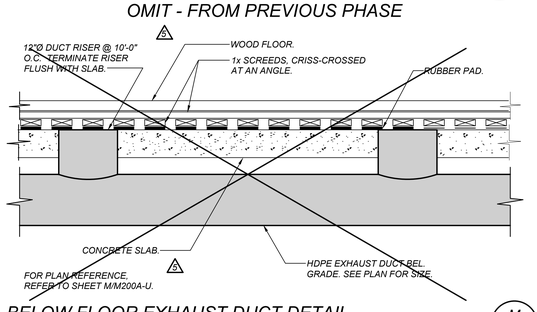
OMIT - FROM PREVIOUS PHASE



BELOW FLOOR EXHAUST AT ISLAND LOCKER — L / X/M104

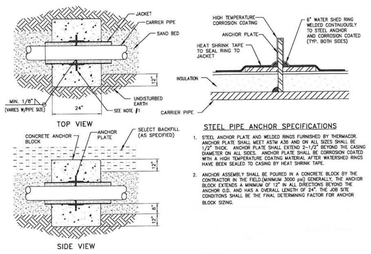
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OMIT - FROM PREVIOUS PHASE



BELOW FLOOR EXHAUST DUCT DETAIL — M / X/M104

SCALE: NONE

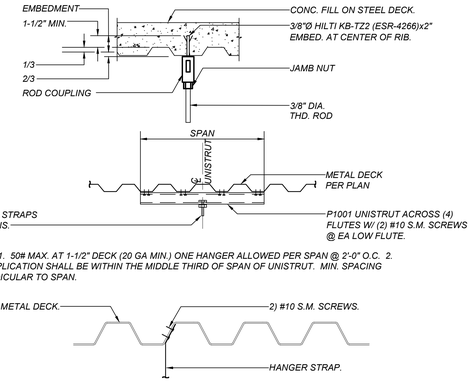


STEEL PIPE ANCHOR SPECIFICATIONS

1. STEEL ANCHOR PLATE AND WELDED RINGS FURNISHED BY THERMACON. ANCHOR PLATE SHALL MEET ASTM A36 AND ON ALL SIDES SHALL EXTEND BEYOND ANCHOR BLOCK A MINIMUM OF 1" IN ALL DIRECTIONS. PIPE SLEEVE THROUGH ANCHOR PLATE SHALL BE CORROSION COATED WITH A HIGH TEMPERATURE COATING MATERIAL AFTER WATERSHED RINGS HAVE BEEN SEALED TO CASING BY HEAT SHRINK TAPE.
2. ANCHOR ASSEMBLY SHALL BE FIGURED IN A CONCRETE BLOCK BY THE CONTRACTOR IN THE FIELD.MINIMUM 3000 psi) GENERALLY, THE ANCHOR BLOCK EXTENDS A MINIMUM OF 12" IN ALL DIRECTIONS BEYOND THE ANCHOR O.D. AND HAS A OVERALL LENGTH OF 24". THE JOB SITE CONDITIONS SHALL BE THE FINAL DETERMINING FACTOR FOR ANCHOR BLOCK SIZING.

EXPANSION BOLSTER DETAIL — D / X/M104

SCALE: NONE

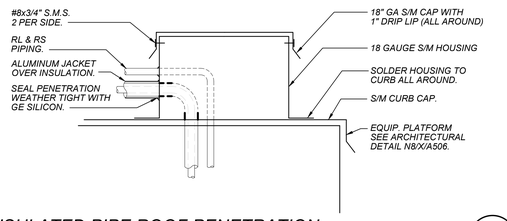


NOTES : 1. 50# MAX. AT 1-1/2" DECK (20 GA MIN.) ONE HANGER ALLOWED PER SPAN @ 2'-0" O.C. 2. LOAD APPLICATION SHALL BE WITHIN THE MIDDLE THIRD OF SPAN OF UNISTRUT. MIN. SPACING PERPENDICULAR TO SPAN.

UPPER ATTACHMENT DETAILS — E / X/M104

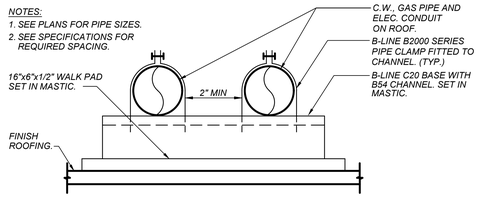
SCALE: NONE

MD903



INSULATED PIPE ROOF PENETRATION — F / X/M104

SCALE: NONE



PIPE SUPPORT - ON ROOF — G / X/M104

SCALE: NONE

INSTALLATION INSTRUCTIONS:

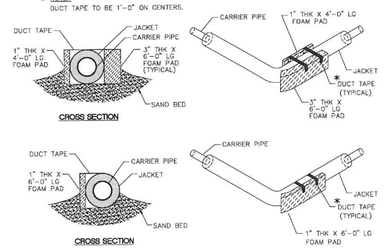
EXPANSION BOLSTERS PROCEDURE

1. EXPANSION BOLSTER MATERIAL IS SUPPLIED IN PADS; 6'-0" LONG x 3" THICK x HEIGHT SPECIFIED ON CHART, 4'-0" LONG x 1" THICK x HEIGHT SPECIFIED ON CHART.
2. PLACE BOLSTER PADS AGAINST JACKET AND CURVE AROUND ELBOW AS SHOWN. HOLD IN PLACE BY ATTACHING PADS TO JACKET WITH DUCT TAPE OR EQUIVALENT ON TOP AND BEDDING SAND ON THE BOTTOM. BE CERTAIN THAT THE BOLSTER PADS FITS SNUG TO JACKET.
3. BOLSTER PAD CONFIGURATION IS DEPENDENT ON LAYOUT & WILL BE SHOWN ON THE INSTALLATION DRAWING.

PVC JACKET OD (INCHES)	HDPE JACKET OD (INCHES)	PAD HEIGHT (INCHES)
3	–	7
4	5.40	7
6	6.68	7
8	8.68	7
10	10.85	13
12	12.85	13
14	14.1	13
16	16.1	17
–	18.2	17
–	20.28	17
–	22.2	25
–	24.38	25
–	28.25	25

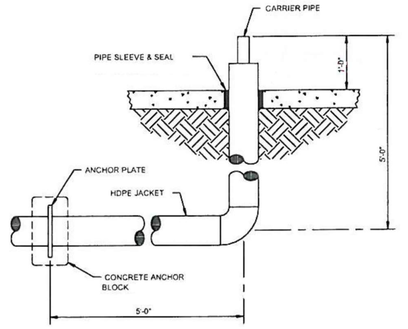
SCALE: NONE

* NOTE: DUCT TAPE TO BE 1'-0" ON CENTERS.



EXPANSION BOLSTER DETAIL — A / X/M104

SCALE: NONE

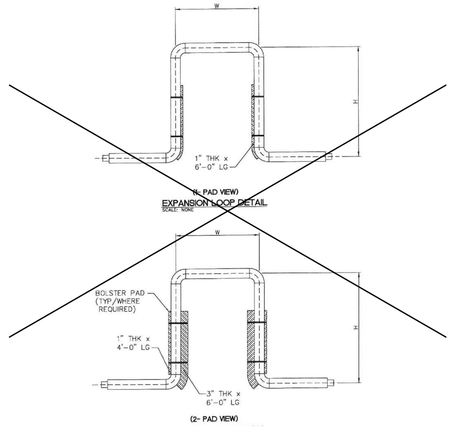


ELEVATION

EXPANSION BOLSTER DETAIL — B / X/M104

SCALE: NONE

OMIT - FROM PREVIOUS PHASE



EXPANSION BOLSTER DETAIL — C / X/M104

SCALE: NONE

DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

General Notes

LAWRENCE ENGINEERING GROUP
4918 E. Clinton Way, Suite 101 Fresno, CA 93727
(559) 431-0101 22040 FAX (559) 431-1342

Exp. 9-30-25 MECHANICAL

Consultant

SANGER EDUCATION COMPLEX - PHASE 3
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727

Project

TYPICAL INFORMATION
MECHANICAL DETAILS

Drawing

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www.dardenarchitects.com
6790 N. West Ave. • Fresno, CA 93711 • T. 559.448.8051

LICENSED ARCHITECT MICHAEL K. FERGUSON No. C23724 Exp. 4-30-25

Architect

No.	Revision/Submission	Date
5	*Addendum #5*	*12/13/23*
11	*DSA Addendum #11*	*10/15/26*

Revision

Designed By:
Drawn By: LEG
Checked By:
Reviewed By:

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Scale:
Project Number: 2171
Date: 08/11/23

X/M104
AD11

15 October 2026 9:06 AM P:\2022\22040 Sanger USD Ed Center Phase 3\4-Drawings\4 M\M104 – DETAILS.dwg ryanf

GRILLE SCHEDULE

MARK	DUTY	DESCRIPTION
A	CEILING SUPPLY	TITUS TDC (TYPE 3) LOUVER FACE SQUARE OR RECTANGULAR NECK DIFFUSER FOR STD. LAY-IN CEILING, AND NO. 26 OFF-WHITE FINISH. (18"X18" NECK ADAPTER SIZE SHOWN).
B	CEILING SUPPLY	TITUS TDC (TYPE 1) LOUVER FACE SQUARE OR RECTANGULAR NECK DIFFUSER FOR SURFACE MOUNTING, AND NO. 26 OFF-WHITE FINISH.
C	CEILING SUPPLY	TITUS PAS (TYPE 3) PERFORATED FACE ROUND NECK DIFFUSER FOR STD. LAY-IN CEILING, FLAT BLACK INTERIOR, AND NO. 26 OFF-WHITE FINISH.
D	WALL SUPPLY	TITUS MODEL 1707 REGISTER WITH REMOVABLE CORE, O.B.D., 5 DEGREE UPWARD DEFLECTION, AND NO. 26 OFF-WHITE FINISH.
F	CEILING SUPPLY	PRICE MODEL SHP-CF, PARALLELOGRAM SHAPED CUSTOM FLOW SLOT DIFFUSER, WITH 24" BEAM SPACING X 24" BASE FOR LAY-IN CEILING, TOP INLET 5A PLENUM, EXTRUDED ALUMINUM FRAME, ADJUSTABLE STEEL BLACK PATTERN CONTROLLER, ALUMINUM CENTER PANEL, PLASTIC LOCKING PINS, COATED STEEL FASTENERS, AND ARMSTRONG WHITELUME FINISH. PRIOR TO ORDERING, CONTRACTOR SHALL FIELD VERIFY INSTALLED CEILING PATTERN FOR DIFFUSER PLACEMENT AND ORIENTATION: INDICATE LEFT HANDED OR RIGHT HANDED ORIENTATION WHEN ODERING.
G	CEILING SUPPLY	TITUS FL-25 HIGH THROW (TYPE 66) EXTRUDED ALUMINUM SLOT DIFFUSER. TWO SLOTS, 2 CRA BORDER, PATTERN CONTROLLER, FLAT BLACK INTERIOR, AND NO. 26 WHITE FINISH. IN LIEU OF #26 WHITE FINISH, PROVIDE #84 BLACK FINISH BEING USED ON WOOD VENEER STYLE CEILINGS.
H	CEILING RETURN OR EXHAUST	TITUS CORE 50F (TYPE 1) ALUMINUM EGG CRATE REGISTER WITH 1/2" x 1/2" GRID, FOR SURFACE MOUNTING WITH NO. 26 OFF-WHITE FINISH.
I	CEILING RETURN OR EXHAUST	TITUS PAR (TYPE 3) PERFORATED FACE SQUARE OR RECTANGULAR NECK REGISTER FOR STD. LAY-IN CEILING , FLAT BLACK INTERIOR, AND NO. 26 OFF-WHITE FINISH.
J	WALL RETURN	TITUS CORE 25RL (TYPE 1) STEEL RETURN REGISTER, , AND NO. 26 OFF-WHITE FINISH.
K	WALL, CEILING OR DUCT RETURN	TITUS CORE 4FL (TYPE 1) ALUMINUM RETURN REGISTER WITH NO. 26 WHITE FINISH.
L	CEILING SUPPLY	TITUS FL-15 HIGH THROW (TYPE 66) EXTRUDED ALUMINUM SLOT DIFFUSER. TWO SLOTS, 2 CRA BORDER, PATTERN CONTROLLER, FLAT BLACK INTERIOR, AND NO. 26 WHITE FINISH. IN LIEU OF #26 WHITE FINISH, PROVIDE #84 BLACK FINISH BEING USED ON WOOD VENEER STYLE CEILINGS.
M	CEILING SUPPLY	TITUS MODEL OMNI SQUARE PLAQUE ROUND NECK DIFFUSER FOR STD. LAY-IN CEILING , FLAT BLACK INTERIOR, AND NO. 26 OFF-WHITE FINISH, DUCT RADIUS WITH AIR SCOOP.
N	WALL SUPPLY	TITUS MODEL CT-481 (FRAME TYPE 5) LINEAR BAR DIFFUSER w/1/8" BARS AT 1/4" SPACING AND 15 DEGREE DEFLECTION AND NO. 26 WHITE FINISH.
P	CEILING SUPPLY	TITUS MODEL MLTZ-38 w/Z AND CAP 2 SLOT, TO FIT ARMSTRONG DESIGN FLEX CEILING SYSTEMS. 3/4" TYPE 4 INSTALL BETWEEN CEILING SLATS. FINISH TO MATCH ARCH. CEILING.
R	WALL SUPPLY	TITUS MODEL TBF-AA ALUMINUM TURBOFUSER NOZZEL DIFFUSER w/ADJUSTABLE RINGS, PAINTED FLAT BLACK.
S	WALL RETURN (HEAVY DUTY)	TITUS CORE 33RF HEAVY DUTY GRILLE, AND NO. 26 OFF-WHITE FINISH.
T	CEILING RETURN OR EXHAUST	TITUS CORE 50F (TYPE 3) ALUMINUM EGG CRATE REGISTER WITH 1/2" x 1/2" GRID, FOR LAY-IN CEILING, AND NO. 26 OFF-WHITE FINISH.
U	CEILING SUPPLY	TITUS PAS (TYPE 3) PERFORATED FACE ROUND NECK DIFFUSER FOR STD. LAY-IN CEILING, FLAT BLACK INTERIOR, AND NO. 26 OFF-WHITE FINISH.
V	WALL RETURN	TITUS MODEL CT-481 (FRAME TYPE 5) LINEAR BAR DIFFUSER w/1/8" BARS AT 1/4" SPACING AND NO. 26 WHITE FINISH.
W	DUCT SUPPLY	TITUS MODEL TMR ROUND NECK, ROUND DIFFUSER WITH THREE INNER CONES, REMOVABLE INNER CONES, EQUALIZING GRID, NO. 26 OFF-WHITE FINISH.
X	CEILING SUPPLY	TITUS ML-40 1-1/2" SLOT DIFFUSER WITH CONTINUOUS PLENUM, BOARDER TYPE 2A. FINISH TO MATCH CEILING.

AIR HANDLER SCHEDULE

	DESIGNATION	AH M1	AH M2 / AH M3	AH M4	AH M5	AH M6	AH M7	AH Q1	AH Q2	AH Q3	AH Q4	AH Q5	AH L1	AH L2	AH L3	AH L4	AH L5
SUPPLY FAN	AIR FLOW (CFM)	14,500	30,000	12,425	12,700	9,000	8,300	12,150	8,000	14,000	9,000	8,500	19,320	5,060	6,475	2,890	5,000
	TOTAL SP (IN WC)	5.6	5.3	4.5	4.4	4.6	4.3	4.5	4.3	4.9	4.6	5.2	4.2	4.3	4.7	4.15	4.3
	ESP (IN WC)	2.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	4.3	2.0	2.0	2.0	2.0
	MIN. OSA (CFM)	4,535	12,320	4,575	7,600	3,485	1,760	8480	2,250	4,940	2,650	2,975	7,100	1,200	200	700	750
	HP/BRAKE HP TOTAL	2@15 / 24.3	40@15 / 41.0	2@7.5 / 12.8	2@7.5 / 13.7	2@7.5 / 10.4	2@5 / 9.5	2@ 7.5 / 13.9	2@5 / 8.6	2@10 / 18.3	2@7.5 / 11.3	2@7.5 / 10.5	2@ 10 / 9.7	7.5 / 5.5	10 / 7.4	5 / 2.95	7.5 / 5.39
	VOLTS/PHASE	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3
	FAN TYPE/CLASS	SWSI / H	SWSI / M	SWSI / H	SWSI / H	SWSI / M	SWSI / H	SWSI / M	SWSI / M	SWSI / M	SWSI / M	SWSI / M	SWSI / I	SWSI / I	SWSI / I	SWSI / I	SWSI / I
	ISOLATOR DEFL. (IN)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	UNIT MCA / MOCP / FLA	71 / 110 / 61	140.6 / 200 / 120.65	41 / 60 / 35.7	41 / 60 / -	36 / 50	28 / 40 / -	41 / 60	28 / 40 / -	57 / 80 / -	36.1 / 50	40 / 60 / 35	63 / 90 / 56	18.6 / 25 / 15.8	25.7 / 35 / 22.2	13.6 / 20 / 11.6	18.6 / 25 / 15.8
	LIGHTS/RECEPTACLE	115 / 1	115 / 1	115 / 1	115 / 1	115 / 1	115 / 1	115 / 1	115 / 1	115 / 1	115 / 1	115 / 1	115 / 1	115 / 1	115 / 1	115 / 1	115 / 1
	LIGHT/REC. MCA/MOCP/FLA	13.3 / 15 / 10.6	13.3 / 15 / 10.6	13.3 / 15 / 10.6	13.3 / 15 / 10.6	13.3 / 15 / 10.6	13.3 / 15 / 10.6	13.3 / 15 / 10.6	13.3 / 15 / 10.6	13.3 / 15 / 10.6	13.3 / 15 / 10.6	13.3 / 15 / 10.6	13.3 / 15 / 10.6	13.3 / 15 / 10.6	13.3 / 15 / 10.6	13.3 / 15 / 10.6	13.3 / 15 / 10.6
RETURN FAN	AIR FLOW (CFM)	14,500	30,000	9,125	12,700	9,000	8,300	12,150	8,000	14,000	9,000	8,500	19,320	5,060	6,475	2,890	5,000
	ESP (IN WC)	1.5	1.0	1.5	1.5	1.5	1.0	1.5	1.5	1.5	1.5	1.5	1.0	1.0	1.0	1.0	1.0
	HP/BRAKE HP TOTAL	2@7.5 / 13.05	4@7.5 / 20.75	2@5 / 7.6	2@5 / 7.8	2@5 / 5.9	2@3 / 4.2	2@5 / 7.3	2@ 3 / 4.7	2@7.5 / 11.6	2@ 3 / 5.9	2@5 / 6.15	2@ 7.5 / 5.4	3 / 2.11	5 / 3.03	1.5 / 1.0	3 / 2.1
	VOLTS/PHASE	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3
	FAN TYPE/CLASS	SWSI / M	SWSI / M	SWSI / H	SWSI / H	SWSI / M	SWSI / M	SWSI / H	SWSI / M	SWSI / M	SWSI / M	SWSI / M	SWSI / I	SWSI / M	SWSI / M	SWSI / M	SWSI / M
	ISOLATOR DEFL. (IN)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
COOLING COIL	SENSIBLE (MBH)	430.62	1093	409	475	341	234	510	239	447	272	289.2	670	166.1	212.6	96.6	155.4
	TOTAL (MBH)	438.24	1109	427	500	312	254	535	254	475	292	303.8	822.5	214.4	277.1	126.7	211.0
	COIL SIZE/ROWS	25 / 6	65.6SF / 4	29.6 / 6	29.6 / 6	20.5 / 6	20.8 / 4	28.6 / 6	20.0 / 6	28.6 / 6	20.5 / 6	16.8 / 6	48.3 / 6	12.3 / 6	13.44 / 6	7.99 / 6	12.3 / 6
	AIR PD (IN WC)	0.652	0.4	0.24	.4	.4	0.3	.4	.33	.47	.44	.576	0.42	0.49	0.65	0.38	0.49
	EADB/EAWB (°F)	85.7 / 65.5	92 / 67	85 / 65.5	89.1 / 66.5	86 / 65.3	80.7 / 64	93.3 / 67.8	82.3 / 64.4	84 / 65	82.6 / 64.5	86 / 65.5	86.5 / 68	84.8 / 68	84.8 / 68	85 / 68	83.2 / 68
	LADB/LAWB (°F)	57 / 55.57	57 / 55	55 / 53.4	55 / 53	54.3 / 52.5	54.5 / 53.6	55 / 54	55 / 54	55 / 53	55 / 53	55 / 53.55	55 / 54.3	55 / 54.4	55.0 / 54.25	54.7 / 53.9	55 / 54.5
	GPM/PD (FT)	87.34 / 3.0	221 / 6.3	85 / 5.3	100 / 7.0	63 / 5.7	52 / 7.9	106 / 8	50 / 2.3	94 / 6.4	59 / 5.1	60.55 / 5.7	164.0 / 3.4	42.7 / 4.9	55.2 / 6.9	25.2 / 10.9	30.68 / 2.85
	EWT/LWT (°F)	45 / 55	45 / 55	45 / 55	45 / 55	45 / 55	45 / 55	45 / 55	45 / 55	45 / 55	45 / 55	45 / 55	45 / 55	45 / 55	45 / 55	45 / 55	45 / 55
	BRANCH SIZE	2.5	4	3	3	2.5	2.5	3	2.5	3	2.5	2.5	3	2	2.0	1.5	2.0
	VALVE TYPE	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	3-WAY	2-WAY	2-WAY	2-WAY	3-WAY
HEATING COIL	CAPACITY (MBH)	345.96	715	316	375	257	244	263	198	340	225	193.4	737.5	166.1	202.8	141.0	156.3
	COIL SIZE/ROWS	24SF / 2	65.6SF / 2	28.7 / 2	29 / 2	21 / 2	19.3SF / 2	29.9 / 2	19.8 / 2	28.7 / 2	20.8 / 2	16.8 / 2	49.1 / 2	12.3 / 2	13.65 / 2	7.99 / 2	12.3 / 2
	AIR PD (IN WC)	0.186	.16	.059	.2	.15	.07	.15	.1	.13	.12	.14	0.09	0.11	0.14	0.09	0.11
	GPM/PD (FT)	34.66 / 0.48	72 / 5.8	32 / 1.0	38 / 1.8	26 / 1.1	25 / 1.0	26 / 3.1	20 / .2	34 / .5	23 / 1.0	19.38 / 0.41	73 / 13.9	16.6 / 2.1	20.3 / 3.2	14.1 / 1.5	15.7 / 0.36
	EAT/LAT (F)	70 / 92	70 / 92	70 / 93.4	70 / 97.2	70 / .96	70 / 97	70 / 90	70 / 92	70 / 92	70 / 93	70 / 90.98	57 / 76	62.4 / 92.7	62 / 91.3	70 / 92.7	62 / 91.2
	EWT/LWT (F)	140 / 120	140 / 120	140 / 120	140 / 120	140 / 120	140 / 120	140 / 120	140 / 120	140 / 120	140 / 120	140 / 120	140 / 120	140 / 120	140 / 120	140 / 120	140 / 120
	BRANCH SIZE	2.5	2.5	2	2	2	2	2	1.5	2	1.5	2.5	1.5	1.5	1.5	1.5	1.5
	VALVE TYPE	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	2-WAY	3-WAY	2-WAY	2-WAY	2-WAY	3-WAY
FILTER	QUANTITY/SIZE	3@12"x24"	4@16"x20"	3@12"x24"	3@12"x24"	4@16"x25"	4@16"x25"	3@12"x24"	4@16"x25"	3@12"x24"	4@16"x25"	2@20"x20"	(36) 20"x 20"x2	(6) 16"x 20"x2	(4) 16"x 20"x2	(1) 20"x 24"x2	(6) 16"x 20"x2
		2@16"x20"	2@20"x24"	2@16"x20"	2@16"x20"	3@20"x25"	3@20"x25"	2@16"x20"	3@20"x25"	2@16"x20"	3@20"x25"	4@20"x24"	-	-	(2) 16"x 25"x2	(1) 24"x 24"x2	-
		6@20"x20"	-	6@20"x24"	6@20"x24"	-	-	6@20"x24"	-	6@20"x24"	-	-					
	FINAL PD (IN WC)	1.00	.50	.50	.50	.50	.50	.50	.50	.50	.50	1.0	1.00	1.00	1.00	1.00	1.00
	EFFICIENCY (MERV)	MERV 13	MERV 13	MERV 13	MERV 13	MERV 13	MERV 13	MERV 13	MERV 13	MERV 13	MERV 13	MERV 13	MERV 13	MERV 13	MERV 13	MERV 13	MERV 13
HUMIDIFIER	STEAM CBS/HR	-	244.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	AIR TEMP (°F) GAIN	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ENTERING DB (°F)	-	59.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	AIR FLOW CFM	-	30,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MANUFACTURER		TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE
TYPE		ROOF TOP	ROOF TOP	ROOF TOP	ROOF TOP	ROOF TOP	ROOF TOP	ROOF TOP	ROOF TOP	ROOF TOP	ROOF TOP	ROOF TOP	INDOOR	OUTDOOR	OUTDOOR	OUTDOOR	OUTDOOR
MODEL NUMBER		CSAA025	CSAA066	CSAA030	CSAA030	CSAA021	CSAA021	CSAA030	CSAA021	CSAA030	CSAA021	CSAA017	CSAA050	CSAA012	CSAA014	CSAA008	CSAA012
SERVICE		BLDG. M	BLDG. M	BLDG. M	BLDG. M	BLDG. M	BLDG. M	BLDG. Q	BLDG. Q	BLDG. Q	BLDG. Q	BLDG. Q	BLDG L - MECH RM	BLDG L - ROOF	BLDG L - ROOF	BLDG L - ROOF	BLDG L - ROOF
OPER. WT. (LBS)		9,000	23,000	10,000	10,000	9,000	8,000	10,000	9,000	10,000	9,000	9,000	9,900	4,201	4,420	3,291	4,206
ACCESSORIES		2,3,4,5	1,2,3,4,5	1,2,3,4,5	2,3,4,5	2,3,4,5	2,3,4,5	2,3,4,5,6	2,3,4,5	2,3,4,5	2,3,4,5	2,3,4,5	2,3,4	3,4,5,7,8,9	3,4,5,7,8,9	3,4,5,7,8,9	3,4,5,7,8,9

1. AHU-M2 & AHU-M3 SHALL HAVE FACTORY INSTALLED REVERSE OSMOSIS HUMIDIFIERS.
2. AHU-M1 THRU AHU-L1 TO BE PROVIDED WITH BACKDRAFT DAMPERS ON THE SUPPLY AND RETURN FANS.
3. SUPPLY DUCT SMOKE DETECTOR FOR AUTOMATIC FAN SHUT-DOWN UPON SMOKE DETECTION.
4. LOW LEAK, DOUBLE WALL CONSTRUCTION WITH CURB READY BASE RAIL, HINGED ACCESS PANELS, AND SINGLE POINT POWER CONNECTION.
5. ROOF CURB BY ARCH. SEE ARCH. SPECS AND DETAILS. WEIGHT INCLUDES CURB, CONTRACTOR SHALL COORDINATE.
6. PROVIDE SUPPLY FAN VFD CONTROLLED BY FOOD SERVICE DEMAND CONTROL SYSTEM.
7. PROVIDE 5 YEAR PARTS AND LABOR WARRANTY.
8. FANS SHALL HAVE FACTORY PROVIDED 2" VIBRATION ISOLATION.
9. PROVIDE HUSHCORE CURB INFILL PER DETAIL J-X/M102.

OMIT - FROM PREVIOUS PHASE

CEILING FAN SCHEDULE

DESIGNATION	CF Q1 THRU CF Q3
NO. OF BLADES	7
VOLTS (AC) / PHASE	115 / 1
MAX RPM	158
MOCP	10
DRIVE	DIRECT
MOUNTING	BEAM
MANUFACTURER	BIG ASS FANS
DIAMETER (FT.)	12
MODEL NUMBER	ESSENCE
CONTROL	WALL SWITCH
SERVICE	UPR 100
OPER. WT. (LBS)	100
ACCESSORIES	1, 3

1. 3' MIN EXTENSION TUBE FOR COMPLIANCE WITH NFPA 13 11.1.7(3).
2. INTERLOCK W/ FIRE ALARM SYSTEM FOR AUTO-MATIC SHUT-DOWN UPON ALARM.

OMIT - FROM PREVIOUS PHASE

EXHAUST FAN SCHEDULE

DESIGNATION	EF M1	EF M2	EF M3	EF M4	EF M5 THRU EF M6	EF M7	EF M8	EF M9	EF M10	EF M11	EF M12
CFM	1700	1665	325 - 350	1065	325 - 350	4280	700	325 - 350	3100	700	3100
ESP (IN WC)	1.0	1.2	0.35	1.2	0.35	1.75	0.4	0.35	1.5	0.4	1.5
HP / WATTS / BHP	.75 / - / .51	.75 / - / .38	.25 / - / .04	.75 / - / .38	.25 / - / .04	3 / - / 1.95	.25 / - / .04	.25 / - / .04	2 / - / 1.3	.25 / - / .04	2 / - / 1.3
VOLTS/PHASE	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	460 / 3	120 / 1	120 / 1	208 / 1	120 / 1	208 / 1
RPM	1334	1374	953	1374	953	1055	1093	953	1302	1093	1302
TIP SPEED/SONES	5804 / 12.2	5262 / 10.3	2791 / 5.2	5262 / 10.3	2791 / 5.2	6766 / 18.1	3184 / 4.6	2791 / 5.2	6305 / 16.8	3184 / 4.6	6305 / 16.8
DRIVE	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT
MOUNTING	ROOF	ROOF	ROOF	ROOF	ROOF	ROOF	ROOF	ROOF	ROOF	ROOF	ROOF
MANUFACTURER	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK
TYPE	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL
MODEL NUMBER	CUE-160HP-VG	CUE-140-VG	G-099-VG	CUE-140-VG	G-099-VG	CUE-240HP-VGD	G-100-VG	G-099-VG	CUE-180-VG	G-100-VG	CUE-180-VG
CONTROL	EMS	EMS	EMS	EMS	EMS	EMS	EMS	EMS	EMS	EMS	EMS
SERVICE	BLDG. M	BLDG. M	BLDG. M	BLDG. M	BLDG. M	BLDG. M	BLDG. M	BLDG. M	BLDG. M	BLDG. M	BLDG. M
OPER. WT. (LBS)	125	100	50	100	50	300	50	50	150	50	150
ACCESSORIES	1	1	1	1	1	1	1	1	1	1	1

1. PROVIDE WITH BACKDRAFT DAMPER, VARI GREEN CONTROL SYSTEM W/ EMS INTERFACE AND SPEED CONTROL DIAL ON MOTOR.

OMIT - FROM PREVIOUS PHASE

EXHAUST FAN SCHEDULE (CONT.)

DESIGNATION	EF Q1	EF Q2	EF Q3 THRU EF Q5	EF Q6	EF Q7	EF Q8	EF Q9	EF L1	EF L2 AND EF L3	EF L4
CFM	150	1200	1874	1796	2075	1118	425	220	600	150
ESP (IN WC)	0.4	2.0	2.0	2.0	1.2	3.25	0.35	0.4	0.4	0.4
HP / WATTS / BHP	1/15 / - / .02	1.0 / - / .04	3.0 / - / 1.23	2.0 / - / 1.19	1.0 / - / .73	3.0 / - / 1.54	.25 / - / .04	1/15 / - / .02	1/10 / - / .08	1/15 / - / .02
VOLTS/PHASE	120 / 1	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3	120 / 1	120 / 1	120 / 1	120 / 1
RPM	1549	1,715	1,770	1,770	1,178	2,101	953	1549	1642	1549
TIP SPEED/SONES	3295 / 4.4	6,565 / 9.9	8,535 / 19.7	8,439 / 19.5	5,746 / 12.7	10,038 / 33	2791 / 5.2	3295 / 4.4	4674 / 8.1	3295 / 4.4
DRIVE	DIRECT	DIRECT	BELT	BELT	BELT	BELT	DIRECT	DIRECT	DIRECT	DIRECT
MOUNTING	ROOF	ROOF	ROOF	ROOF	ROOF	ROOF	ROOF	ROOF	ROOF	ROOF
MANUFACTURER	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK
TYPE	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL
MODEL NUMBER	G-070-VG	CUE-160XP-VG	CUBE-240XP-VGD-30	CUBE-240XP-VGD-30	GB-200HP-VGD-10	CUBE-240XP-VGD-30	G-099-VG	G-070-VG	G-090-VG	G-070-VG
CONTROL	EMS	KIT, HOOD CONTROL	KIT, HOOD CONTROL	KIT, HOOD CONTROL	EMS	KIT, HOOD CONTROL	EMS	EMS	EMS	EMS
SERVICE	BLDG. Q	BLDG. Q	BLDG. Q	BLDG. Q	BLDG. Q	BLDG. Q	BLDG. Q	BLDG. L	BLDG. L	BLDG. L
OPER. WT. (LBS)	30	100	175	175	125	300	60	30	30	30
ACCESSORIES	1	1,2	1,2,3	1,2,3	1	1,2	1	1	1	1

1. PROVIDE WITH BACKDRAFT DAMPER, VARI GREEN CONTROL SYSTEM W/ EMS INTERFACE AND SPEED CONTROL DIAL ON MOTOR.
2. PROVIDE WITH CLEAN-OUT PORT, SS BIRD SCREEN, UL 705 LISTED, VENTILATED CURB EXTENSION WITH HINGED CURB CAP & GREASE TRAP; FACTORY DISCONNECT SWITCH WITH PIGTAIL.
3. PROVIDE WITH AUTO BELT TENSIONER, GRIP NOTCH BELTS.

DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

General Notes

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101 Fresno, CA 93727
(559) 431-0101 22040 FAX (559) 431-1542

Consultant

SANGER EDUCATION COMPLEX - PHASE 3
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727

Project

TYPICAL INFORMATION
MECHANICAL SCHEDULES

Drawing

darden architects
ARCHITECTURE PLANNING INTERIORS
www.dardenarchitects.com
6790 N. West Ave. • Fresno, CA 93711 • T. 559.448.8051

Architect

No.	Revision/Submission	Date
11	*DSA Addendum #11*	*10/15/26*

Revision

	Designed By:	Copyright 2021 Darden Architects
Scale:	Drawn By: LEG	
Project Number: 2171	Checked By:	X/M201
Date: 08/11/23	Reviewed By:	AD11

15 October 2026 5:34 PM P:\2023\23040 sanger usd ed center phase 3\4-drawings\4 M\XM201 - SCHEDULES.dwg anthonyb

OMIT - FROM PREVIOUS PHASE

VARIABLE AIR VOLUME BOX WITH HEAT SCHEDULE (BUILDING Q)

DESIGNATION	VVH Q1	VVH Q2	VVH Q3	VVH Q4	VVH Q5	VVH Q6	VVH Q7	VVH Q8	VVH Q9	VVH Q10	VVH Q11	VVH Q12	VVH Q13	VVH Q14	VVH Q15	VVH Q16	VVH Q17	VVH Q18	VVH Q19	VVH Q20
CFM (MAX)	2,160	550	600	2,360	700	4,350	900	2,800	1,200	1,100	650	1,050	2,195	2,015	790	350	1,150	2,300	700	300
CFM (MIN)	713	182	198	779	231	1,436	297	924	396	363	215	347	724	665	261	116	380	759	231	99
CFM (HEATING)	1,080	275	300	1,180	350	2,175	450	1,400	600	550	325	525	1,098	1,008	395	175	575	1,150	350	150
VOLTAGE/PHASE	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1
POWER (WATTS)	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
INLET PRESSURE (IN. WC)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
INTERNAL PD (IN. WC)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
MAX NC (DISCHARGE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEATING CAPACITY (MBH)	46.9	11.9	13.0	51.2	15.2	94.4	19.5	60.8	26.0	23.9	14.1	22.8	47.6	43.7	17.1	7.6	25.0	49.9	15.2	6.5
GPM	4.7	1.2	1.3	5.2	1.5	9.5	2.0	6.1	2.6	2.4	1.4	2.3	4.8	4.4	1.7	0.8	2.5	5.0	1.5	0.7
PD (FT.)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EADB (°F)	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
EWT (°F)	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
LWT (°F)	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
BRANCH SIZE (IN.)	1	3/4	3/4	1	3/4	1	3/4	1	3/4	3/4	3/4	3/4	3/4	1	3/4	3/4	3/4	1	3/4	3/4
VALVE TYPE	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY	3 WAY	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY
MANUFACTURER	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS
MODEL	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV
SIZE	14	7	7	14	8	24X16	9	14	10	10	7	10	14	14	9	5	10	14	5	6
LOCATION	BLDG Q	BLDG Q	BLDG Q	BLDG Q	BLDG Q	BLDG Q	BLDG Q	BLDG Q	BLDG Q	BLDG Q	BLDG Q	BLDG Q	BLDG Q	BLDG Q	BLDG Q	BLDG Q	BLDG Q	BLDG Q	BLDG Q	BLDG Q
OPER. WT. (LBS)	60	45	45	60	50	85	50	60	50	50	45	50	60	60	50	40	50	60	50	45
ACCESSORIES	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2

1. PROVIDE WITH 2 ROW HOT WATER COIL, STERILOC INTERNAL LINER
2. REFER TO EMS/102 FOR CONTROLS.

OMIT - FROM PREVIOUS PHASE

VARIABLE AIR VOLUME BOX WITH HEAT SCHEDULE (BUILDING M)

DESIGNATION	VVH M1	VVH M2	VVH M3	VVH M4	VVH M5	VVH M6	VVH M7	VVH M8	VVH M9	VVH M10	VVH M11	VVH M12	VVH M13	VVH M14	VVH M15	VVH M16	VVH M17	VVH M18
CFM (MAX)	1,225	500	1750	1450	690	1300	2050	1200	1630	1920	1725	2880	1200	1200	2250	900	2250	2800
CFM (MIN)	404	165	578	380	228	429	677	396	538	634	569	950	396	396	743	297	743	924
CFM (HEATING)	613	250	875	575	345	650	1,025	600	815	960	863	1,440	600	600	1,125	450	1,125	1,400
VOLTAGE/PHASE	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1
POWER (WATTS)	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
INLET PRESSURE (IN. WC)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
INTERNAL PD (IN. WC)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
MAX NC (DISCHARGE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEATING CAPACITY (MBH)	26.6	10.9	38.0	25.0	15.0	28.2	44.5	26.0	35.4	41.2	37.4	62.5	26.0	26.0	48.8	19.5	48.8	60.8
GPM	1.8	0.7	2.6	1.7	1.0	1.9	3.0	1.8	2.4	2.8	2.5	4.2	1.8	1.8	3.3	1.3	3.3	4.1
PD (FT.)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EADB (°F)	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
EWT (°F)	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
LWT (°F)	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110
BRANCH SIZE (IN.)	3/4	3/4	1	1	3/4	1	1	1	1	3/4	3/4	1	3/4	3/4	3/4	3/4	1	1
VALVE TYPE	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY	3 WAY	2 WAY	3 WAY	2 WAY	3 WAY	2 WAY	2 WAY	3 WAY	2 WAY	2 WAY	2 WAY	3 WAY
MANUFACTURER	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS
MODEL	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV
SIZE	10	8	12	10	8	10	14	10	12	12	12	16	12	12	14	9	14	16
LOCATION	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M
OPER. WT. (LBS)	50	50	60	50	50	50	60	50	60	60	60	85	60	60	60	50	60	85
ACCESSORIES	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2

1. PROVIDE WITH 2 ROW HOT WATER COIL, STERILOC INTERNAL LINER
2. REFER TO EMS/102 FOR CONTROLS.

SOUND TRAP SCHEDULE

DESIGNATION	ST L1	ST L2	ST L3	ST L4
AIR FLOW (CFM)	3,400	3,400	11,030	10,000
FACE VELOCITY (FPM)	750	750	1,070	1,070
PRESS. DROP (IN. W.C.)	0.07	0.07	0.25	0.25
SIZE (W" x H" x L")	24 x 24 x 84	24 x 24 x 84	42 x 34 x 84	42 x 34 x 84
DYNAMIC INSERTION LOSS				
63 hz	6	6	12	12
125 hz	11	11	16	16
250 hz	21	21	30	30
500 hz	43	43	51	51
1000 hz	47	47	38	38
2000 hz	42	42	22	22
4000 hz	28	28	17	17
8000 hz	21	21	14	14
MANUFACTURER	PRICE	PRICE	I.A.C.	I.A.C.
	RECTANGULAR	RECTANGULAR	RECTANGULAR	RECTANGULAR
MODEL NUMBER	7LFM	7LFM	7LFM	7LFM
LOCATION	WOOD SHOP L123	WOOD SHOP L123	CONTROL L203	CONTROL L203
	SUPPLY	RETURN	SUPPLY	RETURN
OPER. WT. (LBS)	219	219	495	495
ACCESSORIES	1,2	1,2	1,2	1,2

1. PROVIDE WITH 22 GAUGE GAL. STEEL CASING, 26 GAUGE GAL. PERFORATED STEEL PARTITIONS, INORGANIC GLASS FIBER FILLER MATERIAL PACKED. 5% COMPRESSION, ASTM E84 FLAME/SMOKE RATING OF 20/20.
2. ASTM E477 RATED.
3. SUPPORT UNITS OVER 250 LBS FROM BEAMS OR UNISTRUTS PER 3/X/E203 OR 13/X/S532.

OMIT - FROM PREVIOUS PHASE

VARIABLE AIR VOLUME BOX WITH HEAT SCHEDULE (BUILDING M)

DESIGNATION	VVH M19	VVH M20	VVH M21	VVH M22	VVH M23	VVH M24	VVH M25	VVH M26	VVH M27	VVH M28	VVH M29	VVH M30
CFM (MAX)	2550	895	845	2600	2850	900	1350	2495	1910	800	1300	400
CFM (MIN)	842	295	279	858	941	297	446	823	630	264	396	132
CFM (HEATING)	1,275	448	423	1,300	1,425	450	675	1,248	955	400	600	200
VOLTAGE/PHASE	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1
POWER (WATTS)	75	75	75	75	75	75	75	75	75	75	75	75
INLET PRESSURE (IN. WC)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
INTERNAL PD (IN. WC)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
MAX NC (DISCHARGE)	-	-	-	-	-	-	-	-	-	-	-	-
HEATING CAPACITY (MBH)	55.3	19.4	18.3	56.4	61.8	19.5	29.3	54.1	41.4	17.4	26.0	8.7
GPM	3.7	1.3	1.2	3.8	4.2	1.3	2.0	3.6	2.8	1.2	1.8	0.6
PD (FT.)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EADB (°F)	55	55	55	55	55	55	55	55	55	55	55	55
EWT (°F)	140	140	140	140	140	140	140	140	140	140	140	140
LWT (°F)	110	110	110	110	110	110	110	110	110	110	110	110
BRANCH SIZE (IN.)	1	3/4	3/4	1	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
VALVE TYPE	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY	3 WAY	3 WAY	3 WAY	2 WAY	2 WAY	2 WAY	3 WAY
MANUFACTURER	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS
MODEL	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV
SIZE	14	9	8	14	14	9	12	14	14	9	10	6
LOCATION	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M	BLDG M
OPER. WT. (LBS)	60	50	50	60	60	50	60	60	60	50	50	45
ACCESSORIES	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2

1. PROVIDE WITH 2 ROW HOT WATER COIL, STERILOC INTERNAL LINER
2. REFER TO EMS/102 FOR CONTROLS.

VARIABLE AIR VOLUME BOX WITH HEAT SCHEDULE (BUILDING L)

DESIGNATION	VVH L1	VVH L2	VVH L3	VVH L4	VVH L5	VVH L6	VVH L7	VVH L8	VVH L9	VVH L10	VVH L11	VVH L12	VVH L13
CFM (MAX)	1,010	200	2,400	2,400	640	600	470	575	340	1,200	350	140	140
CFM (MIN)	333	66	792	792	211	198	155	190	112	396	116	46	46
CFM (HEATING)	505	100	1,200	1,200	320	300	235	288	170	600	175	70	70
VOLTAGE/PHASE	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1	120 / 1
POWER (WATTS)	75	75	75	75	75	75	75	75	75	75	75	75	75
INLET PRESSURE (IN. WC)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
INTERNAL PD (IN. WC)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.25	0.25
MAX NC (DISCHARGE)	18	18	18	18	18	18	18	18	18	18	18	18	18
HEATING CAPACITY (MBH)	21.9	4.3	52.1	52.1	13.9	13.0	10.2	12.5	7.4	26.0	7.6	2.6	2.6
GPM	2.2	0.4	5.3	5.3	1.4	1.3	1.0	1.3	0.7	2.6	0.8	0.4	0.4
PD (FT.)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.14	0.14
EADB (°F)	55	55	55	55	55	55	55	55	55	55	55	55	55
EWT (°F)	140	140	140	140	140	140	140	140	140	140	140	140	140
LWT (°F)	120	120	120	120	120	120	120	120	120	120	120	120	120
BRANCH SIZE (IN.)	1	3/4	1	3/4	3/4	1	3/4	3/4	3/4	1	3/4	3/4	3/4
VALVE TYPE	3 WAY	3 WAY	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY	3 WAY	3 WAY	2 WAY	2 WAY	2 WAY
MANUFACTURER	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS
MODEL	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV	DESV
SIZE	14	7	16	16	8	8	7	8	7	14	7	6	6
LOCATION	L117	L114	L101	L101	L103	L124B	L126B	L126A	L129B	L128E	L203	L124A	L128A
OPER. WT. (LBS)	60	45	60	60	50	50	45	50	45	60	45	45	45
ACCESSORIES	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3

1. PROVIDE WITH 2 ROW HOT WATER COIL, STERILOC INTERNAL LINER
2. REFER TO EMS/102 FOR CONTROLS.
3. REQUIRES A 120V CIRCUIT PROVIDED BY DIV. 26.

DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

General Notes

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101, Fresno, CA 93727
(559) 431-0101 FAX (559) 431-1342
22040

REGISTERED PROFESSIONAL ENGINEER — MICHAEL D. CHRISTENSEN — No. M 029855 — Exp. 9-30-24 — MECHANICAL — STATE OF CALIFORNIA

Consultant

SANGER EDUCATION COMPLEX - PHASE 3
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727

Project

MECHANICAL SCHEDULES

Drawing

darden architects
ARCHITECTURE PLANNING INTERIORS
www.dardenarchitects.com
6790 N. West Ave. • Fresno, CA 93711 • T. 559.448.8051

LICENSED ARCHITECT — MICHAEL K. FERRARO — No. C23724 — Reg. 4/30/25 — STATE OF CALIFORNIA

Architect

No.	Revision/Submission	Date
5	Addendum #5	12/13/23
7	RFI 004	04/11/24
11	DSA Addendum #11	10/15/26

Revision

Designed By:
Drawn By: LEG
Checked By:
Reviewed By:

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Scale:
Project Number: 2171
Date: 08/11/23

X/M202
AD11

15 October 2026 9:06 AM P:\2022\22040 Sanger USD Ed Center Phase 3\4-Drawings\X MVM202 - SCHEDULES.dwg ryanf

OMIT - FROM PREVIOUS PHASE

PUMP SCHEDULE															
DESIGNATION	P L1 - P L2	P L3 - P L4	P L5 - P L6	P L7 - P L8	P M1	P M2	P M3	P M4	P M5	P M6	P Q1	P Q2	P Q3	P Q4	
HP/BHP	5 / 2.28	3 / 1.38	7.5 / 4.4	5 / 2.1	3 / 1.96	3 / 1.96	15 / 8.53	15 / 8.53	25 / 21.3	25 / 21.3	10 / 5.63	10 / 5.63	15 / 9.93	15 / 9.93	
VOLTS/PHASE	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460/3	460 / 3	460 / 3	460 / 3	460 / 3	
RPM	1519	1494	1117	1091	1750	1750	1663	1603	1739	1739	1589	1589	1667	1667	
GPM/TDH (FT.)	75 / 70	55 / 55	155 / 70	80 / 55	192 / 30	192 / 30	380 / 70	380 / 70	710 / 90	710 / 90	180 / 80	180 / 80	360 / 80	360 / 80	
EFFICIENCY (%)	58.4	54.8	61.4	53.9	73.5	73.5	78.5	78.5	75.6	75.6	64	64	72.9	72.9	
IMPELLER DIAMETER (IN.)	9.375	8.75	13.375	11.75	7	7	9.5	9.5	13.5	13.5	11	11	11	11	
NPSH (FT)	3.49	4.6	2.69	2.56	6.57	6.57	4.92	4.92	9.81	9.81	5.04	5.04	3.97	3.97	
FLUID TEMP. (°F)	45	140	45	120	120	120	140	140	45	45	140	140	45	45	
SYSTEM	CHILLED WATER	HOT WATER	CHILLED WATER	HOT WATER	HOT WATER	HOT WATER	HOT WATER	HOT WATER	CHILLED WATER	CHILLED WATER	HOT WATER	HOT WATER	CHILLED WATER	CHILLED WATER	
SUCTION SIZE (IN.)	2	1.5	3	2.5	3	3	4	4	6	6	3	3	11	11	
MOTOR ENCLOSURE	ODP	ODP	TEFC	TEFC	TEFC	TEFC	ODP	ODP	ODP	ODP	ODP	ODP	ODP	ODP	
MANUFACTURER	BELL AND GOSSETT	BELL AND GOSSETT	BELL AND GOSSETT	BELL AND GOSSETT	BELL AND GOSSETT	BELL AND GOSSETT	BELL AND GOSSETT	BELL AND GOSSETT	BELL AND GOSSETT	BELL AND GOSSETT	BELL AND GOSSETT	BELL AND GOSSETT	BELL AND GOSSETT	BELL AND GOSSETT	
TYPE	SPLIT COUPLED	SPLIT COUPLED	SPLIT COUPLED	SPLIT COUPLED	SPLIT COUPLED	SPLIT COUPLED	SPLIT COUPLED	SPLIT COUPLED	SPLIT COUPLED	SPLIT COUPLED	SPLIT COUPLED	SPLIT COUPLED	SPLIT COUPLED	SPLIT COUPLED	
MODEL NUMBER	80SC 2x2x9.5C	80SC 1.5x1.5x9.5B	80SC 3x3x13.5	80SC 3x3x13.5	80SC 3x3x7C	80SC 3x3x7C	80SC 4x43x9.5B	80SC 4x43x9.5B	80SC 5x5x13.5	80SC 5x5x13.5	80SC 3x3x11B	80SC 3x3x11B	80SC 4x4x11B	80SC 4x4x11B	
LOCATION	MECHANICAL L127	MECHANICAL L127	BLDG. L ROOF	BLDG. L ROOF	BUILDING M ROOF	BUILDING M ROOF	BUILDING M	BUILDING M	BUILDING M	BUILDING M	BUILDING Q	BUILDING Q	BUILDING Q	BUILDING Q	
OPER. WT. (LBS)	350	300	450	350	300	300	650	650	725	725	450	450	675	675	
ACCESSORIES	1,2,3,4	1,2,3,4	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	

1. PROVIDE WITH VFD AND VFD CAPABLE MOTOR AND TRIPLE DUTY VALVE.
2. PROVIDE WITH FLOW SENSOR, PRESSURE SENSOR, BACNET INTEGRATION CAPABLE.
3. PROVIDE WITH FLANGED VIBRATION ISOLATION BASE.
4. PROVIDE WITH SUCTION DIFFUSER

OMIT - FROM PREVIOUS PHASE

BOILER SCHEDULE			
DESIGNATION	B M1	B M2	
CAPACITY (MBH)	1,900	1,900	
INPUT (CFH)	1,999	1,999	
FUEL	NAT. GAS	NAT. GAS	
NOX EMISSION (PPM)*	<20	<20	
BLOWER POWER (WATTS)	1700	1700	
VOLTS/ PHASE	120/1	120/1	
NAMEPLATE AMPS	13.5	13.5	
MOCP (AMPS)	20	20	
GPM	192	192	
PD (FT.)	1	1	
EWT (°F)	120	120	
LWT (°F)	140	140	
MANUFACTURER	CLEAVER BROOKS	CLEAVER BROOKS	
TYPE	CLEARFIRE	CLEARFIRE	
MODEL NUMBER	CFC-E 2000	CFC-E 2000	
LOCATION	BLDG M ROOF	BLDG M ROOF	
OPER. WT. (LBS)	2,900	2,900	

*CORRECTED TO 3% OXYGEN

1. PROVIDE WITH OUTDOOR WEATHER PACKAGE, EMS INTERFACE FOR BACNET PROTOCOL, CALIFORNIA CODE GAS TRAIN, COMBUSTION AIR FILTER NEUTRALIZATION TANK ASSEMBLY, CALIFORNIA CODE BOILER TRIM, BOILER STACK FOR OUTDOOR APPLICATION, SEISMIC ANCHORING BRACKETS.

OMIT - FROM PREVIOUS PHASE

HEAT PUMP WATER CHILLER SCHEDULE						
	DESIGNATION	WC M1	WC M2	WC M3	WC L1	WC L2
GENERAL	CAPACITY (TONS - COOLING)	148.2	148.2	148.2	55.5	55.5
	CAPACITY (MBH - HEATING)	1,560.4	1,560.4	1,560.4	593.0	593.0
	AMBIENT (°F COOLING/HEATING)	105 / 30	105 / 30	105 / 30	105 / 30	105 / 30
	SOUND POWER AT 30FT. (dBA)				84.7	84.7
	VOLTS/PHASE	460 / 3	460 / 3	460 / 3	460 / 3	460 / 3
	FLA	349	349	349	149.5	149.5
	MCA / MOP (AMPS)	367 / 450	367 / 450	367 / 450	160 / 200	160 / 200
	EER / IPLV (COOLING)	8.5 / 16.3	8.5 / 16.3	8.5 / 16.3	8.45 / -	8.45 / -
	COP (HEATING)	2.22	2.22	2.22	1.95	1.95
COMPRESSOR	QUANTITY	6	6	6	4	4
	SYSTEM POWER (kW - TOTAL)	208.6	208.6	208.6	89.1	89.1
	REFRIGERANT	R 454 B	R 454 B	R 454 B	R 454 B	R 454 B
	REFRIGERANT VOLUME (LBS.)				40.0	40.0
	SCALE FACTOR	0.0001	0.0001	0.0001	0.0001	0.0001
	CAPACITY CONTROL (%)	16.6% STAGES	16.6% STAGES	16.6% STAGES	25% STAGES	25% STAGES
EVAPORATOR	GPM (COOLING)	354.0	354.0	354.0	131.3	131.3
	MIN / MAX FLOW (GPM)	235.0	235.0	235.0	-	-
	PD (FT. H2O)	10.6	10.6	10.6	7.6	7.6
	EWT / LWT (°F)	55 / 44	55 / 44	55 / 44	55 / 44	55 / 44
	GPM (HEATING)	216.0	216.0	216.0	65.8	65.8
	MIN / MAX FLOW (GPM)	-	-	-	-	-
	PD (FT. H2O)	2.0	2.0	2.0	3.2	3.2
	EWT / LWT (°F)	110 / 125	110 / 125	110 / 125	120 / 140	120 / 140
	FLUID	WATER	WATER	WATER	WATER	WATER
	CONNECTION (IN.)	4	4	4	3	3
MANUFACTURER		TRANE	TRANE	TRANE	TRANE	TRANE
TYPE		ASCEND ACS	ASCEND ACS	ASCEND ACS	MODULAR	MODULAR
MODEL NUMBER		ACXA1802EUA	ACXA1802EUA	ACXA1802EUA	AXM030	AXM030
LOCATION		BLDG. M	BLDG. M	BLDG. M	BLDG. L	BLDG. L
OPER. WT (LBS)		15,500	15,500	15,500	6,000	6,000
ACCESSORIES		1	1	1	1 THRU 13	1 THRU 13

1. PROVIDE WITH REDUNDANT REFRIGERANT SYSTEM, SOLID STATE CONTROLS WITH EMS INTERFACE, SINGLE POINT POWER WITH FUSED DISCONNECT, POWER MONITOR. INLET STRAINER.
2. THE FLOW RATE MUST CHANGE AT A RATE OF LESS THAN 10% PER MINUTE TO MAINTAIN +/- 2 DEGREES, AND LESS THAN 30% TO REMAIN ON LINE.
3. CHILLER SHALL BE MADE IN THE USA.
4. CHILLER SHALL HAVE NEXT GENERATION REFRIGERANT WITH GWP < 600.
5. CHILLER SHALL HAVE DEFROST FAULT PROTECTION.
6. CHILLER SHALL HAVE 7" COLOR TOUCHSCREEN DISPLAY CONTROLLER USER INTERFACE.
7. MODULAR CHILLERS TO INCLUDED VAPOR INJECTIONS COMPRESSORS (WC-L1 & WC-L2).
8. MODULAR CHILLERS STRAINER SHALL BE FACTORY INSTALLED BETWEEN THE HEADER SYSTEM AND EACH EVAPORATOR AND CONDENSER INLET (WC-L1 & WC-L2).
9. MODULAR CHILLERS SHALL HAVE INDEPENDENT REFRIGERANT CIRCUITS PER MODULE FOR REDUNDANCY (WC-L1 & WC-L2).
10. MODULAR CHILLERS SHALL HAVE FACTORY INSTALLED DRAIN PANS (WC-L1 & WC-L2).
11. MODULAR CHILLERS SHALL HAVE FACTORY INSTALLED DRAIN PANS (WC-L1 & WC-L2).
12. PROVIDE 5 YEAR TRANE SERVICE AGREENMENT AND 5 YEAR PARTS & LABOR WARRANTY.
13. PROVIDE WITH FACTORY INSTALLED HEAT TRACE. SEPARATE 120V CONNECTION REQUIRED.

OMIT - FROM PREVIOUS PHASE

INDOOR UNIT SCHEDULE											
	DESIGNATION	IDU M1	IDU M2	IDU M3	IDU M4	IDU M5	IDU M6	IDU Q1	IDU Q2	IDU L1	IDU L2
BLOWER	SUPPLY AIR (CFM)	375	700	700	375	375	375	375	375	700	700
	EXT. SP (IN WC)	0	0	0	0	0	0	0	0	0	0
	MIN OSA (CFM)	0	0	0	0	0	0	0	0	0	0
	MOCP	POWER FROM ODU	POWER FROM ODU	POWER FROM ODU	POWER FROM ODU	POWER FROM ODU	POWER FROM ODU	POWER FROM ODU	POWER FROM ODU	POWER FROM ODU	POWER FROM ODU
	MCA / FLA (AMPS)	1 / 0.19	1 / 0.36	1 / 0.36	1 / 0.19	1 / 0.19	1 / 0.19	1 / 0.19	1 / 0.19	1 / 0.36	1 / 0.36
	VOLTS / PHASE	.	.	.	.	.	.	.	.	.	.
	SEER / EER	21.0 / 13.3	21.4 / 12.2	21.4 / 12.2	21.0 / 13.3	21.0 / 13.3	21.0 / 13.3	21.0 / 13.3	21.0 / 13.3	21.4 / 12.2	21.4 / 12.2
COOLING	SENSIBLE (MBH)	-	-	-	-	-	-	-	-	-	-
	TOTAL (MBH)	11.6	23.3	23.3	11.6	11.6	11.6	11.6	11.6	23.3	23.3
	EADB/EAWB (F)	80 / 67	80 / 67	80 / 67	80 / 67	80 / 67	80 / 67	80 / 67	80 / 67	80 / 67	80 / 67
	REFRIGERANT	.	.	.	.	.	.	.	.	.	.
FILTERS	QUANTITY/SIZE	1 / FACTORY	1 / FACTORY	1 / FACTORY	1 / FACTORY	1 / FACTORY	1 / FACTORY	1 / FACTORY	1 / FACTORY	1 / FACTORY	1 / FACTORY
	TYPE	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY
	PD (IN WC)	.	.	.	.	.	.	.	.	.	.
MANUFACTURER		MITSUBISHI	MITSUBISHI	MITSUBISHI	MITSUBISHI	MITSUBISHI	MITSUBISHI	MITSUBISHI	MITSUBISHI	MITSUBISHI	MITSUBISHI
TYPE		HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP
MODEL NUMBER		TPKAOA0121LA	TPKAOA0241KA	TPKAOA0241KA	TPKAOA0121LA	TPKAOA0121LA	TPKAOA0121LA	TPKAOA0121LA	TPKAOA0121LA	TPKAOA0241KA	TPKAOA0241KA
CONDENSING UNIT		ODU-M1	ODU-M2	ODU-M3	ODU-M4	ODU-M5	ODU-M6	ODU-Q1	ODU-Q2	ODU-L1	ODU-L1
LOCATION		M210A AMP. ROOM	M210 BROADCAST	M107 ELEV. EQUIP.	M150 ELEV. EQUIP.	M163 IDF/AV	M116 IDF	Q101C ELEV. EQUIP	Q101B ELEV. EQUIP.	L122 ELEV. EQUIP.	L122 ELEV. EQUIP.
OPER WT (LBS)		33	50	50	33	33	33	33	33	50	50
ACCESSORIES		1	1	1	1	1	1	1	1	1	1

1. PROVIDE WITH CONDENSATE LIFT PUMP AND HARD WIRED REMOTE CONTROLLER.

OMIT - FROM PREVIOUS PHASE

OUTDOOR UNIT SCHEDULE										
DESIGNATION	ODU M1	ODU M2	ODU M3	ODU M4	ODU M5	ODU M6	ODU Q1	ODU Q2	ODU L1	ODU L2
COOLING CAPACITY (MBH)	11.6	23.3	23.3	11.6	11.6	11.6	11.6	11.6	23.3	23.3
VOLTS/PHASE	208 / 1	208 / 1	208 / 1	208 / 1	208 / 1	208 / 1	208 / 1	208 / 1	208 / 1	208 / 1
FLA	-	-	-	-	-	-	-	-	-	-
MCA / MOCP	11 / 28	19 / 26	19 / 26	11 / 28	11 / 28	11 / 28	11 / 28	11 / 28	19 / 26	19 / 26
SEER / EER	21.0 / 13.3	21.4 / 12.2	21.4 / 12.2	21.0 / 13.3	21.0 / 13.3	21.0 / 13.3	21.0 / 13.3	21.0 / 13.3	21.4 / 12.2	21.4 / 12.2
AMBIENT (°F)	105	105	105	105	105	105	105	105	105	105
REFRIG LINE SIZE	.	.	.	.	.	.	.	.	.	.
LIQUID (IN. OD)	1/4	3/8	3/8	1/4	1/4	1/4	1/4	1/4	3/8	3/8
SUCTION (IN OD)	1/2	5/8	5/8	1/2	1/2	1/2	1/2	1/2	5/8	5/8
REFRIGERANT	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A
MANUFACTURER	MITSUBISHI	MITSUBISHI	MITSUBISHI	MITSUBISHI	MITSUBISHI	MITSUBISHI	MITSUBISHI	MITSUBISHI	MITSUBISHI	MITSUBISHI
TYPE	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP
MODEL NUMBER	TRUZAOP21KA7ONA	TRUYAO241HA7ONA	TRUYA0241HA7ONA	TRUZAOP21KA7ONA	TRUZAOP21KA7ONA	TRUZAOP21KA7ONA	TRUZAOP21KA7ONA	TRUZAOP21KA7ONA	TRUYA0241HA7ONA	TRUYAO241HA7ONA
SERVICE	IDU-M1	IDU-M2	IDU-M3	IDU-M4	IDU-M5	IDU-M6	IDU-Q1	IDU-Q2	IDU-L1	IDU-L1
OPER WT (LBS)	110	160	160	110	110	110	110	110	160	160
ACCESSORIES	1	1	1	1	1	1	1	1	1	1

1. PROVIDE WITH LIQUID LINE FILTER SUCTION LINE FILTER AND SITE GLASS.
2. UNIT SHALL PROVIDE 24/7 100% COOLING AT 23F AMBIENT WITHOUT DE-RATE AND DESIGNED FOR PROCESS (NON-COMFORT) APPLICATIONS.

DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

General Notes

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101 Fresno, CA 93727
(559) 431-6165 22040 FAX (559) 431-1542

REGISTERED PROFESSIONAL ENGINEER MICHAEL D. CANTRELL No. M026855 Exp. 9-30-23 MECHANICAL STATE OF CALIFORNIA

Consultant

SANGER EDUCATION COMPLEX - PHASE 3
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727

Project

TYPICAL INFORMATION
MECHANICAL SCHEDULES

Drawing

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LICENSED ARCHITECT REGINALD K. FENNOY No. C23724 Renewal 4-30-25 STATE OF CALIFORNIA

Architect

No.	Revision/Submission	Date
5	Addendum #5	12/13/23
6	RFI 005	03/28/24
11	DSA Addendum #11	10/15/26

Revision

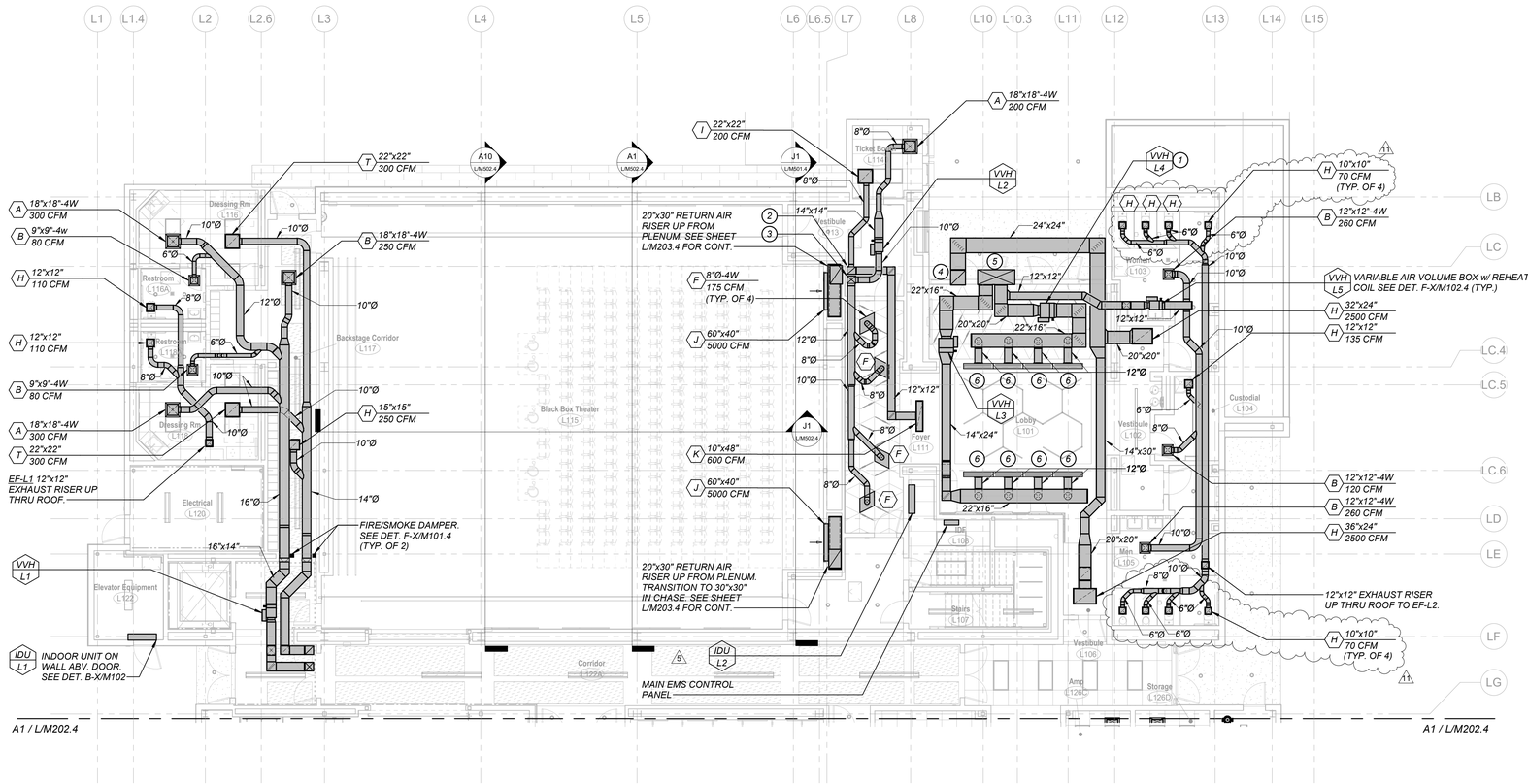
Designed By:
Drawn By: LEG
Checked By:
Reviewed By:

Scale:
Project Number: 2171
Date: 08/11/23

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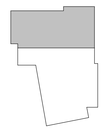
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KEYNOTES: (THIS SHEET ONLY)

1. *UNLESS OTHERWISE NOTED, ALL DUCTWORK DOWNSTREAM OF VAV BOXES SHALL HAVE 1" ACOUSTIC LINING. (TYP.)*
2. *14"x12" RETURN AIR RISER UP TO CONTROL ROOM.*
3. *14"x12" SUPPLY AIR DROP FROM CONTROL ROOM.*
4. *24"x24" RETURN AIR RISER UP TO MECHANICAL ROOM.*
5. *24"x60" SUPPLY AIR DROP FROM MECHANICAL ROOM.*
6. G *12"Ø / 800 CFM*



Overall Key Plan - Building L

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101 Fresno, CA 93727
(559) 431-8181 22040 FAX (559) 431-1542

REGISTERED PROFESSIONAL ENGINEER RUSSEL D. CAMPBELL MECHANICAL Exp. 9-30-27 STATE OF CALIFORNIA

Consultant

SANGER EDUCATION COMPLEX - PHASE 3
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727
Project

BUILDING L
FIRST FLOOR MECHANICAL PLAN - AREA A
Drawing

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LICENSED ARCHITECT RISSEL K. FERRIOLI No. C23724 Exp. 4-30-27 STATE OF CALIFORNIA

Architect

No.	Revision/Submission	Date
5	Addendum #5	12/13/23
11	Addendum #11	10/15/26

Revision

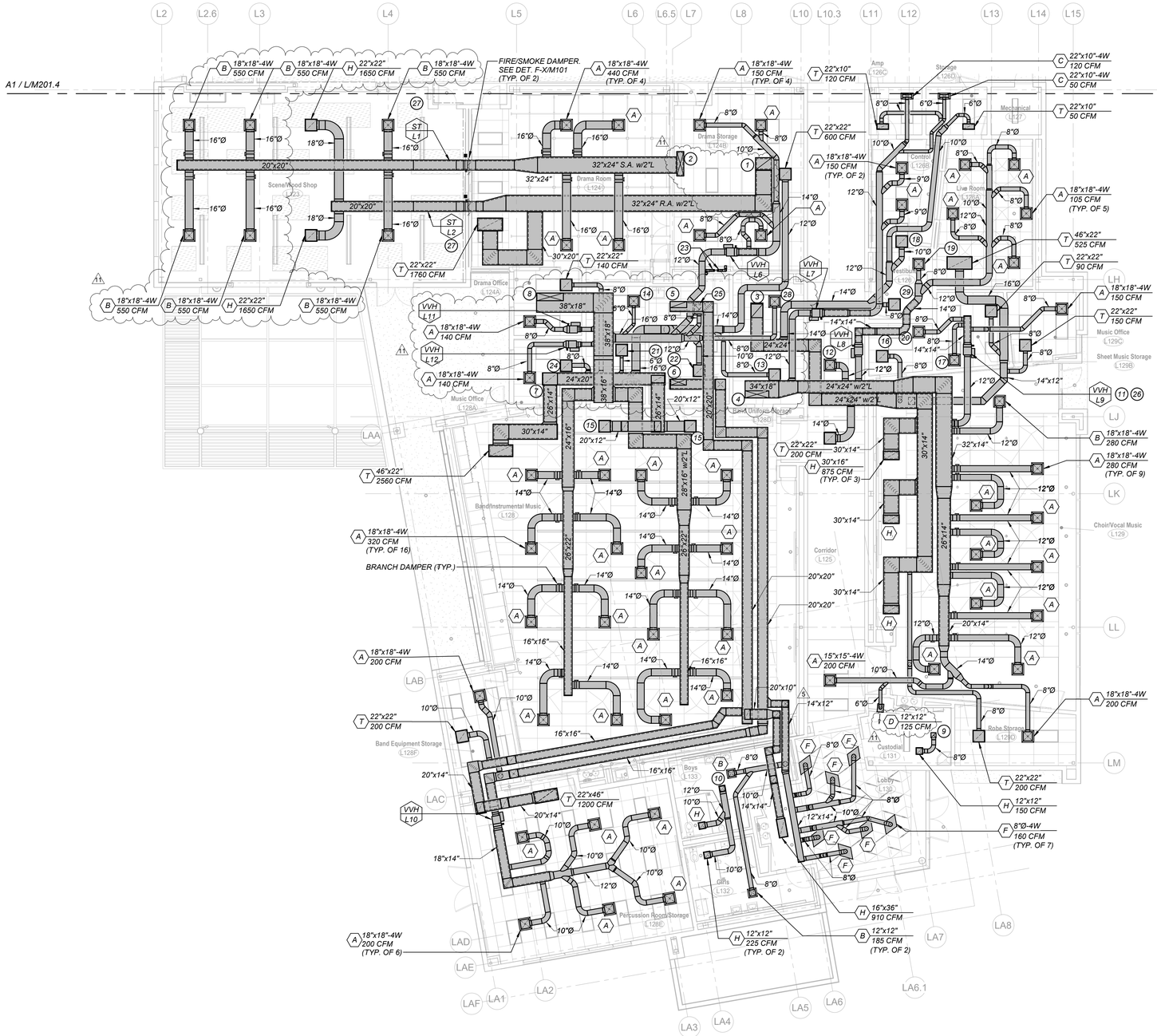
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Checked Checker
Reviewed Approver
Date: 08/11/2023
Scale: As indicated
Project Number: 22040

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A1
1/8" = 1'-0"
FIRST FLOOR MECHANICAL PLAN - AREA A

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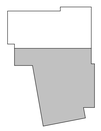
DSA File No.:
DSA File

DSA Application No.:
DSA App

Agency Approval

KEYNOTES: (THIS SHEET ONLY)

1. *32"x24" RETURN AIR RISER UP FROM 90° ELBOW TO AH-L2 ON ROOF, TRANS TO 28"x24" BEFORE ROOF DECK.*
2. *14"x48" SUPPLY AIR DROP FROM AH-L2 ON ROOF.*
3. *24"x28" RETURN AIR RISER UP TO AH-L5 ON ROOF.*
4. *46"x14" SUPPLY AIR DROP FROM AH-L5 ON ROOF.*
5. *32"x12" RETURN AIR RISER UP TO AH-L4 ON ROOF.*
6. *30"x12" SUPPLY AIR DROP FROM AH-L4 ON ROOF.*
7. *30"x24" RETURN AIR RISER UP TO AH-L3 ON ROOF.*
8. *52"x16" SUPPLY AIR DROP FROM AH-L3 ON ROOF.*
9. *12"x12" EXHAUST AIR RISER UP TO EF-L4 ON ROOF.*
10. *12"x12" EXHAUST AIR RISER UP TO EF-L3 ON ROOF.*
11. *UNLESS OTHERWISE NOTED, ALL DUCTWORK DOWNSTREAM OF VAV BOXES SHALL HAVE 1" ACOUSTIC LINING. (TYP.)*
12. *(A) 15"x15"-4W / 300 CFM*
13. *(A) 22"x22" / 150 CFM*
14. *(T) 22"x22" / 75 CFM*
15. *(T) 22"x22" / 1280 CFM*
16. *(T) 22"x22" / 100 CFM*
17. *(A) 18"x18"-4W / 90 CFM*
18. *(T) 22"x22" / 300 CFM*
19. *(B) 18"x18"-4W / 50 CFM*
20. *(A) 18"x18"-4W / 100 CFM*
21. *(T) 22"x22" / 75 CFM*
22. *(T) 22"x22" / 250 CFM*
23. *4" DRYER VENT RISER UP TO ROOF. TERMINATE WITH ROOF CAP. SEE DET. J8-X/A506 (TYP. OF 2)*
24. *(T) 22"x22" / 140 CFM*
25. *(A) 18"x18"-4W / 250 CFM*
26. *SEE DETAIL F/X/M102 FOR SUPPORT.*
27. *SOUND TRAP SUPPORT, TYP. OF STD. DUCT SUPPORT.*
28. *(A) 18"x18"-4W / 150 CFM*
29. *(T) 15"x15"-4W / 50 CFM*



Overall Key Plan - Building L

LAWRENCE ENGINEERING GROUP
4113 E. Clinton Way, Suite 101 Fresno, CA 93727
(559) 431-4161 22040 FAX (559) 431-1362
Consultant

SANGER EDUCATION COMPLEX - PHASE 3
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727
Project

BUILDING L
FIRST FLOOR MECHANICAL PLAN - AREA B
Drawing

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5	Addendum #5	12/13/23
11	Addendum #11	10/15/26

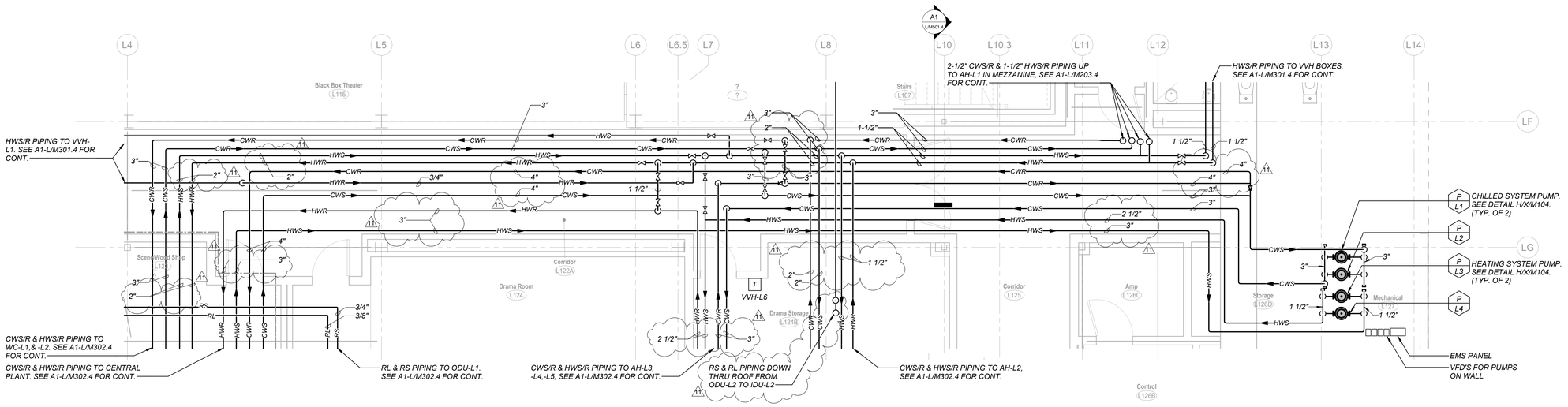
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Project Number: 22040	Checked Checker	
Date: 08/11/2023	Reviewed Approver	

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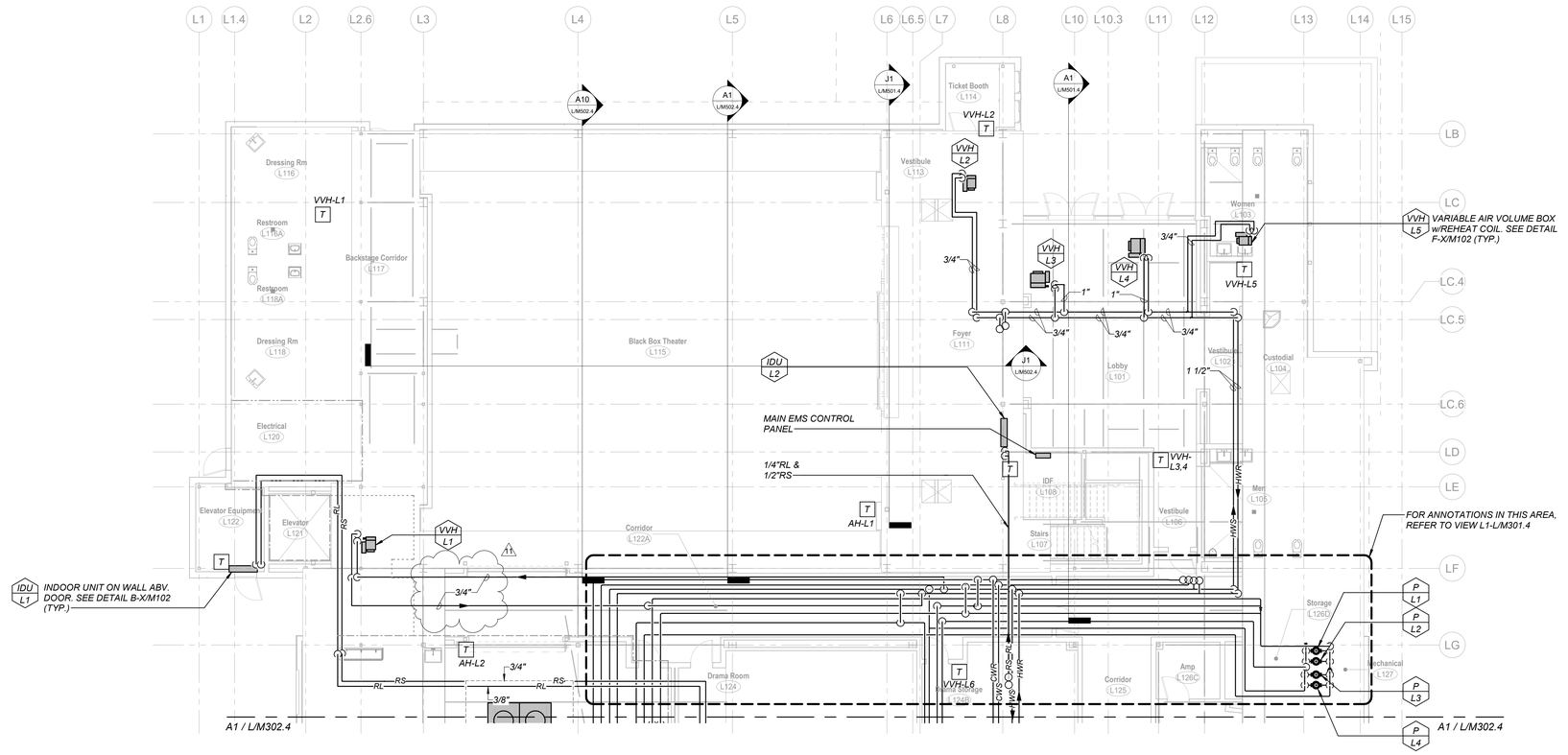
A1
1/8" = 1'-0"
ENLARGED FIRST FLOOR MECHANICAL PLAN - AREA B

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L1 — ENLARGED MECHANICAL PIPING PLAN - L122A

1/4" = 1'-0"



A1 — 1/8" ENLARGED FIRST FLOOR PIPING - AREA A

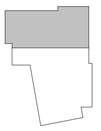
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Overall Key Plan - Building L

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4715 E. Clinton Way, Suite 101 Fresno, CA 93727
(559) 431-8161 22040 FAX (559) 431-1343

REGISTERED PROFESSIONAL ENGINEER MICHAEL D. CRAIG MECHANICAL STATE OF CALIFORNIA Exp. 9-30-23

Consultant

SANGER EDUCATION COMPLEX - PHASE 3
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727

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BUILDING L
FIRST FLOOR MECHANICAL PIPING PLAN - AREA A

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LICENSED ARCHITECT MICHAEL K. FENNELL No. C23724 Exp. 4-30-25 STATE OF CALIFORNIA

Architect

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5	Addendum #5	12/13/23
11	Addendum #11	10/15/26

Revision

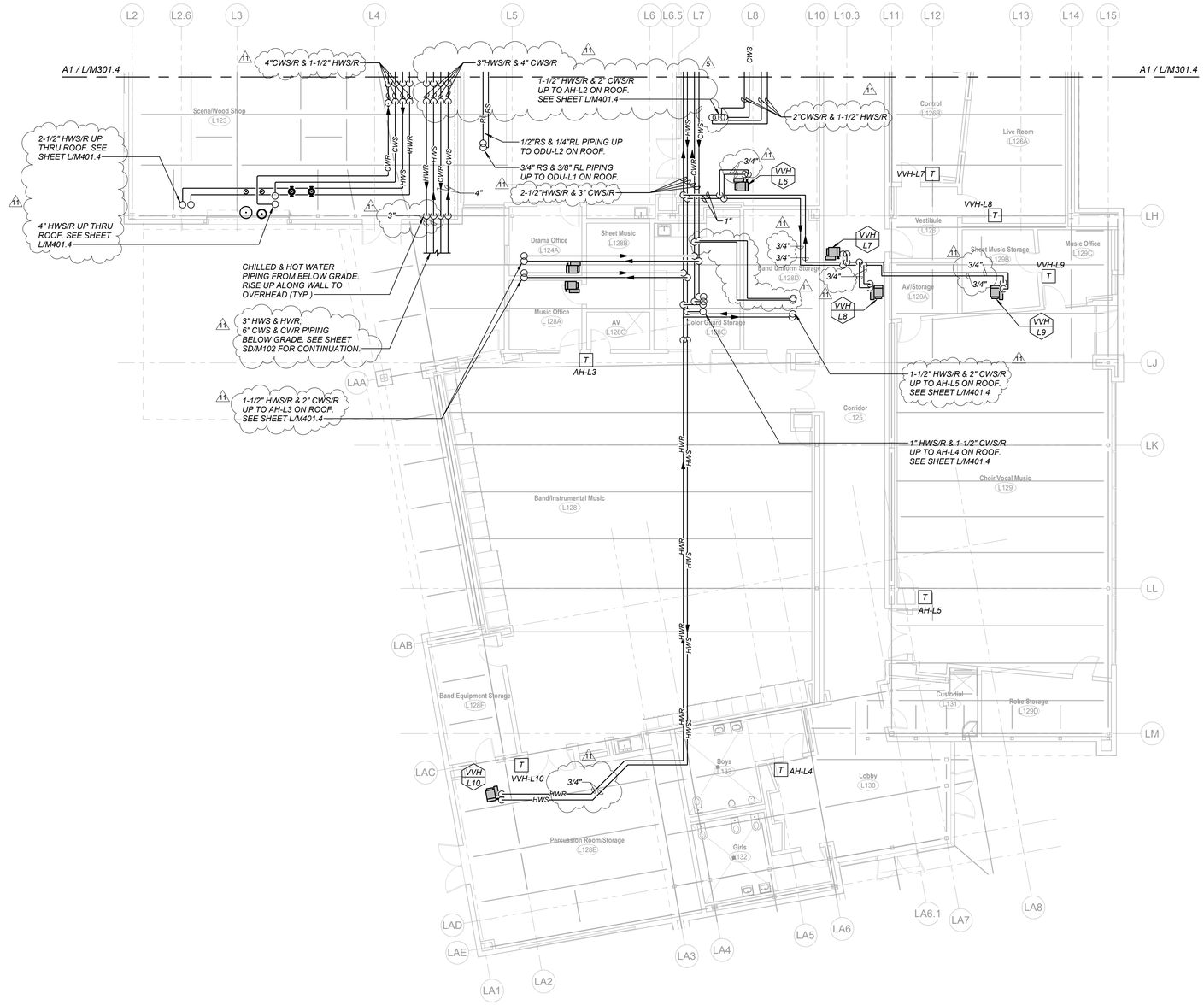
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Project Number: 22040
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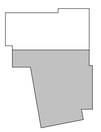
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Overall Key Plan - Building L

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101 Fresno, CA 93727
(559) 431-8181 22040 FAX (559) 431-1542

REGISTERED PROFESSIONAL ENGINEER MICHAEL D. CAMPBELL MECHANICAL STATE OF CALIFORNIA Exp. 9-30-23

Consultant

SANGER EDUCATION COMPLEX - PHASE 3
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727
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BUILDING L
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Architect

No.	Revision/Submission	Date
5	Addendum #5	12/13/23
11	Addendum #11	10/15/26

Revision

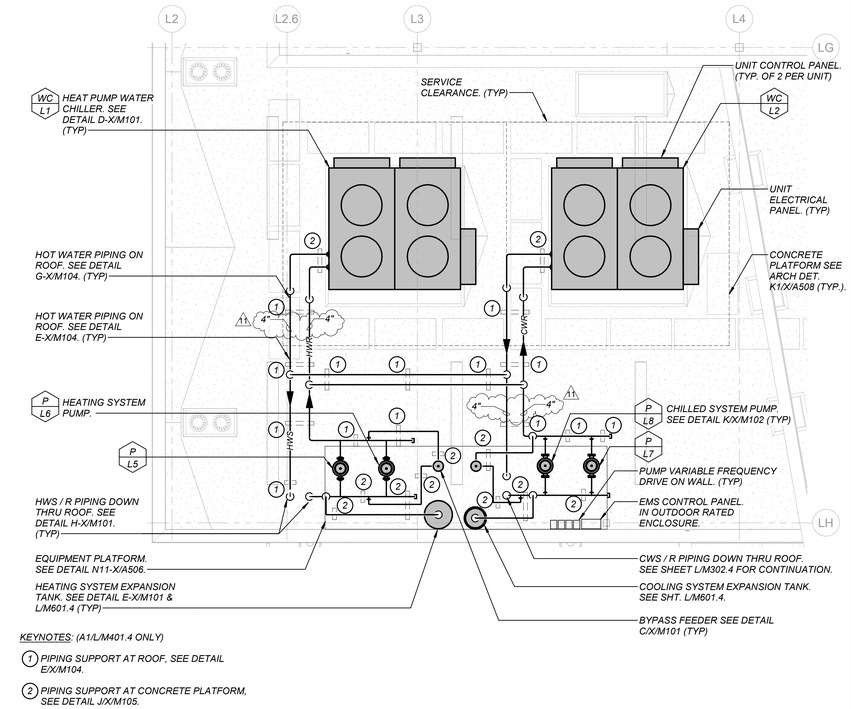
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Reviewed Approver
Date: 08/11/2023
Scale: As indicated
Project Number: 22040

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L/M302.4
AD11

A1
ENLARGED FIRST FLOOR PIPING - AREA B
1/8" = 1'-0"

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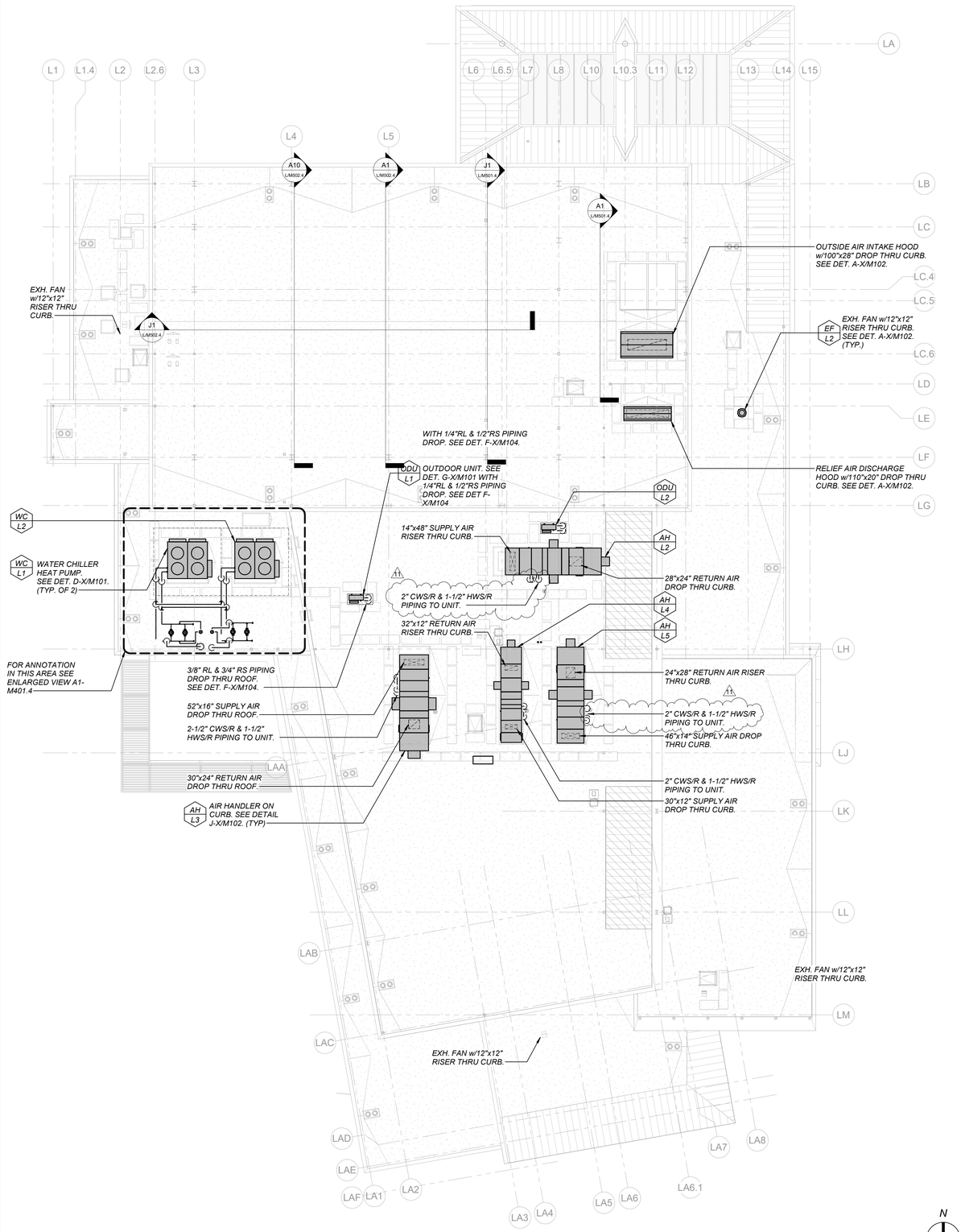


KEYNOTES: (A1/L/M401.4 ONLY)

1. PIPING SUPPORT AT ROOF, SEE DETAIL E/X/M104.
2. PIPING SUPPORT AT CONCRETE PLATFORM, SEE DETAIL J/X/M105.

A1 — ENLARGED MECHANICAL ROOF PLAN

1/4" = 1'-0"



A8 — MECHANICAL ROOF PLAN

3/32" = 1'-0"

DSA File No.:
DSA File

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DSA App

Agency Approval



Overall Key Plan - Building L

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101 Fresno, CA 93727
(559) 431-4161 22040 FAX (559) 431-1943

Consultant

SANGER EDUCATION COMPLEX - PHASE 3
Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727
Project

BUILDING L
OVERALL MECHANICAL ROOF PLAN
Drawing

darden architects
ARCHITECTURE PLANNING INTERIORS
www.dardenarchitects.com
6790 N. West Ave. • Fresno, CA 93711 • T. 559.448.8051

Architect

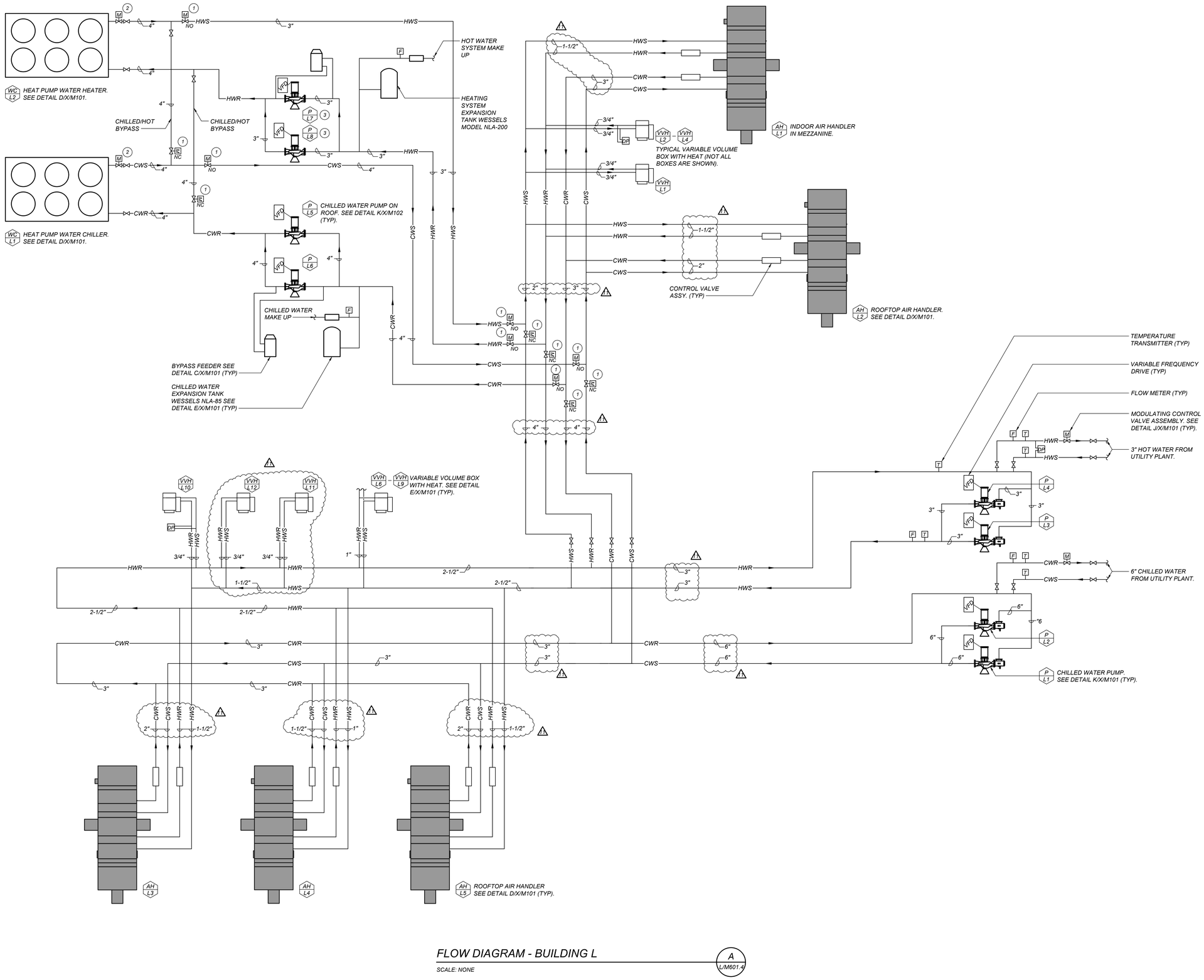
No.	Revision/Submission	Date
5	Addendum #5	12/13/23
11	Addendum #11	10/15/26

Revision

Designed Designer | Copyright 2022 Darden Architects
Scale: As indicated | Drawn By: Author
Project Number: 22040 | Checked IChecker
Date: 08/11/2023 | ReviewedApprover

L/M401.4
AD11

10/15/2026 10:45:14 PM
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FLOW DIAGRAM - BUILDING L

SCALE: NONE

A
L/M601.4

DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

KEYNOTES: (THIS SHEET ONLY)

1. *CHANGE OVER ISOLATION VALVES NO - NORMALLY OPEN NC - NORMALLY CLOSED*
2. *2 POSITION ISOLATION VALVE (ENERGIZE W/ UNIT)*
3. *HOT WATER PUMP ON ROOF. SEE DETAIL K/X/M102.*

General Notes

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101 Fresno, CA 93727
(559) 431-0101 22040 FAX (559) 431-1342

Consultant

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Sanger Unified School District
1760 S Fowler Ave, Fresno CA 93727

Project

FLOW DIAGRAM - BUILDING L

Drawing

darden architects
ARCHITECTURE PLANNING INTERIORS
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6790 N. West Ave. • Fresno, CA 93711 • T. 559.448.8051

Architect

No.	Revision/Submission	Date
5	*Addendum #5*	*12/13/23*
11	*DSA Addendum #11*	*10/15/26*

Revision

	Designed By:	Copyright 2021 Darden Architects
Scale:	Drawn By: LEG	*L/M601.4*
Project Number: 2171	Checked By:	AD11
Date: 08/11/23	Reviewed By:	

LANDSCAPE PLANTING LEGEND

SYMBOL	WATER USE	SIZE	DESCRIPTION
	Low	5 Gal	NANDINA domestica 'Gulf Stream', Heavenly Bamboo.
	Low	1 Gal	LANTANA 'Lemon Zest', Bandana Lemon Zest Lantana.
	Low	5 Gal	LEUCOPHYLLUM zygophyllum 'Cimarron', Blue Ranger.
	Low	1 Gal	DIETES iridioides 'Lemon Drops', Hybrid Fortnight Lily.
	Low	1 Gal	DIANELLA revoluta 'Little Rev', Little Rev Flax.
	Low	5 Gal	SALVIA microphylla 'Hot Lips', Hot Lips Salvia.
	Mod	1 Gal	DIANELLA caerulea 'Cassa Blue', Cassa Blue Flax.
	Low	5 Gal	ERIGERON karvinskianus, Santa Barbara Daisy.
	Mod	5 Gal	COLEONEMA pulchellum 'Sunset Gold', Gold Breath of Heaven.
	Low	5 Gal	CALLISTEMON viminalis 'Little John', Dwarf Bottle Brush.
	Mod	5 Gal	LOROPETALUM chinense 'Burgundy', Loropetalum.
	Mod	15 Gal	MAGNOLIA soulangeana 'Alexandrina', Saucer Magnolia.
	Low	5 Gal	RHAPHIOLEPIS umbellata 'Minor', Yeddo Hawthorn.
	Low	5 Gal	RUSSELIA x 'Sti. Elmo's Fire', Red Firecracker Plant.
	Low	5 Gal	TECOMA x 'Solar Flare', Solar Flare Tecoma.
	Low	15 Gal	COTINUS coggygria 'Royal Purple', Smoke Tree, multi trunk form.
	Low	24" Box	LAGERSTROEMIA indica 'Tuscarora', Crape Myrtle Tree, standard form.
	Low	24" Box	LAURUS nobilis 'Saratoga', Bay Tree, standard form.
	Low	24" Box	PISTACIA chinensis 'Keith Davey', Chinese Pistache Tree, standard form.
	Mod	24" Box	ELAEOCARPUS decipiens, Japanese Blueberry Tree, standard form.
	Mod	24" Box	ACER rubrum 'October Glory', October Glory Red Maple Tree, standard form.

SEE TREE & SHRUB PLANTING DETAIL #1 ON PLAN SHEET SD/LP200.

TURF LEGEND

Symbol	Type	Type	Comments
	'CELEBRATION' BERMUDA GRASS BIG ROLL SOD	SOD	SEE SPECIFICATION SECTION 32 90 00.

PLANTING NOTES

1. DO NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT UNKNOWN OBSTRUCTIONS AND/OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING DESIGN. SUCH CONDITION SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH PLANTING OPERATIONS.
3. SEE SPECIFICATIONS FOR PLANTING REQUIREMENTS, MATERIALS AND EXECUTION.
4. ALL PLANT MATERIAL SHALL BE APPROVED BY THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION.
5. FINAL LOCATION OF ALL PLANT MATERIALS SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER'S AUTHORIZED REPRESENTATIVE.
6. CONTRACTOR SHALL NOTIFY OWNER'S AUTHORIZED REPRESENTATIVE 48 HOURS PRIOR TO COMMENCEMENT OF WORK TO COORDINATE PROJECT OBSERVATION SCHEDULES.
7. SEE DETAILS AND SPECIFICATIONS FOR STAKING METHOD, PLANT PIT DIMENSION AND BACKFILL REQUIREMENTS.
8. IF CONFLICTS ARISE BETWEEN SIZE OF AREAS AND PLANS, CONTRACTOR SHALL CONTACT LANDSCAPE ARCHITECT FOR RESOLUTION. FAILURE TO MAKE SUCH CONFLICTS KNOWN TO THE LANDSCAPE ARCHITECT, WILL RESULT IN CONTRACTOR'S LIABILITY TO RELOCATE THE MATERIALS.
9. LOW FLOW BUBBLERS ARE TO BE LOCATED WITHIN ONE FOOT (1'-0") OF SHRUB CENTER AND TWO FEET (2'-0") FROM CENTER OF TREES.
10. NO PLANTING SHALL BE DONE UNTIL INSTALLATION OF THE IRRIGATION SYSTEM IS COMPLETED, FINAL GRADES HAVE BEEN ESTABLISHED, PLANTING AREAS HAVE BEEN PROPERLY GRADED AND SOIL PREPARED, AND THE WORK APPROVED BY THE LANDSCAPE ARCHITECT.
11. INSTALL ROOT BARRIER FOR TREES THAT ARE WITHIN TEN FEET (10'-0") OF HARDSCAPE OR BUILDINGS.
12. PROVIDE ARBOR GUARD FOR ALL TREES IN TURF AREAS.
13. PROVIDE & PLACE 3" THICK LAYER OF WOOD TOP DRESS MULCH IN ALL PLANTING AREAS.
14. THE CONTRACTOR SHALL PROVIDE A SOILS FERTILITY ANALYSIS & SOIL MANAGEMENT REPORT AS PART OF THE CONTRACT WORK. ALL SOILS ANALYSIS & SOIL MANAGEMENT PLANS SHALL COMPLY WITH THE STATE OF CALIFORNIA MODEL WATER EFFICIENT LANDSCAPE ORDINANCE. SOIL AMENDMENTS SHALL BE ADJUSTED TO SATISFY THE RESULTS OF THE SOILS MANAGEMENT PLAN. SUBMIT DOCUMENTATION TO OWNER VERIFYING IMPLEMENTATION OF SOILS MANAGEMENT PLAN. SEE LANDSCAPE SPECIFICATIONS.

IRRIGATION LEGEND

SYMBOL	MANUFACTURER & DESCRIPTION	NOZZLE	GPM/ PSI	DETAIL
	HUNTER I-25-06-SS PC / FC ARCS 6" POP-UP ROTOR W/ #18 NOZZLE	18	15.7 @ 60 PSI	C/ SD/LI200
	HUNTER I-20-06-SS PC ARCS 6" POP-UP ROTOR W/ #6 NOZZLE	6	6.0 @ 45 PSI	C/ SD/LI200
	HUNTER PROS-06-PRS30 6" POP-UP SPRAY W/ PRO-SPRAY NOZZLE	15'-H,Q	1.86, 0.97 @ 30 PSI	B/ SD/LI200
	HUNTER PROS-06-PRS30 6" POP-UP SPRAY W/ PRO-SPRAY NOZZLE	12'-F,H,Q	2.70, 1.30, 0.67 @ 30 PSI	B/ SD/LI200
	RAINBIRD #1804-SAM-PRS-MSBN-50Q, 1800 SERIES PRESSURE REGULATING, SEAL-A-MATIC, 4" POP-UP SPRINKLER WITH HUNTER PC MULTI STREAM BUBBLER NOZZLE,		0.5 @ 30 PSI	G/ SD/LI200
	RAINBIRD #1804-SAM-PRS-MSBN-25Q, 1800 SERIES PRESSURE REGULATING, SEAL-A-MATIC, 4" POP-UP SPRINKLER WITH HUNTER PC MULTI STREAM BUBBLER NOZZLE,		0.25 @ 30 PSI	G/ SD/LI200
	RAINBIRD RWS-B-1402-SOCK-GRAVITE ROOT ZONE WATERING SYSTEM. LOCATIONS SHOWN ARE DIAGRAMMATIC. INSTALL IN PLANTING ADJACENT AREA.		0.5 @ 30 PSI	M/ SD/LI200
	1" THRU 3": NIBCO #T-113 IRR. ISOLATION GATE VALVE W/ BRONZE CROSS HANDLE. SIZE EQUAL TO MAINLINE. PROVIDE TWO (2) OPERATING HANDLES (3' MIN. LENGTH) FOR MAINTENANCE STAFF.			A/ SD/LI200
	4" THRU 8": NIBCO F-619-RW-SON CAST IRON RESILIENT WEDGE GATE VALVE W/ 2" OPERATING NUT. SIZE EQUAL TO MAINLINE. PROVIDE TWO (2) OPERATING HANDLES (3' MIN. LENGTH) FOR MAINTENANCE STAFF.			O/ SD/LI200
	BUCKNER 1" QUICK CONNECT QUICK COUPLING VALVE WITH LOCKING RUBBER COVER. PROVIDE DISTRICT WITH FIVE (5) QUICK COUPLER KEYS WITH HOSE SWIVELS AND FIVE (5) COVER KEYS.			P/ SD/LI200
	HUNTER ICV-G-FS-AS-ADJ. ELECTRIC CONTROL VALVE W/ FLOW SENTRY & ACCU SYNC PRESSURE REGULATOR & BASELINE #BL-5201 SINGLE STATION DECODER. SIZE AS NOTED.			D, L & N SD/LI200 & T, U, V & W/ SD/LI201
	1" CRISPIN #IC-10, AIR AND VACUUM RELEASE VALVE TO BE INSTALLED AT HIGH POINTS AND DEAD END RUNS OF THE MAINLINE PIPING SYSTEM. INSTALL IN 12" STD RECTANGULAR VALVE BOX.			Q/ SD/LI200
	HUNTER #HY-100 (1"), #HY-151 (1 1/2"), HY-201 (2") - LINE SIZE FILTER W/ 150 MESH STAINLESS STEEL SCREEN.			T, U, V & W/ SD/LI201 AA/ SD/LI202
	BASELINE #BL-LA01 LIGHTNING ARRESTOR, TWO WIRE PATH GROUNDING. TWO WIRE PATH LIGHTNING ARRESTOR - (#BL-LA01) SURGE ARRESTOR AND GROUNDING EQUIPMENT SHOULD BE INSTALLED NO MORE THAN 300' FROM ANY DECODER AND AT ALL DEAD END RUNS.			L/ SD/LI200 T, U, V, W/ SD/LI201 X, Y/ SD/LI202
	2" THRU 3": PVC SCHEDULE 40 SOLVENT WELD MAINLINE PIPE. ALL MAINLINE FITTINGS THAT ARE THREE INCH (3"), OR SMALLER ARE TO BE PVC SCHEDULE 80 SOLVENT WELD FITTINGS, OR APPROVED EQUAL. SEE MANUFACTURERS INSTALLATION INSTRUCTIONS. SLEEVE ALL PIPE UNDER PAVED SURFACES PER SLEEVING DETAIL AND NOTE.			E/ SD/LI200 F/ SD/LI200 Z/ SD/LI202
	4" THRU 8": PVC CLASS 200 'O' RING GASKETED RING TITE MAINLINE PIPE. MAINLINE PIPE FITTINGS ARE TO BE DUCTILE IRON LEEMCO GASKETED FITTINGS OR ROMAC #202NS SERVICE SADDLE WITH DOUBLE STAINLESS STEEL STRAPS, EXCEPT WHERE THE IRRIGATION DETAILS CALL FOR A SPECIFIC FITTING. SIZE MAINLINE PIPING AS NOTED ON THE PLAN. INSTALL ALL PIPE IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS WITH CONCRETE THRUST BLOCKS AT ALL CHANGES IN DIRECTION. NO BENDING, OR CURVING OF PIPE WILL BE ALLOWED, EXCEPT AS PERMITTED BY THE PIPE MANUFACTURER. PIPE MANUFACTURER MUST BE APPROVED PRIOR TO ORDERING MATERIALS. USE MECHANICAL JOINT RESTRAINTS WHERE CONCRETE THRUST BLOCKS ARE NOT APPLICABLE, SUCH AS VERTICAL CHANGES IN DIRECTION, OR WHEN TWO PIPELINES ARE SIDE BY SIDE. SLEEVE ALL PIPE UNDER PAVED SURFACES PER SLEEVING DETAIL AND NOTE.			
	IRRIGATION COMMUNICATION CABLES: BASELINE 2-WIRE COMMUNICATION CABLE BILINE 14-2 (PAIGE 7072D BLACK & RED) INSTALLED IN 1 1/2" ELECTRICAL CONDUIT WITH SWEEP ELLS ENTERING AND EXITING ALL VALVE BOXES. FOR LONGER RUNS WITHOUT VALVES, LOCATE J BOXES A MAXIMUM OF 150 FEET ON CENTER OR AT ALL CHANGES IN DIRECTION OF NINETY DEGREES OR MORE. AT ALL SPLICES (NOT IN REMOTE CONTROL VALVE BOX) AND AT DEAD END STUBS.			E/ SD/LI200 & X/ SD/LI202 Y/ SD/LI202
	1" THRU 2 1/2": PVC SCHEDULE 40 SOLVENT WELD LATERAL PIPE. SLEEVE ALL PIPE UNDER PAVED SURFACES OVER SIX FEET WIDE WITH PVC SCHEDULE 40 PIPE A MINIMUM OF TWO TIMES LARGER THAN THE PIPE BEING SLEEVED. ONE PIPE PER SLEEVE ONLY, MINIMUM SLEEVE SIZE IS 2". WIRES ARE TO BE SLEEVED SEPARATELY FROM PIPE. SIZE LATERAL PIPING AS NOTED ON THE LATERAL PIPE SIZING CHART, BELOW. PIPE SIZING IS NOT TO EXCEED 5.0 FEET PER SECOND FLOW VELOCITY. INSTALL ALL PIPE IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS, USING APPROPRIATE CEMENT AND PRIMER FOR THE VARIOUS PIPE SIZES AND PREVAILING SITE CONDITIONS. (NOTE: 1/2", 3/4" & 1 1/4" PIPES ARE NOT ALLOWED TO BE USED ON THE PROJECT).			E/ SD/LI200 Z/ SD/LI202
	EXISTING IRRIGATION GATE VALVE & BOX TO REMAIN AND PROTECT.			
	EXISTING QUICK COUPLING VALVE & VALVE BOX TO REMAIN AND PROTECT.			
	EXISTING IRRIGATION CONTROL VALVE & BOX TO REMAIN AND PROTECT. REPAIR/RESTORE CONTROL WIRE CONDUIT & CONTROL WIRES FOR CONTINUOUS CONDUIT & WIRE PATH AS NEEDED.			
A D	EXISTING BASELINE BASE STATION BL-3200-WF-X TWO WIRE CONTROLLERS TO REMAIN AND PROTECT. EXTEND EXISTING CONTROL WIRES (2-WIRE PATH) TO NEW CONTROL VALVES & MAKE ALL CONNECTIONS.			
P	EXISTING HIGH SCHOOL WATERTRONICS SKID MOUNTED IRRIGATION BOOSTER PUMP TO REMAIN AND PROTECT.			
	EXISTING AIR RELIEF VALVE TO REMAIN AND PROTECT. CONTRACTOR TO FIELD VERIFY.			
	EXISTING PVC CLASS 200 'O' RING GASKETED RING TITE MAINLINE PIPE TO REMAIN AND PROTECT. CONTRACTOR TO FIELD VERIFY.			

IRRIGATION SLEEVE NOTES

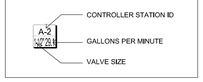
SLEEVE ALL PIPE UNDER PAVED SURFACES OVER EIGHT FEET WIDE WITH PVC SCHEDULE 40 PIPE FOR 2" THRU 3" SLEEVES AND WITH PVC CLASS 200 PIPE FOR 4" AND LARGER SLEEVES. SIZE SLEEVES A MINIMUM OF TWO TIMES LARGER THAN THE PIPE BEING SLEEVED. ONE PIPE PER SLEEVE ONLY. MINIMUM SLEEVE SIZE IS 2" FOR LENGTHS OF FORTY FEET (40'-0") AND LESS. MINIMUM SLEEVE SIZE IS 4" FOR LENGTHS OF OVER FORTY FEET (40'-0"). LOW VOLTAGE CONTROL WIRING IS TO BE SLEEVED SEPARATELY FROM IRRIGATION PIPES. ALL SLEEVES MAY NOT BE CALLED OUT ON PLAN. IT IS CONTRACTORS RESPONSIBILITY TO DETERMINE THE LOCATION AND PROPER SIZE OF ALL SLEEVES.

LATERAL PIPE SIZING CHART

PIPE SIZE	ALLOWABLE RANGE GALLONS PER MINUTE
¾"	NOT USED
1"	1 - 12 GPM
1 ½"	13 - 30 GPM
2"	31 - 46 GPM
2 ½"	47+ GPM
3"	NOT USED

THE CONTRACTOR SHALL SIZE ALL LATERAL LINE PIPES TO CORRESPOND WITH THE GALLONS PER MINUTE OF FLOW SHOWN IN THE PIPE SIZE CHART. SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO INSTALLING IRRIGATION SYSTEM.

VALVE KEY



CAMPUS IRRIGATION AS-BUILT MAPPING:

The contractor is responsible for tracing and mapping all existing Baseline 2-wire communication cable wire paths by controller and irrigation mainline pipes for this phase of work and creating an as-built drawing to be submitted for review and comment.

The mainline pipe and communication cable as-built drawing will be the basis for evaluating future work and assisting District Maintenance staff in doing their work to maintain the systems. Baseline 2-wire communication cables are to be identified by the irrigation controller they are connected to and irrigation mainline pipes are to be identified by the irrigation booster pump they are connected to (HS system or JHS system). As-built mapping is to include all irrigation mainline pipes with mainline pipe size noted, remote control valve locations with controller and station designations, quick coupler valves, air relief valves, gate valves, other valves, and 2-wire path routing by controller. The contractor is responsible for all work required, potholing, wire tracing, and troubleshooting as required to complete the as-built plan.

The Final As Built Plan is to be CAD drafted and deliverables are to CAD .dwg and PDF files. The work is to include all areas of the current phase of work.

The Phases 1, 1B, 2 and 3 As-Built / record drawings can be provided for information only with CAD .dwg file for Contractor to add the current phase of work.

DSA File No.:
10-H15

DSA Application No.:
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Agency Approval

IRRIGATION DESIGN NOTE:

SANGER EDUCATION CENTER CONSISTS OF TWO SCHOOL CAMPUSES, SANGER WEST HIGH SCHOOL AND SANGER WEST JUNIOR HIGH SCHOOL. EACH CAMPUS HAS A SEPARATE IRRIGATION SYSTEM WITH DEDICATED PUMP SYSTEM AND IRRIGATION CONTROLLERS. PHASE 3B TAKES PLACE ON THE HIGH SCHOOL CAMPUS. IT IS VERY IMPORTANT THAT THE CONTRACTOR NOT CROSS CONNECT THE MAINLINE PIPING SYSTEMS OR INSTALL HS VALVES ON A JHS CONTROLLER OR VICE VERSA. CONTACT PROJECT ARCHITECT FOR A RULING IN THE EVENT OF A PROBLEM.

CONTRACTOR IS TO NOTIFY THE LANDSCAPE ARCHITECT OF ANY CONFLICTS WITH THE LOCATIONS OF THE EXISTING MAINLINES THAT THE CONTRACTOR IS TO CONNECT TO WITH NEW IRRIGATION MAINLINES PRIOR TO MAKING CONNECTIONS.

GENERALLY IN CAMPUS BUILDING AREAS THE EXISTING 2-WIRE PATH IS CONNECTED TO HIGH SCHOOL CONTROLLER 'A' AND ARE TO BE EXTENDED AS REQUIRED FOR ALL DESIGNATED CONTROLLER 'A' VALVES THAT ARE PART OF THIS PROJECT.

General Notes

David Bigler Associates
Landscape Architect #3887
1589 W. Shaw Avenue, #5
Fresno, California 93711
E Mail: davebigler @aol.com
Tel: (559) 276-9495
Fax: (559) 276-9497

LICENSED LANDSCAPE ARCHITECT — DAVID B. BIGLER — RLA # 3887 — 31 JULY 28 — RENEWAL DATE — STATE OF CALIFORNIA

Consultant

SANGER EDUCATIONAL COMPLEX - PHASE III
Sanger Unified School District
1760 S. Fowler Ave. Fresno, CA 93727

Project

LEGENDS AND NOTES

Drawing

darden architects
ARCHITECTURE
PLANNING
INTERIORS
www.dardenarchitects.com
6790 N. West Ave. • Fresno, CA 93711 • T. 559.448.8051

LICENSED ARCHITECT — RICHARD K. FERRO — No. C23724 — Exp. 4-30-27 — STATE OF CALIFORNIA

Architect

No.	Revision/Submission	Date
1	DSA Addendum No. 11	10/16/26

Revision

Designed By: DB
Drawn By: TEAM
Checked By: DB
Reviewed By: DB

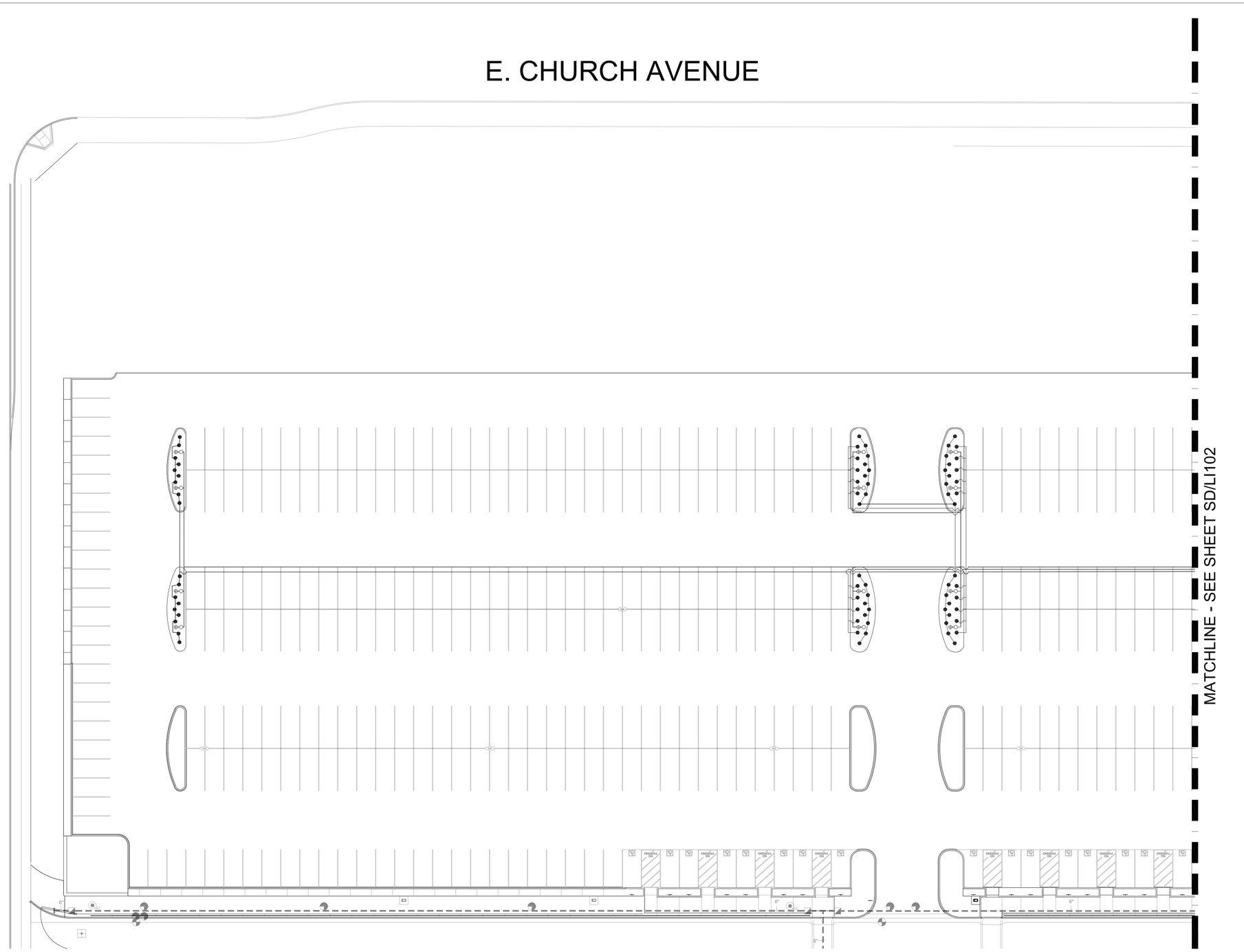
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Project Number: 2171
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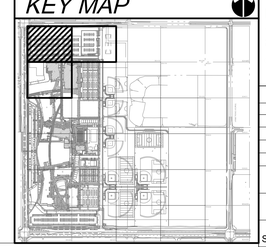
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PARTIAL IRRIGATION PLAN
1" = 20'-0"

KEY MAP



DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

NOTE: SEE LANDSCAPE IRRIGATION LEGEND ON PLAN SHEET SD/LI100

General Notes

David Bigler Associates
Landscape Architect #3887
1589 W. Shaw Avenue, #5
Fresno, California 93711
E Mail: davebigler @aol.com
Tel: (559) 276-9495
Fax: (559) 276-9497
RLA # 3887
31 JULY 28
RENEWAL DATE

Consultant

SANGER EDUCATIONAL COMPLEX - PHASE III
Sanger Unified School District
1760 S. Fowler Ave. Fresno, CA 93727

Project

PARTIAL IRRIGATION PLAN
ALTERNATE 1

Drawing

darden architects
ARCHITECTUR
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INTERIORS
www.dardenarchitects.com
6790 N. West Ave. • Fresno, CA 93711 • T. 559.448.8051

Architect

No.	Revision/Submission	Date
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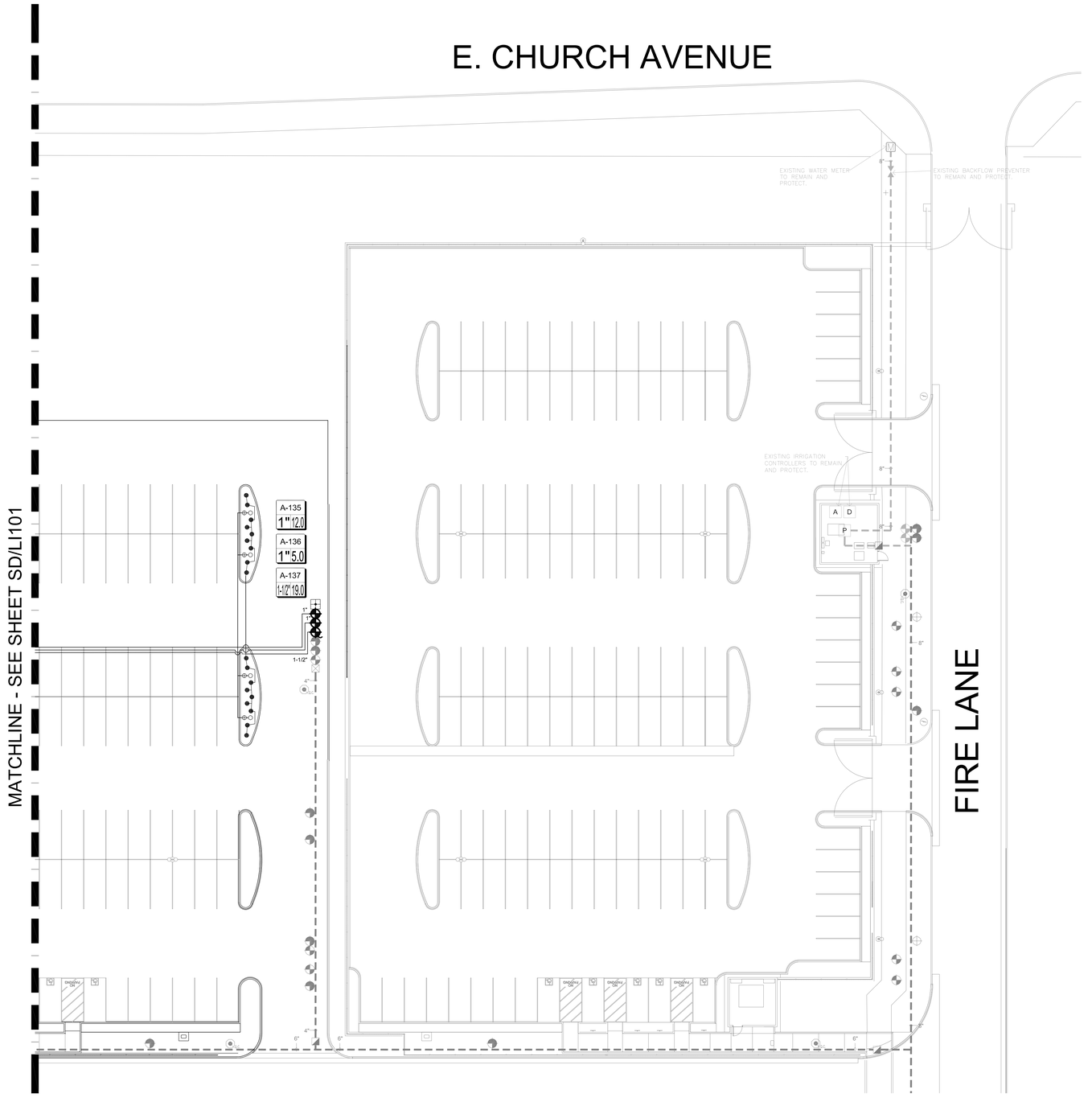
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Designed By: DB
Drawn By: TEAM
Checked By: DB
Reviewed By: DB

Scale: 1" = 20'-0"
Project Number: 2171
Date: 10/16/2026

SD/LI101
Sheet: _____ of: _____

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PARTIAL IRRIGATION PLAN

1" = 20'-0"

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NOTE: SEE LANDSCAPE IRRIGATION LEGEND ON PLAN SHEET SD/LI100

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Landscape Architect #3887
1589 W. Shaw Avenue, #5
Fresno, California 93711
E Mail: davebigler @aol.com
Tel: (559) 276-9495
Fax: (559) 276-9497

LICENSED LANDSCAPE ARCHITECT DAVID B. BIGLER RLA # 3887 31 JULY 26 RENEWAL DATE STATE OF CALIFORNIA

Consultant

SANGER EDUCATIONAL COMPLEX - PHASE III
Sanger Unified School District
1760 S. Fowler Ave. Fresno, CA 93727

Project

PARTIAL IRRIGATION PLAN
ALTERNATE 1

Drawing

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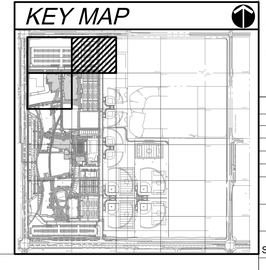
LICENSED ARCHITECT MICHAEL K. FERNEZIAN No. C23724 Exp. 4-30-27 STATE OF CALIFORNIA

Architect

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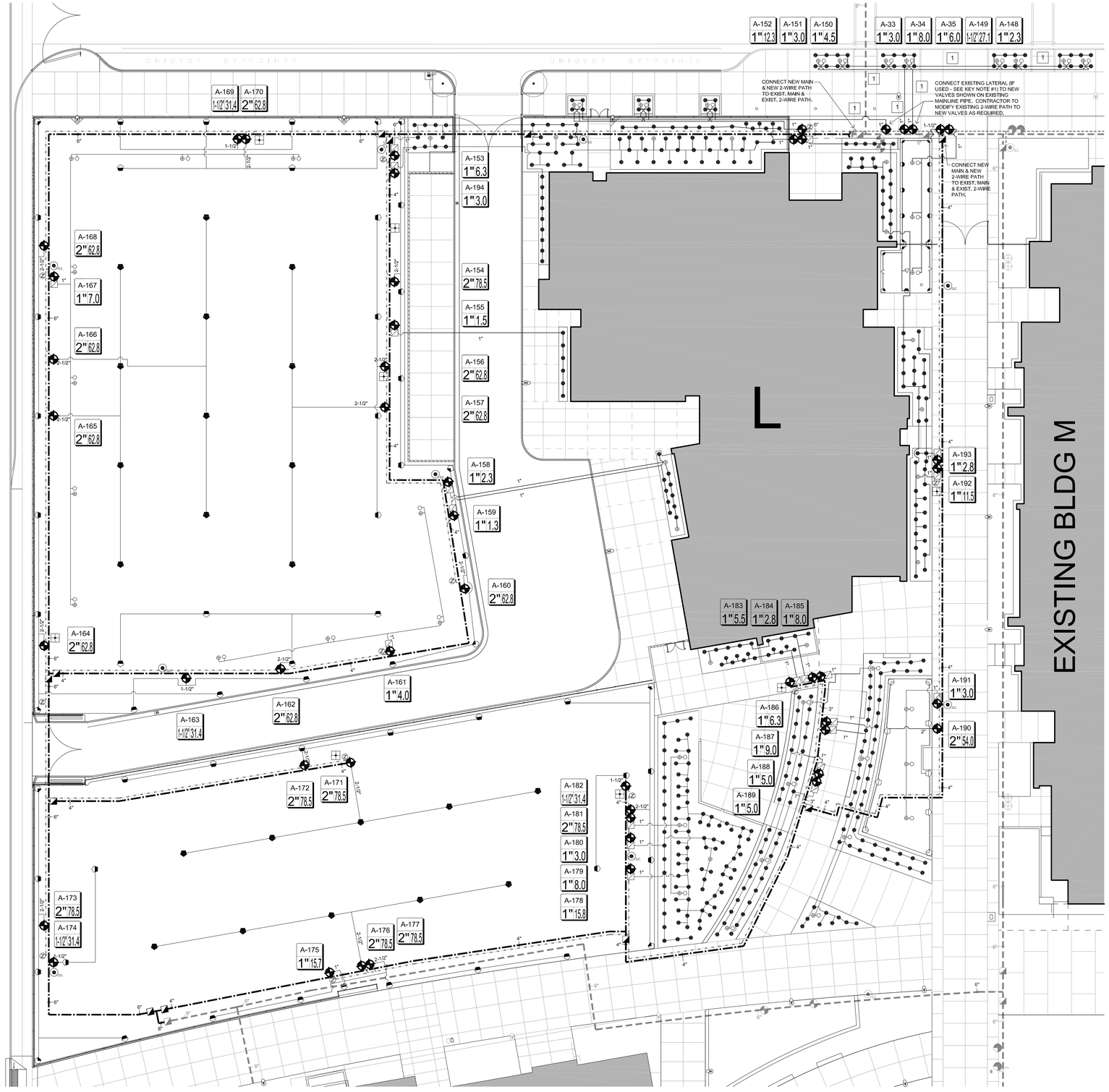
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KEY MAP



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Scale: 1" = 20'-0"	Drawn By: TEAM	SD/LI102
Project Number: 2171	Checked By: DB	Sheet: _____ of: _____
Date: 10/16/2026	Reviewed By: DB	

AD11



IRRIGATION PLAN
1" = 20'-0"

DSA File No.:
10-H15

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IRRIGATION KEY NOTES

1 EXISTING CONCRETE AREAS: PRIOR PHASES OF WORK HAVE INSTALLED PARTIAL IMPROVEMENTS IN SOME OF THESE AREAS. CONTRACTOR IS TO FIELD VERIFY EXISTING WORK AND EVALUATE EXISTING IMPROVEMENTS AS REQUIRED. NON CONFORMING WORK IS TO BE REMOVED AND REPLACED. IF CONTRACTOR DETERMINES AN EXISTING IMPROVEMENT (PIPE OR SLEEVE) IS SUITABLE FOR USE AND CONFORMS WITH THE CONTRACT DOCUMENTS THEN THAT IMPROVEMENT MAY BE USED, HOWEVER CONTRACTOR IS TO WARRANTY ALL WORK AS NEW. NO ALLOWANCE WILL BE GIVE FOR A FAILURE AND REPAIR OR REPLACEMENT WORK IS TO BE DONE AS IF THE ITEM WAS INSTALLED NEW.

CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF ALL WORK SHOWN WITH EXISTING CONCRETE. SLEEVES ARE TO BE INSTALLED BY HORIZONTAL DIRECTIONAL BORING. CUT AND PATCH OF EXISTING CONCRETE IS ONLY ALLOWED IF APPROVED BY THE DISTRICT AT NO ADDITIONAL COST TO THE DISTRICT. CUT AND PATCH IS TO FOLLOW EXISTING SCORE LINES AND REMOVE AND REPLACE FULL PANELS.

IRRIGATION NOTES

1. GENERALLY, CONTRACTOR IS TO INSTALL IRRIGATION MAINLINE IN PERIMETER AREAS WITHIN THREE FEET (3'-0") OF THE PERIMETER SIDEWALK, FENCE OR WALL, EXCEPT WHERE IT WOULD INTERFERE WITH OTHER IMPROVEMENTS, ALL VALVE BOXES ARE TO BE NEATLY ORGANIZED AND LOCATED AWAY FROM TREES (12 FT MIN. CLEARANCE FOR VALVES AND MAINLINE) AND ARE NOT TO INTERFERE WITH SHRUB LAYOUT. NO SHRUBS ARE TO BE DELETED DUE TO THE INSTALLATION LOCATION OF VALVE BOXES. CONTRACTOR IS TO FIELD STAKE PLANTS AND TREES PRIOR TO STAKING THE ROUTING OF IRRIGATION MAINLINE AND REMOTE CONTROL VALVE LOCATIONS TO AVOID CONFLICTS. CONTRACTOR IS TO PLAN TO PROVIDE MAXIMUM SEPARATION FROM IRRIGATION MAINLINE PIPE AND TREES AS REQUIRED.

2. EXISTING IRRIGATION CONTROLLER 'A' TO REMAIN AND PROTECT USES 129 OF 200 STATIONS. CONTRACTOR IS TO ASSIGN THE NEW VALVES INSTALLED AS PART OF THIS PROJECT IN THE REMAINING UNUSED STATIONS. THE REMAINING STATION NUMBERS MAY NOT MATCH THOSE SHOWN ON THE PLAN. CONTRACTOR IS TO UPDATE STATION NUMBERS, IF CHANGED IN THE FIELD ON THE AS BUILT PLANS. CONTRACTOR TO FIELD VERIFY.

NOTE: SEE LANDSCAPE IRRIGATION LEGEND ON PLAN SHEET SD/LI100

General Notes

David Bigler Associates
Landscape Architect #3887
1589 W. Shaw Avenue, #5
Fresno, California 93711
E Mail: davebigler @aol.com
Tel: (559) 276-9495
Fax: (559) 276-9497

LICENSED LANDSCAPE ARCHITECT DAVID B. BIGLER RLA # 3887 31 JULY 26 RENEWAL DATE STATE OF CALIFORNIA

Consultant

SANGER EDUCATIONAL COMPLEX - PHASE III
Sanger Unified School District
1760 S. Fowler Ave. Fresno, CA 93727
Project

IRRIGATION PLAN
BASE BID
Drawing

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ARCHITECTURE
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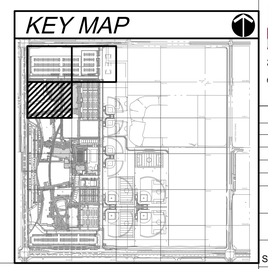
LICENSED ARCHITECT MICHAEL K. FENNELL No. C23724 Exp. 4-30-27 STATE OF CALIFORNIA

Architect

No.	Revision/Submission	Date
1	DSA Addendum No. 11	10/16/26

Revision

KEY MAP



Designed By: DB
Drawn By: TEAM
Checked By: DB
Reviewed By: DB

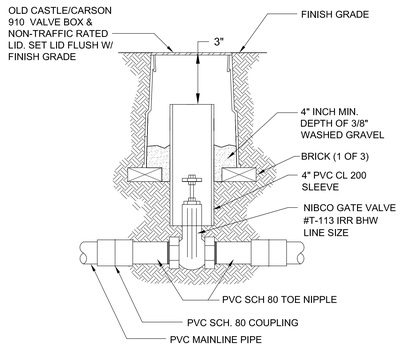
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Scale: 1" = 20'-0"
Project Number: 2171
Date: 10/16/2026

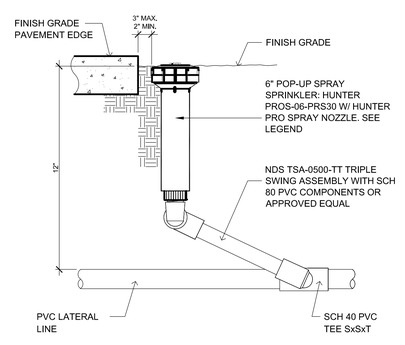
SD/LI106

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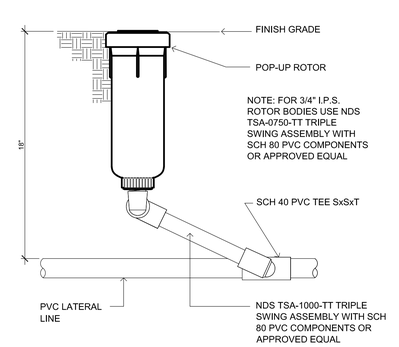
AD11



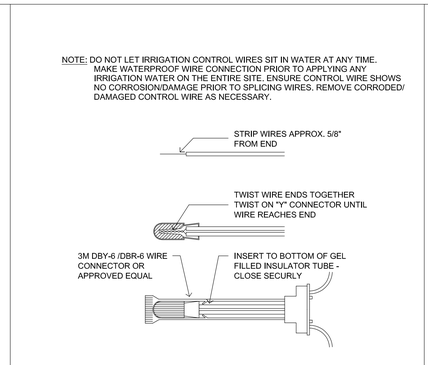
A SD/LI200 **GATE VALVE - 3" AND SMALLER**
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE



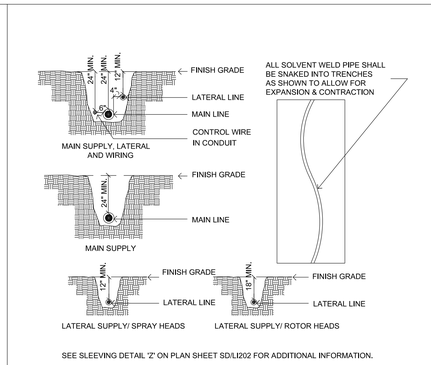
B SD/LI200 **SPRAY POP-UP**
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE



C SD/LI200 **ROTOR SPRAY POP-UP**
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE

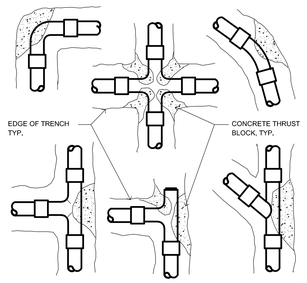


D SD/LI200 **WATERPROOF WIRE CONNECTORS**
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE



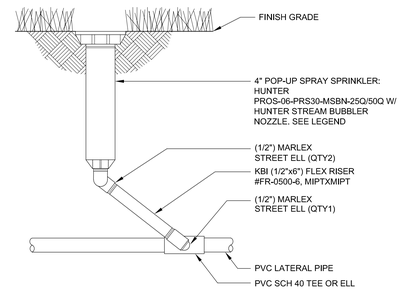
SEE SLEEVING DETAIL 'Z' ON PLAN SHEET SD/LI202 FOR ADDITIONAL INFORMATION.

E SD/LI200 **TRENCHING**
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE



NOTE: INSTALL MAIN LINE AS PER MANUFACTURER'S INSTALLATION GUIDE. SIZE OF CONCRETE THRUST BLOCKS SHALL BE PER PIPE MANUFACTURE'S GUIDE LINES. MIN. 3 CU. FT. PER LOCATION. THRUST BLOCKS REQUIRED FOR ALL MAINLINE THREE INCH AND LARGER.

F SD/LI200 **CONCRETE THRUST BLOCK/ TYP.**
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE



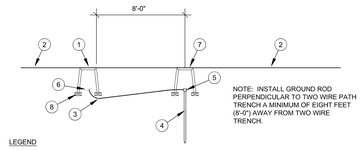
NOTE: SEE MANUFACTURERS INSTALLATION INSTRUCTIONS

G SD/LI200 **4" POP-UP SPRAY BUBBLER**
NOT TO SCALE

H SD/LI200

I SD/LI200

J SD/LI200



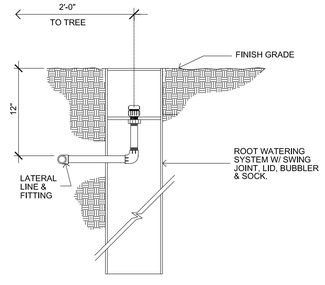
LEGEND

1. REMOTE CONTROL VALVE BOX OR COMMUNICATION CABLE SPLICE VALVE BOX WITH TWO WIRE PATH LIGHTNING ARRESTOR, #BL-LA01, SEE DETAILS 'T', 'U', 'V', 'W' & 'X'.
2. FINISH GRADE
3. SOLID BARE COPPER GROUNDING WIRE (#6 AWG) FROM TWO WIRE PATH LIGHTNING ARRESTOR #BL-LA01 TO COPPER GROUNDING ROD. MAKE WIRE RUNS AS STRAIGHT AS POSSIBLE
4. 5/8" X 8' LONG COPPER CLAD GROUNDING ROD.
5. CADWELD PLUS "ONE SHOT" - CADWELD CONNECTION #GT1161GPLUS, PERMANENT WELD OF BARE COPPER WIRES TO GROUNDING ROD.
6. CONNECT TO TWO WIRE PATH LIGHTNING ARRESTOR, #BL-LA01 WITH 3M DBY-6 / DBR-6 AS REQUIRED.
7. 10" ROUND VALVE BOX WITH LID, OLD CASTLE/CARSON #910
8. BRICKS (TYP), THREE (3) REQUIRED PER VALVE BOX.

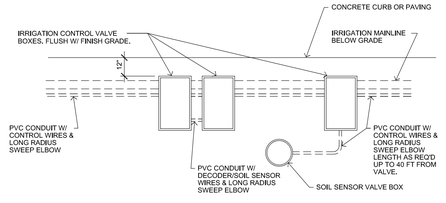
NOTES:
1. INSTALL ONE #BL-LA01 LIGHTNING ARRESTOR NO FURTHER THAN 300 FT FROM ANY DECODER, OR AS SHOWN ON PLAN.
2. INSTALL THE TWO WIRE PATH GROUNDING ROD A MINIMUM OF EIGHT FEET (8'-0") FROM #BL-LA01 LINE SURGE PROTECTOR. DO NOT INSTALL IN THE SAME TRENCH AS THE TWO WIRE PATH COMMUNICATION CABLE BILINE (PAIGE P107/2D BLACK & RED). TYPICALLY GROUND ROD IS INSTALLED EIGHT FEET FROM 2-WIRE PATH TRENCH IN A PERPENDICULAR DIRECTION.

K SD/LI200

L SD/LI200 **DECODER AND 2-WIRE PATH GROUNDING**
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE

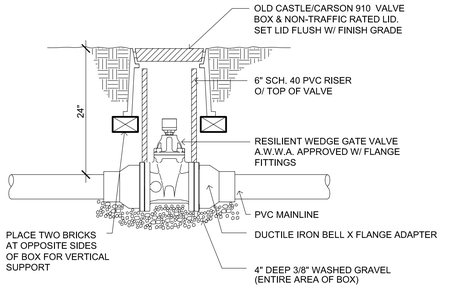


M SD/LI200 **ROOT ZONE WATERING SYSTEM**
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE

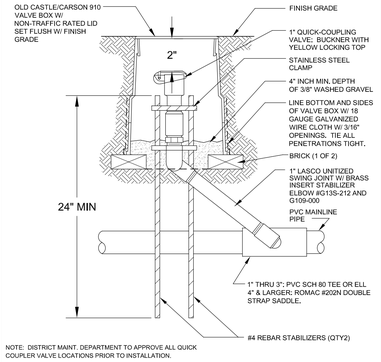


PLAN VIEW

N SD/LI200 **REMOTE CONTROL VALVE LAYOUT**
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE

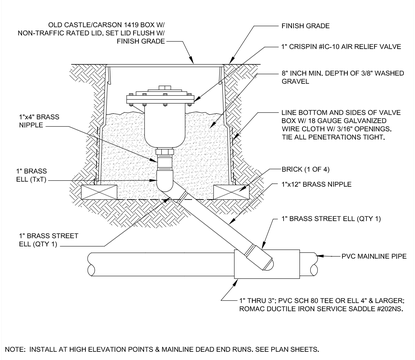


O SD/LI200 **GATE VALVE - 4" AND LARGER**
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE



NOTE: DISTRICT MAINT. DEPARTMENT TO APPROVE ALL QUICK COUPLER VALVE LOCATIONS PRIOR TO INSTALLATION.

P SD/LI200 **QUICK-COUPLING VALVE**
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE



NOTE: INSTALL AT HIGH ELEVATION POINTS & MAINLINE DEAD END RUNS. SEE PLAN SHEETS.

Q SD/LI200 **MAINLINE AIR RELEASE VALVE**
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE

DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

General Notes

David Bigler Associates
Landscape Architect #3887
1589 W. Shaw Avenue, #5
Fresno, California 93711
E Mail: davebigler @aol.com
Tel: (559) 276-9495
Fax: (559) 276-9497
RLA # 3887
31 JULY 28
RENEWAL DATE

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Architect

No.	Revision/Submission	Date
1	DSA Addendum No. 11	10/16/26

Revision

Designed By: DB
Drawn By: TEAM
Checked By: DB
Reviewed By: DB

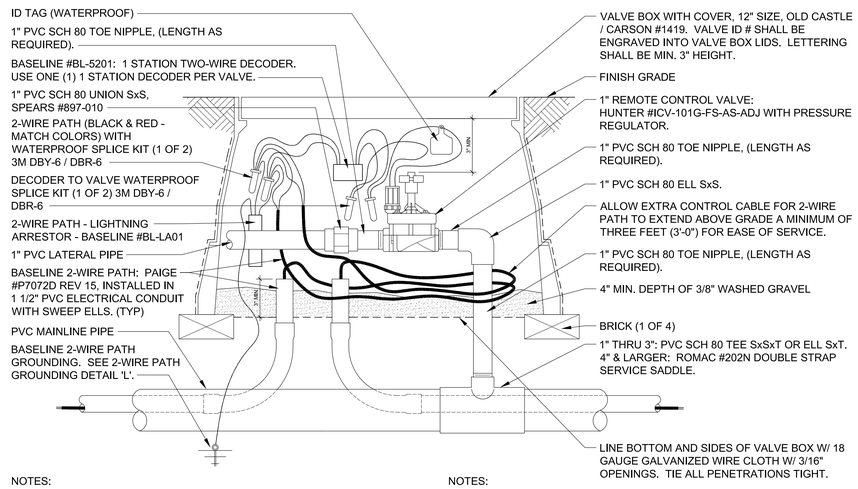
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Date: 10/16/2026

SD/LI200

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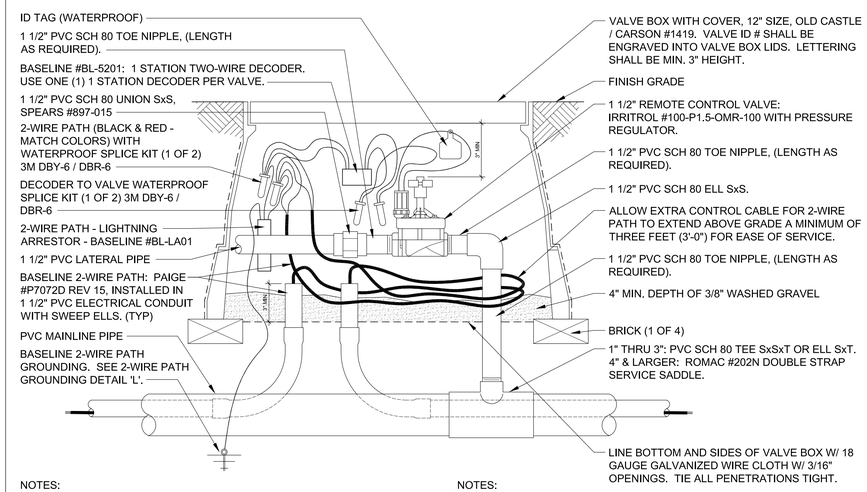
AD11



NOTES:

1. INSTALL A MAXIMUM OF ONE REMOTE CONTROL VALVE PER 12" STANDARD RECTANGULAR VALVE BOX.
2. CONTRACTOR TO INSTALL HUNTER PRESSURE REGULATING MODULE (AS-ADJ) FOR ALL VALVES.
3. INSTALL LINE SIZE HUNTER 150 MESH FILTER FOR ALL LOW FLOW BUBBLER VALVES IN SEPARATE VALVE BOX. SEE DETAIL 'AA' ON PLAN SHEET SD/LI202 FOR ADDITIONAL INFORMATION.
4. INSTALL BASELINE #BL-LA01 LIGHTNING ARRESTOR DEVICE NO FURTHER THAN 300 FEET FROM ANY DECODER. SEE DETAIL 'L'.
5. INSTALL THE 2-WIRE PATH GROUNDING ROD PERPENDICULAR AND A MINIMUM OF EIGHT FEET (8'-0") FROM #BL-LA01 LIGHTNING ARRESTOR AND 2-WIRE COMMUNICATION CABLE. DO NOT INSTALL IN THE SAME TRENCH AS THE 2-WIRE PATH COMMUNICATION CABLE (#P7072D REV 15). SEE DETAIL 'L'.

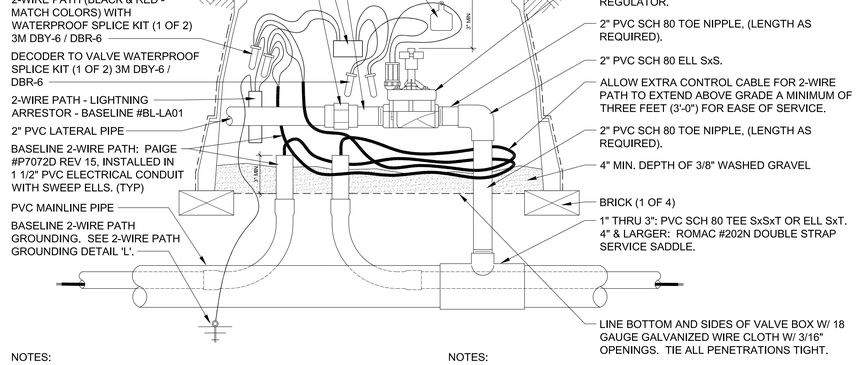
T SD/LI201 — 1" REMOTE CONTROL VALVE WITH BASELINE 1 STATION DECODER ON 2-WIRE PATH
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE



NOTES:

1. INSTALL A MAXIMUM OF ONE REMOTE CONTROL VALVE PER 12" STANDARD RECTANGULAR VALVE BOX.
2. CONTRACTOR TO INSTALL HUNTER PRESSURE REGULATING MODULE (AS-ADJ) FOR ALL VALVES.
3. INSTALL LINE SIZE HUNTER 150 MESH FILTER FOR ALL LOW FLOW BUBBLER VALVES IN SEPARATE VALVE BOX. SEE DETAIL 'AA' ON PLAN SHEET SD/LI202 FOR ADDITIONAL INFORMATION.
4. INSTALL BASELINE #BL-LA01 LIGHTNING ARRESTOR DEVICE NO FURTHER THAN 300 FEET FROM ANY DECODER. SEE DETAIL 'L'.
5. INSTALL THE 2-WIRE PATH GROUNDING ROD PERPENDICULAR AND A MINIMUM OF EIGHT FEET (8'-0") FROM #BL-LA01 LIGHTNING ARRESTOR AND 2-WIRE COMMUNICATION CABLE. DO NOT INSTALL IN THE SAME TRENCH AS THE 2-WIRE PATH COMMUNICATION CABLE (#P7072D REV 15). SEE DETAIL 'L'.

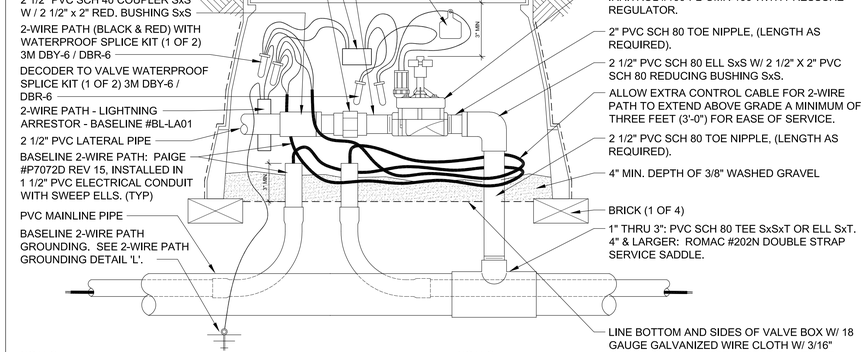
U SD/LI201 — 1 1/2" REMOTE CONTROL VALVE WITH BASELINE 1 STATION DECODER ON 2-WIRE PATH
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE



NOTES:

1. INSTALL A MAXIMUM OF ONE REMOTE CONTROL VALVE PER 12" STANDARD RECTANGULAR VALVE BOX.
2. CONTRACTOR TO INSTALL HUNTER PRESSURE REGULATING MODULE (AS-ADJ) FOR ALL VALVES.
3. INSTALL LINE SIZE HUNTER 150 MESH FILTER FOR ALL LOW FLOW BUBBLER VALVES IN SEPARATE VALVE BOX. SEE DETAIL 'AA' ON PLAN SHEET SD/LI202 FOR ADDITIONAL INFORMATION.
4. INSTALL BASELINE #BL-LA01 LIGHTNING ARRESTOR DEVICE NO FURTHER THAN 300 FEET FROM ANY DECODER. SEE DETAIL 'L'.
5. INSTALL THE 2-WIRE PATH GROUNDING ROD PERPENDICULAR AND A MINIMUM OF EIGHT FEET (8'-0") FROM #BL-LA01 LIGHTNING ARRESTOR AND 2-WIRE COMMUNICATION CABLE. DO NOT INSTALL IN THE SAME TRENCH AS THE 2-WIRE PATH COMMUNICATION CABLE (#P7072D REV 15). SEE DETAIL 'L'.

V SD/LI201 — 2" REMOTE CONTROL VALVE WITH BASELINE 1 STATION DECODER ON 2-WIRE PATH
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE



NOTES:

1. INSTALL A MAXIMUM OF ONE REMOTE CONTROL VALVE PER 12" STANDARD RECTANGULAR VALVE BOX.
2. CONTRACTOR TO INSTALL HUNTER PRESSURE REGULATING MODULE (AS-ADJ) FOR ALL VALVES.
3. INSTALL LINE SIZE HUNTER 150 MESH FILTER FOR ALL LOW FLOW BUBBLER VALVES IN SEPARATE VALVE BOX. SEE DETAIL 'AA' ON PLAN SHEET SD/LI202 FOR ADDITIONAL INFORMATION.
4. INSTALL HUNTER #BL-LA01 LIGHTNING ARRESTOR DEVICE NO FURTHER THAN 300 FEET FROM ANY DECODER. SEE DETAIL 'L'.
5. INSTALL THE 2-WIRE PATH GROUNDING ROD PERPENDICULAR AND A MINIMUM OF EIGHT FEET (8'-0") FROM #BL-LA01 LIGHTNING ARRESTOR AND 2-WIRE COMMUNICATION CABLE. DO NOT INSTALL IN THE SAME TRENCH AS THE 2-WIRE PATH COMMUNICATION CABLE (#P7072D REV 15). SEE DETAIL 'L'.

W SD/LI201 — 2" REMOTE CONTROL VALVE W/ 2 1/2" LATERAL PIPE AND BASELINE 1 STATION DECODER ON 2-WIRE PATH
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE

DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

General Notes

David Bigler Associates
Landscape Architect #3887
1589 W. Shaw Avenue, #5
Fresno, California 93711
E Mail: davebigler @aol.com
Tel: (559) 276-9495
Fax: (559) 276-9497

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Architect

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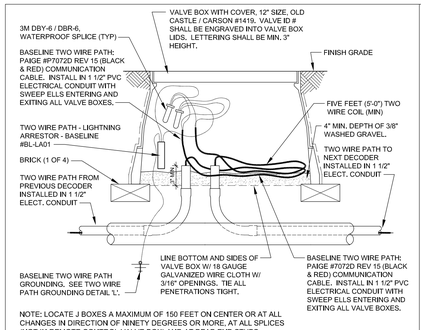
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Scale: AS NOTED
Project Number: 2171
Date: 10/16/2026

SD/LI201

Sheet: _____ of: _____

AD11



NOTE: LOCATE J BOXES A MAXIMUM OF 150 FEET ON CENTER OR AT ALL CHANGES IN DIRECTION OF NINETY DEGREES OR MORE, AT ALL SPLICES (NOT IN REMOTE CONTROL VALVE BOX) AND AT DEAD END STUBS.

NOTE: ALL COMMUNICATION CABLE (TWO WIRE PATH) IS TO BE INSTALLED IN 1 1/2" PVC SCH. 40 ELECTRICAL CONDUIT WITH LONG SWEEP ELBOWS ENTERING AND EXITING ALL VALVE BOXES AND PULL BOXES AS REQUIRED.

X SD/LI202 — 2-WIRE PATH SPLICE / JUNCTION BOX DETAIL
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE

BASELINE TWO-WIRE PATH & STATION DECODER NOTES

1. ALWAYS INSTALL THE DECODER MODULE IN A VALVE BOX FOR EASE OF SERVICE. CONTRACTOR IS TO INSTALL A HUNTER UNIVERSAL DECODER STAKE AND ZIP TIE DECODER TO THE STAKE TO KEEP DECODER OFF THE BOTTOM OF THE VALVE BOX.

2. MAXIMUM COMMUNICATION WIRE LENGTH BETWEEN THE CONTROLLER AND THE FARTHEST DECODER IS 5,000 FEET.

3. RECOMMENDED CABLE FOR CONTROLLER-TO-DECODER IS BASELINE TWO-WIRE PATH, BASELINE BILINE CABLE (14-2UF), 14 AWG, SOLID COPPER, DOUBLE JACKETED 2-CONDUCTOR, DIRECT BURIAL CABLE, INSTALLED IN 1 1/2" ELECTRICAL CONDUIT WITH SWEEP ELLS ENTERING AND EXITING ALL VALVE BOXES WITH JUNCTION BOXES INSTALLED AT ALL CHANGES IN DIRECTION AND 150 FEET, WHICHEVER IS SHORTER.

4. THE INTEGRITY OF THE COMMUNICATION CABLE IS CRITICAL TO OPERATION OF THE SYSTEM. AS IT IS BEING INSTALLED, BEFORE THE DECODERS ARE CONNECTED, LOOP THE COMMUNICATION CABLE UP OUT THE VALVE BOX LEAVING A MINIMUM 3 FT LOOP ABOVE GRADE.

5. AT THE END OF EACH WIRE PATH, THE WIRE SHOULD BE TESTED WITH A VOLT-OHM METER TO CHECK FOR DAMAGE THAT MAY HAVE OCCURRED DURING INSTALLATION.

6. WHEN USING DECODERS, IT IS RECOMMENDED TO LOCATE THE DECODER AT THE VALVE TO REDUCE THE OUTPUT WIRE PATH EXPOSURE TO LIGHTNING. IT ALSO MAKES IT EASIER TO LOCATE FOR SERVICE.

7. TWO WIRE PATH LIGHTNING ARRESTOR - (#BL-LA01) SURGE ARRESTOR AND GROUNDING EQUIPMENT SHOULD BE INSTALLED NO MORE THAN 300' FROM ANY DECODER AND AT ALL DEAD END RUNS.

8. COMMUNICATION CABLE MUST BE CONNECTED BLACK TO BLACK AND RED TO RED AT ALL SPLICES.

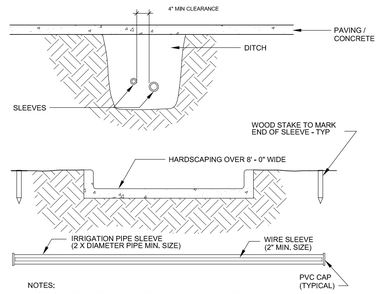
9. VALVES MUST BE EQUIPPED WITH SOLENOIDS COMPATIBLE WITH BASELINE TWO-WIRE CONTROL SYSTEM.

10. ALL DECODER / CONTROL WIRING WORK IS TO BE IN COMPLIANCE WITH MANUFACTURERS (BASELINE) RECOMMENDATIONS.

11. CONTRACTOR IS TO BE CERTIFIED BY BASELINE REPRESENTATIVE FOR 2-WIRE INSTALLATION PRIOR TO STARTING WORK. SUPPLY CERTIFICATE OF CERTIFICATION TO PROJECT ARCHITECT WITH PROJECT SUBMITTALS. CONTACT MARK HUNTZINGER, BASELINE REP (760) 484-4907.

12. CONTRACTOR IS TO HAVE INSTALLATION CERTIFIED BY BASELINE AUTHORIZED REPRESENTATIVE PRIOR TO FINAL ACCEPTANCE. CONTRACTOR TO MAKE ANY REPAIRS REQUIRED FOR CERTIFICATION BY BASELINE FOR EXTENDED 10 YEAR WARRANTY. WRITTEN CERTIFICATION AND 10 YEAR WARRANTY IS TO BE SUBMITTED WITH PROJECT CLOSE OUT DOCUMENTATION. CONTACT MARK HUNTZINGER, BASELINE REP (760) 484-4907.

Y SD/LI202 — 2-WIRE NOTES
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE

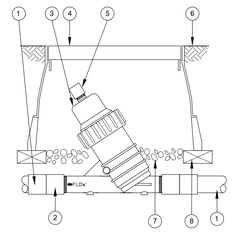


NOTES:
1. ALL PVC IRRIGATION SLEEVES TO BE SCHEDULE 40 PIPE.
2. ALL JOINTS TO BE SOLVENT WELDED AND WATERTIGHT.
3. IRRIGATION PIPES AND 2-WIRE PATH ARE TO BE SLEEVED SEPARATELY.
4. ALL PIPES & WIRES ARE TO BE SLEEVED UNDER PAVED/CONC. 6'-0" WIDE OR WIDER. MECHANICALLY COMPACT TO 95% PROCTOR.

Z SD/LI202 — SLEEVING DETAIL
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE

FILTER SIZE CHART

VALVE SIZE	FILTER SIZE	FILTER MODEL
1"	1"	HY-100
1 1/2"	1 1/2"	HY-151
2"	2"	HY-201



1. PVC LATERAL PIPE
2. PVC SCH 40 FEMALE ADAPTER (1 OF 2), LINE SIZE
3. HUNTER Y-FILTER WITH 150 MESH FILTER, SAME SIZE AS VALVE.
4. RAINBIRD VALVE BOX WITH COVER: 12" SIZE #VBSTD.
5. 3/4" PVC CAP
6. FINISH GRADE
7. 3" MIN DEPTH OF 3/8" WASHED GRAVEL
8. BRICK (1 OF 4)

NOTE: INSTALL LINE SIZE FILTER (SEE FILTER SIZE CHART) ON ALL DRIP VALVES IN SEPARATE VALVE BOXES - ADJACENT TO REMOTE CONTROL VALVE. FILTERS ARE TO BE INSTALLED ON DISCHARGE SIDE OF VALVE.

AA SD/LI202 — 1" / 1 1/2" / 2" 'Y' FILTER DETAIL
SEE MANUFACTURERS INSTALLATION INSTRUCTIONS — NOT TO SCALE

DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

General Notes

David Bigler Associates
Landscape Architect #3887
1589 W. Shaw Avenue, #5
Fresno, California 93711
E Mail: davebigler @aol.com
Tel: (559) 276-9495
Fax: (559) 276-9497

RLA # 3887
31 JULY 28
RENEWAL DATE

Consultant

SANGER EDUCATIONAL COMPLEX - PHASE III
Sanger Unified School District
1760 S. Fowler Ave. Fresno, CA 93727
Project

IRRIGATION DETAILS

Drawing

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ARCHITECTURE
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www.dardenarchitects.com
6790 N. West Ave. • Fresno, CA 93711 • T. 559.448.8051

LICENSED ARCHITECT — MICHAEL K. FERNOLD — No. C23724 — Exp. 4-30-27 — STATE OF CALIFORNIA

Architect

No.	Revision/Submission	Date
1	DSA Addendum No. 11	10/16/26

Revision

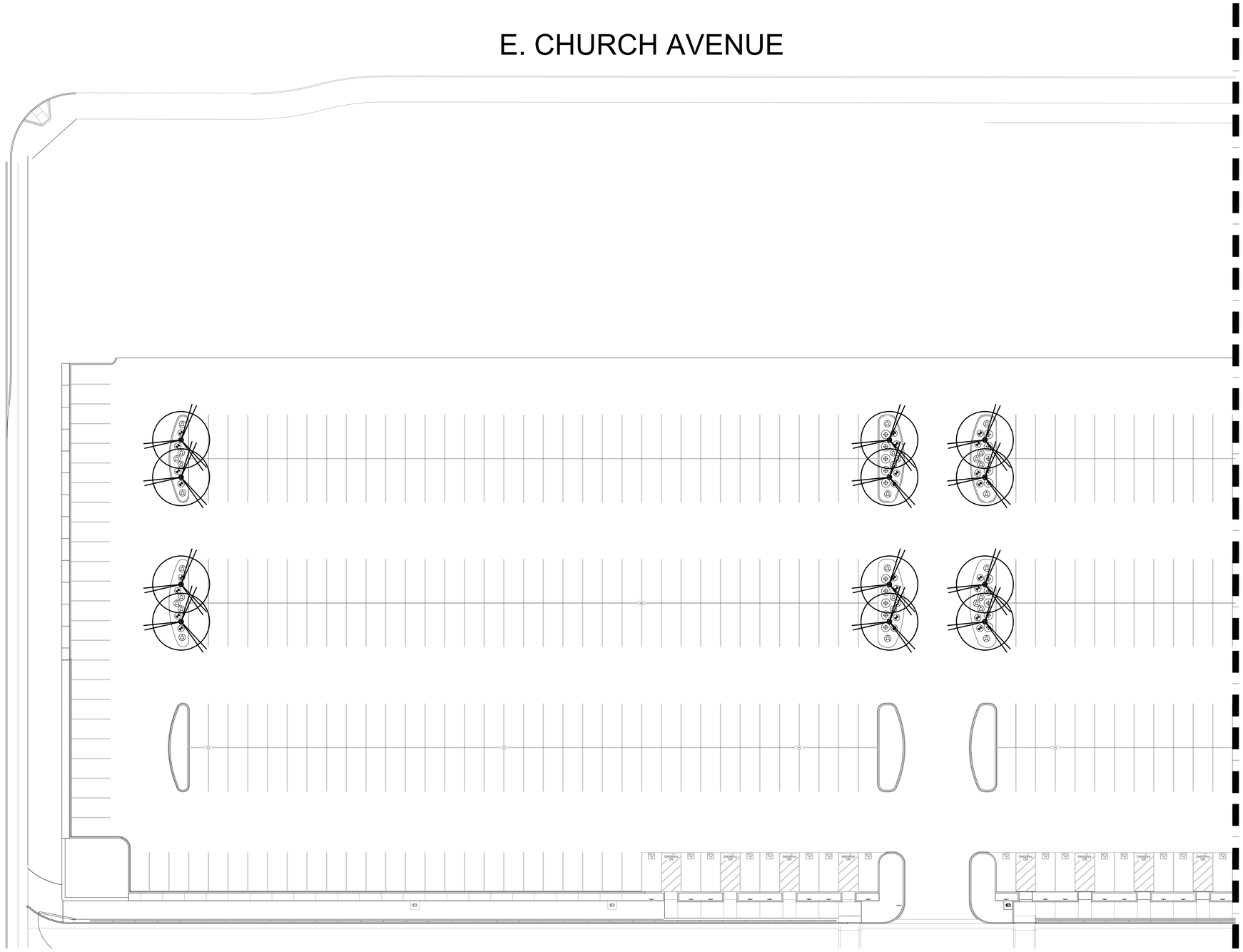
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Project Number: 2171
Date: 10/16/2026

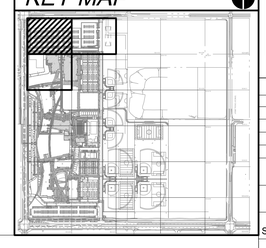
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Sheet: _____ of: _____

AD11



PARTIAL PLANTING PLAN
1" = 20'-0"

KEY MAP



DSA File No.:
10-H15

DSA Application No.:
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NOTE: SEE LANDSCAPE PLANTING LEGEND ON PLAN SHEET SD/LI100

General Notes

David Bigler Associates
Landscape Architect #3887
1589 W. Shaw Avenue, #5
Fresno, California 93711
E Mail: davebigler @aol.com
Tel: (559) 276-9495
Fax: (559) 276-9497

LICENSED LANDSCAPE ARCHITECT DAVID B. BIGLER RLA # 3887 31 JULY 28 RENEWAL DATE STATE OF CALIFORNIA

Consultant

SANGER EDUCATIONAL COMPLEX - PHASE III
Sanger Unified School District
1760 S. Fowler Ave. Fresno, CA 93727
Project

PARTIAL PLANTING PLAN
ALTERNATE 1
Drawing

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ARCHITECTURE PLANNING INTERIORS
www.dardenarchitects.com
6790 N. West Ave. • Fresno, CA 93711 • T. 559.448.8051

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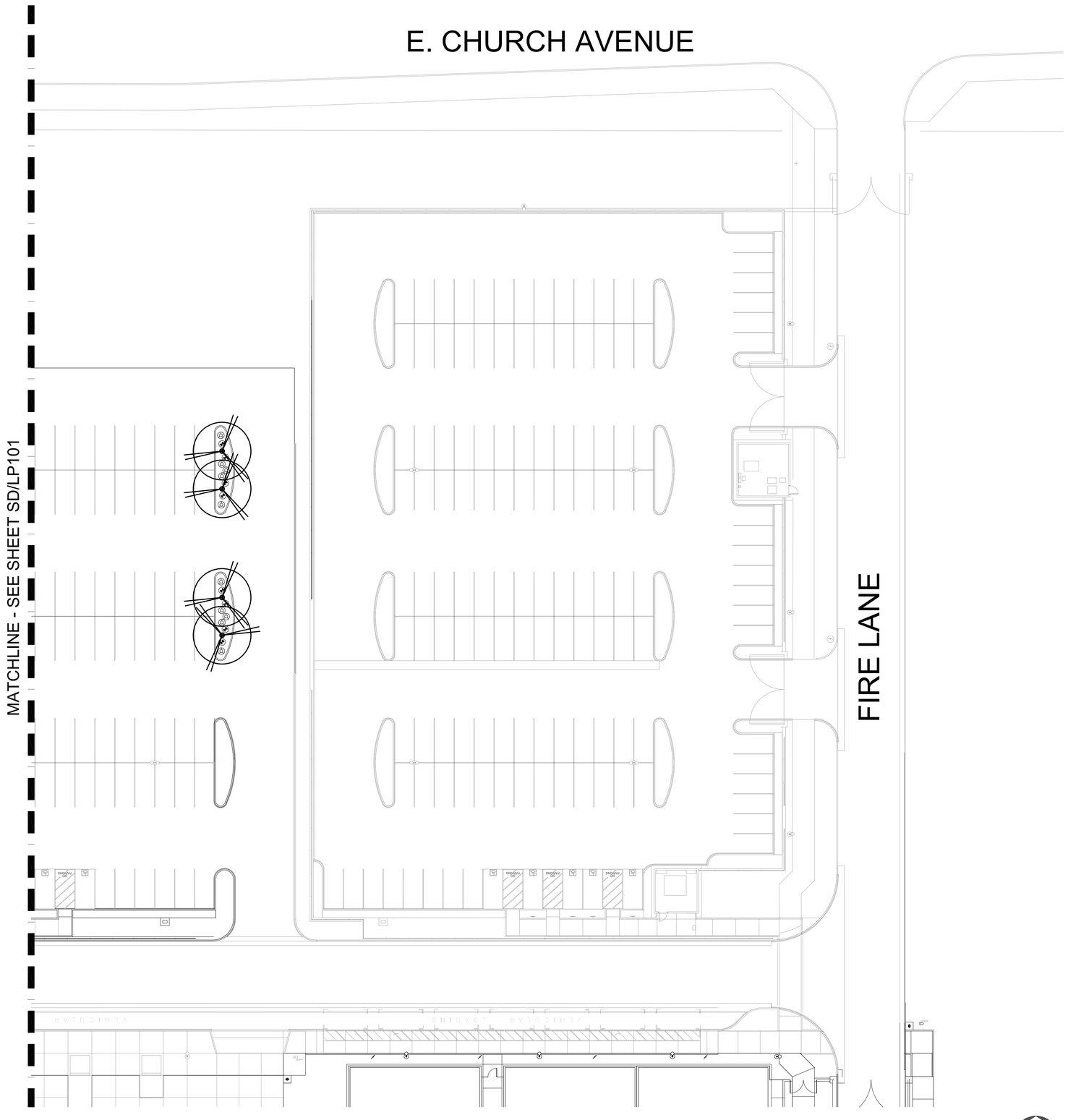
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Date: 10/16/2026

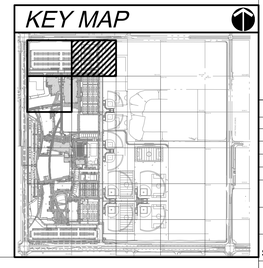
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AD11



PARTIAL PLANTING PLAN
1" = 20'-0"

KEY MAP



DSA File No.:
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NOTE: SEE LANDSCAPE PLANTING LEGEND ON PLAN SHEET SD/LI100

General Notes

David Bigler Associates
Landscape Architect #3887
1589 W. Shaw Avenue, #5
Fresno, California 93711
E Mail: davebigler @aol.com
Tel: (559) 276-9495
Fax: (559) 276-9497
RLA # 3887
31 JULY 28
RENEWAL DATE

Consultant

SANGER EDUCATIONAL COMPLEX - PHASE III
Sanger Unified School District
1760 S. Fowler Ave. Fresno, CA 93727

Project

PARTIAL PLANTING PLAN
ALTERNATE 1

Drawing

darden architects
ARCHITECTURE
PLANNING
INTERIORS
www.dardenarchitects.com
6790 N. West Ave. • Fresno, CA 93711 • T. 559.448.8051
LICENSED ARCHITECT MICHAEL K. FERNANDEZ No. C23724 REN. 4-30-27 STATE OF CALIFORNIA

Architect

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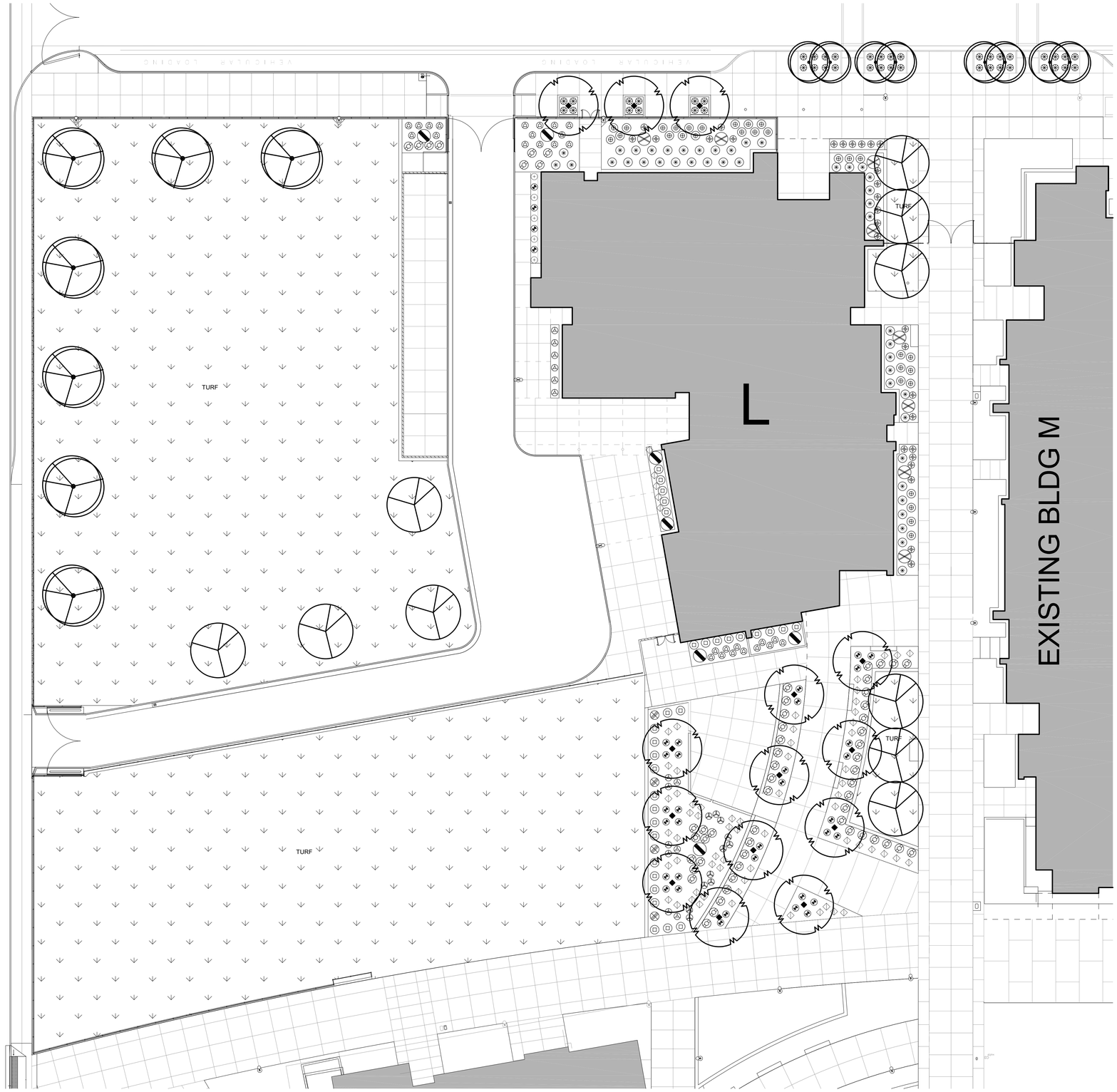
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Date: 10/16/2026

SD/LP102

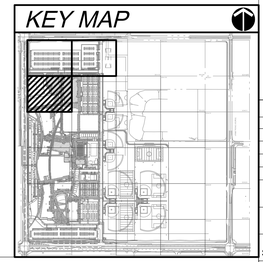
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AD11



PLANTING PLAN
1" = 20'-0"

KEY MAP



DSA File No.:
10-H15

DSA Application No.:
02-120779

Agency Approval

NOTE: SEE LANDSCAPE PLANTING LEGEND ON PLAN SHEET SD/LI100

General Notes

David Bigler Associates
Landscape Architect #3887
1589 W. Shaw Avenue, #5
Fresno, California 93711
E Mail: davebigler@aol.com
Tel: (559) 276-9495
Fax: (559) 276-9497

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Consultant

SANGER EDUCATIONAL COMPLEX - PHASE III
Sanger Unified School District
1760 S. Fowler Ave. Fresno, CA 93727

Project

PLANTING PLAN
BASE BID

Drawing

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ARCHITECTURE
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www.dardenarchitects.com
6790 N. West Ave. • Fresno, CA 93711 • T. 559.448.8051

LICENSED ARCHITECT — MICHAEL K. FERRARO — No. C23724 — Exp. 4-30-27 — STATE OF CALIFORNIA

Architect

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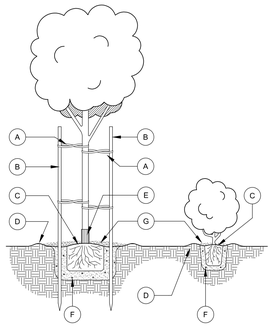
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Date: 10/16/2026

SD/LP106

Sheet: _____ of: _____

AD11



TREE AND SHRUB PLANTING DETAIL

1 SD/LP200

NOT TO SCALE

KEY NOTES

A. TREE TIES TO BE APPROVED RUBBER OR PLASTIC STRAPS NAILED TO STAKES

B. TREATED 2"x10' LODGE POLE STAKE TO BE SET VERTICAL

C. TOP OF ROOT BALL IS TO BE SET SLIGHTLY ABOVE FINISH GRADE

D. CONSTRUCT WATER BASIN TO THE DIAMETER NOTED BELOW WITH 3" BERM AROUND PERIMETER. SOFTEN BERM IN TURF AREAS. REMOVE ALL TURF WITHIN BERM AREA IN TURF AREAS

BERM DIAMETER	SIZE OF PLANT
30"	15 GALLON PLANT
36"	24" BOX
16"	5 GALLON PLANT
12"	1 GALLON PLANT

E. EXPANDIBLE STRING TRIMMER TREE BOOT. USE ON TREES INSTALLED IN TURF AREAS ONLY

F. AGRIFORM PLANT FERTILIZER TABLETS

G. MULCH AS TOP DRESSING ALL NON TURF LANDSCAPE AREAS WITH WALK ON BARK AS SUPPLIED BY SUPERIOR SOIL SUPPLIMENTS OR APPROVED EQUAL. INSTALL TO A COMPACTED DEPTH OF THREE INCHES (3"). DO NOT ENGULF THE STEMS OR TRUNKS OF SHRUBS AND TREES.

PLANTING NOTES

1. ONE DRAINAGE HOLE, MIN. DIAMETER 18", SHALL BE DRILLED FOR EACH TREE TO A MIN. DEPTH OF TEN FEET (10') BACKFILL WITH ORIGINAL SOIL. DRAINAGE HOLE IS TO BE OFF SET FROM THE PLANTING HOLE TO PREVENT SETTLEMENT OF THE TREE OR SHRUB.

2. PLANTING HOLE IS TO BE 2 - 3 TIMES THE DIAMETER OF CONTAINER WITH DEPTH EQUAL TO ROOT BALL, PLUS FOUR INCHES, BACKFILL WITH 85% CLEAN NATIVE SOIL MIXED WITH 15% NITRIFIED AGED FIR BARK HUMUS. APPLY AGRIFORM PLANT FERTILIZER TABS TO BACKFILL AS FOLLOWS.

# OF TABS	SIZE OF PLANT
2	1 GALLON SIZE
4	5 GALLON SIZE
6	15 GALLON SIZE
8	24" BOX SIZE
10	36" BOX SIZE

3. PLACE TREE OR SHRUB IN CENTER OF PLANTING HOLE.

4. TAMP BACKFILL TO FORCE OUT ALL AIR POCKETS. FOOT TAMP BACKFILL BELOW ROOT BALL TO PREVENT SETTLEMENT.

5. WATER TREE OR SHRUB IMMEDIATELY AFTER PLANTING

6. DOUBLE STAKE, WITH ONE STAKE TO BE PLACED ON THE WINDWARD SIDE AND THE OTHER PLACED ON THE LEEWARD SIDE OF THE TYPICAL PREVAILING WIND. TOP OF STAKE IS TO BE SIX INCHES BELOW THE BRANCHING POINT OF THE CROWN.

2 SD/LP200

ROOT BARRIER INSTALLATION

3 SD/LP200 ROOT_BARRIER

NOT TO SCALE

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10-H15

DSA Application No.:
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Agency Approval

General Notes

David Bigler Associates
Landscape Architect #3887
1589 W. Shaw Avenue, #5
Fresno, California 93711
E Mail: davebigler @aol.com
Tel: (559) 276-9495
Fax: (559) 276-9497
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SANGER EDUCATIONAL COMPLEX - PHASE III
Sanger Unified School District
1760 S. Fowler Ave. Fresno, CA 93727

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ARCHITECTURE
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SD/LP200

Sheet: _____ of: _____

AD11

PART 3 – COMMISSIONING FOR NOISE AND VIBRATION CONTROL

3.1 RESPONSIBILITY

A. The Contractor shall engage the services of a National Environmental Balancing Bureau (NEBB) Certified Sound and Vibration (S&V) Firm to perform all necessary noise and vibration measurements.

B. The NEBB Certified S&V Firm shall:

1. S&V work shall be in compliance with current NEBB Procedural Standards for Measurement of Sound and Vibration.

2. Communicate on a regular basis, through proper channels, items pertaining to design, installation or function that prevent the NEBB Certified S&V Firm from achieving completion of the S&V work in accordance with the current edition of the NEBB Procedural Standards for Measurement of Sound and Vibration.

3. Perform the required S&V measurements.

4. Publish a NEBB Certified S&V Report of final conditions that accurately reflects the sound and vibration measurements taken on the required building systems.

3.2 HVAC SYSTEM ADJUSTMENTS

A. Coordinate with the Project Contractor, Mechanical Sub, TAB Contractor, Architect, Mechanical Engineer, and Acoustical Consultant and make necessary adjustments to insure noise from all HVAC systems is minimized in all occupied project spaces.

3.3 HVAC SYSTEM NOISE / SOUND MEASUREMENTS

A. Noise levels shall be quantified in all project spaces and compared with the specified maximum allowable Noise Criteria (NC) published in this section.

B. Measurement equipment shall include a recently-calibrated Type 1 Sound Level Meter or Real Time Analyzer with Class II Octave Band Filters and 1/2" random-incidence microphone. The SLM or RTA must be capable of measuring octave band noise levels as low as NC-15.

C. The procedure for noise measurements shall be as follows:

1. Close windows and doors to the space. Perform measurements only when the space is not occupied, and when noise levels from other spaces in the building and outside are at a minimum. Clear the space of temporary sound sources so unrelated disturbances will not be measured. Turn off all possible non-HVAC sound sources in the space that may affect sound readings and make note of any non-HVAC sources which cannot be turned off.

2. Make sound pressure level measurements at 4' above floor level in each project space and at least 3’ from walls or other solid obstructions. Make sound pressure level measurements in all octave bands centered between 63 Hz and 8000 Hz, inclusive. In spaces up to 100 square feet in size, one measurement shall be provided in the center of each room. In spaces between 101 and 200 square feet in size, two measurements shall be provided in the center of each half of the room. For spaces above 201 square feet in size, four measurements shall be provided in the center of each quadrant of the room.

3. Record sound measurements on appropriate test forms, indicating the decibel levels measured in for both “background” and “HVAC system operating” readings. Record each tested location on a separate NC graph, including date and time of test, equipment operating parameters, room/space number, location in room/space, and whether measurements meet or exceed the maximum allowable noise criteria published in this section. All reports shall be in accordance with the requirements of the current edition of the NEBB Procedural Standards for Measurement of Sound and Vibration.

4. Assist with rebalancing or adjustment of any HVAC equipment causing noise in excess of maximum allowable noise levels. Re-measure sound levels in all such spaces to show compliance with maximum allowable noise criteria. Repeat until noise is minimized to the satisfaction of the Architect, Mechanical Engineer, and Acoustical Consultant.

3.4 VIBRATION ISOLATION SYSTEM ADJUSTMENTS

1. After each equipment unit installation is complete and under full operational load, vibration isolators shall be adjusted so that loads are transferred to them and away from temporary blocking washers and shims. Blocks and shims then shall be removed and used as gauges to judge required clearances. Washers shall be moved away.

2. Inspect all vibration-isolated equipment, coordinate the work of all involved trades, and see that vibration isolators are not short-circuited by seismic restraints, drain lines, conduits, stanchions, control tubing, duct connections, pipe connections, etc. Ensure that hanger isolators and their rods or wires do not touch any other building component.

3. Coordinate with the Project Contractor, Mechanical Sub, TAB Contractor, Architect, Mechanical Engineer, and Acoustical Consultant and make necessary adjustments to insure vibration from all HVAC systems is minimized in all occupied project spaces.

3.5 PROCEDURES FOR VIBRATION MEASUREMENTS

1. Should any equipment be deemed to have excessive vibration by the project Architect or Acoustical Consultant, vibration measurements shall be carried out. If vibration levels exceed the maximum allowable levels published in this section,

equipment adjustment or replacement shall be provided at no cost to the Owner until the vibration levels are at or less than the maximum allowable levels.

2. Perform vibration measurements when other building and outdoor vibration sources are at a minimum level and will not influence measurements of equipment being tested. Turn off equipment in the building that might interfere with testing. Restrict people from occupying areas where human activity may affect accuracy of measurements.

3. Attach and secure the vibration transducer in accordance with the latest edition of the NEBB Procedural Standards for Measurement of Sound and Vibration.

4. Measure and record vibration levels at discrete frequencies from 1 to 200 Hz in 1 Hz increments or in 1/3 octave bands from 12.5 Hz to 200 Hz, as indicated for the specific vibration or noise problem encountered.

5. Measure, record, and report equipment vibration, bearing vibration, equipment base vibration, and on building structure adjacent to equipment, as noted below. Record velocity and displacement readings in the radial vertical, radial horizontal and axial planes, where measurements can be performed safely.

    a. Pumps:

        1) Pump Bearing: Drive end and opposite end.

        2) Motor bearing: Drive and opposite end.

        3) Pump Base: Top and side, within 6” of each isolator.

        4) Building: Floor adjacent to pump/motor, within 6” of each isolator.

    b. Fans and HVAC Equipment with Fans:

        1) Fan Bearing: Drive end and opposite end.

        2) Motor Bearing: Drive and opposite end.

        3) Equipment Base: Top and side, within 6” of each isolator.

        4) Building: Floor adjacent to fan/motor, within 6” of each isolator.

    c. Chillers and HVAC Equipment with Compressors:

        1) Compressor Bearing: Drive end and opposite end.

        2) Motor Bearing: Drive end and opposite end.

        3) Equipment Base: Top and side, within 6” of each isolator.

        4) Building: Floor adjacent to equipment, within 6” of each isolator.

END OF SECTION 01 81 23

SECTION 116123 - PORTABLE SEATING PLATFORMS AND SEAT SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Services as listed herein and related to the provision of the following systems:

a. ~~Audience Seating Risers~~ Portable Platforms
b. Portable Audience Seats

2. The Platform Contractor shall provide all items necessary for a complete, safe, fully functional system as described herein, including all tools, scaffolding, labor, and supervision, even though they may not be specifically enumerated.

1.2 RELATED DOCUMENTS

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

1.3 REFERENCES

A. Comply with all national, state and local regulations and the procedures. In the event of conflict between these specifications and the applicable regulations, the more stringent shall govern.
B. Equipment shall be provided per the related trade and regulatory guidelines including but not limited to UL, NEC (National Electrical Code), IEEE, and all manufacturer's recommendations and requirements. Contractor shall be responsible in the event that work under their control voids or jeopardizes manufacturers' warranties.
C. Labor shall be provided per applicable labor regulations and practices.

1.4 DEFINITIONS

A. Refer to Div. 01 for definitions.
B. Owner Representative: For the scope in this Section, authorized personnel representing the Owner and The Shalleck Collaborative, Inc., Theatre Consultants.

1.5 SYSTEM DESCRIPTION

A. Modular platform systems, comprised of portable platform decks, ramp, landing, support frames and railings shall be provided.
B. Loose seats with ability to interlock, including storage carts and accessories shall be provided.

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1.6 SUBSTITUTIONS

A. All requests for substitutions from the specified materials, assemblies or related services shall be submitted for review by the Owner's Representative prior to bid. Substitution requests made after bid shall be neither reviewed nor accepted. Requests shall be made in accordance with Division 1 of the specifications, and in a timely fashion so as to not affect the project schedule in either case of the substitution being accepted or rejected.
B. Documentation for the substitution shall be submitted with supporting material and shall include the related information for the item as specified so that equivalence can be demonstrated. The burden of proof rests solely upon the Contractor. The Owner's Representative shall be the sole evaluator of the fitness of the substitution.
C. All expenses related to the substitution including, but not be limited to, all fees and expenses incurred in the evaluation of the substitution, and any effect on the costs and schedule of other trades whether or not the substitution is accepted, shall be borne by the Contractor.

1.7 SUBMITTALS

A. Submittals shall be made in accordance with Division 1.
B. Submittals shall be made electronically in PDF format.
C. Submittals shall be made in a timely fashion so as to not affect the project schedule, and shall allow for adequate time for review and resubmittal. Partial submittals shall not be acceptable and shall be returned without review.
D. Submittals shall be reviewed prior to commencing acquisition for, and fabrication of the work in this section. All services and parts of the work in this section shall be verified through the submittal process. Approval does not relieve the Contractor of the responsibility of providing equipment in accordance with the specifications.
E. Shop Drawings:

1. Submit component and installation drawings and schedules showing all information necessary to fully explain the design features, appearance, function, fabrication, installation, and use of system components in all phases of operation.
2. Shop drawing plans and section shall be at ¼” scale minimum. Details shall be larger scales to fully explain the component.
3. Show storage area diagrams for all components un-used in any particular system.
4. Provide clear space on all shop drawings for comments and approval stamps.

F. Product Data:

1. Submit data sheets for all standard component parts, which shall include all information necessary to verify compliance with this Section.
2. Product data shall be properly identifying each components intended use. Any options or variations must be clearly noted.

G. Samples:

1. Upon 14 days of request by the Owner’s Representative, submit samples for review. Samples may include, but are not limited to:

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a. 1 square foot full scale mock-up of a typical platform deck including project-specific finish.

2. At time of delivery, submit six copies of submittals including product data, flame certifications, operations and instructions manuals for all products provided, care and maintenance instructions, service line and online contacts and warranty documents.

H. Record Documents:

1. At time of final acceptance, submit regulatory listings and certifications as required by prevailing building codes.
2. Within 30 days, submit six copies of "as built" submittals including shop drawings, product data, flame certifications, operations and instructions manuals for all products provided, care and maintenance instructions, service line and online contacts and warranty documents.
3. Provide (3) 11x17 laminated, assembly instructions for owner use with illustrations or color pictures. Include step by step instructions for each configuration.

a. Instruction sheets may be dual sided.
b. If multiple pages are required, full instruction sets shall be bound together.

1.8 WARRANTY

A. Warranty shall provide coverage of material and product defects and assembly workmanship for a period of three years following the date of acceptance by the Owner.
B. Items under warranty shall be serviced to the satisfaction of the Owner with 14 days of notification to the Contractor, except for safety related items, which shall be corrected within 48 hours of notification.

1.9 QUALITY ASSURANCE

A. Equipment in this Section shall be provided by specialty subcontractors and manufacturers meeting the qualifications listed herein.
B. Specialty subcontractor shall have been continuously engaged in the sales and installation of equipment similar to that specified herein for a minimum of fifteen years.
C. Specialty suppliers shall have at time of bid and continuously maintain throughout the project and warranty period a Specialty Contractor's license valid in the state of the project and appropriate for the work in this Section.
D. Specialty suppliers shall maintain bonds in the amount required for the project.
E. Specialty manufacturers responsible for engineering and manufacturing shall have been continuously engaged in the engineering and manufacturing of equipment similar to that specified herein for a minimum of fifteen years, and shall have provided equipment for at least fifty installations of this type and scope. The Owner's Representative shall be the final judge of the suitability of experience.
F. All equipment shall be UL listed and bear the appropriate labels.

1.10 DELIVERY, STORAGE AND HANDLING

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A. Packing shall prevent damage to the equipment during transit. Costs to repair or replace all equipment damaged during the course of the contract services shall be borne by the Contractor.
B. Do not deliver materials in this Section until building is ready for installation. Contractor is responsible to properly sequence the work and to protect from damage during delivery, handling, storage and installation.
C. Contractor is responsible to coordinate and provide secure and protected storage as required for the execution of the Contract.

1.11 PROJECT CONDITIONS

A. Defects in the field which may impact the work in this Section shall be reported to the Owner's Representative and corrected in accordance with the requirements of the applicable Section of work prior to commencement of the work in this Section.
B. Field Conditions: All bidders shall fully inform themselves of the conditions under which the work is to be performed. No additional compensation shall be allowed for any labor or item the bidder could have been fully informed of prior to the bid date.

1.12 MAINTENANCE

A. Provide maintenance stock of user-serviceable components within the system. Maintenance stock shall be packaged in labeled long term storage packaging and turned over to the Owner at time of system commissioning.

PART 2 - PRODUCTS

2.1 PRE-APPROVED PLATFORM SYSTEM MANUFACTURERS

A. The following manufacturers are pre-approved to bid the platform work in this section:

StageRight, Inc.
495 Pioneer Parkway
Clare, MI 48617
Contact: Kip Weis
Tel.: (800) 438-4499 ext. 349

Sightline Commerical
7008 Northland Drive
Minneapolis, MN 55428
Contact: Courtney Schmitz
Tel.: 662-418-6442

Wenger Corporation
555 Park Drive
Owatonna, MN 55060
Contact : Jeff Kirkpatrick
Tel. : 800-326-8373, ext 260

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B. The following manufacturers are pre-approved to bid the portable seating work in this section:

Series Seating
20900 NE 30th Ave, Suite 901
Miami, FL 33180
Tel: 305-932-4626
Contact: Thomas Boyd
Email: tboyd@seriesseating.com

Wenger Corporation
555 Park Drive
Owatonna, MN 55060
Contact : Jeff Kirkpatrick
Tel. : 800-326-8373, ext 260

C. Pre-approval to bid does not imply acceptance of the manufacturer. It is the sole responsibility of the contractor for this Section to ensure that any price quotations received and submittals made are for controls systems that meet or exceed the specifications.

D. All other subcontractors must be approved prior to bid. Other contractors seeking acceptance must submit the following information at least 2 weeks prior to the bid opening date. Approval of contractors will be by addenda. Failure to submit any of the required information will automatically disqualify the contractor from consideration of approval.

1. A listing of five equivalent installations including:

   a. Name, address and telephone number of Owner;
   b. Name, address and telephone number of Theatre Consultant;
   c. Scope of work.
   d. A brief written description of the contractor's operation including facilities, financial capabilities, and experience of key personnel.

2. A statement from a bonding company agreeing to provide the required bonds in the amount required for the project.

2.2 MATERIALS

A. All components supplied under this Section shall be new. Used or factory reconditioned components shall not be acceptable.

B. Materials shall conform to the following ASTM and ANSI standard specifications:

1. A-36 - Specification for structural steel
2. A-47 - Specification for malleable iron casting
3. A-48 - Specification for gray iron casting
4. A-120 - Specification for black and hot-dipped zinc-coated (galvanized) steel pipe for ordinary use
5. B18.2.1&2 - Specification for square and hex bolts and nuts
6. B221-02 - Specification for aluminum alloy

C. Materials, devices, assemblies and installation shall meet or exceed applicable ESTA standards.

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D. In order to establish minimum standards of safety, the following factors shall be used:

1. Steel - per AISC specifications
2. Bearings – Two times required load at full speed for 2000 hours
3. Bolts - Minimum SAE J429 Grade 5 (ISO R898 Class 8.8), zinc plated
4. Standards of workmanship, design, and fabrication for structural steel shall be AISC Code of Standard Practice and ASTM A36.

E. Welding:

1. Execute welding in shop and field in accordance with standards of American Welding Society. All welders shall be qualified in accordance with standard qualification procedure of American Welding Society.
2. Control welding sequence and technique to minimize secondary stresses and distortions.
3. Net effective weld lengths shall be indicated on the shop drawings and approved before fabrication and installation.

F. All items of incidental hardware shall be furnished plated or painted black u.o.n.
G. All nuts shall be new lock nuts or shall be provided with lockwashers. No exceptions.
H. Fabrication:

1. The mechanical fabrication and workmanship shall incorporate best practices for good fit and finish. There shall be no burrs or sharp edges to cause a hazard nor shall there be any sharp corners accessible to personnel.
2. All moving parts shall have specified tolerances.
3. All equipment shall be built and installed to facilitate future maintenance and replacement.

I. Finishes:

1. Paint shall be the manufacturer's standard finish and color except as noted.
2. All items of incidental hardware shall be furnished plated or painted black.
3. Components shall be painted with rust inhibiting primer and finished with black paint.

J. Recommended Working Load: This specification calls for minimum recommended working loads for hardware. The manufacturer's recommended working load is the maximum load which the manufacturer recommends be applied to properly installed, maintained, and operated new equipment. Manufacturer's recommended working loads shall be determined by calculations by a Licensed Professional Engineer and destructive testing by an independent testing laboratory. These calculations and reports shall be available for review.

2.3 BLACK BOX ~~AUDIENCE RISERS~~ Portable Platforms

Portable

A. Platform decking

1. Deck shall be portable and provide a stable surface.
2. Decks shall be a single sided portable platform with 4" high extruded 6005A-T61 aluminum frame, including protective edge, powder coated black finish. Frame shall connect to support system and railings. Subfloor shall be 1" exterior rated group 1 plywood.

3. Performance: Certified, uniformly distributed live-load capacity of 4800 pounds per 4' x 8' section (150 pounds per sq. foot).
4. Finish

    a. Platforms deck top finish surface shall be carpet.
        1) Color to be selected from standard finishes during the submittal process.

5. Deck shall attach to the Platform Supports by molded corner receptacles, clamps or clips.
6. Decks shall attach to one another with roto-lock clamps.

    a. Provide four (2) T-wrenches for operating roto-locks.

7. Maximum weight of one platform shall be less than 100 lbs

B. Fabric Fascia

1. Provide fabric skirt panels around the platforms and ramp.
2. Fabric shall Commando Cloth black IFR, with 50% fullness. Fascia panels shall be designed to remove in sections and attach with clips.

Portable

C. Platform Support Legs

1. Platform support system shall be easy to set up and store and shall provide a stable, robust understructure.

    a. Support legs shall store on bottom of platforms
    b. Support system shall be assembled without tools by as few as two (2) people.
    c. Support system shall be capable of carrying the loads described above for the platforms.

2. Playing height shall be as shown on drawings.

    a. Support legs shall be capable of 2-1/2” of leveling adjustment.
    b. Each screw foot shaft shall have a diameter of no less than 3/4" and have zinc-plated Acme threads. The bottom of the foot shall be molded urethane.

3. Provide support legs in each platform corner and configuration as shown on drawings.

    a. Platform frame shall match deck manufacturer listed above.

D. Railings

1. Provide railings in location as shown on the drawings at the ramp and on three sides of the stage. Railing shall be 2-line black finished 1-1/4” dia aluminum tube with kick plate. Ramp shall have code required hand railing.

E. Carts

1. Provide carts for all equipment as necessary to carry the platforms, platform supports, and any related system accessories.

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a. Minimize quantity of carts and storage footprint as possible.
b. Carts with platforms shall fit through a 3'-0" standard door and into building elevator.
c. Carts shall have swivel casters with soft, non-marking rubber wheels.

F. Product shall be:

1. StageRight All Purpose Deck and Bridging Risers
2. Sightline Commercial SC90 Platform with acoustical infill and adjustable height legs
3. Wenger Stagetek Seated Risers

2.4 BLACK BOX ~~AUDIENCE SEATING~~ Portable Audience Seats

Portable Audience

A. Seats shall be of similar envelope to fixed seating shall be of consistent width.

1. Back shape and seat pan shape shall be similar to fixed seats.
2. Seat back and seat pan shall be upholstered.

a. Upholstery shall match the upholstery provided on the adjacent telescopic seats, (see section 12 66 23)

Portable Audience

3. Seats shall have armrests.

a. Armrests shall be wood, with a stain matched to the finish of the adjacent telescopic seating.

B. Carts shall be provided for stacking seats.
C. Provide quantity (145) of:

^ Either:

1. Series Seating Model K
2. Wenger Audience Seat

PART 3 - EXECUTION

3.1 INSTALLATION

A. Coordinate scheduling and access with the Contractor and the Owner.
B. Insert operations and maintenance information into the project record documents as specified above in Submittals.

3.2 PERFORMANCE OF THE WORK

A. The Contractor shall be responsible for storage of stage equipment, tools, and equipment during the period of the installation.

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B. Extent: All specified equipment shall be installed by fully trained superintendents and workmen. Equipment shall be installed in a workman like manner, per plans and specifications. Equipment shall be aligned, adjusted, and trimmed for the most efficient operation, the greatest safety and for the best visual appearance.
C. Standards:

1. Installation practices shall be in accordance with OSHA Safety and Health Standards and all local codes. All welding must be performed in full compliance with the latest edition of the Structural Welding Code (ANSI/AWS D1.1).
2. Fabricate metal work in accordance with standards of first-class workmanship with ornamental work free of blemishes like tool marks, burrs, scars, and abrasions. All edges shall be smooth. All points, welds, and intersections shall be properly made and fitted to provide a uniform finish.

D. All connection points shall be welded and ground smooth.
E. Fit abutting surfaces closely.

1. Provide slotted holes, as needed, in steel members which require accurate alignment.

F. Accurately align and adjust various frame members before final anchoring.
G. Erect metal work level, plumb, square and in proper alignment with adjacent work. Deformed components shall be remedied.
H. Attachments: All equipment shall be securely attached to the building structure.
I. Finishes:

1. All welds must be touched up to match disturbed finishes.
2. All finishes which are disturbed during shipping and installation shall be touched up to match the original.

3.3 CLEAN UP

A. The Contractor shall be responsible for cleanup, including removal of packing materials etc. and the protection of surfaces or equipment provided by other trades.

3.4 INSPECTION AND TESTING

A. Upon completion of the installation the Contractor shall notify the Owner's Representative that the system is available for formal checkout. Notification shall be provided in writing. Checkouts shall be scheduled in accordance with the Owner's Representative's schedule.
B. The Contractor shall arrange for access as necessary for inspection of equipment by the Owner's Representative.
C. In preparation for inspection by the Owner's Representative system components shall be cleared of dust and debris.
D. All systems shall be complete and will be operated by the Owner's Representative for approval. Make available for review by the Owner's Representative:

1. All components for physical inspection.

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a. Contractor shall make provisions for access as necessary.

2. Spare parts inventory.

E. The Contractor shall be liable for any return visits by the specialty sub-contractor, factory engineer or Owner's Representative as a result of incomplete or incorrect installation, or erroneous representation that the Systems are complete and ready for the related Contractor or Owner's Representative to carry out their work.

3.5 TRAINING

A. Upon final approval of the system by the Owner's Representative, representatives from the Platforming System Specialty Sub-Contractor shall instruct designated Owner staff or representatives in the safe use and maintenance of all systems specified herein.
B. Schedule training sessions in advance to fit the Owner staff or representatives' schedules.
C. Provide 4 hours of training.
D. Training shall include, but not be limited to:

1. An overview of the platforming system and all components.
2. Full process for setting up and taking down the system, in all of its configurations.
3. Care and maintenance of the platforming system.

END OF SECTION

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SECTION 32 84 00 LANDSCAPE IRRIGATION SYSTEM

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Provide all materials, labor, equipment and services necessary to furnish and install Landscape Irrigation System, accessories and other related items necessary to complete the Project as indicated by the Contract Documents unless specifically excluded. The extent of the underground landscape irrigation system is shown on the drawings. The Contractor shall carefully review the plans and specifications and if they feel that more equipment is needed, they shall include that in the bid. All extra work to achieve full coverage shall be at the Contractors expense. Sprinkler systems shall be complete, operative, automatic and provide full coverage of the planted areas.

B. Irrigation systems shall be constructed to the sizes, grades and locations shown on the plans. Irrigation pipelines shown on the plans are essentially diagrammatic. Locations of all irrigation improvements shall be established by the Contractor at the time of construction. Typical spacing of the sprinklers are shown on the plans and shall not be exceeded, except by written permission of the Owner’s authorized representative.

C. The system has been designed to a pressure as indicated in these specifications. The Contractor shall test the mainline prior to starting any work and verify that such pressure does exist. If it does not, the Contractor shall notify the Owner at once for a ruling before starting work. If the Contractor does not test prior to starting work, all corrective work shall be at the Contractors expense.

1.2 RELATED SPECIFICATION SECTIONS

A. Division 31 EARTHWORK

B. 32 90 00 LANDSCAPE CONSTRUCTION

C. Division 03 CONCRETE

D. Division 26 ELECTRICAL

1.3 STANDARDS

A. Materials and installation shall conform with all State and Local codes and regulations governing the trades included in this work. Requirements of these plans and specifications not conforming therewith, but exceeding code requirements, then the plans and specifications shall govern.

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1.4 EXPLANATION AND EXAMINATION OF SPECIFICATIONS AND PLANS

A. Due to the scale of the Drawings, it is not possible to indicate offsets, fittings, etc. which may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of their work and plan their work accordingly, furnishing such fittings, etc. as may be required to meet such conditions. Drawings are generally diagrammatic and indicative of the work to be installed in the most direct and workmanlike manner so that conflicts between irrigation systems, planting, utilities, and architectural features will be avoided.

B. Notes on Drawings: Work called for on the Drawings by notes shall be furnished and installed whether or not specifically mentioned in the Specifications.

C. It shall be the responsibility of the Contractor to carefully examine the site, plans and specifications relating to this work for completeness, accuracy and clarity. Any conflict, error, or clarification shall be immediately brought to the attention of the Owner's authorized representative in writing to obtain a ruling. Failure to do so prior to bidding shall result in any corrective work necessary shall be completed at the Contractor's expense.

D. It is the intent of these specifications and plans to form a guide to accomplish the work of installing a complete sprinkler system which will operate in an efficient and satisfactory manner according to the workmanlike standards established for the irrigation industry. Therefore, any items not specifically noted, but necessary for a complete installation, shall be furnished and installed under this contract.

E. Manufacturer printed instructions shall also be a part of these specifications and shall prevail over these specifications. The Contractor shall be responsible to provide such details and instructions to the inspecting person for approval or rulings.

F. All general and specific notes shown on the drawings and details herein shall take precedence over these specifications. All work designated on the drawings by notes shall be furnished and installed.

1.5 PERMITS AND INSPECTIONS

A. The Contractor shall obtain and pay required fees to any governmental or public agency. Permits for the installation or construction or the work included under this Contract, which are required by legally constituted authorities having jurisdiction, shall be obtained and paid for by the Contractor, each at the proper time. Contractor shall also arrange for and pay costs in connection with inspections and examination required by these authorities.

1.6 GUARANTEE

A. Irrigation system shall be guaranteed for a period of one year from the date of final acceptance. Any repairs required are to be completed by the Contractor in a timely manner at no additional cost to the Owner.

1.7 OPERATIONS AND MAINTENANCE INSTRUCTIONS / RECORD DOCUMENTS

A. Two copies of equipment operations, maintenance instructions, and wire diagrams shall be

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furnished to the Owner prior to final acceptance. Two copies of control valve station charts (color coded reduced Irrigation Plan with plastic waterproof lamination) showing watering zones and stationing shall be provided and mounted in the controller pedestal.

B. The Contractor shall furnish one set of reproducible Record Documents (As-Built drawings) in form of 24 lb bright white bond paper.
   1. Label first page of each document, or set of documents, "RECORD DRAWINGS" in neat large printed letters on lower right hand corner. Record information concurrently with construction progress. Do not conceal any work until required information is recorded on a daily basis.
   2. Drawings: Legibly mark to record actual construction:
      a. Horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements. Give sufficient horizontal and vertical dimensions to accurately trace route and invert of each concealed line or item. Accurately locate each capped, plugged, or stubbed line.
      b. Field changes of dimension and detail.
      c. Changes made by Field Order, by Addenda, or by Change Order.
      d. Details not on original Contract Drawings
   3. Deliver all CAD drafted (.dwg) and PDF Record Documents (As-Builts) to Landscape Architect. Accompany submittal with transmittal letter in duplicate, containing:
      a. Date.
      b. Project title.
      c. Contractor's name and address.
      d. Title and number of each Record Document (As-Built).
      e. Signature of Contractor or his authorized representative.

1.8 SUBMITTALS

A. Within the required time period stated, the Contractor shall submit six (6) copies of complete lists of proposed materials to Landscape Architect including source, manufacturers name and catalog numbers.

B. Shop drawings shall follow (six copies) for equipment including dimensions, capacities, and other characteristics listed in product specifications. Materials and equipment shall not be ordered until given written approval by Landscape Architect.

C. The specified irrigation booster pump has a long lead time (approximately eight weeks) and the irrigation booster pump submittal is to be submitted in a timely manner after the contract award and ordered to avoid project delays.

1.9 DEFINITIONS

A. Piping: All pipe fittings, valves, and accessories as required for a complete piping system.

B. PVC: Polyvinyl Chloride.

C. Agencies and Organizations:
   1. ASTM American Society for Testing and Materials
   2. AWWA American Water Works Association
   3. IAPMO International Association of Plumbing and Mechanical Officials

4. CEC California Electrical Code
5. UL Underwriter's Laboratories

1.10 UNDERGROUND OBSTRUCTION

A. The Contractor shall verify all underground obstructions, and / or utilities, existing or proposed, prior to trenching. Contractor shall avail themselves of any “as built” drawings of the site, Underground Service Alert (USA) 1-800-227-2600 and records of existing and proposed site work. This shall also include verifying between proposed irrigation work and existing / proposed underground utilities. Contractor shall call for a ruling by the Owner’s Authorized Representative prior to work to obtain a ruling in the event of a conflict.

B. The Contractor, after availing themselves to the existing record drawings, Underground Service Alert and coordination with other trades installing underground utilities and excavation operations incurs and damages any existing utility not identified, the Contractor shall stop work and notify the inspector on site, obtain a ruling and repair the damage.

1.11 WORKMANSHIP

A. The Contractor shall have experience and demonstrated ability in the installation of landscapes of this type. No work shall be completed without supervision by a qualified foreman. All work shall be installed by skilled persons proficient in the trades required, in a neat, orderly and organized manner, with the recognized standards of craftsmanship developed for the industry and as described in the plans, specifications and manufacturers installation instructions.

1.12 CONSTRUCTION OBSERVATION

A. The Contractor is to coordinate construction observation site visits with the Landscape Architect and District Maintenance Department during the appropriate phases of construction, or as required by the Landscape Architect. The Contractor is to schedule site visits a minimum of one week in advance at the required phases of construction. The following outlines the phases of construction which require a site visit, however it is not limited to the following construction phases:
   1. Preconstruction meeting
   2. Staking of plant and tree locations prior to irrigation installation.
   3. Staking of sprinklers and mainline routing.
   4. Mainlines, wiring, lateral pipes, & valve manifolds prior to backfill.
   5. Irrigation coverage test and rough grading.
   6. Trees & plants prior to installation, still in containers.
   7. Fine grading of turf areas prior to sod and hydroseed installation.
   8. Substantial completion to start maintenance.
   9. Final acceptance after successful maintenance period.

B. The Owner will pay for initial construction observation visits, however, any additional visits required due to non-compliance, incomplete work, or substandard performance will be paid by the contractor at a cost of $600.00 per extra visit.

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1.13 PROTECTION TO THE PUBLIC HEALTH AND WELFARE

A. The Contractor in the course of their work shall make every effort to guard the public health, safety and welfare during construction. This shall include erection of barricades, night warning lights and all necessary devices required to protect the public health and welfare or as required by existing governmental codes. The Contractor shall accept any and all liabilities arising from accident or injury on the job and after construction. All equipment which protrudes above grade shall be installed against a structure or an appropriate barricade shall be erected to protect public safety.

PART 2 - PRODUCTS

2.1 MATERIALS

A. All materials and equipment to be used shall be as outlined on the irrigation legend, or as described in the irrigation notes and irrigation specifications. All materials shall be new and unused.

B. All specified materials, products and manufacturers are relevant to describe the required quality and features of a particular component of the irrigation system, however, the specific product or manufacturer noted is to be construed to be followed by the words, “or approved equal."

2.2 PIPELINES / SLEEVES

A. Irrigation Piping:
1. 2" thru 3": Pressure pipe / upstream of control valve (mainline pipe): PVC Schedule 40 solvent weld pipe, PVC Material ASTM D1784, Cell Class 12454B, Pipe Design ASTM D1785 & compliance with all NSF & IAPMO (UPC) requirements.
2. 4” thru 10”: Pressure pipe / upstream of control valve (mainline pipe): PVC Class 200 gasketed pipe, pressure rating 200 psi, SDR 21, PVC Material ASTM D1784, Cell Class 12454B, Pipe Design ASTM D2241 & Gasket Material ASTM F477.
3. 1" thru 21/2": Circuit pipe / downstream of control valve (lateral pipe): PVC Schedule 40 solvent weld pipe, PVC Material ASTM D1784, Cell Class 12454B, Pipe Design ASTM D1785 & compliance with all NSF & IAPMO (UPC) requirements.
4. 2" and larger: Sleeving under paving: 2” thru 3” sleeves are to be PVC Schedule 40 solvent weld pipe, PVC Material ASTM D1784, Cell Class 12454B, Pipe Design ASTM D1785 & compliance with all NSF & IAPMO (UPC) requirements. 4” and larger sleeves are to be PVC Class 200 solvent weld pipe, pressure rating 200 psi, SDR 21, PVC Material ASTM D1784, Cell Class 12454B & Pipe Design ASTM D2241.
5. Pipe shall be continuously and permanently marked with the following information: Manufacturer's name or trademark, nominal pipe size, schedule and type of pipe, pressure rating in PSI and (NSF, IAPMO & AWWA) seals of approval.

B. Plastic pipe shall be as called for on the plan and extruded from PVC 1120/1220 and shall meet commercial standards CS 256-63. Class and schedule of pipe shall be as called for in the plans. Strict conformance with the manufacturers recommended installation instructions is required. Painted galvanized steel (schedule 40), threaded bronze nipples, copper or painted ductile iron pipe is to be used for any pipe installed above grade. Fittings for above grade piping are to be consistent with pipeline material. Sun burned pipe or pipe that has been

abused in shipping and handling is not to be used.

C. The Contractor is to install concrete thrust blocks as outlined in the thrust block detail and as recommended by the pipe & fitting manufacturers to secure all changes in direction or dead ends of all mainline pipe. The Contractor is to use rebar as needed if necessary to insure the stability of the pipe. Where concrete thrust blocks cannot be installed against continuous native subgrade, the Contractor is to install ductile iron mechanical joint restraints. No bending, or curving of pipe will be allowed, except as permitted by the pipe manufacturer. Pipe manufacturer must be approved prior to ordering materials.

D. Where piping on the plans is shown under paved areas, but is running parallel and adjacent to planted areas, the intent of the plans is to install the piping in the planted area. PVC sleeves of appropriate type depending upon size are to be used with all pipe and wire installed under hardscaped surfaces over eight feet (8'-0") wide or wider.

E. Where pipeline routing changes occur in the field, the Contractor is to size the pipe so that a flow velocity of 5.0 feet per second is NOT exceeded. The minimum pipe size is 1" and 11/4" pipe is not used due to its limited flow range. The following is a basic guide for sizing lateral pipes in the field:
1. 3/4" Pipe – Not Used
2. 1" Pipe - 0 gpm thru 12.0 gpm
3. 1 1/2" Pipe - 12.1 gpm thru 30.0 gpm
4. 2" Pipe - 30.1 gpm thru 46.0 gpm
5. 2 1/2" Pipe - 46.1 gpm thru 85 gpm.

2.3 PIPELINE FITTINGS

A. Fittings:
1. For PVC solvent weld plastic pipe, 2" thru 3" mainline fittings: PVC Schedule 80 socket fittings (ASTM A2564, D2466, D2464 & D2467), Type 1, Grade 1. All mainline fittings are to be PVC Schedule 80 type with solvent weld or threaded connections.
2. For PVC class 200 gasketed pipe, 4” thru 8” mainline fittings: Ductile iron deep bell gasketed fittings as manufactured by LEEMCO, or approved equal. See manufacturers instructions and recommendations. No angular deflection of mainline pipe at the fitting bell end is allowed. For automatic valve connections to large mainline (4” thru 8”) pipe, Romac 202N ductile iron service saddle with double stainless steel straps may be used.
3. For PVC solvent weld plastic pipe, 1" thru 2 1/2" lateral fittings: PVC Schedule 40 socket fittings (ASTM A2564, D2466, D2464 & D2467), Type 1, Grade 1. All lateral fittings (downstream remote control valve) not specifically noted as PVC Schedule 80 type in the specifications or irrigation details are to be PVC schedule 40 type with solvent weld or threaded connections.
4. For connections between main lines and remote control valves: Schedule 80 PVC fittings and TOE nipples (threaded one end), see Irrigation Details. No male adaptors are allowed to be used on the project. Use PVC schedule 80 TOE nipples for threaded to solvent weld connections.
5. When connection is plastic to metal, Schedule 80 TOE nipple shall be used.
6. Teflon tape shall be used on all small diameter (½" to 3") threaded connections. No liquid or paste pipe thread sealants are allowed.

B. Risers to irrigation heads: Shall be as noted on Irrigation Details.

C. Solvent Weld Adhesive: Weld-On cement & primer appropriate for size & type of pipe and fittings. See manufacturers instructions and recommendations. Note weather and temperature limitations for use. Use primer for all joints, mainline and lateral pipe connections.

2.4 VALVES / CONTROL WIRE

A. Automatic Control Valves: Globe / Angle valves operated by low-power solenoid, normally closed, with manual flow adjustment. Sizes and types as shown on drawings. Low voltage electrical connections to valves shall have a minimum 36" coiled loop to each valve in valve box, see details. Valves shall be installed in a heavy duty plastic valve box with bolt down lid. Install one valve per valve box, no exceptions. Remote control valves are to have a solenoid that is compatible with Baseline two-wire / decoder system.

B. Two-Wire Communication Cable: Baseline biline 14-2 as manufactured by Paige #7072D Black & Red, or approved equal. Two-wire communication cable is to be installed in 1 1/2” PVC electrical conduit with long sweep ells into and exiting each valve box. Two-wire communication cable is to have a junction / pull box installed at all changes in direction and at a maximum of 150 ft apart for longer straight runs. Two-wire communication cable is to be a minimum of 18” below grade.

C. Two-wire Splices / Connectors – 2 Wire Path: All wire splices / connectors to be 3M DBY-6 / DBR-6 waterproof splice kits and spare wire ends. All splices are to be located in a valve box and no direct bury splices are allowed.

D. Control Wire Connectors – 2 Wire Path: Valve to decoder wire connectors and all other splices are to be 3M DBY-6 / DBR-6 waterproof splice kits and spare wire ends. All splices are to be located in a valve box and no direct bury splices are allowed.

E. Control Wire Marking: T. Christy Enterprise, Inc. Waterproof Irrigation I.D. Tag or approved equal (714) 771-4172.

F. Control Valve Boxes: Old Castle / Carson heavy duty plastic valve boxes with heavy duty bolt down lids, or approved equal. See Irrigation Details for model numbers and sizes.

G. Control Valve Box Marking: Heat imprinting with appropriate controller and station number or valve box identification for other improvements. All valve boxes are to be marked to indicate contents.

2.5 IRRIGATION HEADS

A. Spray Head: Molded plastic body with plastic nozzles. Refer to schedule on drawings. Manufacturer's numbers are listed with description.

B. Rotor Head: Molded plastic and stainless steel construction. Gear driven with lockable arc adjustment and matched precipitation rate nozzles. Refer to schedule on drawings. Manufacturer's numbers are listed with description.

C. Irrigation heads adjacent to concrete walks, mow strips or other paved areas shall be offset 3" to permit edging without damage to irrigation equipment. Irrigation heads are to be set at grade. Irrigation heads are to be adjusted so that no spray hits buildings, fences, walls, or hardscaped

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surfaces. Install anti-drain check valves under all irrigation heads that weep or show drainage after operation. Irrigation heads adjacent to buildings and fences or walls shall be offset 12" – 18" at District's option to limit overspray and to prevent weed growth along fence lines. Rotor sprinklers adjacent to buildings shall be offset 2'-0" – 3'-0" at District's option to eliminate overspray onto adjacent building. Irrigation heads are to be set flush at finish grade.

2.6 GATE VALVES

A. 1" thru 3" Size: Class 125 bronze gate valve, 200 psi WOG, manufactured domestically made of cast bronze material and cross handle with non rising stem as manufactured by NIBCO, or approved equal. Solid wedge with screw in bonnet gate valve with threaded connections resistant to dezincification. Contractor is to provide Owner with two (2) "T" handle operation keys.

B. 4" thru 8" Size: Resilient seat ductile iron gasketed joint gate valve rated for a minimum of 200 psi, manufactured domestically by NIBCO, Waterous or approved equal. Contractor is to provide Owner with two (2) "T" handle operation keys.

2.7 QUICK COUPLER VALVES

A. Two piece valve with heavy duty brass construction with vinyl cover and single lug operation. Contractor is to supply Owner with five (5) quick coupler keys and five (5) hose swivels. See Irrigation Legend and Details for detailed descriptions.

2.8 CENTRAL CONTROL SYSTEM

A. Contractor is to provide data collection, data entry, programming and setup as required for the existing Baseline online system (Base Manager Plus) for new improvements installed as part of this project. Contractor is to provide all setup required for Et control of the irrigation system with online weather data. Contractor is to follow all Baseline requirements and be Baseline certified prior to starting work and have system installation certified by an authorized Baseline representative for the extended warranty. Contractor is responsible for training up to 4 persons appointed by the District in the use of this online central system.

For existing Baseline controllers being modified as part of the project by having valves added, Contractor is to provide data collection, data entry, programming and changes to existing programming as required for the existing Baseline online system (Base Manager Plus).

2.9 HAND HELD RADIO SYSTEM

A. Contractor is to assist District to access Baseline online system (Base Manager Plus) via District provided iPad's or cellular smart phones capable of connecting with the internet for remote activation of the irrigation system. Contractor is to install Baseline app and provide all setup and support for the remote activation of the system. Contractor is also to provide all setup and support to install the Baseline app on up to four (4) District provided smart phones / tablets to make them capable of remote activation of the irrigation system.

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2.10 FIELD SATELLITE CONTROLLER

A. Existing Irrigation Controller ‘A’ is to remain and protect.

B. Contractor is to update existing controller as required to include the new improvements installed as part of this project.

2.11 IRRIGATION BOOSTER PUMP STATION

A. Existing Irrigation Booster Pump Station is to remain and protect.

2.12 VALVE BOXES

A. All valves, manual or automatic shall have a valve box, set flush with grade. All valve boxes shall be of heavy duty plastic construction with heavy duty bolt down lids. Valve boxes are to be manufactured by Old Castle / Carson, or approved equal. Maximum of one (1) valve per valve box, no exceptions. Placement of the valves within the valve boxes shall allow for proper servicing and maintenance space, or the installation will be rejected.

2.13 AIR RELIEF VALVES

A. Air relief valves shall be installed at high elevation areas of the mainline pipe and at dead end runs. Air relief valves are to be located in the field where high elevation points can be determined. Contractor is to submit a shop drawing showing the proposed installation locations for review and approval.

2.14 BACKFLOW PREVENTION DEVICES

A. The backflow prevention device is existing and is to remain and protect.

2.15 OTHER MATERIALS

A. Materials not specifically indicated but necessary for proper execution of this work shall be of the first quality as selected by the Contractor subject to the acceptance of Architect.

B. All materials appearing in the legend and details of the irrigation drawings are part of this job. Contractor is responsible for installation according to drawings and details. The system shall efficiently and uniformly irrigate all areas and perform as required by these plans and specifications.

PART 3 - EXECUTION

3.1 IRRIGATION SYSTEM DESIGN

A. Irrigation system is designed for a minimum water pressure of 75 psi at the discharge of the

irrigation booster pump.

B. Verify the design pressure provided at P.O.C. prior to system installation and report any discrepancies in writing to the Architect. Failure to inform the Architect of any discrepancy in design pressure seven working days prior to installation of the irrigation system shall institute the responsibility of corrective action to the Contractor, at no expense to the Owner.

3.2 IRRIGATION STAKING

A. The location of all sprinklers, valves, piping and other irrigation improvements shall be staked out by the Contractor. All staking and measurements shall be taken from permanent objects, buildings, or other permanent hardscape features including survey bench markers, and are NOT to be taken from non-permanent boundaries such as turf boundaries which are subject to modification. All measurements shall be made in feet and inches, rounding to the nearest inch. All variations from the plans are to be continuously updated on a daily basis on the record (as built) drawings. The Contractor is to present the areas staked to the Landscape Architect for review and approval prior to starting work. The Contractor is to make the adjustments in staking requested by the Landscape Architect at no additional cost to the Owner.

B. In turf and planter areas, the Contractor is to stake the tree and shrub locations prior to layout of the irrigation system to get approval from the Landscape Architect and District in the field prior to trenching. Contractor is to use color coded flags to stake plant materials by variety. Landscape Architect or District may move plants, delete or add plants during the staking review process. Contractor is to make changes in the field and on the as built plans at no additional cost to the Owner. After the plant layout has been staked, reviewed, adjusted and approved, the Contractor is to stake the bubbler locations for each plant or tree. Bubblers are to be located within the plant water basin on the uphill side of the plant or tree. Bubblers that are too far from the plant or tree will need to be relocated within an acceptable difference. The plant or tree rootball is to have direct access to irrigation water from the intended bubbler. Sloppy or non-compliant work will be rejected.

3.3 EXCAVATION, BACKFILL

A. Trenches for irrigation pipelines and sleeves shall be excavated either by hand or machine and shall be of sufficient width to permit proper handling and installation of the pipe and fittings. The backfill shall be compacted and evened off with the adjacent soil level. Select fill material or sand shall be used if soil conditions are rocky, or have debris. No material over 3/8" shall be allowed near the pipe, 6" below it, or 6" above the pipe. Backfill shall be made early in the morning when the soil and pipe temperatures are the same. Pipe to be installed with a minimum cover of 24" for mainline pipe and 12" for lateral pipe with spray heads and 18" for lateral pipe with rotors. Backfill shall be in 6" (lifts) increments. Each (lift) increment shall be compacted as needed to prevent settlement with tamping machine. Backfill material is to be brought to the optimum moisture content prior to starting compaction operations.

B. Contractor shall compact trench fill material as required to prevent settling of trenches. Contractor is to guarantee trenches against settling for a period of one year from the date of final acceptance by the Owner. Contractor is to fill, compact and seed settled trenches during this time at no additional cost to the Owner.

C. All pipe in the same trench shall have a minimum clearance of 6" from each other. Pipelines

are not to be stacked vertically in the same trench. Pipes and wires or conduit are to have a minimum clearance of 12" from each other. Final fill over trenches shall be compacted to a level grade with no depressions.

3.4 ROAD, DRIVEWAY, PARKING LOT AND SIDEWALK PIPELINE CROSSINGS

A. Any pipe, wire or communication cable that crosses any hardscaped surface eight feet (8'-0") or wider, shall be installed in a PVC sleeve of appropriate type base on size that is a minimum of two times larger than the pipe or wire bundle being sleeved. Sleeves 2” thru 3” size are to be PVC schedule 40 pipe sleeves and Sleeves 4” and larger are to be installed in PVC Class 200 pipe sleeves. Sleeves are to have a minimum trench cover of 18" deep. Pipelines and wires that are to be installed below existing hardscaped improvements are to be installed in a sleeve as noted above, by horizontal directional boring. No cutting and patching of any hardscaped surface will be permitted without written permission of the Owner’s authorized representative. Newly paved areas are to be protected and preserved from construction damage. Jacking and hydraulic (water jet) driving are not permitted. The minimum sleeve size is two (2") inch for a length of forty feet (40’-0”) or less and four (4”) inch for sleeve lengths over forty feet long. The Contractor is to verify the inside and outside diameters of pipes and wire bundles being sleeved to insure proper fit and installation. Irrigation pipelines and wires are to be installed in separate sleeves. No more than one (1) irrigation pipeline is allowed per pipe sleeve. Low voltage wires may be bundled with communication cable and installed in an appropriate size wire sleeve in conformance with NEC requirements for wires installed in conduit.

B. If approval to cut and patch a hardscaped surface has been obtained, the Contractor shall make cuts by a pavement / concrete saw or other approved means. Where any cutting or breaking of hardscaped surface work is necessary, it shall be removed and replaced by the Contractor conforming to all prevailing project specifications and requirements. Cuts are to be made along existing scoring lines or other markings to minimize negative visual aesthetics. Barriers and night lighting shall be erected to protect the public health welfare and safety. If approval to cut and patch a hardscaped surface is denied, the Contractor shall make the crossing by using horizontal directional boring. All materials and labor for all sleeves and crossings, whatever method, are to be supplied by the Contractor at no additional cost to the Owner.

C. Backfill shall be compacted to 95%. The Owner reserves the right to test such backfill. If the backfill does not meet the required 95% compaction, the Contractor shall recompact the trench. The Contractor shall pay for all additional testing until the work meets the specifications.

D. Sleeve notes are on the plan for the convenience of the District and Contractor is responsible for the proper sleeving of all pipes and wire in accordance with the above standards whether the sleeve is called out or not and is to be of appropriate size regardless of sleeve legend callout.

3.5 PIPING INSTALLATION

A. General: Support piping without strain on joints or fittings and allow for piping expansion and contraction. "Snake" pipe into trench in accordance with manufacturer's recommendations to allow for expansion. Lay on solid sub-base, uniformly sloped.

B. The Contractor shall examine all other portions of working drawing and plan trenching and pipe routing and depth so that no conflicts will arise between irrigation and any other work. Any corrective action will be the Contractor's responsibility at no further expense to the Owner.

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Contractor is to endeavor to route mainline pipes a minimum of fifteen feet (15'-0") from trees and is to get permission to install mainline pipe closer in tight locations from the Districts Authorized Representative.

C. Joints:
1. PVC Solvent Weld: Pipe shall be cut square and reamed to full size. Check for assembly prior to solvent weld. Remove excess solvent. All assembly shall be in accordance with manufacturer's recommendations, including use of primer on 1" pipe or larger.
2. Steel or PVC Schedule 40 Threaded: Pipe shall be cut square and reamed to full size. Threads shall be full cut, true and tapered. Teflon tape suitable for conveyed fluid shall be applied to male thread only.
3. Open Ends: Open ends of piping shall be capped during progress to preclude foreign matter. All pipe shall be assembled free from dirt and pipe scale.

D. The Contractor shall thoroughly flush all mainline and lateral piping prior to the installation of irrigation heads. Flush entire piping system of all debris.

3.6 IRRIGATION HEAD INSTALLATION

A. Head spacing on drawings is diagrammatic. Head spacing and patterns shall be adjusted to provide complete and adequate coverage without overspray on non-planted areas. Flush all lines prior to installation of the sprinkler heads.

3.7 CONTROL WIRE

A. Protect two-wire path by running along side mainline piping, maintain minimum 6" separation to mainline. Do not tape wire together when encased in sleeve or conduit. Minimum cover shall be 24 inches. Connect wires together at valve manifold with 3M DBY-6 / DBR-6 splice kits as required. Tag all control wire splices with approved control wire marker at splices in valve box and in controller. Install junction boxes at all changes in direction and at 150 ft for long straight runs.

3.8 CONTROL VALVE BOX MARKING

A. Imprint valve box lid by heat imprinting with appropriate controller and station number.

3.9 TESTING

A. General: Unless otherwise directed, tests shall be witnessed by a representative of the Owner. Mainlines are to be center loaded with the joints exposed. Should any joints be covered before such tests, the Contractor shall, at their expense, uncover, test, and repair the work and that of other contractors to original conditions. Leaks and defects shown by tests shall be repaired and entire work re-tested. Tests may be made in sections, however, all connections between sections previously tested and new section must be included in the test.

B. Piping Upstream of control valves (Mainline): Maintain 100 PSI water pressure for a duration of four (4) hours. There shall be no drop in pressure during test except that due to ambient

temperature changes. Perform test with control valves installed.

3.10 CONSTRUCTION OBSERVATION

A. Observation of Work:
1. Installation and operations must be approved by the Landscape Architect.
2. In no event shall the Contractor cover up or otherwise remove from view any work under this contract without prior approval of the Landscape Architect. Any work covered prior to inspection shall be opened to view by the Contractor at their expense.

B. Construction Observation: Periodic site visits shall be required for basic operations and installations during progression of the project. Such site visits will include, but not necessarily be limited to, the following items:
1. Preconstruction meeting.
2. Staking of plant and tree locations prior to irrigation installation.
3. Staking of sprinklers and mainline routing.
4. Mainline, wiring, lateral pipes & valve manifolds prior to backfill.
5. Irrigation coverage test and rough grading.
6. Trees & plants prior to installation, still in containers.
7. Fine grading of turf areas prior to installing sod and hydroseed.
8. Substantial completion to start maintenance.
9. Final acceptance after successful maintenance period.
10. The Owner will pay for initial construction observation visits, however, any additional visits required due to non-compliance, incomplete work, or substandard performance will be paid by the contractor at a cost of $600.00 per extra visit.

C. Coverage Test: When the irrigation system is completed, the Contractor in the presence of the Landscape Architect shall perform a coverage test of water afforded in the planting areas. The Contractor shall furnish all materials and labor required to correct any inadequacies of coverage disclosed. The Contractor shall inform the Landscape Architect of any deviation from the plan required due to wind, planting, soil, or site conditions that bear on proper coverage. If such corrections or additions are required in the irrigation system, the Contractor shall make all adjustments and corrections without any extra cost to the Owner.

D. Completion of Work: Prior to substantial completion and the start of the maintenance period, the Contractor shall deliver to the Owner a complete set of as built drawings, CAD drafted (.dwg) and PDF and on 24 lbs bright white bond paper, two (2) sets of manuals covering all materials in the irrigation system with a list of local vendors, two (2) sets of all tools required to maintain system in tool boxes, five (5) quick coupler keys, five (5) hose swivels, two (2) mainline gate valve “T” wrenches for each type required, waterproof color coded controller diagrams and extra equipment listed below not installed as part of the project. Irrigation system shall be fully automatic, operable and provide full coverage of the planting areas. In judging the work, no allowance for deviation from the original plans and specifications will be made unless already approved in writing at proper time. Should it become necessary, due to developed conditions, to occupy any portion of the work before the Contract is fully completed, such occupancy shall not constitute acceptance. The Contractor will not be responsible for any damage caused by the Owner's work forces.

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3.11 EXTRA IRRIGATION EQUIPMENT

A. The Contractor shall supply the following extra equipment to be installed at the direction of the Landscape Architect during the project. Each item is to include all piping, wiring, fittings, appurtenances, labor and equipment costs for a complete installation at no additional cost to the Owner. Should any items not be installed as part of the project, the remaining items are to be delivered to Owner as part of project completion documentation.
   1. Five (5): Six inch pop up spray sprinklers.
   2. Five (5): Four inch pop up bubbler sprinklers.
   3. Five (5): Tree tube bubbler assemblies.
   4. Five (5): Small I-20 six inch pop up rotor sprinklers.
   5. Five (5): Large I-25 pop up rotor sprinklers.
   6. Two (2): 1" electric valve.
   7. Two (2): 11/2" electric valve.
   8. Two (2): 2" electric valves.
   9. Two (2): Quick coupler valves.
   10. Two (2): Air relief valve.
   11. Ten (10): 1 Station Baseline Decoders.
   12. Twenty (20): 3M DBY-6 / 3M DBR-6 splice kits.

B. All work is to be in compliance with all project specifications and construction details at no additional cost to the Owner. Items not installed as part of the project are to be delivered to the Owner as part of project close out procedures (turn over items).

3.12 MAINTENANCE

A. Adjustments: Irrigation system shall be maintained and adjusted as required to provide proper coverage throughout the 120 day maintenance period. Irrigation system maintenance shall commence upon approval of substantial completion following irrigation installation, planting operations, and general site clean up. Maintenance shall be continued until final acceptance.

B. Irrigation controller shall be set during this time with Owner. Training for persons appointed by the Owner is to be completed during this time. Final acceptance of the project will NOT occur until all training of Owner’s personnel is completed.

END OF SECTION

SECTION 32 90 00 LANDSCAPE CONSTRUCTION

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Provide all material, labor, equipment and services necessary to do all Landscape Construction work and other related items necessary to complete the Project as indicated by the Contract Documents unless specifically excluded. Work is to include, but is not limited to, the following:
1. Soil Testing
2. Clearing, Ripping and Grading
3. Cultivation, Soil Amending and Leaching
4. Furnish and Plant Plants and Trees
5. Fertilization & Mulching
6. Turfgrass Installation
7. Weeding
8. Staking
9. Clean-up and Maintenance

1.2 RELATED SPECIFICATION SECTIONS

A. Division 31 EARTHWORK

B. 32 8400 LANDSCAPE IRRIGATION

C. Division 03 CONCRETE

D. Division 26 ELECTRICAL

1.3 STANDARDS

A. Materials and installation shall conform with all State and Local codes and regulations governing the trades included in this work. Requirements of these plans and specifications not conforming therewith, but exceeding code requirements, then the plans and specifications shall govern.

1.4 DEFINITIONS

A. The term approved shall mean by the Architect, and only in writing.

1.5 EXAMINATION OF SPECIFICATIONS, PLANS AND SITE

A. It shall be the responsibility of the Contractor to carefully examine the site, plans and specifications relating to this work for completeness, accuracy and clarity. Any conflict, error,

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or clarification shall be immediately brought to the attention of the Owner's authorized representative in writing to obtain a ruling. Failure to do so prior to bidding shall result in any corrective work necessary shall be completed at the Contractor's expense.

1.6 PERMITS AND INSPECTIONS

A. The Contractor shall obtain and pay required fees to any governmental or public agency. Permits for the installation or construction or the work included under this Contract, which are required by legally constituted authorities having jurisdiction, shall be obtained and paid for by the Contractor, each at the proper time. Contractor shall also arrange for and pay costs in connection with inspections and examination required by these authorities.

1.7 GUARANTEE

A. Guarantee shrubs, ground covers, and lawn as to growth and health for one (1) year after final acceptance by Owner. The contractor is responsible for replacement of plant materials due to theft and vandalism until final acceptance of the project by the Owner after completion of the specified maintenance period.

B. Guarantee trees to live and grow upright for a period of one (1) year after completion and final acceptance by the Owner. The contractor is responsible for replacement of trees due to theft and vandalism until final acceptance of the project by the Owner after completion of the specified maintenance period.

C. Replace plants which lose more than 30% of their original leaves within the below described time limits.

D. Remove and replace plants within 15 days of notification which fail to conform. Replace with materials as originally specified. Guarantee for replaced materials shall begin with date of replanting and shall be as previously described.

1.8 SUBMITTALS

A. Within the required time period stated, the Contractor shall submit six (6) copies of complete lists of proposed materials to Landscape Architect including source, manufacturers name and catalog numbers.

B. Materials and equipment shall not be ordered until given written approval by Landscape Architect.

C. The Contractor shall confirm availability of plant material, supplies and materials for inclusion in the submittal. If a plant is found not to be suitable or available, the Contractor is to submit a list of three to five appropriate substitutions that are available for selection by the Landscape Architect. Plants and trees to be supplied may not be available locally and are to be secured well in advance and substitutions for these plants may not be allowed.

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1.9 UNDERGROUND OBSTRUCTION

A. The Contractor shall verify all underground obstructions and / or utilities, existing or proposed prior to making landscape excavations or installing tree stakes. Contractor shall avail themselves of any as built drawings of the site, Underground Service Alert (USA) 1-800-227-2600 and records of existing and proposed site work.

B. If there is a conflict with the utilities and the planting, notify the Landscape Architect for a ruling prior to planting.

1.10 PROJECT CONDITIONS

A. No plants shall be planted in situations that show obvious poor drainage. Such situations shall be brought to the attention of the Landscape Architect and Owner's authorized representative. Generally, the drainage problem is to be corrected prior to installing plant material.

B. All landscape areas are to be deep ripped to a depth of twelve inches (12") below finish grade in two directions. All trees are to have 18" diameter drainage holes that are 10' deep.

C. The Contractor shall guarantee repair of damage to any part of the premises resulting from leaks, defects in materials, equipment or workmanship. The Contractor shall be liable for any and all accidents resulting from their work, including open holes and trenches during construction.

D. During landscape construction operations keep hardscaped surfaces clean and work areas organized.

E. Landscape concrete mow strips are to be installed so that they do not conflict with site drainage or impede drainage away from buildings. Generally, a minimum 2% slope away from buildings is to be maintained for positive site drainage. Concrete mow strips are not to trap water or cause puddling.

1.11 WORKMANSHIP

A. The Contractor shall have experience and demonstrated ability in the installation of landscapes of this type. No work shall be completed without supervision by a qualified foreman. All work shall be installed by skilled persons proficient in the trades required, in a neat, orderly and organized manner, with the recognized standards of craftsmanship developed for the industry and as described in the plans, specifications and manufacturers installation instructions.

1.12 SOIL & WATER TESTING

A. An independent soil testing laboratory, Dellavalle Laboratory, contact Chad Reenders (559) 922-9299, is to test the existing soil after rough grading operations are completed with a complete fertility assay to evaluate the soils ability to maintain and support the ornamental landscaping. Samples from three (3) locations on the site are to be taken, with two samples from each location, one at four (4") inches in depth, and the second at sixteen (16") inches in depth (six samples). The soil testing laboratory is also to complete a preliminary screening for detrimental agricultural chemical residue that may be present on site, if these results are

positive, notify the Owners authorized representative for a ruling. The contractor is to pay for all required soil tests and consulting time with the soil scientist for detailed recommendations to be submitted to the Owners authorized representative for evaluation.

B. After the soil amending and leaching process has been completed, the Contractor is to take additional samples from the three (3) locations on the site, with two samples from each location, one at four (4") inches in depth, and the second at sixteen (16") inches in depth (six samples) to evaluate the progress and effectiveness of the soil amending and leaching work. The contractor is to pay for all required soil tests and consulting time with the soil scientist for detailed recommendations to be submitted to the Owners authorized representative for evaluation. If leaching is not required because no detrimental salts are present in the soil, then the second round of testing is required after the installation of the specified amendments to verify the progress of the soil reclamation process. Testing locations are to be determined by the Landscape Architect.

C. Contractor is to get one (1) irrigation water test with an agricultural suitability analysis by Dellavalle Laboratories and submit the results for review.

1.13 CONSTRUCTION OBSERVATION

A. The Contractor is to coordinate construction observation site visits with the Landscape Architect and District Maintenance Department during the appropriate phases of construction, or as required by the Landscape Architect. The Contractor is to schedule site visits a minimum of one week in advance at the required phases of construction. The following outlines the phases of construction which require a site visit, however it is not limited to the following construction phases:

1. Preconstruction meeting
2. Staking of plant and tree locations prior to irrigation installation.
3. Staking of sprinklers and mainline routing.
4. Mainlines, wiring, lateral pipes, & valve manifolds prior to backfill.
5. Irrigation coverage test and rough grading.
6. Trees & plants prior to installation, still in containers.
7. Fine grading of turf areas prior to turf installation.
8. Substantial completion to start maintenance.
9. Final acceptance after successful maintenance period.

B. The Owner will pay for initial construction observation visits, however, any additional visits required due to non-compliance, incomplete work, or substandard performance will be paid by the contractor at a cost of $600.00 per extra visit.

1.14 PROTECTION TO THE PUBLIC HEALTH AND WELFARE

A. The Contractor in the course of their work shall make every effort to guard the public health, safety and welfare during construction. This shall include erection of barricades, night warning lights and all necessary devices required to protect the public health and welfare or as required by existing governmental codes. The Contractor shall accept any and all liabilities arising from accident or injury on the job and after construction. All equipment which protrudes above grade shall be installed against a structure or an appropriate barricade shall be erected to protect public safety.

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PART 2 - MATERIALS

2.1 PLANTS

A. Conform to list of plant materials on drawings. Contractor is to provide digital photos of representative example of each plant and tree type to be used and submit to Landscape Architect and District for review and comment. Plants and trees are also to be inspected by Landscape Architect and District when delivered to the site, prior to planting, so non-conforming materials can be identified and rejected prior to planting.

B. Plants shall be the best of their kind and class, and of optimum age, and in conformance with the standards of the American Society of Nurserymen.

C. Plants shall have normal, well-developed branch systems and shall not be root or pot-bound. Do not prune or top trees prior to delivery.

D. Delivery to be made not more than 2 days prior to installation unless nursery area approved by landscape architect is established with an automatic irrigation system.

E. It will be the responsibility of the contractor to place material order(s) sufficiently in advance of planting to assure availability of plants in species and size specified. Plant varieties noted to be available from Mountain States Wholesale Nursery may not be available locally. Contact Mountain States Wholesale Nursery, Wendy Proud at (626) 274-1956 to arrange for plant availability and delivery. Substitutions for these plants and trees will not be made due to lack of advance planning.

F. No substitutions will be made without approval of the Landscape Architect or authorized representative.

2.2 SOIL AMENDMENTS AND TOPDRESSING MULCHES

A. Soil amendments (type and quantity) are to be based on the soil test results and recommendations by the soil testing laboratory. The contractor is to include the amendments outlined in part 3.03 of this Section in the bid price. Prices for the soil amendments are to be quoted as unit prices to be adjusted based upon the recommendation of the testing lab. The contractor is to pay for all required soil tests and consulting time with the soil scientist for detailed recommendations.

B. Organic topdressing mulch: Premium walk on bark as supplied by Superior Soil Supplements (559) 904-3372, contact Andrea Fike. Organic topdressing mulch is to be installed in a 3” compacted layer. Mulch depth is to be evaluated at the beginning and at the end of the maintenance period for compliance with the 3” compacted layer requirement. Contractor is to continuously supplement the topdressing mulch as it settles throughout the specified maintenance period to achieve the specified 3” compacted depth in all designated landscape planter areas at the end of the maintenance period. This is essential to suppress weed growth and will be closely evaluated for compliance.

C. Inorganic topdressing mulch: Gray decomposed granite as supplied by Rosenbalms Rockery, Fresno, CA. Inorganic topdressing mulch is to be installed in a 3” compacted thickness and is to be brought to an optimum moisture content and compacted with a water filled drum roller.

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Contractor is to continuously supplement and compact the topdressing mulch as it settles throughout the specified maintenance period to achieve the specified 3" compacted depth in all designated landscape planter areas at the end of the maintenance period. This is essential to suppress weed growth and will be closely evaluated for compliance.

D. Commercial fertilizer (15-15-15), Best Pre-plant fertilizer (6-24-24 XB), slow release fertilizer Best All Season (19-6-12) with Polyon 43.

E. Gypsum (100% purity) and Elemental Soil Sulfur (100% purity) as supplied by Superior Soil Supplements, Hanford, California, (559) 904-3372.

F. Plant fertilizer tabs: Agriform, Best-Tabs or approved equal, quantities as shown below: 1 gallon plant (2 tabs), 5 gallon plant (4 tabs), 15 gallon plant (6 tabs) & box size tree (8 tabs).

G. Global Premium Humate as supplied by Superior Soil Supplements, Hanford, California, (559) 904-3372.

H. Certificates: In addition to any certificates specified, the Contractor shall furnish a certificate with each delivery of bulk material stating the source, quantity, date, and type of material. All certificates shall be delivered to the Owners authorized representative at the time of each delivery.

I. Samples and delivery tags: The contractor is to submit samples of the materials to be used for inspection and approval. Contractor is to submit all soil amendment delivery tags to the DSA Inspector. Delivery tags are to itemize delivered materials with weights and quantities and Supplier name and contact information. Quantities of all soil amendments to be installed are to be verified as being in compliance with the approved soil amendments to be installed on the project. Soil amendments not verified by delivery slips or other reliable manner are to be verified with additional soil testing as outlined in part 1.12 at the Contractors expense, in addition to the specified soil testing.

2.3 ACCESSORIES

A. Tree Stakes: 2 inches by 2 inches by 10 feet long treated lodgepole or natural redwood. Use two stakes per tree. See the tree installation detail.

B. Tree Ties: flexible vinyl "Cinch-Tie", manufactured by V.I.T. Products, San Diego, California, (619) 673-1760, and distributed by Horizon Sales, Pleasanton, California, (510) 462-6602. Use a minimum of four 24" ties per tree. See the tree installation detail.

C. Tree String Trimmer Guard: polyethylene "Trim Guard", manufactured by V.I.T. Products, San Diego, California, (619) 673-1760, and distributed by Horizon Sales, Pleasanton, California, (510) 462-6602. Use one Trim Guard per tree in the lawn areas only.

D. Tree Root Barriers: All trees within ten (10'-0") feet of a hardscaped surface, perimeter fence or building are to have root barriers installed that are 24" deep by 24" wide as manufactured by Root Solutions, Inc. and distributed by Vespro Inc., San Rafael, California, (415) 434-3072. Each 24" box tree is to have up to 20 panels and larger box size trees are to have additional panels as required. If the concrete is only on one side of the tree, then 10 panels (centered on the tree) are to be installed in a straight line along the concrete or boundary as recommended by the manufacturer, or if the concrete is on two sides of the tree, then install 10 panels (centered

on the tree) on two sides or the 20 panels are to be installed around the perimeter concrete, if concrete is on more than two sides of the tree as recommended by the manufacturer.

E. Top Soil: If required, imported topsoil shall be natural, fertile, friable loam, capable of sustaining vigorous plant growth, free of subsoil, roots, grass, excessive amount of weeds, salt, stone and foreign matter; acidity range of pH 5.5 to 7.5; containing a minimum of 4% and a maximum of 25% organic matter. Obtain approval of the Landscape Architect or Authorized representative for placement. The contractor is to submit a topsoil sample to an approved testing lab for a complete fertility assay for approval prior to importing the material on-site.

F. Import Soil: If required, imported fill dirt shall be tested with a fertility assay from Dellavalle Laboratories to certify that the fill dirt is free of salt, boron or other deleterious minerals or matter prior to delivery and placement on the site. Contractor is responsible for all remediation required for the placement of substandard fill dirt containing salt, boron or other deleterious minerals or matter that may require the installation of additional soil amendments, leaching, additional soil testing, replacement of failed plant materials to bring the non-conforming soil into compliance at the Contractors sole expense.

G. Other Materials: Materials not specifically indicated, but necessary for the proper execution of the work, shall be of first quality as selected by the Contractor subject to approval of the Landscape Architect.

2.4 WEED CONTROL

A. Methods and chemicals shall be suitable with regard to season and shall control weeds and shall be approved by all governing agencies.

B. Treatment shall not damage or impede growth of trees, shrubs, and ground covers to be planted, nor kill or damage any existing plant material specified to remain.

C. Applicator shall be a licensed State of California Agricultural Pest Control Operator, Category E, or as required by all governing agencies.

D. Contractor shall obtain required permits from County Agricultural Commissioner. Weed control treatment shall be in accordance with Federal, State of California, County and local codes and regulations, and shall be safe, not cause a health hazard, nor disrupt or inconvenience continuing business operations of the Owner and neighbors, public street, parking lot and sidewalk use or construction activities.

E. Method of treatment shall be strictly in accordance with manufacturer's recommendations.

F. Method of application and chemicals to be reviewed and approved by the Owners representative.

G. Contractor shall ascertain and insure that all planted areas are weed-free prior to planting and maintain the site weed free during construction and maintenance periods.

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PART 3 - EXECUTION

3.1 SITE INSPECTION

A. Locate cables, conduit, piping, and other obstacles prior to beginning excavation. Notify Owners representative of obstacles requiring relocation.

B. Remove rocks and other similar underground obstructions to depths necessary to permit proper installation of lawns and planting.

C. Verify that landscape irrigation system has been properly installed and is fully operational.

D. Verify dimensions shown on plan and notify Owners representative of any discrepancy.

E. Review plant list and consult Owners representative with any questions or concerns.

3.2 GRADING

A. Contractor is to remove weeds and debris from site prior to starting grading operations and is to maintain the site weed free throughout the progress of construction.

B. Contractor is to work soil in a manner which does not cause excessive compaction or clods which will not break easily. Apply water as necessary to obtain optimum moisture content for tilling and planting. The Contractor is to coordinate deep ripping of all landscape areas to a depth of twelve inches (12") to break up compacted areas to improve drainage.

C. After the grades have been reestablished after irrigation trench backfill and prior to planting, the Contractor is to heavily irrigate the site to the point of producing runoff to verify that the site is free draining without puddles or low spots. Contractor is to address grading problems and repeat the test until all puddles and areas of standing water drain within one half hour (1/2 hr). Contractor is to fill settled areas as required. Planting shall not proceed until all grading corrections have been completed and the areas have been retested to confirm conformance.

D. The contractor is responsible for the grading of all planting areas. The grades shall be gently flowing with no abrupt changes. The contractor is responsible to insure that the planting areas have adequate soil and is to fill low areas as needed. The contractor is to grade the areas to drain as intended by the site grading plan by the Project Civil Engineer. Typically the planter areas are to be slightly crowned or cross sloped to insure positive drainage away from planted areas to the perimeter to drain as intended by the Site Drainage Plan. No standing water will be permitted in planter areas where plants and trees are located. Slope surfaces away from buildings at a 2% slope with no pockets of standing water. The contractor is responsible for all import or export of soil and removal of debris, trash, or other elements off site at Contractors expense to provide the Owner with a completed landscape project at no additional cost to the Owner.

E. Provide neat, smooth, and uniform finish grade. Final soil elevations in perimeter areas are to be as noted below. Grades may taper from perimeter areas over a smooth gradual transition.
   1. Sodded Turf Areas: 3/4" below the adjacent sidewalks or other hardscape features.
   2. Hydroseeded Turf Areas: 3/4” below the adjacent sidewalks or other hardscape features.
   3. Planter Areas: 3” below the adjacent sidewalks or other hardscape features.

F. Notify Owners representative upon completion of grading for approval and to verify the smoothness and accuracy of fine grading and clod-free condition of planting surface. No planting is to be started prior to obtaining the approval of the fine grading from the Owners authorized representative.

G. Install concrete mow strips between all turf and planter boundaries. Install the mow strips as shown in the Concrete Mow Strip Detail and as outlined in the project plans and specifications. Contractor is to insure that concrete mow strips do not interfere with site drainage and do not trap water or cause puddling.

3.3 SOIL PREPARATION

A. Soil Amendments, Cultivation and Weed Control:

1. The contractor is to cultivate the soil amendments into the top eight (8") inches of soil. The following soil amendment types and quantities are to be included in the bid. Pending the results of the soil tests, and recommendations of the soil testing laboratory, adjustments to the types and quantities of soil amendments to be used may be necessary. The contract price will be adjusted according to the actual soil amendments installed on the project. The contractor is to include the following soil amendments as part of the bid:
   a. Lawn Areas:
      1) Gypsum (100% purity) (Preplant), (4 tons per acre).
      2) Soil Sulfur (100% purity) (Preplant), (1/2 ton per acre).
      3) Best Triple Pro Fertilizer (Preplant) - (15-15-15), (500 lbs per acre).
      4) Best Preplant Fertilizer (Preplant) - (6-24-24 XB), (500 lbs per acre).
      5) Global Premium Humate (Preplant), (250 lbs per acre).
      6) Best All Season Fertilizer with Polyon 43 (Maintenance) - (19-6-12), maintenance applications and rates as follows:

         Sodded Turf Areas: (200 lbs per acre) per maintenance application. Minimum of four maintenance applications required for bid. Fertilize sodded areas monthly. Actual application will conform to soil test results.

         Hydroseeded Turf Areas: (130 lbs per acre) per maintenance application. Minimum of eight maintenance applications required for bid. Fertilize hydroseed areas every other week. Actual application will conform to soil test results.

      7) Pelletized Gypsum, (Maintenance) - (1 tons per acre). One maintenance application required for bid. Actual application will conform to soil test results.
      8) Terra C Premium Humate, (Maintenance) - (250 lbs per acre). One maintenance application required for bid. Actual application will conform to soil test results.
   b. Planter Areas:
      1) Nitrified Aged Fir Humus (forest product) (Preplant), (4 cu. yds. per 1000 sq. ft.).
      2) Gypsum (100% purity) (Preplant), (4 tons per acre).
      3) Soil Sulfur (100% purity) (Preplant), (1/2 ton per acre).
      4) Best Triple Pro Fertilizer (Preplant), (15-15-15), 500 lbs per acre.

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5) Best Preplant Fertilizer (Preplant), (6-24-24 XB), (500 lbs per acre).
6) Global Premium Humate (Preplant), (250 lbs per acre).
7) Best All Season Fertilizer with Polyon 43 (Maintenance) - (19-6-12), maintenance applications and rates as follows:

Planter Areas: (200 lbs per acre) per maintenance application. Minimum of four maintenance applications required for bid. Fertilize planter areas monthly. Actual application will conform to soil test results.

8) Pelletized Gypsum, (Maintenance) - (1 tons per acre). One maintenance application required for bid. Actual application will conform with soil test results.
9) Global Premium Humate, (Maintenance) - (250 lbs per acre). One maintenance application required for bid. Actual application will conform to soil test results.

2. The Owners authorized representative and Contractor shall negotiate the differences in costs according to the materials required based upon the recommendations of the soil testing laboratory. No labor difference in cost will be allowed for application of the corrected materials to be used.
3. Soil Amending – Application #1: If salt is present in the soil test results, Contractor is to apply and incorporate the following soil amendments into the soil – Gypsum, Soil Sulfur and Nitrified Aged Fir Humus (planter areas only). Contractor is to reestablish site grades (smooth areas without displacing amendments) and leach the soils for four to six weeks.
4. Contractor is to retest the site soils as noted in 1.12 (B) above, if salt is present in the soil test results and leaching is required.
5. Soil Amending – Application #2: Contractor is to apply and incorporate the following soil amendments into the soil – Preplant Fertilizers and Humate amendments. Contractor is to reestablish site grades (smooth areas without displacing amendments) and leach the soils for one to two weeks.
6. If there are no or low salts in the soil test reports and leaching is not required, then the Contractor can combine Preplant Soil Amendment Applications #1 & #2 and delete the leaching requirement and issue a credit to the District.
7. After cultivation, water the site until the first weed crop is established. Cultivate or treat with chemicals to assure a weed-free condition.
8. Planting beds may be established after the second cultivation and final fine grading has been inspected and approved.

B. Planting holes:
1. All 15 gallon size trees or larger, are to have one 18” diameter hole drilled up to ten (10’) deep to insure proper drainage. Holes are to be off set with tree root balls “benched” into the top of the hole to prevent the tree against settlement.
2. Holes are to be excavated three times the size of the rootball. The contractor is to slightly off-set the drainage holes to prevent settling of plants after installation. The contractor is to guarantee that the trees and shrubs will not settle below grade. Trees in turf grass areas are to be planted after the hydroseeded turf and sod has become established and no longer requires excessive irrigation, which may cause undue stress to the trees.
3. Holes are to be in damp (but not saturated) and friable condition with all hidden obstructions removed before planting. The backfill is to be mixed thoroughly as

specified adjacent to the planting hole prior to planting.

C. Leaching: Leaching of the soils is a critical element in how fast the soils will be reclaimed. The Contractor is to expedite the irrigation installation during the early stages of the project to allow leaching operations with the irrigation system at the earliest possible time in the project schedule. The Contractor is to provide labor and materials as needed to leach soils with irrigation water in areas that will not delay the progress of other site improvements. During leaching operations, the Contractor is to maintain the soil saturated while limiting runoff. Contractor is to monitor depth of soil saturation to plan periods of drying appropriately.

D. Contractor is responsible for temporary measures required to retrofit the planter area irrigation system for leaching by installing spray nozzles on bubbler pop ups, installing temporary sprinklers, temporary lateral pipes or relocating sprinkler or other improvements required to insure good coverage of all planter areas for the purposes of leaching. Once leaching has been completed, contractor is to remove temporary improvements and restore the system to conform to the project documents.

3.4 PLANTING

A. Water plants immediately upon delivery to site. Maintain in moist condition until planted.

B. Space plants uniformly as shown on plans. The Contractor is to stake the locations of plants and tree locations prior to layout of irrigation system for review and approval by the Landscape Architect and District in the field prior to trenching. Contractor is to use color coded flags to stake trees and plant materials by variety. After the plant layout has been approved, the Contractor is to stake the bubbler locations for each plant and tree. Bubblers are to be located on the uphill side of the plant within the plant basin. Landscape Architect or District may move, add or delete plants or trees in the field and the Contractor is to adjust the work as required at no additional cost to the District. Contractor is not to proceed with irrigation or planting operations, until the planting locations have been approved by the Landscape Architect and District in the field.

C. Cut cans by cutting vertically on two opposite sides of can with can cutter, or as recommended by the nursery for the type and size of containers supplied with the plant materials. Do not damage plant.

D. Plant immediately after removal from the can or flat. Position the top of the plant root ball 1" above finish grade. Backfill as follows:
1. (85%) native soil.
2. (15%) nitrified humus.
3. Azaleas and camellias are to have an additional 2 cu. ft. Camellia Mix in backfill.
4. Agriform / Best plant tabs as indicated on plans. Place plant tabs beside root ball as recommended by the fertilizer manufacturer. Construct a watering well one foot radius from stem or trunk that will allow water to fill well at least 3" deep for shrubs and two foot radius from trunk that will allow water to fill well at least 4" deep for trees. Fill water well at least six times by hand after planting.

E. Fertilize all ground cover areas with post-plant commercial slow release fertilizer 19-6-12 upon completion of planting, and every 30 days through the first growing season at a rate of 5 lbs per 1000 square feet, or as recommended by the soil test results.

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F. At completion of planting, all non-turf planted areas are to receive a three inch (3") compacted layer of organic or inorganic topdressing mulch as designated on the Planting Plan. Landscape areas not designated to receive decomposed granite are to have a 3" compacted layer of premium walk on bark installed supplied by Superior Soil Supplements, contact Andrea Fike (559) 904-3372. Wash excess bark or decomposed granite off leaves and do not engulf stems of trees, plants and ground cover.

G. Lawn Installation (Hydroseed):

1. The turf areas, as indicated on the plans, shall be hydroseeded in one operation after all weed removal, soil preparation, grading and irrigation system have been completely installed and approved. Trees are to be installed after the turf has been established. Stake tree locations during turf establishment.
2. Hydromulch mixing shall be performed in a tank with a built-in continuous agitation and recirculation system of sufficient capacity to produce a homogeneous slurry of fiber, fertilizer, water, and additives in the specified proportion. Hydroseeding Slurry Mix:

    a. Mulch: Agrono-Mulch @ 1500 lbs per acre. As distributed by Agrono-Tec Seed Co., Fresno, California, (559) 277-2444.
    b. Binder: Agrono-Tac @ 120 lbs per acre.
    Fiber Plus @ 25 lbs per acre.
    c. Fertilizer: Soluble time release granular mixture of 24-4-8 @ 250 lbs per acre.
    d. Seed – Bermudagrass Turf: PanAm Improved Seeded Bermudagrass (4 lbs per 1,000 sq ft) and Perennial Ryegrass (8 lbs per 1,000 sq ft) Blend. Seed at a rate of 12.0 lbs per 1,000 sq ft.

    Soil must be kept continually moist until the hydroseed is germinated, but puddling is not tolerated. Seedlings are perishable and may die if not kept moist during this critical establishment period. It is the Contractors responsibility to carefully monitor the irrigation cycles on a daily basis to insure the success of the planting. Contractor is to continuously reseed weak areas as required.
3. The final seed mix is subject to change. Verify the final approved seed mixes with the Owners authorized representative prior to seeding. The seed mix will be adjusted to account for the use, drought tolerance, and the time of year to be installed.
4. The area to be seeded shall be slightly moist after the last watering and final weeding operations. The grading must be approved prior to hydroseeding. The site must be free draining prior to hydroseeding.
5. The area to be seeded shall be hydromulched with a discharge system that will apply the slurry to the areas to be treated at a continuous, uniform rate. The tank shall have a minimum capacity of 1000 gallons. Nozzle applying the slurry shall be held close enough to the areas to be planted to distribute the slurry in a uniform coating on the surface. A green marker dye shall be used to show such coverage.
6. The turf area establishment work is to proceed as follows. Time periods noted are from the date of hydroseed planting.

    a. <u>Weeks 1 thru 4</u>: Fertilize once (week 3 or week 4) with Best 19-6-12 with polyon 43 at a rate of 3.0 lbs per 1,000 sq ft (130 lbs per acre) to keep hydroseed in a healthy growth state and mow once (week 4) with reel mower with roller (Toro 5210, or approved equal) to stimulate the lateral turf growth and increase density.
    b. <u>Weeks 5 thru 15</u>: Fertilize every other week (weeks 6, 8, 10, 12 & 14) with Best 19-6-12 with polyon 43 at a rate of 3.0 lbs per 1,000 sq ft (130 lbs per acre). Mow 2 times weekly with reel mower with roller (Toro 5210, or approved equal) to

stimulate the lateral turf growth and increase density. Mowing height to be 5/8" to 3/4" of an inch.

c. Weeks 16 thru 17: Fertilize as required to keep turfgrass in a healthy condition. Mow 1-2 times weekly with reel mower with roller (Toro 5210, or approved equal) and raise turfgrass mowing height to 1" to complete the maintenance period.

7. The allowable planting window for Bermudagrass hydroseed starts on May 1st and extends thru May 30th annually. Planting after May 30th or before May 1st is not permitted. Contractor is to schedule the work to insure that the planting is completed within this planting window.
8. In addition to normal weekly maintenance, a minimum of one trained workman shall be on the site 4 hrs per day after planting the hydroseed and through the maintenance period. The hydroseeded areas shall be watered immediately and kept damp during the entire establishment period. Areas that are drying out too soon due to wind or other causes shall be watered by hand until the whole grass area comes up in a uniform and even covering of grass. Care shall be used to not overwater, which would create erosion. All erosion scars are to be repaired the same day.
9. The contractor is to carefully observe the newly planted grass to keep moist and in a healthy growing condition. The contractor is to water and fertilize as needed to keep the turf in a vigorous healthy condition.
10. The contractor is to protect the newly planted turf areas from foot traffic as needed. The contractor is to continuously replant and repair damaged and weak areas.

H. Lawn Installation (Sod):

1. The turf areas, as indicated on the plans, shall be sodded (use big roll sod in larger areas) in one operation after all weed removal, soil preparation, grading and irrigation system have been completely installed and approved. Trees are to be installed after the turf has been established. Stake tree locations during turf establishment.
2. The allowable planting window for sod starts on April 1st and extends thru June 30th annually. Planting after June 30th or before April 1st is not permitted. Contractor is to schedule the work to insure that the planting is completed within this planting window. Do not plant in excessively hot weather or when unseasonably hot weather is forecast in the near future. If installation of the sod is outside this window and approved by the District the Contractor is to use Celebration bermudagrass sod that is overseeded with perennial ryegrass at no additional cost to the District.
3. Finish grade is to be smooth and firm to prevent differential settlement. Sod is to be laid in staggered rows (brick like pattern). Edges are to be firmly butted together to insure soil to soil contact between sod pieces. Sodded areas are to be rolled (water roller) to remove air pockets and insure good soil contact.
4. The area to be sodded shall be slightly moist after the last watering and final weeding operations. The grading must be approved prior to sodding. The site must be free draining prior to sodding.
5. The turf area establishment work is to proceed as follows. Time periods noted are from the date of sod planting.
   a. *Weeks 1 thru 4:* Fertilize once (week 2 or week 3) with Best 19-6-12 with polyon 43 at a rate of 4.6 lbs per 1,000 sq ft (200 lbs per acre) to keep sod in a healthy growth state and mow once per week with reel mower with roller (Toro 5210, or approved equal) to stimulate the lateral turf growth and increase density.
   b. *Weeks 5 thru 12:* Fertilize twice (weeks 7 & 12) with Best 19-6-12 with polyon 43 at a rate of 4.6 lbs per 1,000 sq ft (200 lbs per acre). Mow 2 times weekly with reel mower with roller (Toro 5210, or approved equal) to stimulate the lateral turf

growth and increase density. Mowing height to be 5/8” to 3/4” of an inch.

c. *Weeks 13 thru 17:* Fertilize once (week 16 or week 17) to keep turfgrass in a healthy condition. Mow 1-2 times weekly with reel mower with roller (Toro 5210, or approved equal) and raise turfgrass mowing height to 1” to complete the maintenance period.

6. A minimum of one trained workman shall be on the site 8 hrs per day after sodding and through the maintenance period. The sodded areas shall be watered immediately and kept damp during the entire establishment period. Areas that are drying out too soon due to wind or other causes shall be watered by hand until the whole grass area is established in a uniform manner. Care shall be used to not overwater, which would create erosion and fungus. All erosion scars are to be repaired the same day.
7. The contractor is to carefully observe the newly planted grass to keep moist and in a healthy growing condition. The contractor is to water and fertilize as needed to keep the turf in a vigorous healthy condition.
8. The contractor is to protect the newly sodded area from foot traffic as needed. The contractor is to continuously resod and repair damaged areas as required.

3.5 STAKING AND TYING

A. Remove nursery stakes and ties.

B. Install tree stakes 18" deep on windward and leeward sides of tree and tie to tree with 4 ties. Install ties loose enough to avoid injuring cambium layer of tree and to allow limited movement.

C. Remove nursery ties from shrubs and espaliered plants and install new plastic ties in a loose manner so new plant growth will not girdle the branch or stem.

3.6 MAINTENANCE

A. Maintain planted areas during the progress of the work and through the maintenance period. In addition to normal weekly maintenance a minimum of one trained workman shall be on the site 4 hrs per day after planting of the hydroseeded turf until the fourth mowing and as needed through the maintenance period.

B. The maintenance period begins when the work is substantially completed and accepted by the Owner. The turf areas are to be completely planted and show active growth and reasonable coverage before the specified maintenance period can begin. The maintenance period shall be for one hundred twenty days (120) days, after substantial completion by the Owner. The Owner and Landscape Architect shall be notified a minimum of 10 days prior to the time that the work is ready for final inspection. This final inspection is required before the maintenance period can begin. The contractor is responsible to provide all materials and labor to maintain the site for the maintenance period at no cost to the Owner. The maintenance period may be extended at no cost to the Owner should prevailing site conditions not warrant final acceptance by the Owner. The site should be in a weed free condition, the lawns should be established, vigorous, have minimum 99% coverage, be weed free, and fertilized, and all plants and trees are to be in good condition. The maintenance period will be extended in one month increments until the Contractor brings the site into compliance at no additional cost to the Owner.

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C. During the maintenance period the contractor shall provide the following services, but is not limited to the services outlined below.
   1. Maintain surfaces and supply additional top soil where necessary, including areas affected by erosion.
   2. Water to ensure uniform hydroseed turf growth and to keep surface of soil damp. Fertilize as specified on a monthly, or as needed basis.
   3. Apply water slowly so that surface of soil will not puddle and crust.
   4. Maintain turf & planted areas weed free. Hand weed or use chemicals at the Contractor's option.
   5. Mow and maintain the turf areas, and pick up grass clippings to be hauled off site at the Contractors expense.

3.7 CLEAN-UP

A. Remove rubbish, trash, and debris resulting from the operation at the end of each working day.

B. Wash paved surfaces clean.

C. Maintenance period will begin with acceptance of installation by the Owner and will continue as noted in article 3.06.

3.8 EXTRA LANDSCAPE MATERIALS

A. Contractor shall supply the following extra materials to be installed at the direction of the Landscape Architect during the project at any time. Each item is to include all associated materials (landscape and irrigation) and all appurtenances associated with the item, including material, labor and equipment costs for a complete installation in accordance with the project documents at no additional cost to the Owner. Should any items not be installed as part of the project, the remaining items are to be delivered to Owner or a credit issued at the Owner’s option as part of the project completion documentation.
   1. Five (5): One gallon size plants (Planting Plan varieties)
   2. Five (5): Five gallon size plants (Planting Plan varieties)
   3. Three (3): Fifteen gallon size plants (Planting Plan varieties)
   4. Three (3): Twenty four inch box size trees (Planting Plan varieties)

B. All work is to be in compliance with all project specifications and construction details at no additional cost to the Owner.

END OF SECTION

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