ADDENDUM NUMBER 01 TO THE BID DOCUMENTS

To all general contract bidders of record on the Bid Proposal:

BID DOCUMENT: 17/18 MB7
121 -35617 - Organic Farm Classrooms
College of Marin – Indian Valley Campus

Addendum Date: 20 February 2018

- A. This addendum shall be considered part of the bid documents for the above mentioned project as though it had been issued at the same time and shall be incorporated integrally therewith. Where provisions of the following supplementary data differ from those of the original bid documents, this Addendum shall govern and take precedence.
- B. Bidders are hereby notified that they shall make any necessary adjustments in their estimates as a result of this Addendum. It will be construed that each bidder's proposal is submitted with full knowledge of all modifications and supplemental data specified herein.

The bid documents are modified and clarified, as follows:

Narrative of Clarifications

- 1. Question #1: When viewing the Increment one plans, there is reference to a shade structure under the Key Notes #19. That note refers to detail K1 on page A2.03. We weren't able to locate page A2.03 and it doesn't appear in the Listing of Drawings either. Is there a shade structure to bid in Increment one? And if so, is it a pre-manufactured shade structure or will it be custom made? The shade structures are a custom design and should be bid as part of Increment 1. The reference has been updated and the sheet is reissued with Addendum 1.
- During the site walk, direction was provided that all trash, debris, abandoned items and the like are to be removed and disposed of by the Contractor. The small sea crate is to be relocated by the Contractor at the direction of the College of Marin within a 20-mile radius.

Revisions are indicated with a "cloud" and delta 1. Architectural Drawings

A0.01 Index Sheet (Replacement Sheet)

Added new sheets.

A0.40 Construction Access and Staging Plan (New Sheet)

A1.00 Overall Site Plan (Replacement sheet)

 Updated area of Scope of Work, existing Greenhouse, Shade Structure, Sea Crate and fencing to remain.

A1.01 Enlarged Site Plan (Replacement Sheet)

- Revised for new Scope of Work.
- Revision at entry drive.

A1.11 Site Details (Replacement Sheet)

- Skate Deterrent added.
- Detail B11 updated.

A1.12 Site Details (New Sheet)

- Added fence, bollard, and bird protection details.
- A2.01 Foundation and Framing Plan (Replacement Sheet)
 - Removed roof framing detail references.

A2.02 Roof Plan (Replacement Sheet)

- Added steel canopies at entrances to Building 2.
- A2.11 Elevations and Sections (Replacement Sheet)
 - Added steel canopies at entrances to Building 2.

A2.22 Structure Details (Replacement Sheet)

· Added steel canopies.

Civil Drawings

C1.00 Demo Plan (Replacement Sheet)

- Revision to scope of work, instruction for removal of items to be demolished C2.0 Grading and Drainage Plan (Replacement Sheet)
- Revision to scope of work, adjustments to grading and drainage
 C3.0 Utility Plan (Replacement sheet)
- Revision to utilities not limited to sanitary drain, water line, revision to scope of work C4.0 Civil Details (Replacement Sheet)
 - Detail revision

C5.0 Erosion Control Plan (New Sheet)

Electrical Drawings

E0.02 Schedules & Riser Diagram

Added panel information for Building 24

Landscape Drawings

L1.00 Landscape Plan (Replacement Sheet)

- Updated area of Scope of Work, existing Greenhouse, Shade Structure, Sea Crate and fencing to remain.
- Entry drive revised.

L1.11 Landscape Details (Replacement Sheet)

Revised detail B5.

L2.00 Irrigation Plan (Replacement sheet)

- Updated area of Scope of Work, existing Greenhouse, Shade Structure, Sea Crate and fencing to remain.
- Entry drive revised

L2.20 Hydrozone Plan and Calculations (Replacement Sheet)

- Updated area of Scope of Work, existing Greenhouse, Shade Structure, Sea Crate and fencing to remain.
- Entry drive revised

Building 24 Scope of Work – Non-DSA Work

A2.24 Floor Plan & Elevation (New Sheet)

E2.24 Building 24 (New Sheet)

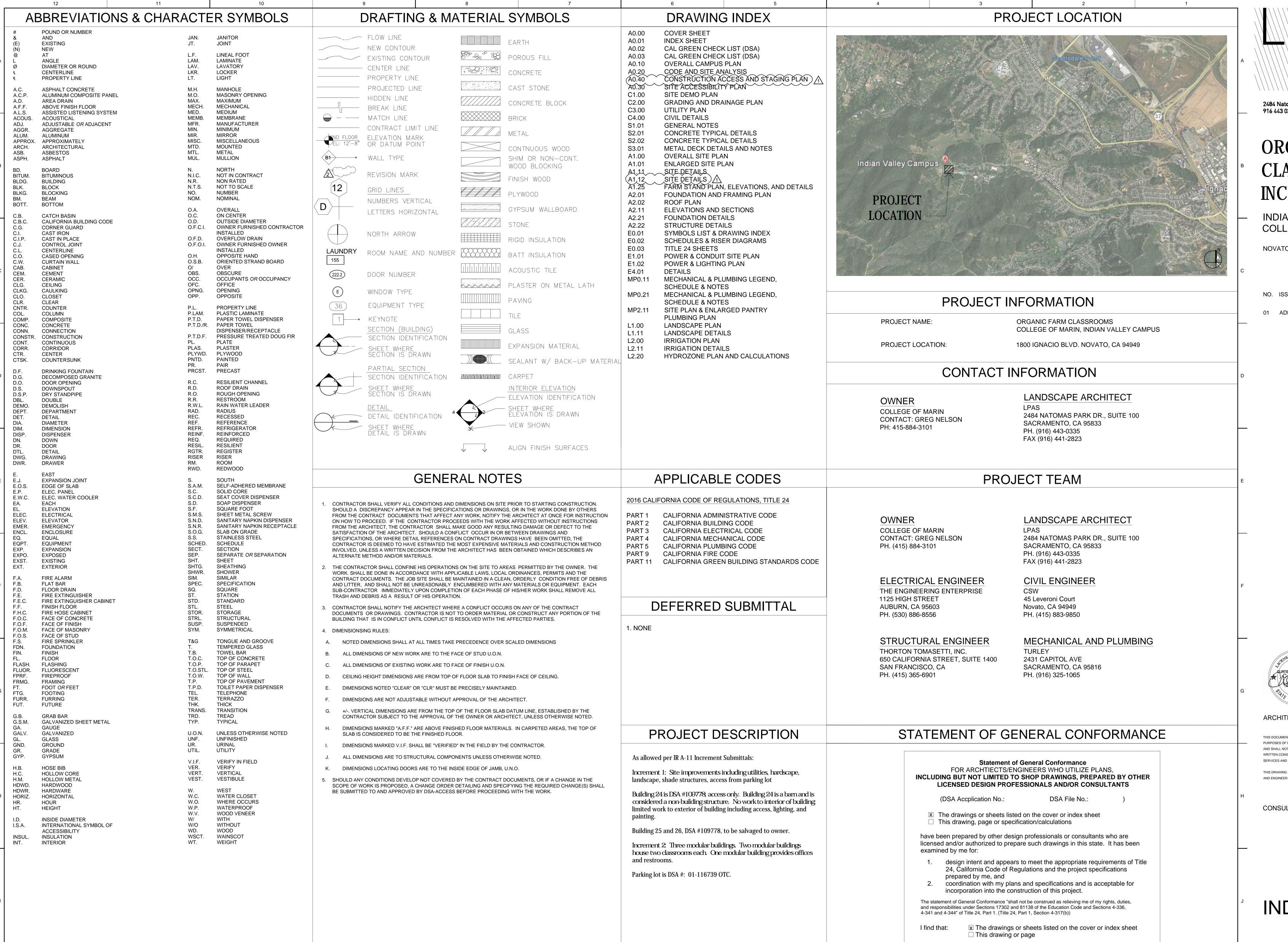
MP2.24 Building 24 (New Sheet)

Specifications

10 76 00 Bird Deterrent (New Section)

Geotechnical Engineering Report, dated March 7, 2017

End of Addendum No. 01



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ORGANIC FARM CLASSROOMS **INCREMENT 1**

INDIAN VALLEY CAMPUS COLLEGE OF MARIN

NOVATO, CA

NO. ISSUE

DATE

02.15.18

01 ADDENDUM 1

ARCHITECT'S STAMP

APPROVAL

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CONSULTANT

INDEX SHEET

PROJECT NO: 1102-0005 DATE: 11-17-2017

SHEET NO:

is/are in general conformance with the project design, and

Architect or Engineer designated to be in general responsible charge

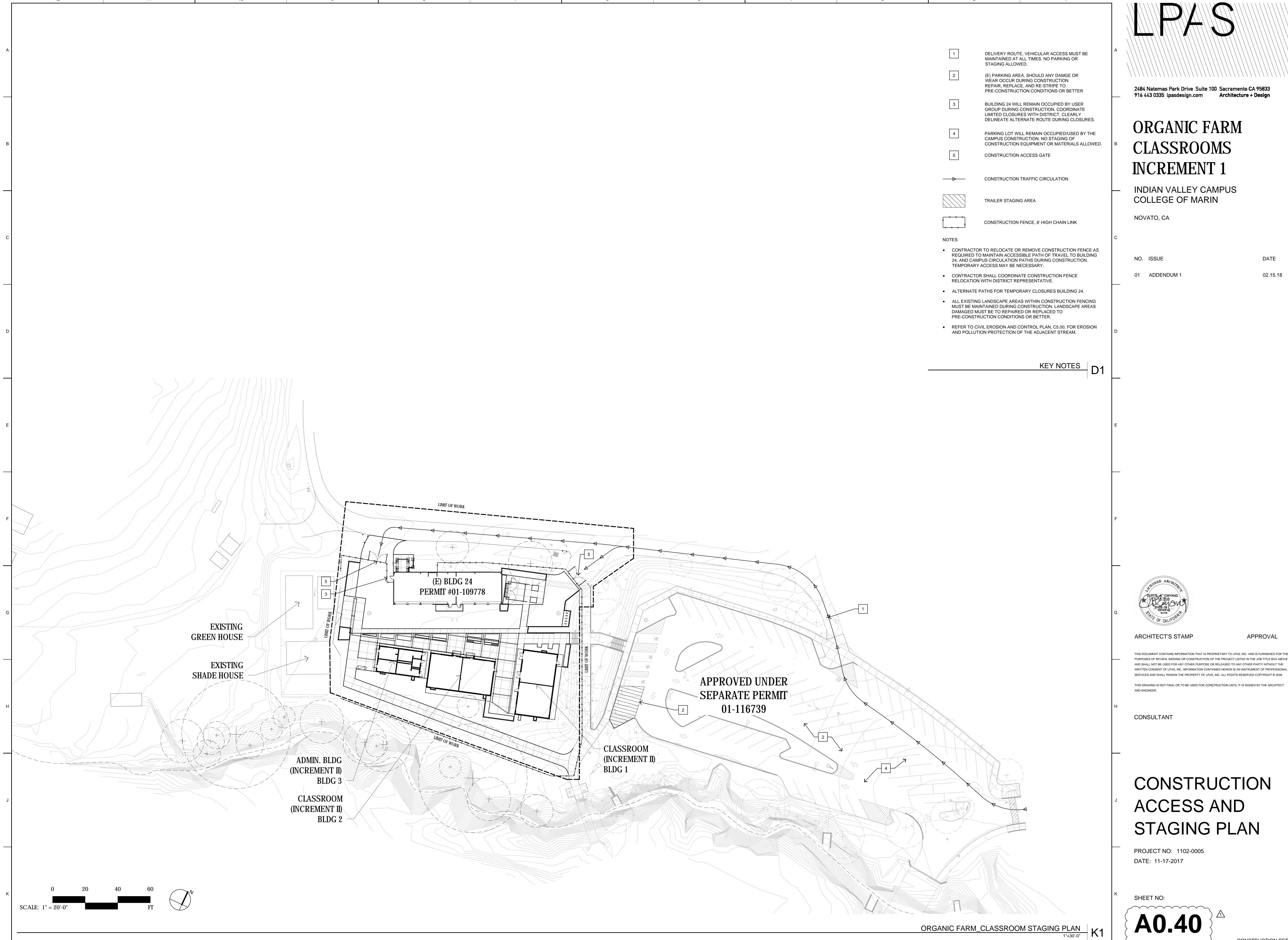
Print Name: Curtis Owyang

License No. C-15758

A has/have been coordinated with the project plans and specifications

Date: 2/16/2018

Expiration Date: 2/28/19



1. CONTRACTOR SHALL INFORM ARCHITECT OF ANY DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS. THE WRITTEN DIMENSION SHALL SUPERSEDE THE DRAWN DIMENSION. ALL FIELD CHANGES MUST BE APPROVED BY THE ARCHITECT PRIOR TO INSTALLATION. 2. ALL DIMENSIONS ARE TO FACE OF CURB AND FACE OF WALL UNLESS OTHERWISE NOTED. ALL DIMENSIONS ARE AT 90 DEGREES OR 45 DEGREES UNLESS OTHERWISE NOTED. (E) BALL FIELDS 3. SLEEVING SHALL BE PROVIDED AND COORDINATED BY CONTRACTOR DURING CONCRETE WORK CIVIL AND IRRIGATION PLANS FOR LOCATIONS OF SLEEVES. 4. PROVIDE A CROSS SLOPE ON ALL CONCRETE WALKS AND PAVING OF 2% MAXIMUM, 1% MINIMUM TO PROVIDE POSITIVE DRAINAGE. REFER TO CIVIL PLANS FOR MORE INFORMATION. 5. FINISH GRADE SHALL HAVE A MINIMUM OF 2% SLOPE AWAY FROM ALL WALLS AND STRUCTURES UNLESS OTHERWISE SPECIFIED. REFER TO CIVIL PLANS FOR MORE INFORMATION. 6. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UNDERGROUND UTILITIES AND STRUCTURES PRIOR TO ANY EXCAVATION. CONTRACTOR SHALL REPAIR ANY DAMAGE TO UTILITIES CAUSED BY HIS WORK AT NO ADDITIONAL COST TO THE OWNER. FIRE HYDRANT WHERE CONTRACTOR'S WORK INTERFACES WITH EXISTING IMPROVEMENTS, CARE SHALL BE TAKEN TO AVOID DAMAGING EXISTING LANDSCAPING, IRRIGATION AND UTILITIES, ANY DAMAGE TO EXISTING CONDITIONS SHALL BE REPAIRED WITHIN 48 HOURS AT NO ADDITIONAL COST TO THE CONTRACTOR IS RESPONSIBLE FOR ADJUSTING THE ELEVATIONS OF ALL NEW AND EXISTING (E) FIRE HYDRANT UTILITY VAULTS, BOXES, MANHOLES, AND OTHER STRUCTURES TO NEW FINISH GRADE. END OF(E) ASPHALT 9. REFER TO SPECIFICATIONS FOR MORE INFORMATION. DRIVE, BEGINNING OF NEW ASPHALT PAVING 10. PORTION OF FENCE TO BE RELOCATED MUST CLEAR THE CURRENT SCOPE OF WORK. REUSE AS MUCH EXISTING CHAIN LINK FABRIC AS POSSIBLE. REUSE ONE SLIDING GATE TO MAINTAIN ACCESS. REMOVE ANY FOOTINGS WITHIN THE SCOPE OF WORK. NEW POSTS AND FOOTINGS MUST BE PROVIDED FOR THE RELOCATED PORTION OF THE FENCE AS NEEDED. ADD OR REMOVE CHAIN LINK FABRIC AS NEEDED TO RETURN TO AN EXISTING FENCE POST. (E) BLDG 24 11. FIRE ACCESS ROUTE MUST MAINTAIN A 16' MINIMUM CLEAR SPACE. **EXISTING** PERMIT #01-109778 SEA SITE NOTES F1 GREENHOUSE CRATE APPROVED UNDER SEPARATE PERMIT 01-116739 ADMIN. BLDG **EXISTING** (INCREMENT II) SHADE HOUSE CLASSROOM (INCREMENT II) (INCREMENT II) ORGANIC FARM_CLASSROOM SITE PLAN

1"=20'-0"

K4

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ORGANIC FARM CLASSROOMS INCREMENT 1

INDIAN VALLEY CAMPUS COLLEGE OF MARIN

NOVATO, CA

NO. ISSUE

01 ADDENDUM 1

02.15.18

DATE

CURTIS A OWYANG

2-28-19
RENEWAL
DATE

OF CALLFORN

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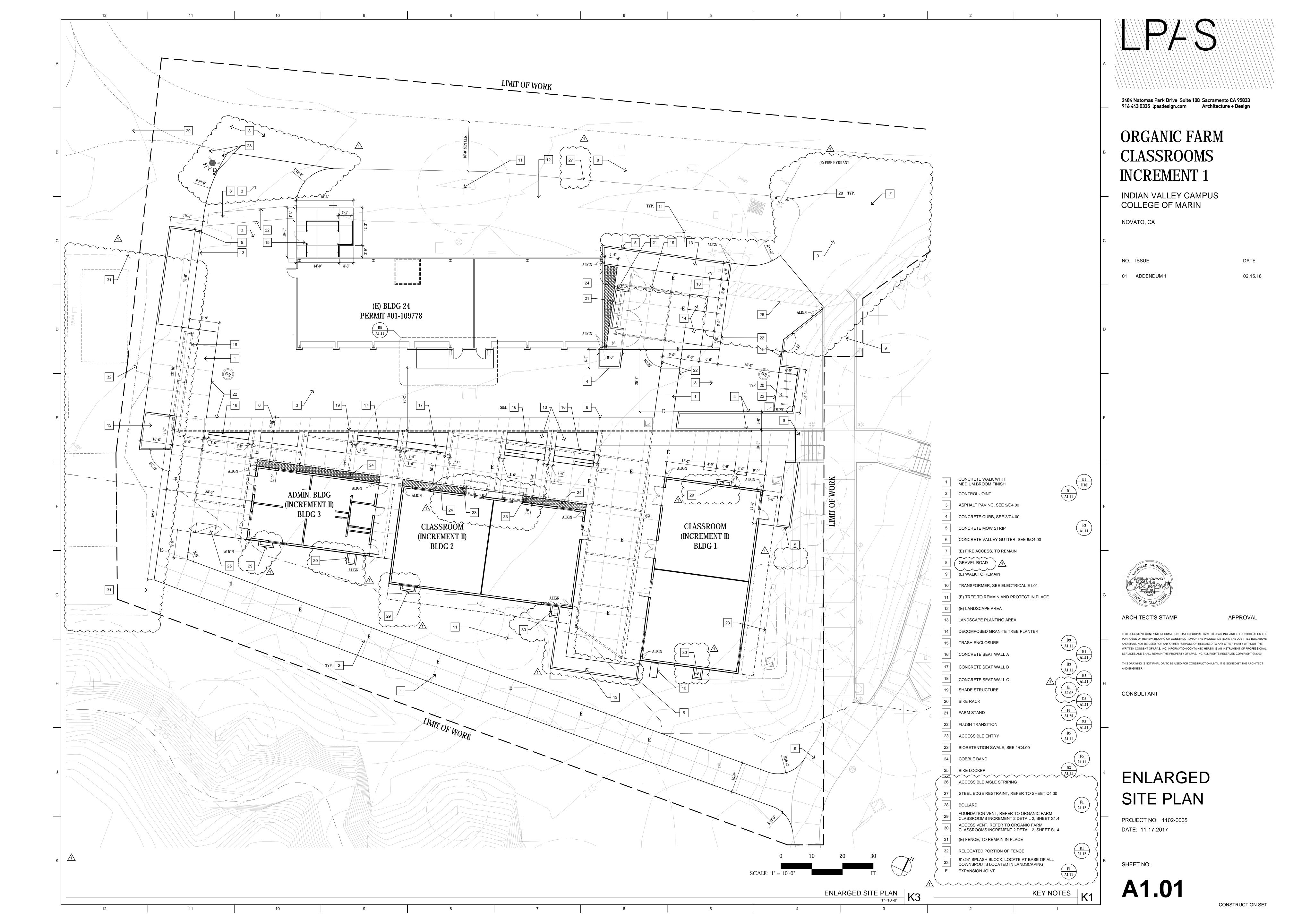
AND ENGINEER.

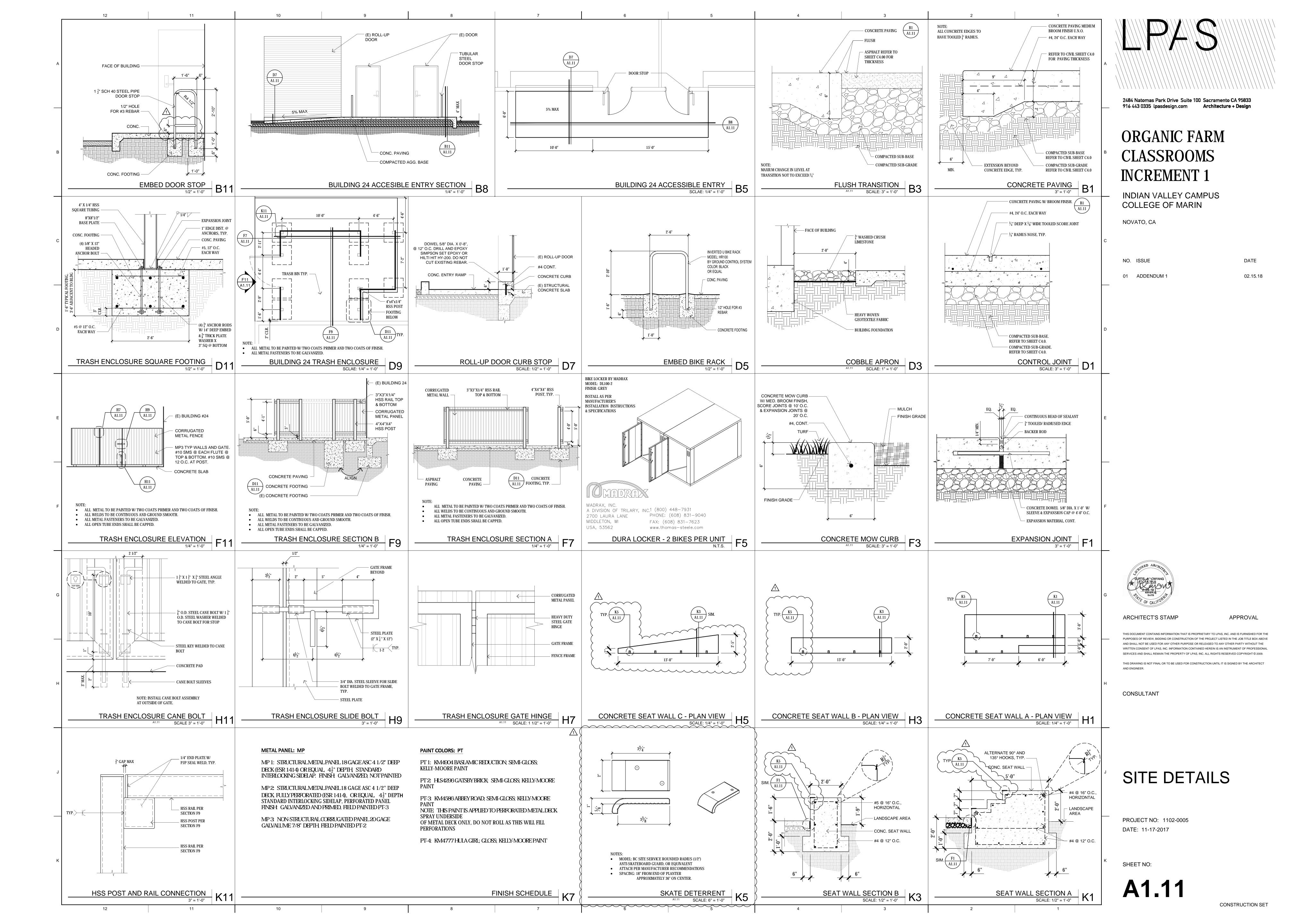
OVERALL SITE PLAN

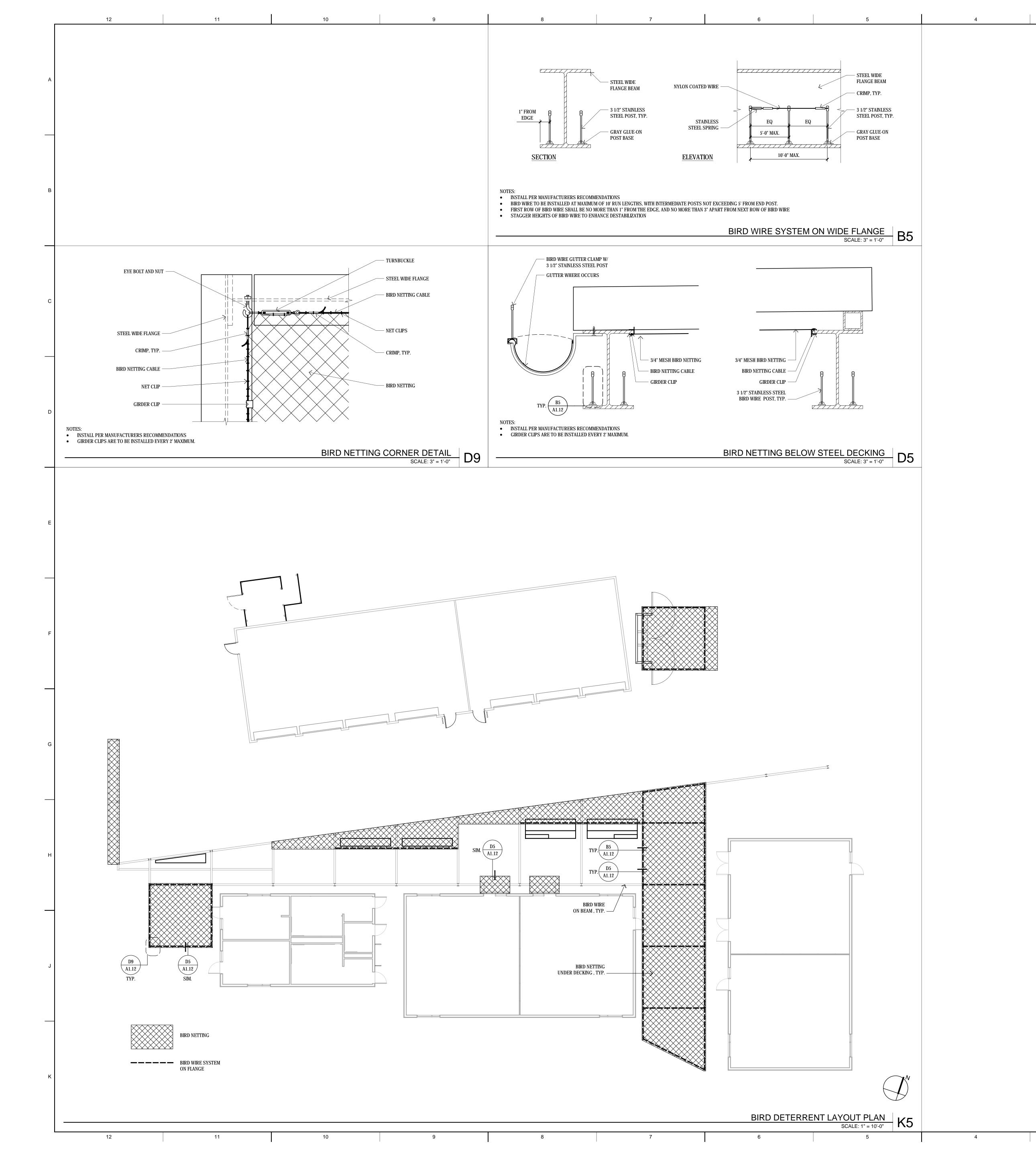
PROJECT NO: 1102-0005 DATE: 11-17-2017

SHEET NO:

A1.00









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ORGANIC FARM CLASSROOMS INCREMENT 1

INDIAN VALLEY CAMPUS COLLEGE OF MARIN

NOVATO, CA

NO. ISSUE

01 ADDENDUM 1

02.15.18

4" GALV. STEEL PIPE FILL WITH CONCRETE AND CROWN TOP

FINISH GRADE

6" X ½" DIA. GALV. STEEL ANCHOR BOLT

CONCRETE FOOTING

COMPACTED BASE

COMPACTED SUBGRADE

BOLLARD - EMBED

3/4" = 1'-0"

 $\boxed{6}$ 1 $\frac{5}{8}$ " TOP RAIL

7 LINE POST CAP

8 1 $\frac{7}{8}$ " LINE POST

2" MESH

10 FINISH GRADE

11 CONCRETE FOOTING

CHAIN LINK FENCE

1/4" = 1'-0"

1/4" = 1'-0"

9 CHAIN LINK FABRIC, 9 GAUGE

1 2 3/8" TERMINAL POST W/ DOME CAP

 $\boxed{5}$ 1 $\frac{5}{8}$ " BOTTOM RAIL

3 STRETCHER BAR, FULL LENGTH OF FABRIC

4 STRETCHER BAND, CARRIAGE BOLT AND NUT CONNECTING TENSION BAR TO POST,

ALL METAL TO BE GALVANIZED STEEL.

TACK WELD ALL FASTENERS & FITTINGS.

ALL POST DIA. TO BE STANDARD NOMINAL SIZE.

GRIND ALL WELDS SMOOTH AND PAINT WITH GALVANIZED PAINT.



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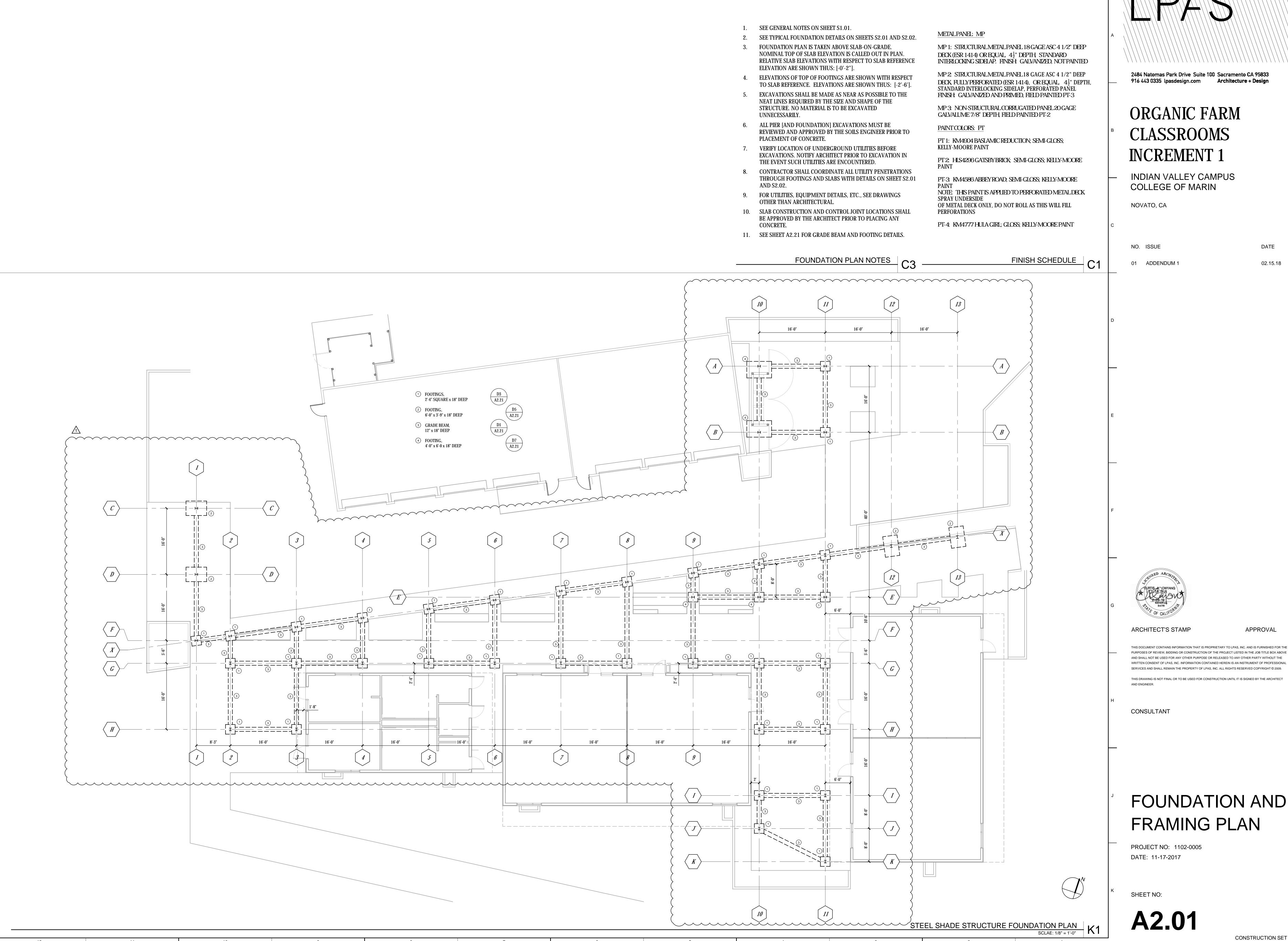
CONSULTANT

SITE DETAILS

PROJECT NO: 1102-0005 DATE: 11-17-2017

SHEET NO:

A1.12



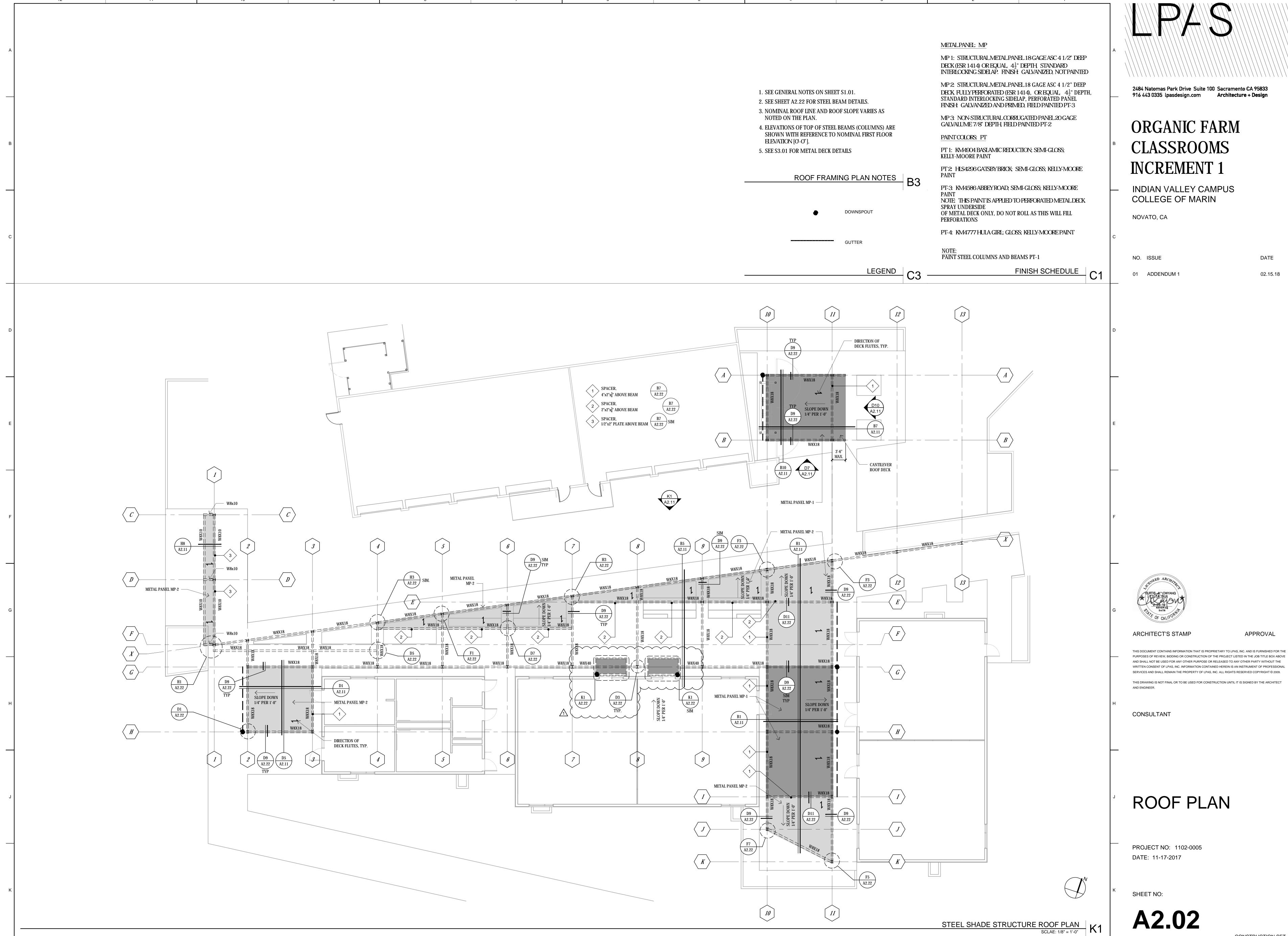
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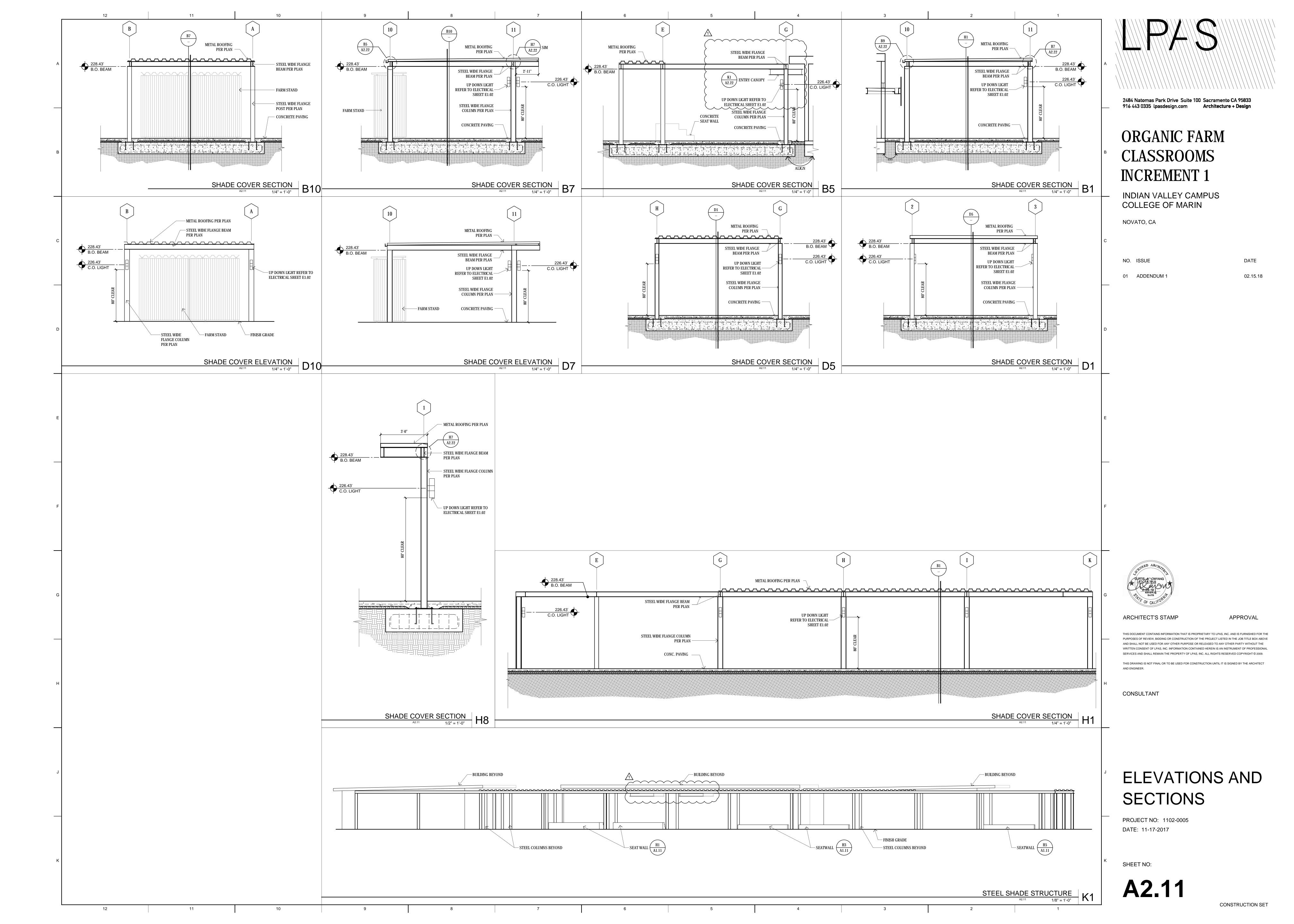
02.15.18

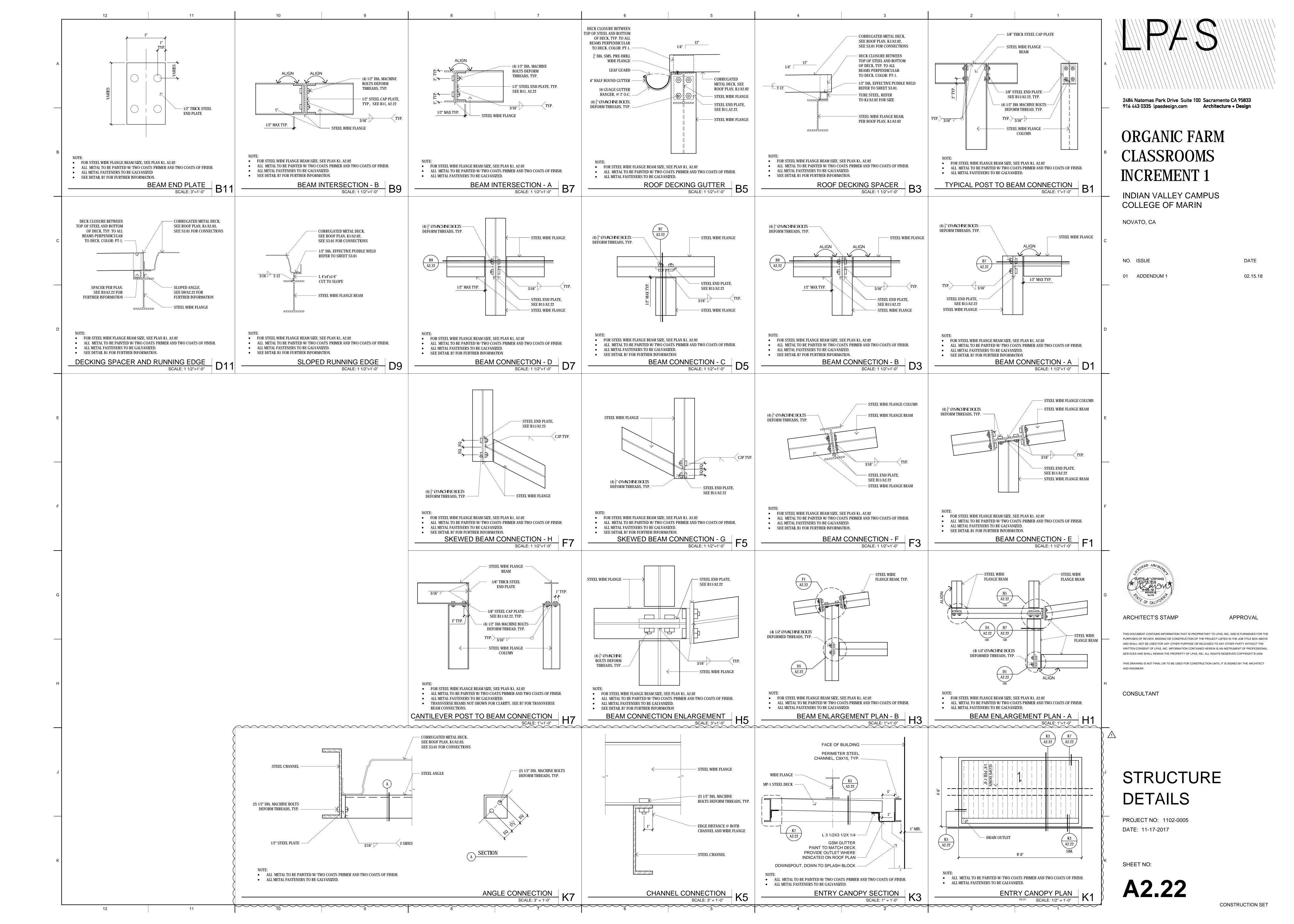
DATE

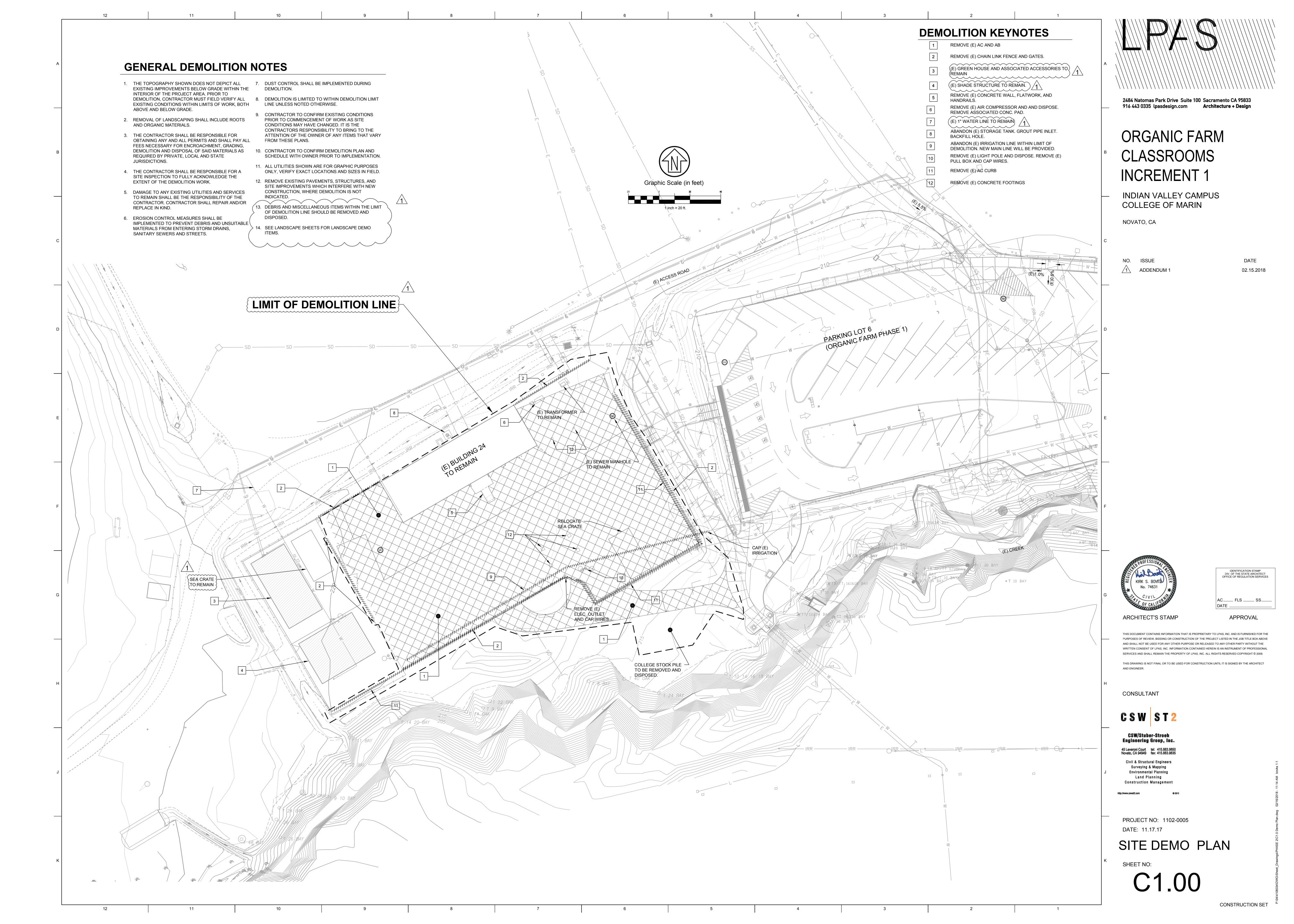
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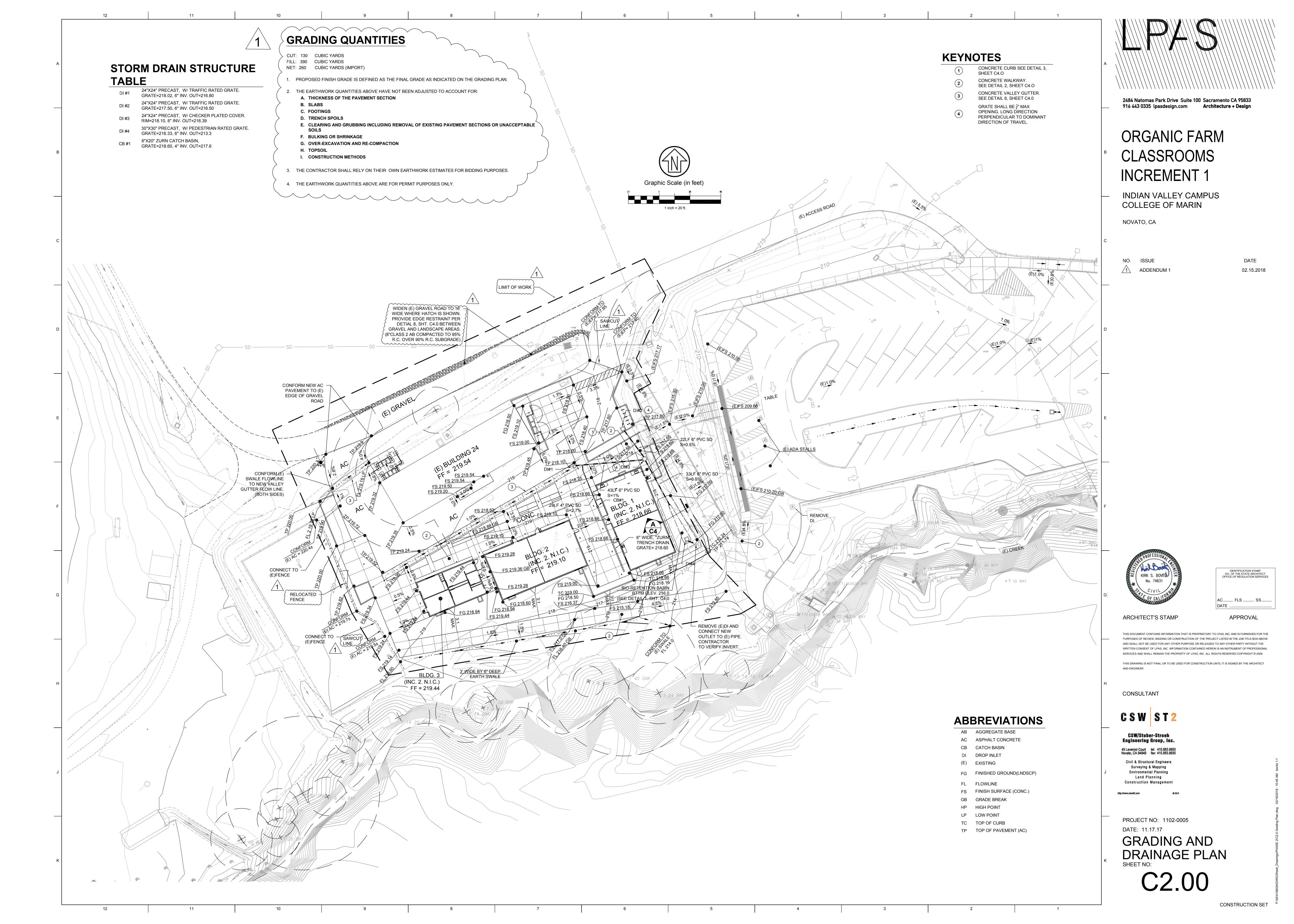
FOUNDATION AND FRAMING PLAN

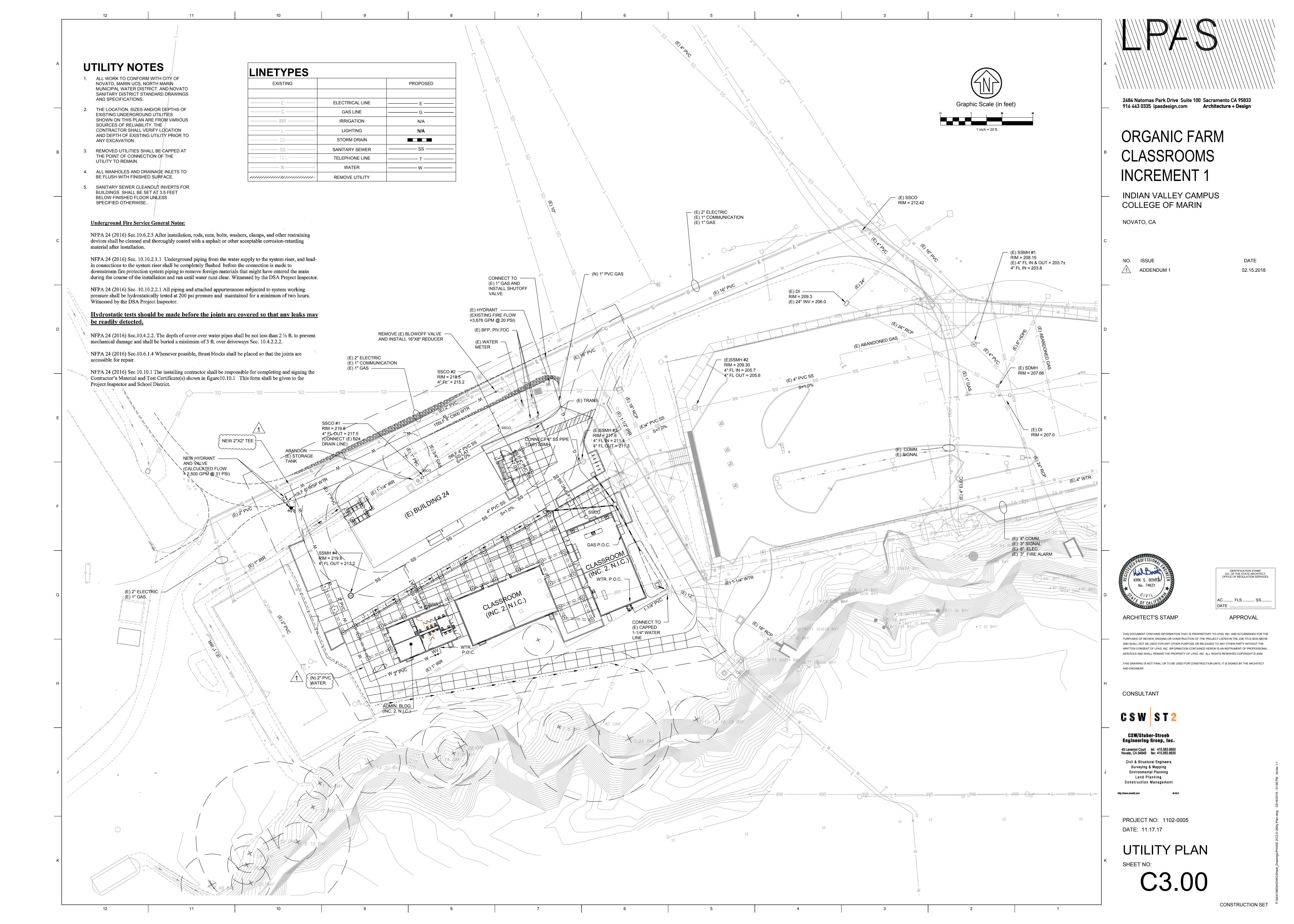


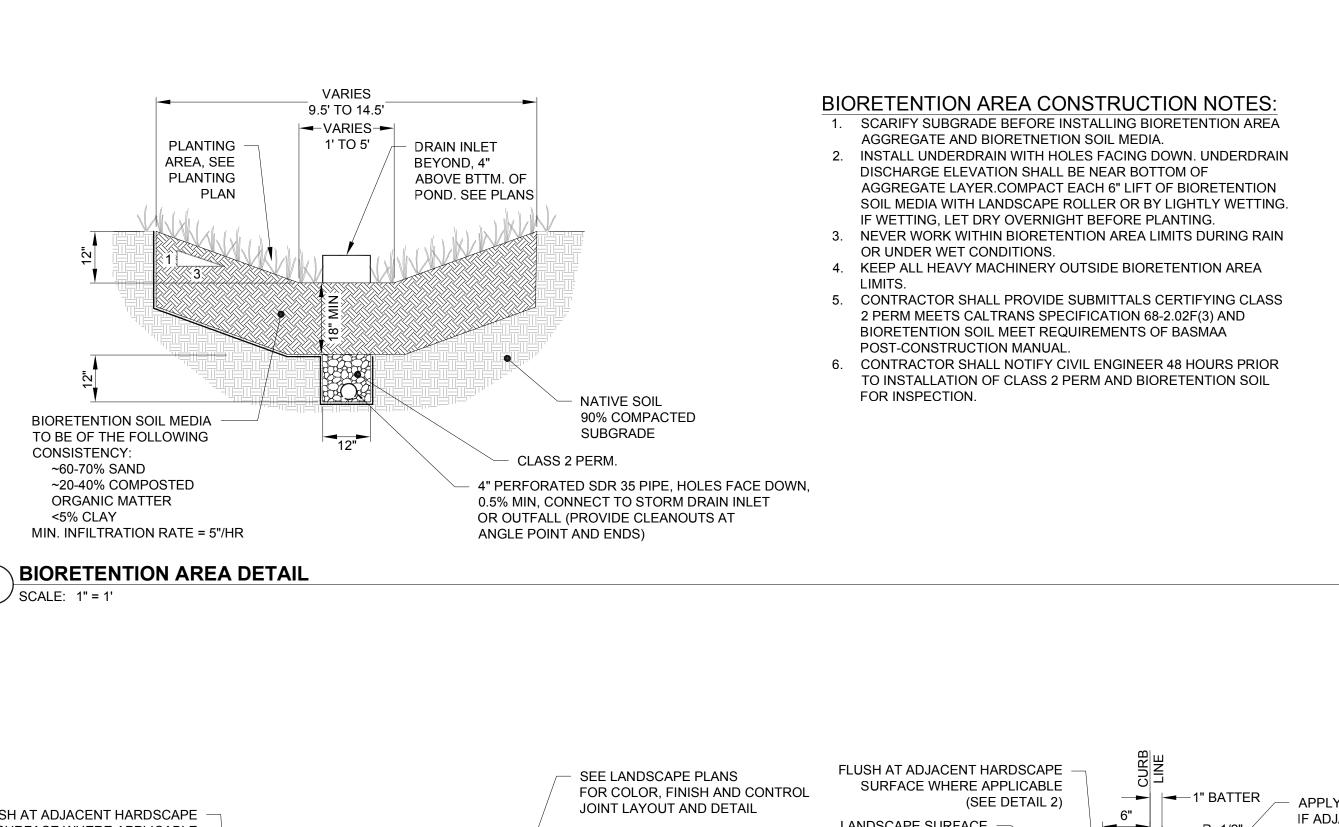


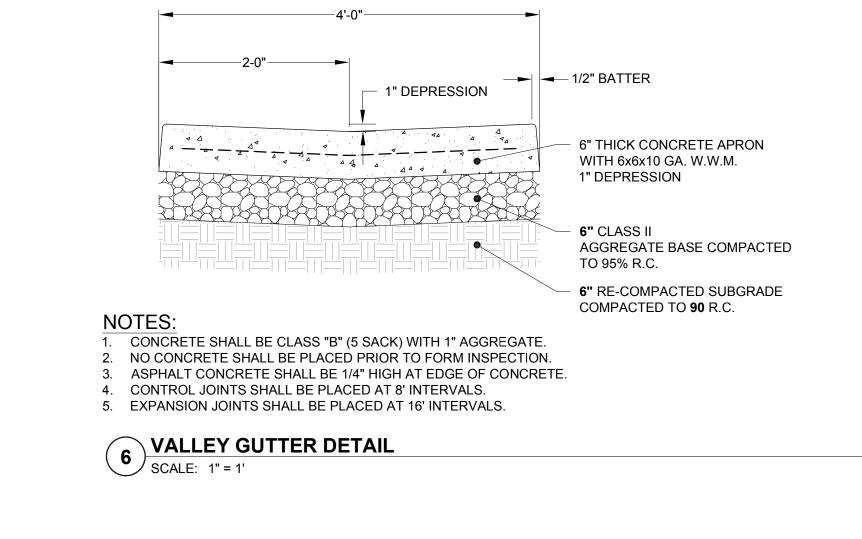












VALVE

VALVE ANCHORS

12" MIN.

BEARING-SURFACE

BEARING

SURFACE

ANCHOR

BOLTS &

STRAPS

BEARING

BEARING

PLAN

CAP —

- PIPE JOINT

12" MIN.

BEARING -

SURFACE

OR FITTING

TEE

CAPPED END

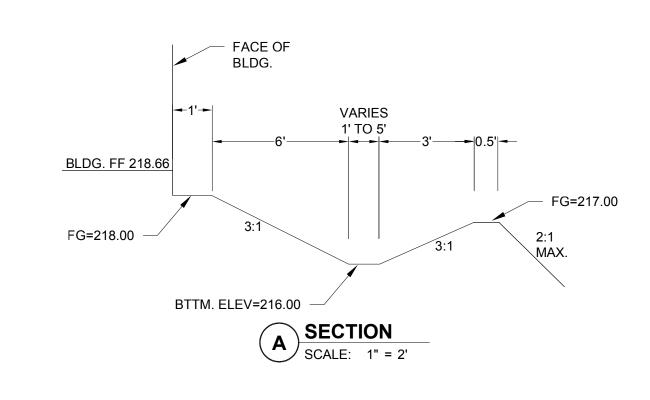
BLOCK (TYP.)

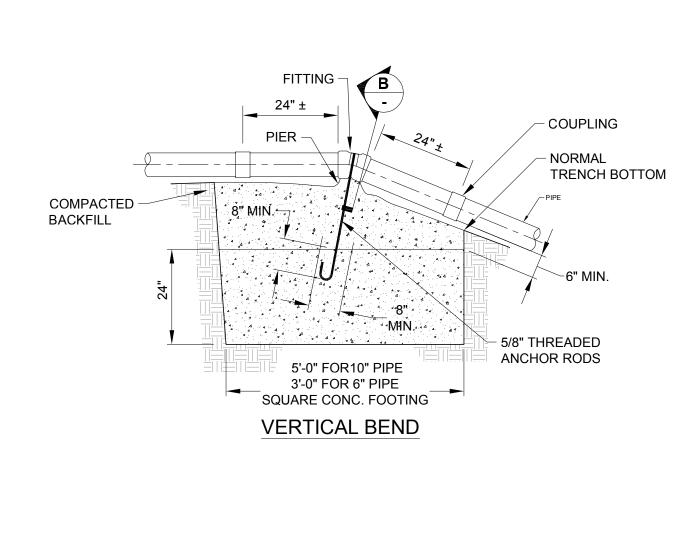
MAX. 45°

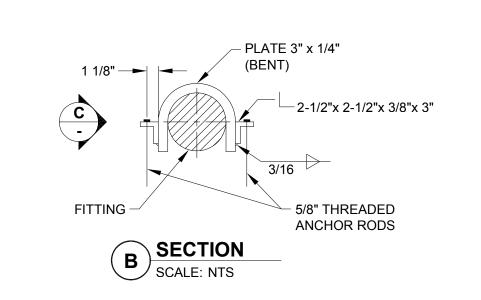
90° ELBOW

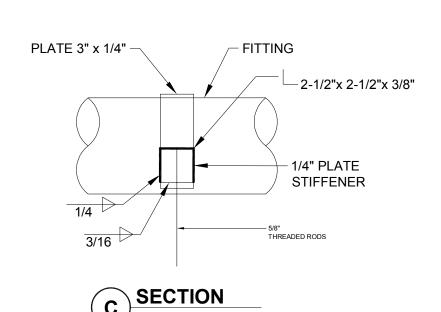
SURFACE

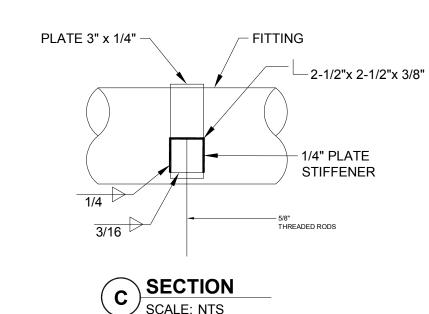
SURFACE

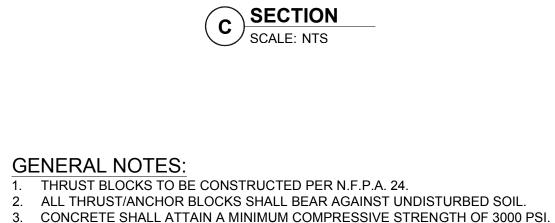


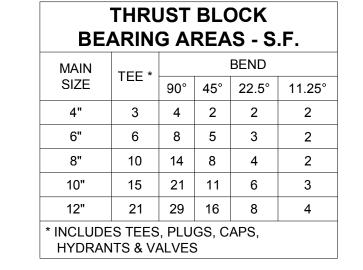












45° ELBOW

- ANCHOR

STRAPS

ELEVATION

REDUCER

- ANCHOR

- BEARING

SURFACE

BEARING

SURFACE

BOLTS

STRAPS SHALL BE 3" X 1/4".

MINIMUM ALLOWABLE SOIL BEARING VALUE OF 2,000 P.S.F. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING SOIL BEARING VALUES AND THE POSITION AND SIZE OF BEARING AREAS BASED UPON N.F.P.A. 24.

6. THE HEIGHT OF THE BLOCK MUST BE LESS THAN HALF OF THE TOTAL DEPTH TO THE BOTTOM OF THE BLOCK.

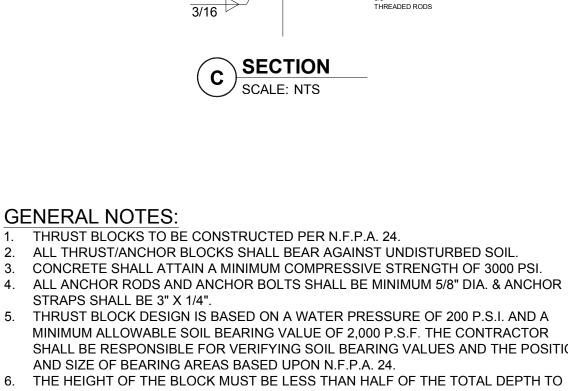
7. THE RATIO OF WIDTH TO HEIGHT OF THRUST BLOCK SHALL NOT EXCEED 1.5 TO 1.



MIN.

TYPICAL SECTION

OF THRUST BLOCK

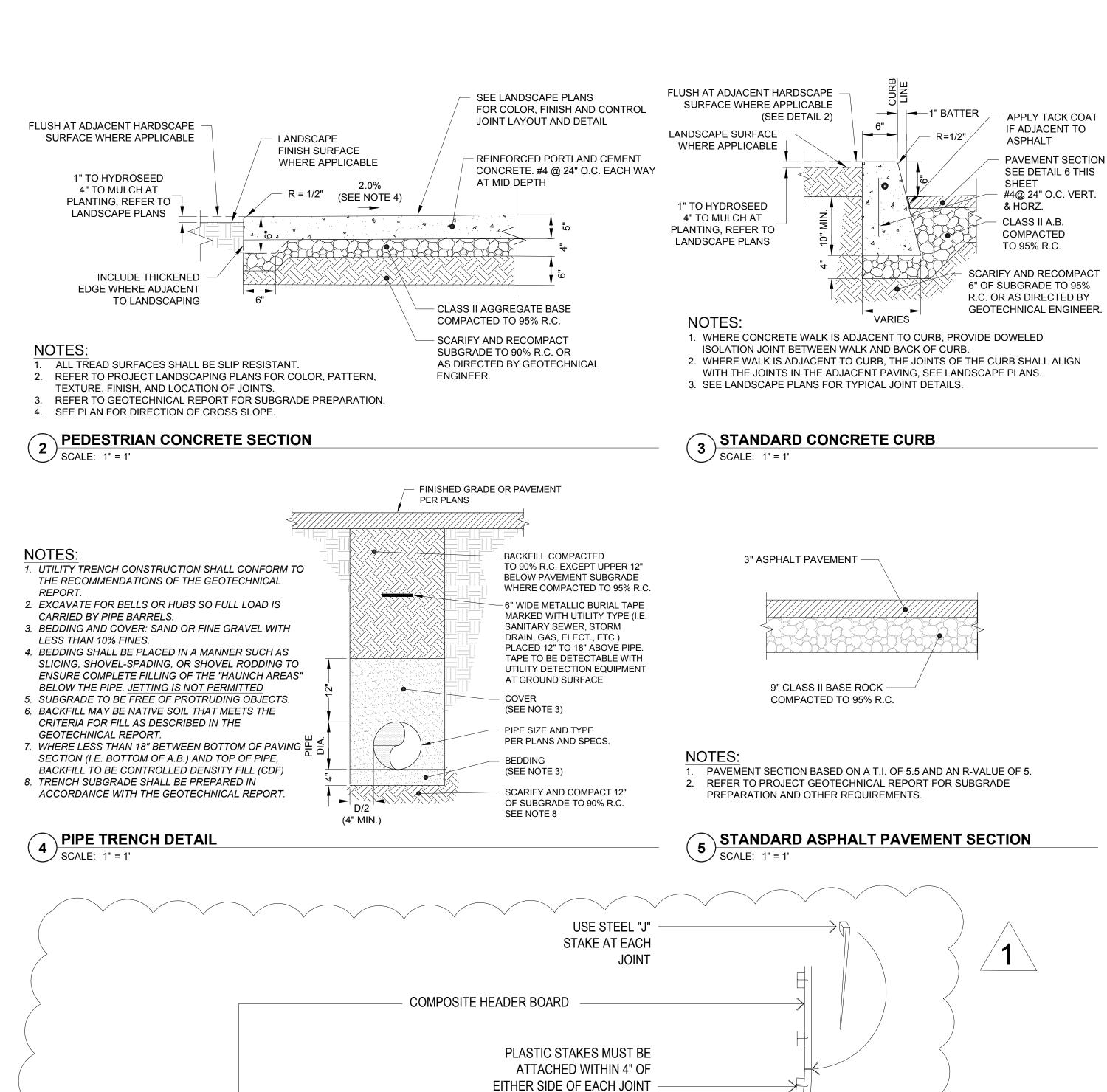




Land Planning Construction Management

PROJECT NO: 1102-0005 DATE: 11.17.17 **CIVIL DETAILS** SHEET NO:

CONSTRUCTION SET



CLASS II AB

ATTACHMENT

PLASTIC STAKE @ 3' O.C. MAX.

USE PLATED DECK SCREWS FOR

PLAN VIEW

120" MIN. -

RADIUS

FINISHED GRADE

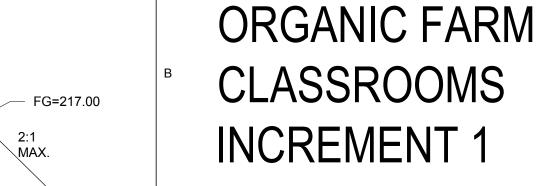
TURF AREA

SECTION

✓ SCALE: 1" = 1'

8 COMPOSITE EDGE RESTRAINT DETAIL





INDIAN VALLEY CAMPUS COLLEGE OF MARIN

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NOVATO, CA

NO. ISSUE ADDENDUM 1

DATE 02.15.2018

POLLUTION CONTROL NOTES:

- 1. IF SIGNIFICANT SEDIMENT OR OTHER VISUAL SYMPTOMS OF IMPURITIES ARE NOTICED IN THE STORM WATER, CONTACT THE CIVIL ENGINEER IMMEDIATELY.
- 2. CONTRACTOR IS RESPONSIBLE FOR INSPECTION AND RESTORATION OF ALL ASPECTS OF THIS PLAN. SEDIMENT ON SIDEWALKS AND GUTTERS SHALL BE REMOVED BY SHOVEL OR BROOM AND PLACED IN STOCKPILES.
- 3. CATCH BASIN TOPS SHALL BE STAMPED TO READ, "NO DUMPING FLOWS TO BAY".
- 4. ALL DUMPSTERS OR OTHER TRASH STORAGE ENCLOSURES SHALL BE UTILIZED SOLELY FOR NON-HAZARDOUS MATERIALS
- 5. ALL EMPLOYEES, CONTRACTORS, AND SUBCONTRACTORS ARE RESPONSIBLE FOR CONFORMING TO THE ELEMENTS SHOWN ON THIS PLAN OR RELATED DOCUMENTS. ANY CONTRACTOR PLANNING TO DO WORK ON-SITE SHALL BE RESPONSIBLE FOR OBTAINING AND REVIEWING ALL SWPPP INFORMATION FROM OWNER PRIOR TO START OF WORK AND EDUCATING ALL OF THEIR EMPLOYEES OR SUBCONTRACTORS AS TO THE CONTENTS OF THIS SWPPP.
- 6. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND FILING ALL PLANS WITH RELATED AGENCIES ASSOCIATED WITH THEIR WORK. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, PERMITS FOR STORAGE OF HAZARDOUS MATERIALS, BUSINESS PLANS, PERMITS FOR STORAGE OF FLAMMABLE LIQUIDS, GRADING PERMITS, OR OTHER PLANS OR PERMITS REQUIRED BY MARIN COUNTY, THE CITY OF NOVATO, OR OTHER AGENCIES. ALL PROPERTY OWNERS, CONTRACTORS, OR SUBCONTRACTORS WORKING ON-SITE ARE INDIVIDUALLY RESPONSIBLE FOR OBTAINING AND SUBMITTING ANY BUSINESS PLANS OR PERMITS REQUIRED BY CITY, STATE OR LOCAL AGENCIES.
- 7. CONTRACTOR MAY RELOCATE STORAGE, DELIVERY, OR WASH-OUT AREAS, TO SUIT THEIR OPERATIONS. RELOCATED LOCATION TO BE SHOWN ON PLANS MAINTAINED AT JOBSITE. CONTACT CIVIL ENGINEER FOR ANY PLAN REVISIONS. PLAN REVISIONS SHALL BE SUBMITTED TO CITY IF REQUESTED. CONTRACTOR TO MAINTAIN SECONDARY CONTAINMENT AS NECESSARY TO PROHIBIT POLLUTION AND TOXIC MATERIALS FROM ENTERING STORM DRAIN.
- 8. AFTER COMPLETION OF THE CURB, GUTTER, AND PAVING, OR CONCRETE V-DITCHES THE SILT FILTERS SHALL BE MODIFIED TO BURLAP SACKS FILLED WITH 3/4" DRAIN ROCK OR OTHER ACCEPTED BMP POSITIONED SURROUNDING EACH CATCH BASIN.
- 9. THIS PLAN TO BE USED IN CONJUNCTION WITH THE WRITTEN REPORT OF STORM WATER POLLUTION PREVENTION

EROSION CONTROL NOTES:

- 1. NO VEHICLES SHALL BE ALLOWED TO TRACK OR SPREAD SOIL FROM THE CONSTRUCTION AREAS ONTO EXISTING PAVED PUBLIC STREETS. ANY VEHICLE OPERATING WITHIN THE PROJECT AREA AND OFF THE PAVED STREET SHALL CROSS A CONSTRUCTION ENTRANCE AS SHOWN HEREIN. THE ENTRANCE MAY BE MODIFIED BY THE CONTRACTOR TO FACILITATE HIS OPERATIONS.
- 2. THE EROSION AND SEDIMENT CONTROL MEASURES WILL BE OPERABLE DURING THE RAINY SEASON, OCTOBER 1ST TO APRIL 15TH. NO GRADING WILL OCCUR BETWEEN OCTOBER 1ST AND APRIL 15TH, UNLESS AUTHORIZED BY THE DIRECTOR OF PUBLIC WORKS.
- 3. CHANGES TO THIS STORM WATER POLLUTION PREVENTION PLAN TO MEET FIELD CONDITIONS WILL BE MADE ONLY WITH THE APPROVAL OF, OR AT THE DIRECTION OF THE DISTRICT. CHANGES MADE TO SUIT FIELD CONDITIONS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CIVIL ENGINEER AND THE DISTRICT.
- 4. DURING THE RAINY SEASON, ALL PAVED AREAS WILL BE KEPT CLEAR OF EARTH MATERIAL AND DEBRIS. THE SITE WILL BE MAINTAINED SO THAT A MINIMUM OF SEDIMENT-LADEN RUNOFF ENTERS THE STORM DRAIN SYSTEM. THESE PLANS SHALL REMAIN IN EFFECT UNTIL THE SITE IMPROVEMENTS ARE ACCEPTED BY THE DISTRICT, AND ALL SLOPES ARE STABILIZED FROM EROSION.

URBAN RUNOFF POLLUTION NOTES:

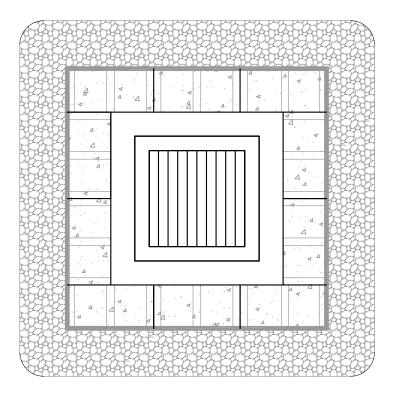
- 1. STABILIZE ALL DENUDED AREAS AND MAINTAIN EROSION CONTROL MEASURES CONTINUOUSLY BETWEEN OCTOBER 1 AND APRIL
- 2. REMOVE SPOILS PROMPTLY AND AVOID STOCKPILING OF FILL MATERIALS WHEN RAIN IS FORECAST. IF RAIN THREATENS, STOCK-PILED SOILS AND OTHER MATERIALS SHALL BE TARPED, AT THE REQUEST OF THE DISTRICT.
- 3. STORE, HANDLE AND DISPOSE OF CONSTRUCTION MATERIALS AND WASTES SO AS TO PREVENT THEIR ENTRY TO THE STORM
- DRAIN SYSTEM. CONTRACTOR MUST NOT ALLOW CONCRETE, WASHWATERS, SLURRIES, PAINT OR OTHER MATERIALS TO ENTER CATCH BASINS OR TO ENTER SITE RUNOFF.
- 4. USE FILTRATION OR OTHER MEASURES TO REMOVE SEDIMENT FROM DEWATERING EFFLUENT.
- 5. NO CLEANING, FUELING OR MAINTAINING VEHICLES ON SITE SHALL BE PERMITTED IN ANY MANNER THAT ALLOWS DELETERIOUS MATERIALS TO ENTER CATCH BASINS OR TO ENTER SITE RUNOFF.
- 6. USE OF PESTICIDES AND/ OR FERTILIZERS SHALL BE APPLIED AND CONTROLLED TO PREVENT POLLUTION RUNOFF.
- 7. IN THE EVENT GRADING OPERATIONS ARE SUSPENDED BY WEATHER CONDITIONS AND IF THE STORM DRAIN SYSTEM IS INCOMPLETE, INSTALL ADDITIONAL ROCK FILTERS AND OTHER FACILITIES AS DIRECTED BY DISTRICT AND ENGINEER.
- 8. CONTRACTOR TO RELOCATE CONCRETE WASHDOWN, VEHICLE STORAGE DELIVERY, AND NON HAZARDOUS WASTE AREAS AS NECESSARY TO FACILITATE THEIR OPERATION AND PROMOTE POLLUTION CONTROL.

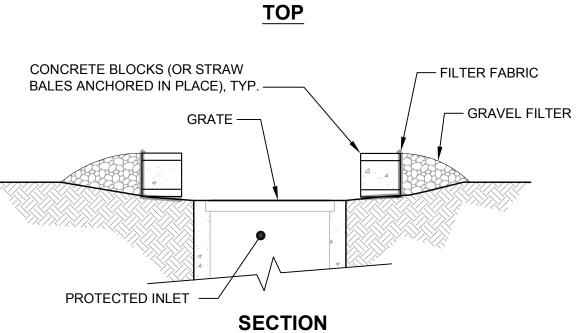
EROSION CONTROL LEGEND

· FIBER ROLLS \longrightarrow \triangle \longrightarrow \triangle SILT FENCING

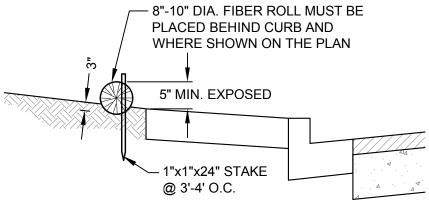


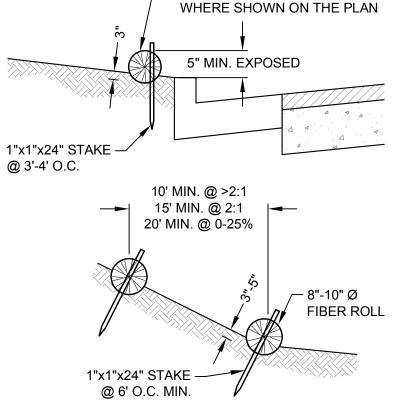
STORM INLET PROTECTION





INLET PROTECTION DETAIL



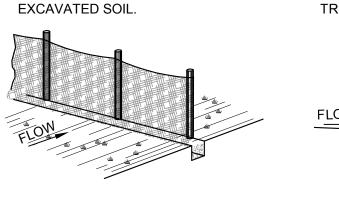


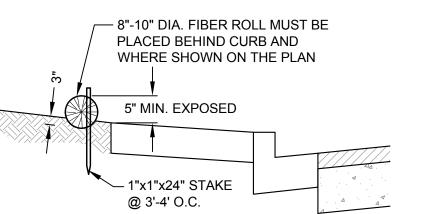
NOTES

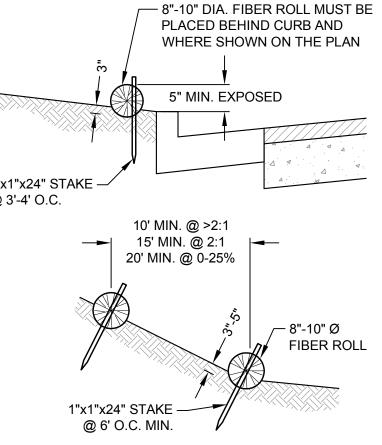
1. SET 4"Ø WOOD OR 1.33 PLF STEEL 2. ATTACH SILT FENCE TO POSTS AND EXTEND IT INTO THE TRENCH. POSTS 5' IN LENGTH. EXCAVATE A 4"X4" TRENCH UPSLOPE ALONG THE LINE OF POSTS.

3. BACKFILL AND COMPACT THE

4. EXTENSION OF FABRIC INTO THE



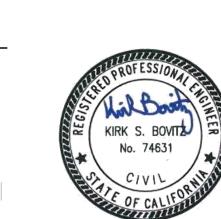




1. FIBER ROLLS TO BE LAID ALONG CONTOUR.

2 FIBER ROLL INSTALLATION DETAILS
SCALE: NTS

TRENCH. FENCE



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916 443 0335 lpasdesign.com Architecture + Design

ORGANIC FARM

CLASSROOMS

INDIAN VALLEY CAMPUS

02.15.2018

INCREMENT 1

COLLEGE OF MARIN

NOVATO, CA

NO. ISSUE

<u>∕</u>1\ ADDENDUM 1

CONSULTANT

CSW ST2

CSW/Stuber-Stroeh 45 Leveroni Court tel: 415.883.985 Novato, CA 94949 fax: 415.883.983 Civil & Structural Engineers

Surveying & Mapping Land Planning Construction Management

PROJECT NO: 1102-0005

DATE: 11.17.1708.02.17 **EROSION** CONTROL PLAN SHEET NO:

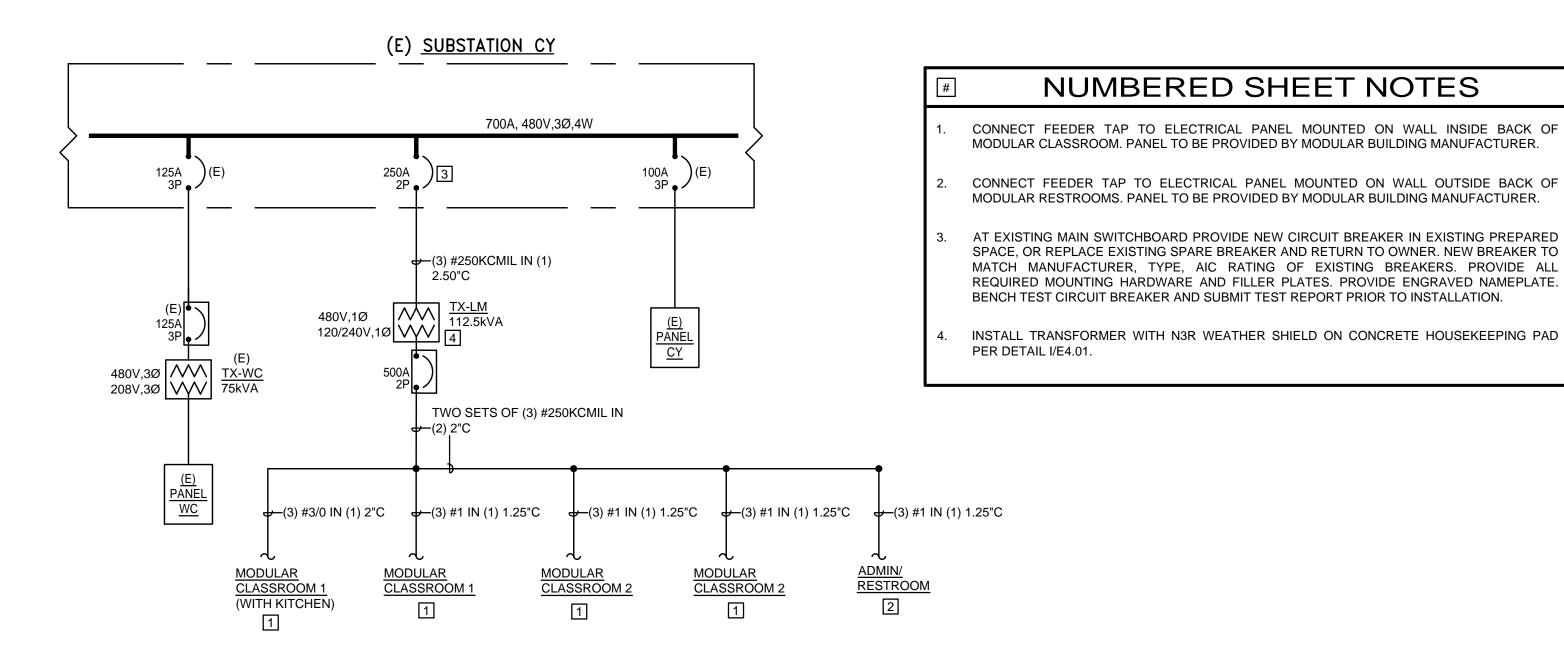
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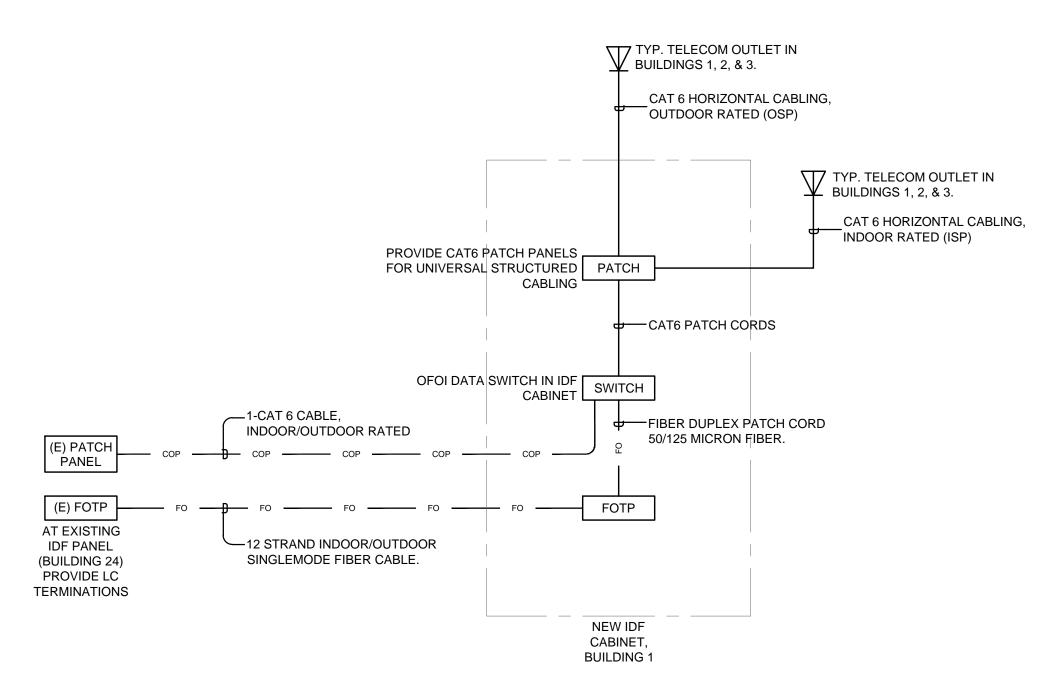
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	LIGHTING FIXTURE SCHEDULE - COM ORGANIC FARM CLASSROOMS										
Т	YPE	MANUFACTURER & CATALOG NUMBER	WATTAGE	VOLTAGE	BALLAST /DRIVER	DESCRIPTION	FIXTURE WEIGHT	DETAIL			
s	SE1 1	PHILIPS GARDCO BRM830-42-MR-WW-UNIV- BLP	41W	120/277	ELEC. DRIVER	42" HIGH BOLLARD LIGHTS WITH MOTION SENSORS. LIGHTS ARE ON AT 10% FULL POWER, THEN 100% POWER WHEN A PERSON IS NEARBY.	1 1				
s	5F2 I	VISA LIGHTING OW2300-L35K-MVOLT-MED- MED-JB9005	15W	120/277	ELEC. DRIVER	UP DOWN LIGHT MOUNTED ON WIDE FLANGE COLUMN AT 7'-0" ABOVE GROUND. THE FIXTURE IS 15"H x 5.25"D x 3.875"W.					
S	SF3	WAC LIGHTING FIN WP-LED127-30-GH	27W	120/277	ELEC. DRIVER	WALL PACK					
S	SF4 1	BARN LIGHT ELECTRIC G-ASFC8-PC-975-G- 34-GU-24	23W	120	ELEC. DRIVER	FLUORESCENT 8" x7.25" GOOSENECK SIGN LIGHT	5 LBS.				

			Exter	NEW ior Lighting Control Panel LCP	
					Time
					Clock
	Served		Circuit /		Based
Relay	from Panel	Voltage	Switchleg	Area Served	Control
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TELECOMMUNICATIONS RISER DIAGRAM

PROJECT GENERAL NOTES

- *EXISTING CONDITIONS

 1. THE EXISTING CONDITIONS INDICATED IN THIS DRAWING SET WERE DEVELOPED FROM VARIOUS SOURCES WHICH WERE NOT ALL FIELD VERIFIED AND NOT ALL CONDITIONS ARE SHOWN. LOCATIONS, ROUTING, ELEVATIONS, SIZES, ETC. ARE SHOWN SCHEMATICALLY. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
- . DRAWINGS INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACE CONDITIONS. FINAL LOCATIONS SHALL BE ADJUSTED TO MEET FIELD CONDITIONS.
- THE CONTRACTOR SHALL VISIT THE JOBSITE AND VERIFY ALL EXISTING CONDITIONS BEFORE CONSTRUCTION AND SHALL INCLUDE IN THE BID THE NECESSARY COSTS TO CONSTRUCT THIS

OUT/NOT INSTALLED.

APPLICABLE CODES.

4. CONTRACTOR SHALL REMOVE ALL LEFT OVER CONDUIT, WIRE, SCRAPS, ETC. AND LEAVE PREMISES CLEAN AND FREE OF TRASH OR DEBRIS RESULTING FROM THEIR WORK.

PROJECT IN ACCORDANCE WITH THE ELECTRICAL DRAWINGS, SPECIFICATIONS AND ALL

- CONTRACTOR SHALL DISCONNECT AND REMOVE ALL DEMOLISHED DEVICES AND FIXTURES AS SHOWN ON DEMOLITION PLAN. TURN OVER TO OWNER EXISTING DEVICES AND FIXTURES THAT ARE NOT REUSED. PROPERLY DISCARD IF THE OWNER DOES NOT WANT.
- RECONNECT EXISTING DEVICES WHOSE CIRCUITS HAVE BEEN INTERRUPTED BY DEMOLITION BY PROVIDING NEW CONNECTIONS TO ANOTHER EXISTING DEVICE OR PANEL. VERIFY CIRCUIT LOADING ON EXISTING CIRCUIT.
- WHEN A DEVICE IS REMOVED FROM AN EXISTING WALL WHICH WILL REMAIN, PATCH WALL TO MATCH EXISTING OR NEW FINISH.
- B. MOUNTING HEIGHTS SHOWN ARE FROM FINISHED FLOOR TO THE CENTERLINE OF DEVICES, COORDINATE WITH ARCHITECTURAL DRAWINGS.
- 9. CLEAN EXISTING LIGHTING FIXTURES WITHIN THE PROJECT AREA AS PART OF THIS PROJECT. INCLUDE NEW LAMPS WHERE COLOR INCONSISTENCIES EXIST, OR WHERE LAMPS ARE BURNED
- *SITE & SITE LIGHTING

 10. THERE SHALL BE A MINIMUM OF 24" OF COVER OVER UNDERGROUND CONDUITS, UON. INCLUDE A MINIMUM 12" SEPARATION BETWEEN ALL LOW VOLTAGE AND LINE VOLTAGE RACEWAYS. INSTALL A WARNING/MARKER TAPE 12 INCHES OVER THE CONDUIT.
- 11. CONTRACTOR SHALL SIZE ALL INDOOR AND EXTERIOR JUNCTION/PULLBOXES PER THE MINIMUM CODE REQUIREMENTS OF CEC ARTICLE 314, WHEN NOT INDICATED ON THE PLANS.

*EQUIPMENT, CONDUIT, WIRE, BOXES & DEVICES

- 12. PROVIDE INDIVIDUAL GFCI RECEPTACLES AT EACH LOCATION SHOWN, DO NOT USE FEED-THRU GFCI TYPE RECEPTACLES. LOCATE RECEPTACLE AT END OF A BRANCH CIRCUIT WIRE.
- 13. WHERE RECEPTACLES ARE LOCATED OUTSIDE OR IN WET/DAMP LOCATIONS PROVIDE WEATHER RESISTANT TYPE, UON.
- 14. CONDUIT SIZE SHALL BE 0.75" MINIMUM, U.O.N.
- 15. ALL CONDUCTORS ON THIS PROJECT SHALL BE COPPER.
- 16. FEEDER AND BRANCH CIRCUIT HOMERUNS SHALL BE INSTALLED IN CONDUIT. MC TYPE CABLE SHALL NOT BE USED FOR ANY HOMERUNS ON THIS PROJECT.
- 17. INSTALL AND CONNECT A CODE SIZED INSULATED OR BARE COPPER GROUNDING CONDUCTOR IN ALL BRANCH CIRCUITS AND FEEDERS.
- 18. ALL DEVICES SHALL HAVE TYPE ON TAPE LABELS INDICATING THE PANELBOARD AND CIRCUIT SERVING EACH DEVICE, TYPICAL OF ALL DEVICES INCLUDED ON THIS PROJECT.
- 19. PROVIDE INSULATING BUSHINGS OR INSULATED THROAT ON THE ENDS OF ALL EMPTY CONDUIT SLEEVES AND INSTALL A POLYETHYLENE PULLING ROPE.
- 20. WHERE CIRCUITS ARE SHOWN ON THE DRAWINGS WITH HOMERUNS THAT SHARE NEUTRAL CONDUCTORS THE CONTRACTOR SHALL PROVIDE HANDLE TIES BETWEEN ALL BRANCH CIRCUIT
- BREAKER LOADS WHICH SHARE A NEUTRAL. 21. PROVIDE DEDICATED CONDUIT/PATHWAYS FOR ALL 0-10v LIGHTING CONTROL SIGNALS SEPARATE FROM ALL LINE VOLTAGE RACEWAY.
- 22. ALL OUTDOOR ELECTRICAL EQUIPMENT SHALL BE WEATHER-PROTECTED AND LISTED FOR
- 23. PROVIDE TYPE WRITTEN PANEL SCHEDULES UPDATED TO INCLUDE ALL FIELD MODIFICATIONS AND SCOPE ITEMS ASSOCIATED WITH THIS PROJECT.
- 24. PROVIDE ENGRAVED NAMEPLATES FOR NEW ELECTRICAL BOARDS, DISCONNECTS, AND SWITCHGEAR OR WHERE INDICATED.

*FIRE ALARM & FIRE RATED ITEMS

EXTERIOR USE.

25. ALL CONDUIT, OUTLET BOXES, AND RACEWAY PENETRATIONS THROUGH FIRE RATED WALLS OR FLOOR ASSEMBLIES SHALL BE A UL LISTED ASSEMBLY THAT PROTECTS THE RATED ASSEMBLY. INCLUDE FIRE RATED DEVICE BOX ASSEMBLIES WHEN REQUIRED. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ALL RATED WALLS AND FLOORS AS APPLICABLE.

*CODE REQUIREMENTS & ELEC. CLEARANCES

- 26. ALL ELECTRICAL WORK SHALL COMPLY WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL
- 27. REQUIRED ELECTRICAL EQUIPMENT WORKING SPACE DEPTH SHALL NOT BE LESS THAN THAT INDICATED IN CEC TABLE 110.26. THE WIDTH OF THE WORKING SPACE IN FRONT OF THE ELECTRICAL EQUIPMENT SHALL BE THE WIDTH OF THE EQUIPMENT OR 30", WHICHEVER IS GREATER. THIS REQUIREMENT ALSO APPLIES TO DISCONNECT SWITCHES.
- 28. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE LISTED BY UNDERWRITERS LABORATORIES AND BEAR THEIR LABEL, OR ETL.
- 29. CONTRACTOR SHALL PROVIDE ARC FLASH LABELS FOR ALL ELECTRICAL EQUIPMENT WITHIN THE SCOPE OF THIS PROJECT. THESE LABELS SHALL BE GENERATED BY THE CONTRACTOR FROM THE POWER SYSTEM STUDY AND SUBMITTED WITH THE POWER SYSTEM STUDY SUBMITTAL FOR ENGINEER REVIEW AND APPROVAL. THIS INCLUDES ALL FIELD MARKING OF KAIC VALUES ON EXISTING OR NEW BOARDS PER THE CEC.
- 30. WIRING SPACE IN PANELBOARDS, DISTRIBUTION PANES AND SWITCHBOARDS SHALL BE DEDICATED TO CONDUCTORS TERMINATED IN THAT ENCLOSURE. PANELBOARDS, DISTRIBUTION PANELS AND SWITCHBOARDS SHALL NOT BE USED AS PULL AND/OR SPLICE BOXES FOR CONDUCTORS THAT
- TERMINATE IN OTHER ENCLOSURES. DO NOT SPLICE CONDUCTORS IN EQUIPMENT. 31. NEW CIRCUIT BREAKERS INSTALLED IN EXISTING EQUIPMENT SHALL BE PROVIDED TO MATCH THE

KAIC RATINGS AND THE MANUFACTURER OF THE EXISTING.

- 32. PROVIDE CLEAR SIGNAGE ON ALL ELECTRICAL EQUIPMENT PER CEC TO INDICATE THE ARC FLASH HAZARD WARNING, AND THE MAXIMUM AVAILABLE FAULT CURRENT. WHEN MODIFICATIONS OCCUR THAT AFFECT THE MAXIMUM FAULT CURRENT THE CONTRACTOR SHALL RECALCULATE AS NECESSARY AND REMARK THE EQUIPMENT.
- 33. REFER TO MECHANICAL & PLUMBING DRAWINGS FOR EXACT LOCATIONS OF EQUIPMENT. PROVIDE ALL LINE VOLTAGE AND LOW VOLTAGE WIRING, CONTROL WIRING, INTERLOCK CABLING, AND
- 34. PROVIDE A DISCONNECTING MEANS AT ALL MOTORS, WHETHER INDICATED ON THE PLANS OR NOT.
- 35. PROVIDE FUSES IN DISCONNECTS FOR MECHANICAL EQUIPMENT AS COORDINATED WITH THE UNITS NAMEPLATE AND MANUFACTURERS INSTALLATION INSTRUCTIONS. FUSES SHALL BE CURRENT
- 36. PROVIDE A GFCI TYPE DEVICE WITH WEATHER PROOF WHILE IN USE COVER WITHIN 25' OF ALL EXTERIOR HVAC/PLUMBING EQUIPMENT.
- 37. WORK PERFORMED FROM THESE DRAWINGS SHALL ALSO COMPLY WITH THE PROJECT SPECIFICATIONS. IN THE EVENT THAT THERE IS A CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL TAKE PRECEDENT.
- 38. CONTRACTOR SHALL CONFIRM THAT ALL LIGHTING FIXTURES SPECIFIED, AND THE CEILING TYPES, FIXTURE TRIMS, AND FRAMES ARE ALL COMPATIBLE PRIOR TO THE CONTRACTOR LIGHTING FIXTURE SUBMITTAL.
- 39. BUILDING EXPANSION JOINTS ARE NOT INDICATED ON THE ELECTRICAL DRAWINGS (UON) AND SHALL BE COORDINATED WITH THE ARCHITECTURAL DRAWINGS. INCLUDE FLEXIBLE EXPANSION WIRING METHODS AT EXPANSION JOINTS TO MEET THE DEFLECTION AND EXPANSION REQUIREMENTS OF THE BUILDING.

- 40. CONTRACTOR SHALL PREPARE RED LINED AS-BUILT DOCUMENTS REPRESENTING THE ACTUAL FIELD ROUTINGS AND INSTALLATION LOCATIONS FOR ALL ITEMS ON THIS PROJECT.
- 41. SURFACE MOUNTED CONDUIT WHERE APPROVED, AND INSTALLED, SHALL BE PAINTED TO MATCH THE ARCHITECTURAL FINISHES IN THAT AREA.
- 42. CONDUIT ROUTING (WHERE SHOWN) IS ESSENTIALLY DIAGRAMMATIC. CONTRACTOR SHALL LAYOUT RUNS TO SUIT FILED CONDITIONS AND THE COORDINATION REQUIREMENTS OF OTHER TRADES.
- 43. DRAWINGS INDICATE JUNCTION BOXES WITH HOMERUNS ON THE PLANS, BUT THE CONTRACTOR SHALL PROVIDE ALL INTERMEDIATE RACEWAY WORK AND CONDUCTORS/CABLING BETWEEN THE DEVICES, FIXTURES, AND JUNCTION BOXES AS COORDINATED WITH ALL FIELD CONDITIONS AND

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ORGANIC FARM CLASSROOMS INCREMENT 2

INDIAN VALLEY CAMPUS COLLEGE OF MARIN

NOVATO, CA

NO. ISSUE

DATE

ADDENDUM 1

02.15.2018

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CONSULTANT





SCHEDULES & RISER DIAGRAMS

PROJECT NO: 1102-0005 DATE: 11-17-2017

SHEET NO:

E0.02

FOR CONSTRUCTION

1. NUMERICAL PLANT QUANTITIES ARE FOR INFORMATION ONLY. IN CASE OF DISCREPANCY, VERIFY FROM PLAN. 2. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UNDERGROUND UTILITIES AND STRUCTURES PRIOR TO ANY EXCAVATION. CONTACT COMMON GROUND ALLIANCE (C.G.A.) @ 811. CALL AT LEAST 48 HOURS PRIOR TO PERFORMING EXCAVATION. CONTRACTOR SHALL REPAIR ANY DAMAGE TO UTILITIES CAUSED BY HIS WORK AT NO ADDITIONAL COST TO THE OWNER. 3. SLOPE ALL PLANTING AREAS A MINIMUM OF 2% TO PROVIDE POSITIVE DRAINAGE. 4. IMPORTED TOPSOIL SHALL BE TESTED BY AN APPROVED SOIL TESTING SERVICE, AND TOPSOIL SHALL BE AMENDED PER THE RECOMMENDATIONS CONTAINED IN THAT SOILS REPORT. REFER TO SPECIFICATIONS FOR MORE INFORMATION ON SOILS TEST AND AMENDMENTS. 5. TOP DRESS ALL SHRUB AND GROUNDCOVER AREAS, (NOT LAWN) WITH A 3" LAYER OF 2" SHREDDED FIR BARK MULCH PER SPECIFICATIONS. SUBMIT SAMPLE TO LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION. 6. TREE LOCATIONS MAY BE ADJUSTED IN THE FIELD BY THE LANDSCAPE ARCHITECT TO SUIT SITE REQUIREMENTS. 7. SOIL CONDITIONS CAUSING THE RETENTION OF WATER IN PLANTING PITS FOR MORE THAN 2 HOURS SHALL BE CORRECTED PRIOR TO PLANTING TO PROVIDE POSITIVE DRAINAGE, AT NO ADDITIONAL COST TO THE OWNER. 8. ALL PLANT MATERIALS SHALL COMPLY WITH SPECIFICATIONS OF ANSI Z60.1 "STANDARD FOR NURSERY STOCK" 9. CONTRACTOR SHALL SECURE PLANT MATERIALS AS SPECIFIED IMMEDIATELY UPON BID AWARD. IF $\overline{\mathbb{A}}$ PLANT MATERIALS ARE NOT AVAILABLE, CONTACT LANDSCAPE ARCHITECT FOR APPROVAL OF SUBSTITUTIONS. NO SUBSTITUTIONS FOR PLANT MATERIAL WILL BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL OF THE LANDSCAPE ARCHITECT. 10. LIME TREATED SOIL SHALL BE REMOVED FROM LANDSCAPE PLANTERS AND PROPERLY DISPOSED OFF-SITE. LIME TREATED SOIL SHALL BE EXCAVATED TO A DEPTH OF 24" OR TO THE DEPTH REQUIRED TO REMOVE LIME TREATED SOIL. 11. PLANTERS SHALL BE BACKFILLED WITH APPROVED TOPSOIL. REFER TO SPECIFICATION FOR AMENDING OF TOPSOIL. 12. REFER TO PLANTING DETAILS AND SPECIFICATIONS FOR MORE INFORMATION. 17. REPLACE ALL (E) SHRUBS AND TURF DAMAGED AS PART OF DEMOLITION OR CONSTRUCTION. CONSULT WITH DISTRICT LANDSCAPE REPRESENTATIVE FOR REPLACEMENT SHRUB SIZE AND SPECIES, AND TURF SPECIES. 18. REPLACE ALL (E) TREES DAMAGED AS PART OF DEMOLITION OR CONSTRUCTION. CONSULT WITH DISTRICT ARBORIST FOR TREE BOX SIZE. THE DISTRICT HAS FINAL SAY ON REPLACEMENT SIZE I HAVE COMPLIED WITH THE CRITERIA OF THE WATER EFFICIENT LANDSCAPE ORDINANCE AND APPLIED SUCH CRITERIA FOR THE EFFICIENT USE OF WATER IN THE LANDSCAPE DESIGN PLAN." ORGANIC FARM_CLASSROOM HERB GARDEN (E) BALL FIELDS PLANT SCHEDULE **BOTANICAL NAME** CONT WATER USE DETAIL Quercus x warei 'Nadler' 24"box Med Kindred Spirit Oak <u>SHRUBS</u> **BOTANICAL NAME** CONT WATER USE Achillea millefolium `Fire King` 5 gal Low HYDRANT Fire King Yarrow Allium schoenoprasum 1 gal Low Common Chives \$\delta\frac{1}{2}\delt 1 gal Med Artemisia dracunculus `Sativa` French Tarragon (E) BLDG 24 Bouteloua gracilis `Blonde Ambition` 1 gal Low PERMIT #01-109778 Blue Grama Cistus salviifolius 5 gal Low Rockrose Sageleaf Galvezia speciosa 1 gal Low Island Bush Snapdragon ROOT BARRIER, TYP. APPROVED UNDER Gaura lindheimeri `Whirling Butterflies` Whirling Butterflies Gaura SEPARATE PERMIT 01-116739 Lavandula angustifolia `Hidcote Blue` MULCH ONLY Hidcote Blue Lavender Lomandra longifolia `Sea Breeze` 1 gal Low (INCREMENT II) Sea Mat Grass CLASSROOM CLASSROOM (INCREMENT (INCREMENT II) 1 gal Med Ocimum basilicum Sweet Basil BLDG 1 Origanum vulgare hirtum Greek Oregano Penstemon heterophyllus `Margarita BOP` 5 gal Low 5 gal Low Rhamnus californica California Coffee Berry Salvia officinalis 5 gal Low Garden Sage Common Thyme GROUND COVERS BOTANICAL NAME CONT WATER USE Hydroseed Native Grass and Wildflowers --- Low Native Preservation Mix

PLANT SCHEDULE

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ORGANIC FARM CLASSROOMS INCREMENT 1

INDIAN VALLEY CAMPUS COLLEGE OF MARIN

NOVATO, CA

NO. ISSUE

01 ADDENDUM 1

IOOOL

02.15.18

Signature

Signature

Signature

Date

Date

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CONSULTANT

LANDSCAPE PLAN

PROJECT NO: 1102-0005 DATE: 11-17-2017

SHEET NO:

ORGANIC FARM_CLASSROOM LANDSCAPE PLAN
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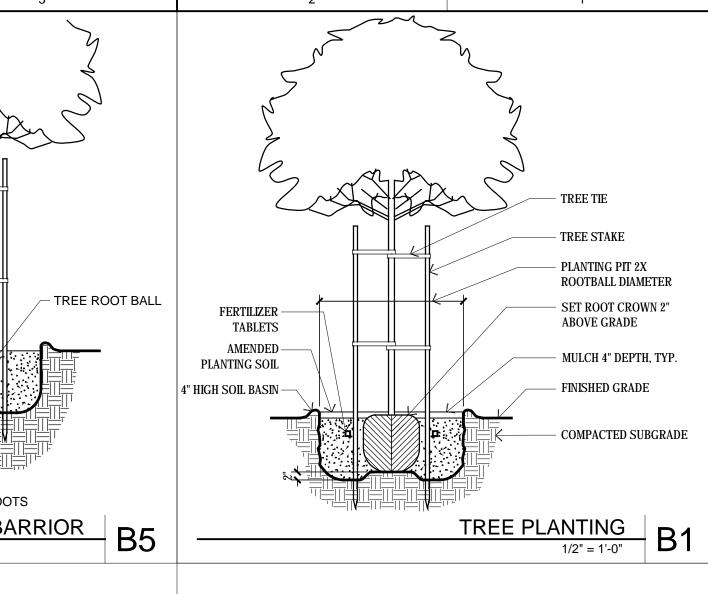
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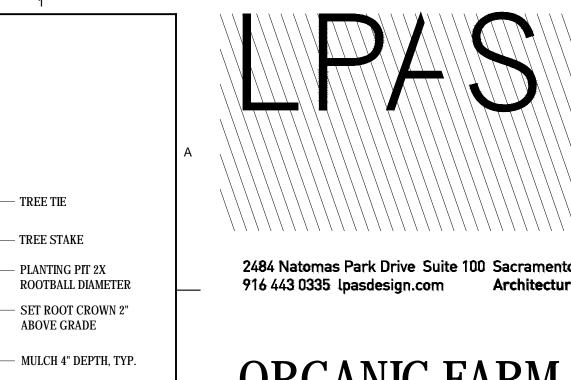
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CONCRETE CURB —— TREE ROOT BALL DEEP ROOT — BARRIER REFER TO SPECS RIBS FACE TOWARDS ROOTS TREE PLANTING WITH ROOT BARRIOR

TREE PLANTING WITH ROOT BARRIOR

TREE PLANTING WITH ROOT BARRIOR





TREE STAKE

___ TREE TIE

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ORGANIC FARM CLASSROOMS INCREMENT 1

INDIAN VALLEY CAMPUS COLLEGE OF MARIN

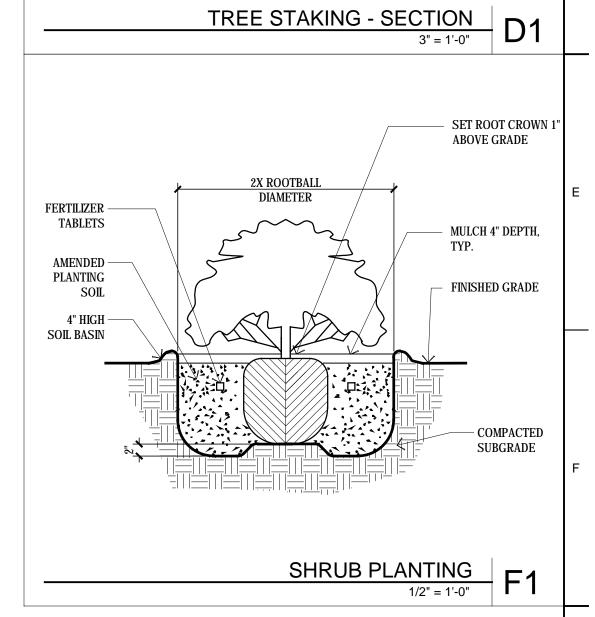
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AND ENGINEER.

LANDSCAPE **DETAILS**

PROJECT NO: 1102-0005 DATE: 11-17-2017

SHEET NO:

SYMBOL MANUFACTURER/MODEL PSI GPM DETAIL Rain Bird RWS-B-C-P 0.50 Hunter ICZ-101-40 1" Drip Control Zone Kit. 1" ICV Globe Valve with 1" HY100 filter system. Pressure Regulation: 40psi. Flow Range: 2 to 20 GPM. L2.11 Area to Receive Dripline: Hunter PLD-ESD 17 0.6GPH fleece wrapped inline emitter tubing, without the blanket FLOW AVAILABLE Eco-Mat. Emitters at 12" O.C. Dripline laterals spaced at 12" apart, Point of Connection Size: with emitters offset for triangular pattern. Specify PLD-LOC fitting. Flow Available: 78.62 gpm Area to Receive Dripline: Rain Bird XFS-P-06-18 (18) DESIGN ANALYSIS XFS Pressure Compensating Dripline w/Copper Shield Maximum Station Flow: 15.28 gpm Technology. 0.6GPH emitters at 18.0" O.C. Laterals spaced at Flow Available at POC: 78.62 gpm 18.0" apart. Purple Tubing for Non-Potable Water. Residual Flow Available: 63.34 gpm SYMBOL MANUFACTURER/MODEL/DESCRIPTION DETAIL PRESSURE AVAILABLE Static Pressure at POC: 44.00 psi Hunter ICV-G-FS-R 1" H5 L2.11 3.66 psi Friction Loss: 1" Plastic Electric Remote Control Valves, with NPT Threaded Loss through Valve: 13.72 psi Inlet/Outlet. Reclaimed Water ID, Purple Handle. Residual Pressure Available: 26.62 psi D5 L2.11 Rain Bird 33-DNP 3/4" 3/4" Brass Quick-Coupling Valve, Locking Thermoplastic Non-Potable Purple Rubber Cover, and 2-Piece Body. Isolation Vlave IRRIGATION CALCULATIONS B5 Bronze Threaded Gate Valve with Cross Handle. H3 L2.11 Same size as mainline. Irrigation Controller Connect to irrigation controller below at parking lot. Cap at the mainline or lateral line for future use. The pressure and flow provided to that location are indicated next to the cap Point of Connection 2" Stub from Parking Lot Below Irrigation Lateral Line: PVC Schedule 40, Purple Pipe. PVC Schedule 40 pipe. Only lateral transition pipe sizes 1" and above are indicated, with all others being 3/4" in size. Electrical Conduit: PVC Schedule 40. 1 1/2" Conduit between controller, flow sensor, and remote control valve. Pipe Sleeve Pipe sleeve size shall allow for irrigation piping and their related couplings to easily slide through sleeving material. Extend sleeves 18 inches beyond edges of paving or construction. Valve Callout

— Valve Number

♦ \ # • Valve Flow

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ORGANIC FARM CLASSROOMS **INCREMENT 1**

INDIAN VALLEY CAMPUS COLLEGE OF MARIN

NOVATO, CA

NO. ISSUE

DATE

01 ADDENDUM 1

IRRIGATION SCHEDULE D1

02.15.18

IRRIGATION NOTES

REPLACE AND REPAIR 1. ALL (E) IRRIGATION EFFECTED BY DEMOLITION OR CONSTRUCTION TO BE REPLACED, REPAIRED, AND RECONNECTED TO MAINLINE AND IRRIGATION CONTROLLER. ALL REPAIRED IRRIGATION AREAS MUST MAINTAIN HEAD TO HEAD COVERAGE

- 1. ALL LOCAL MUNICIPAL AND STATE LAWS, RULES AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR. 2. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, STRUCTURES AND SERVICES BEFORE COMMENCING WORK. THE LOCATIONS OF UTILITIES, STRUCTURES AND SERVICES SHOWN IN THESE PLANS ARE APPROXIMATE ONLY. ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER'S
- 3. THE CONTRACTOR SHALL OBTAIN THE PERTINENT ENGINEERING OR ARCHITECTURAL PLANS BEFORE BEGINNING WORK.
- 4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED TO PERFORM THE WORK INDICATED HEREIN BEFORE BEGINNING WORK. 5. THIS DESIGN IS DIAGRAMMATIC. ALL IRRIGATION EQUIPMENT SHOWN IN PAVED AREAS IS FOR
- DESIGN CLARITY ONLY AND IS TO BE INSTALLED WITHIN PLANTING AREAS. 6. THE CONTRACTOR SHALL NOT WILLFULLY INSTALL ANY EQUIPMENT AS SHOWN ON THE PLANS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN CONDITIONS EXIST THAT WERE NOT EVIDENT AT THE TIME THESE PLANS WERE PREPARED. ANY SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE PRIOR TO ANY WORK OR THE IRRIGATION CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ANY FIELD CHANGES
- DEEMED NECESSARY BY THE OWNER. 7. INSTALL ALL EQUIPMENT AS SHOWN IN THE DETAILS AND PER SPECIFICATIONS. 8. ALL CONTROLLER WIRE SHALL BE INSTALLED IN SCH. 40 CONDUIT, MINIMUM SIZE SHALL BE
- 9. THE CONTRACTOR SHALL PROVIDE ADEQUATE IRRIGATION TO ALL PLANTERS. IRRIGATION COVERAGE OF PLANTER MAY REQUIRE ADDITIONAL IRRIGATION EQUIPMENT TO PROVIDE REQUIRED COVERAGE TO SUSTAIN HEALTH PLANT GROWTH.
- 1. MAINLINE SHOWN WITHIN PAVING FOR CLARITY ONLY. ACTUAL MAINLINE LOCATION TO BE A MINIMUM OF 18" OFF ADJACENT HARDSCAPE, FENCE, PROPERTY LINES AND OTHER OBSTACLES
- 2. NO IRRIGATION MAINLINES SHALL BE INSTALLED WITHIN THE PUBLIC RIGHT OF WAY. 3. LATERAL LINES ARE SHOWN WITHIN PAVING FOR CLARITY ONLY, ACTUAL LOCATION TO BE WITHIN PLANTER. CONFIRM LAYOUT IN FIELD WITH OWNER'S AUTHORIZED REPRESENTATIVE
- PRIOR TO COMMENCING WORK. 4. ALL MAINLINE PIPE UNDER PAVED AREAS TO BE INSTALLED IN SLEEVE TWICE THE DIAMETER OF THE PIPE CARRIED; LATERAL LINE SHALL BE INSTALLED IN SLEEVE TWICE THE DIAMETER OF THE PIPE CARRIED. SLEEVES TO EXTEND AT LEAST 18" PAST THE EDGE OF THE PAVING. SLEEVE ENDS SHALL BE FILLED WITH EXPANDING FOAM TO KEEP OUT DIRT AFTER PIPE IS
- 5. ALL PIPE SIZES SHALL CONFORM TO THOSE SHOWN ON THE DRAWINGS. LATERAL PIPE NOT SIZED ON DRAWING AND THAT ARE DOWNSTREAM OF 1" PIPE SHALL BE MINIMUM OF 3/4" PIPE SIZE. THE ONLY ALLOWED PIPE SIZE SUBSTITUTIONS WILL BE FOR LARGER SIZED PIPE.
- 6. CONTRACTOR TO FLUSH MAINLINE AND LATERAL IRRIGATION CLEAR OF ALL DEBRIS BEFORE

1. ALL QUICK COUPLER AND REMOTE CONTROL VALVES TO BE INSTALLED IN SHRUB OR GROUND

- COVER AREAS WHERE POSSIBLE. 2. ALL QUICK COUPLER AND REMOTE CONTROL VALVES TO BE INSTALLED AS SHOWN ON THE INSTALLATION DETAILS. INSTALL ALL QUICK COUPLER AND REMOTE CONTROL VALVES WITHIN
- 3. REMOTE CONTROL VALVES AND ISOLATION VALVE LOCATIONS ON THIS DRAWING ARE APPROXIMATE. THE LANDSCAPE CONTRACTOR SHALL STAKE OUT EACH REMOTE CONTROL VALVE AND ISOLATION VALVE LOCATION FOR REVIEW AND APPROVAL BY OWNER REPRESENTATIVE PRIOR TO INSTALLATION OF ALL VALVES. MINOR MODIFICATIONS OF REMOTE CONTROL VALVES AND ISOLATION VALVE LOCATIONS AS REQUESTED BY THE OWNER'S REPRESENTATIVE SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

- 1. ALL HEADS ARE TO BE INSTALLED WITH THE NOZZLE, SCREEN AND ARCS SHOWN ON THE PLANS. ALL HEADS ARE TO BE ADJUSTED TO PREVENT OVER SPRAY ONTO BUILDINGS, WALLS, FENCES AND PAVED SURFACES. THIS INCLUDES, BUT NOT LIMITED TO, ADJUSTMENT OF DIFFUSER PIN OR ADJUSTMENT SCREW, REPLACEMENT OF NOZZLES WITH MORE APPROPRIATE RADIUS UNITS AND THE ADJUSTMENT OF ADJUSTABLE ARC NOZZLES.
- 2. SPACING OF POP-UP SPRAY HEADS SHALL ALLOW HEAD TO HEAD COVERAGE.
- 3. CONTRACTOR SHALL ADJUST ALL HEADS AS REQUIRED TO ACCOMMODATE ANY VERTICAL OBSTRUCTIONS THAT MAY OCCUR, INCLUDING BUT NOT LIMITED TO LIGHT POLES, FIRE HYDRANTS, ETC. VERIFY ALL HEAD LAYOUT WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO COMMENCING WORK.

CONTROLLER

- 1. CONTRACTOR TO INSTALL RELOCATED CONTROLLER IN STEEL CABINET ENCLOSURE PER MANUFACTURER AND DISTRICTS RECOMMENDATIONS.
- 2. CONTRACTOR TO COORDINATE 110 V ELECTRICAL SUPPLY POWER FOR CONTROLLER. 3. CONTROLLER TO BE GROUNDED PER MANUFACTURER AND INDUSTRY STANDARDS.

I HAVE COMPLIED WITH THE CRITERIA OF THE WATER EFFICIENT LANDSCAPE ORDINANCE AND APPLIED SUCH CRITERIA FOR THE EFFICIENT USE OF WATER IN THE GRADING AND DRAINAGE PLAN.

(E) BALL FIELDS (E) BLDG 24 PERMIT #01-109778 L _ _ _ _ _ _ _ SEPARATE PERMIT ADMIN. BLDG CLASSROOM CLASSROOM (INCREMENT I (INCREMENT II) __/____ BLDG 2 STUB-OUT FOR FARM IMPROVEMENTS CONNECT TO STUB FROM PARKING LOT



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CONSULTANT

IRRIGATION PLAN

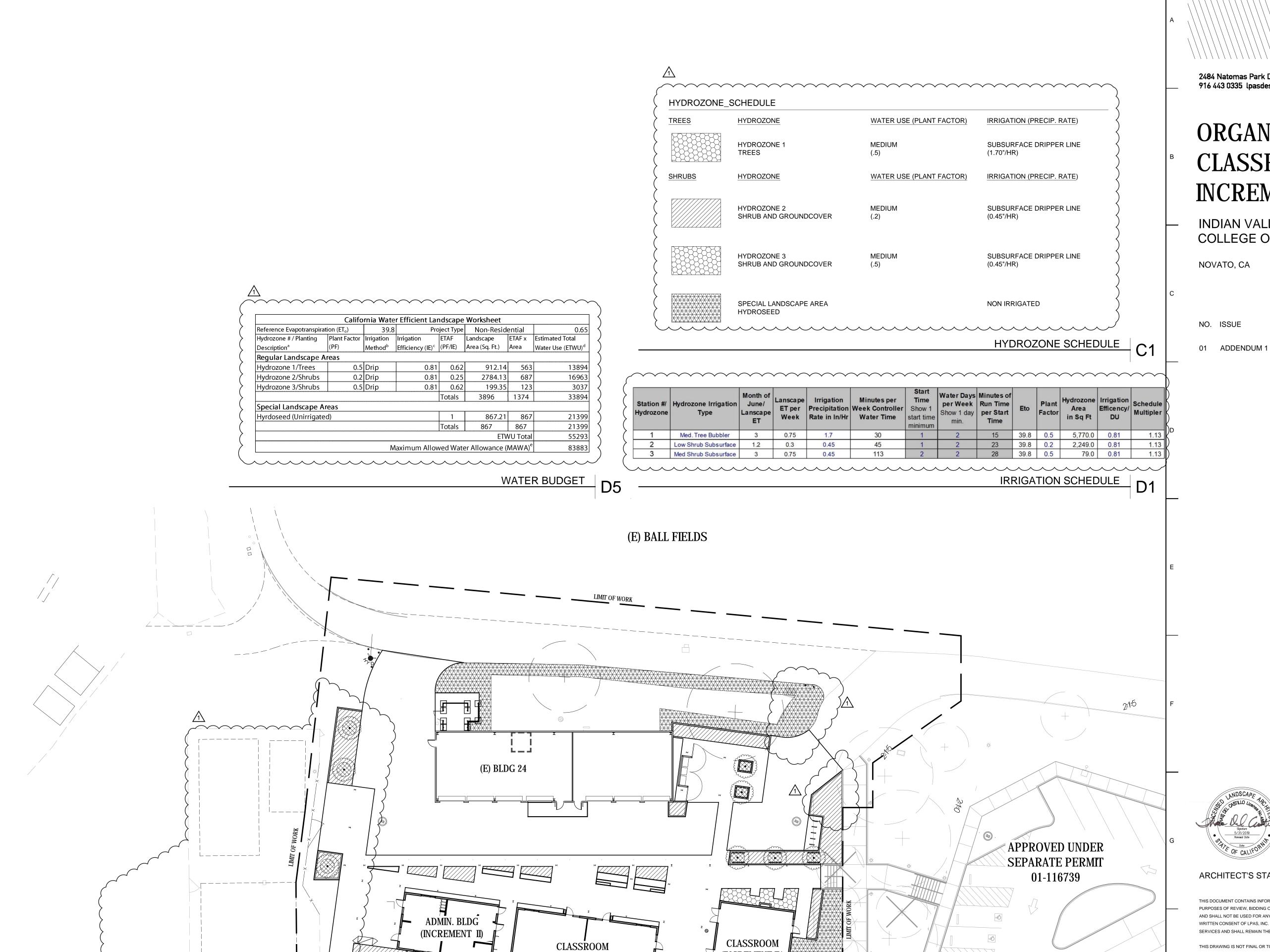
PROJECT NO: 1102-0005 DATE: 11-17-2017

SHEET NO:

IRRIGATION NOTES K10

ORGANIC FARM_CLASSROOM SITE PLAN
1"=20'-0"

K1



(INCREMENT II)

(INCREMENT II

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ORGANIC FARM **CLASSROOMS** INCREMENT 1

INDIAN VALLEY CAMPUS COLLEGE OF MARIN

NOVATO, CA

02.15.18



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CONSULTANT

HYDROZONE PLAN AND CALCULATIONS

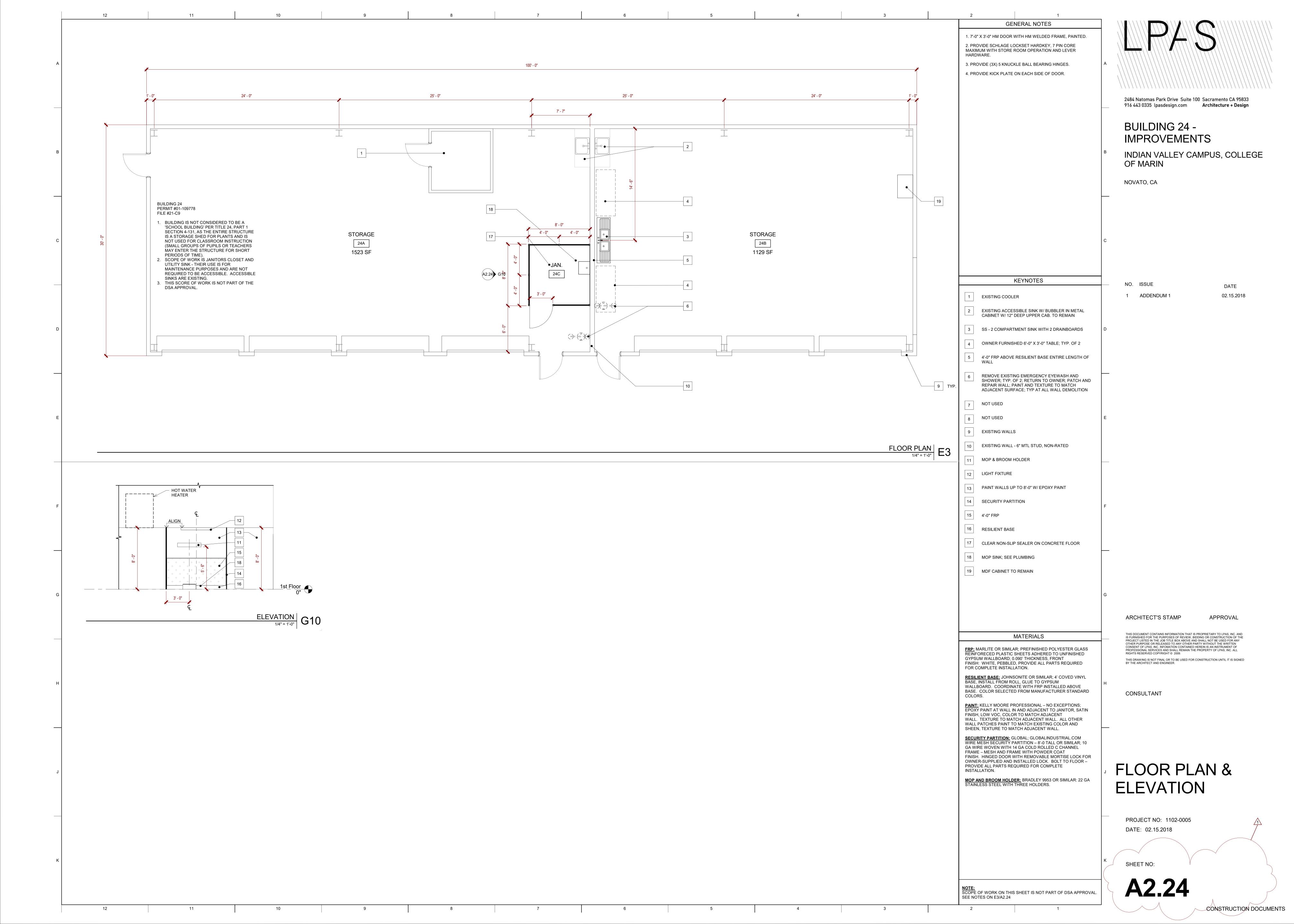
PROJECT NO: 1102-0005 DATE: 11-17-2017

SHEET NO:

ORGANIC FARM_CLASSROOM HYDROZONE PLAN
1"=20'-0"

K1

L2.20



NUMBERED SHEET NOTES

PROVIDE A (N) PHILIPS FLUXSTREAM, 4', LED STRIP LIGHT MOUNTED TO WALL ABOVE SINK. USE MODEL FSS-4-30L-835-UNV-DIM.

STORAGE

24B

1129 SF

STORAGE 24A

1523 SF

(E) BUILDING 24 - POWER AND LIGHTING PLAN

24C

- EXTEND NEAREST EXISTING LIGHTING CIRCUIT IN ROOM TO NEW FIXTURE AND SWITCH. ROUTE NEW WIRE AND CONDUIT ALONG SURFACE.
- PROVIDE NEW SWITCH FOR CUSTODIAL LIGHT. MOUNT NEXT TO EXISTING WALL SWITCHES.
- 4. PROVIDE NEW DEDICATED RECEPTACLE FOR FUTURE WALK-IN COOLER.
- PROVIDE ELECTRICAL CIRCUIT TO NEW HOT WATER HEATER. PROVIDE MECHANICAL SWITCH ON WALL WITH A 40A FUSE. CIRCUIT TO PANEL WC USING 3#8 IN 0.75" C.

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ORGANIC FARM **CLASSROOMS INCREMENT 2**

INDIAN VALLEY CAMPUS COLLEGE OF MARIN

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NO. ISSUE

DATE

02.15.2018

ADDENDUM 1

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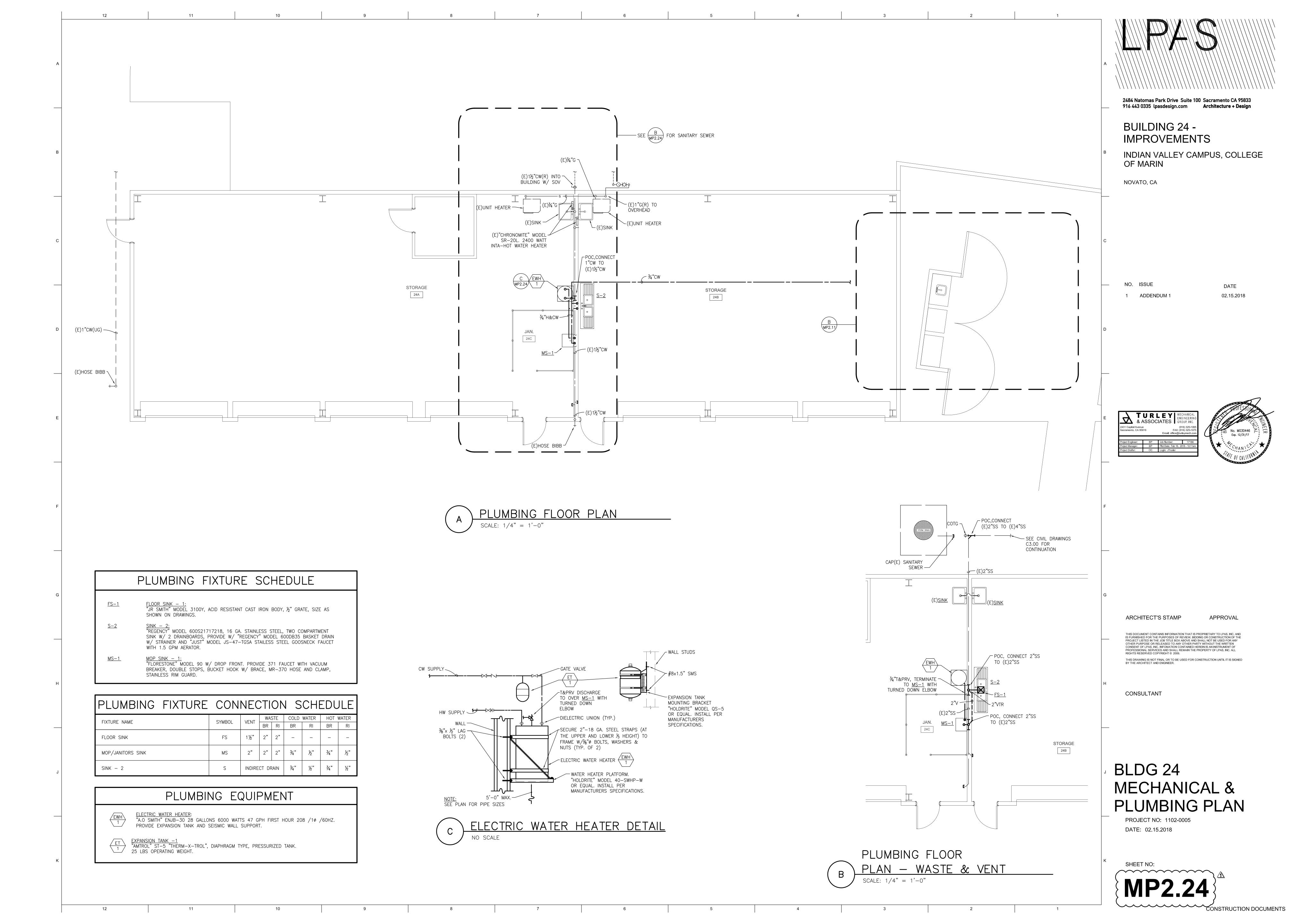


BUILDING 24

PROJECT NO: 1102-0005 DATE: 02-15-2018

SHEET NO:

NOTE: SCOPE OF WORK ON THIS SHEET IS NOT PART OF DSA APPROVAL. SEE NOTES ON E3/A2.24



SECTION 10 76 00 BIRD DETERRENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Bird netting.
- B. Bird wire.

1.02 SUBMITTALS

- A. See Section 01 30 00 Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate fastening methods, supports, and installation details. Submit manufacturer product data.
- C. Provide manufacturer's warranty.

PART 2 PRODUCTS

2.01 BIRD NETTING

- A. Bird-B-Gone www.birdbgone.com: heavy duty bird netting system, or equal.
 - 1. 3/4" UV-stabilized polyethylene mesh, rot-proof, waterproof, and flame resistant.
 - 2. Perimeter cable and attachments for a complete installation.

2.02 BIRD WIRE

- A. Bird-B-Gone www.birdbgone.com: Bird Wire system, or equal.
 - 1. Nylon-coated stainless-steel wire suspended between a series of poles, attached with springs for a complete installation.
 - 2. Bird wire gutter clamp.
 - 2. Quick Adhere glue.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Do not begin installation until all supporting items have been finished and cleaned.
- B. Install cable around perimeter of netting and install tight against beam.
- C. Do not allow sagging or drooping of the net.
- D. Clean surfaces prior to adhering with glue.
- E. Install in a neat fashion, with poles vertical.

END OF SECTION

Geotechnical Engineering Report

College of Marin Corporation Yard Novato, California March 7, 2017 Terracon Project No. ND165141A



Prepared for:

College of Marin Kentfield, California

Prepared by:

Terracon Consultants, Inc. Concord, California

Offices Nationwide Employee-Owned Established in 1965 terracon.com



Geotechnical

Environmental

Construction Materials

Facilities

March 7, 2017

Terracon

College of Marin 835 College Avenue Kentfield, CA 94904

Attn: Mr. Greg Nelson

P: 415.884.3101

E: GNelson@marin.edu

Re: Geotechnical Engineering Report

College of Marin Corporation Yard

1800 Ignacio Boulevard Novato, California 94949

Terracon Project Number: ND165141A

Dear Mr. Nelson:

Terracon Consultants, Inc. (Terracon) has completed the geotechnical engineering services for the above-referenced project. These services were performed in general accordance with our supplemental proposal number PND165141, dated January 25, 2017.

This geotechnical engineering report presents the results of the subsurface exploration and provides geotechnical engineering recommendations concerning earthwork and the design and construction of a new maintenance building.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

OF CHINICANA

Senior Associate

Geotechnical Engineer 2758

Reviewed By:

Garret S.H. Hubbart, P.E., G.E.

Principal

Geotechnical Engineer 2588







Noah T.

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Geotechnical Engineering Report

College of Marin Corporation Yard Novato, California March 7, 2017 Terracon Project No. ND165141A



EXECUTIVE SUMMARY

A geotechnical exploration has been performed for the proposed maintenance building to be constructed at the College of Marin Corporation Yard located at 1800 Ignacio Boulevard in Novato, California. Terracon's geotechnical scope of work included the advancement of two test borings to approximate depths of 26½ and 46 feet below the existing ground surface (bgs). Our investigation also included laboratory testing on representative samples of the subsurface materials, engineering analyses, and development of engineering recommendations for design and construction of the maintenance building.

The site appears suitable for the proposed construction based upon geotechnical conditions encountered in the test borings provided the recommendations contained in this report are properly implemented in the design and construction. The following geotechnical considerations were identified:

- **Subsurface Conditions:** Soils encountered in our borings generally consisted of 20 to 33 feet of interbedded layers of clayey sand and sandy lean clay with variable amounts of gravel underlain by sandy lean clay with rock fragments to the maximum depths explored of 26½ and 46 feet bgs. Practical auger refusal was encountered at a depth of 46 feet bgs in boring B1.
- **Foundations:** The maintenance building may be supported on spread footing foundations provided the footings extend a minimum 18 inches below lowest adjacent grade. The concrete slab-on-grade floor should be constructed over a minimum 12 inches of non-expansive engineered fill.
- Groundwater was encountered in boring B1 at the time of field exploration at a depth of 30 feet bgs. The exploratory borings were not allowed to remain open for an extended period of time, consequently groundwater depths could vary. Groundwater should be planned for and anticipated during construction of deep foundations. The contractor should plan their work accordingly.
- The 2016 California Building Code seismic site classification for this site is C.
- Good surface drainage should be constructed to provide rapid removal away from the improvements.
- Close monitoring of the construction operations discussed herein will be critical in achieving the design subgrade support. Terracon should be retained to monitor this portion of the work.

Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of engineered fill, excavations, subgrade

Geotechnical Engineering Report

College of Marin Corporation Yard Novato, California March 7, 2017 Terracon Project No. ND165141A



preparation, foundation bearing soils, and other geotechnical conditions exposed during construction.

This geotechnical executive summary should be used in conjunction with the entire report for design and/or construction purposes. It should be recognized that specific details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein. The section titled **General Comments** should be read for an understanding of the report limitations.

GEOTECHNICAL ENGINEERING REPORT COLLEGE OF MARIN CORPORATION YARD 1800 IGNACIO BOULEVARD NOVATO, CALIFORNIA

Terracon Project No. ND165141A March 7, 2017

1.0 INTRODUCTION

This report presents the results of our geotechnical engineering services performed for the proposed maintenance building project located at the College of Marin Corporation Yard at 1800 Ignacio Drive in Novato, California. The Site Location Plan (Exhibit A-1) is included in Appendix A of this report. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- subsurface soil conditions
- earthwork
- seismic considerations
- corrosivity

- groundwater conditions
- foundation design and construction

Our geotechnical engineering scope of work included the advancement of two test borings to approximate depths of 26½ and 46 feet below the existing ground surface (bgs). Logs of the borings along with an Exploration Plan (Exhibit A-2) are included in Appendix A of this report. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included in Appendix B of this report. Descriptions of the field exploration, laboratory testing, and analysis are included in their respective appendices.

2.0 PROJECT INFORMATION

2.1 Site Location and Description

Item	Description
Location	The maintenance building will be located in the Corporation Yard at the Indian Valley Campus of the College of Marin at 1800 Ignacio Boulevard, Novato, CA. The building will be located across the parking area south of Building 24.
Existing improvements	The proposed building will be located in the Corporation Yard currently developed with an existing maintenance building, Building 24 and asphalt parking areas.
Current ground cover	Asphalt paving.

Geotechnical Engineering Report

College of Marin Corporation Yard • Kentfield, California March 7, 2017 • Terracon Project No. ND165141A



Item	Description
Existing topography	The proposed maintenance building will be located in an area that is relatively flat.

2.2 Project Description

Item	Description			
Site layout	See Appendix A, Exhibit A-2: Exploration Plan.			
Structures	It is proposed to construct a new maintenance building. We have assumed the building will be single-story with metal framing and siding. No plans for the building were available for our review at the time this report was prepared. Terracon shall be provided a copy of the project plans once completed for review and shall be afforded to revise the recommendations contained in this report if needed.			
Building Loads (assumed)	We anticipate maximum (dead plus live) loads for perimeter and interior walls of the building will be on the order of 2 to 3 kips pe linear foot. Anticipated maximum (dead plus live) loads for column loading are on the order of 20 to 40 kips.			
Grading (assumed)	We anticipate grading may consist of minor cuts and fills on the order of 2 foot or less.			

3.0 SUBSURFACE CONDITIONS

3.1 Site Geology

Local geologic mapping 1 indicates site geology consist of Quaternary Age alluvial deposits, Q_{al} , underlain by Cretaceous age Franciscan Assemblage, Kfs, consisting of sandstone and shale. Subsurface conditions encountered in our borings were generally consistent with mapped geology.

3.2 Typical Profile

Specific conditions encountered at the boring locations are indicated on the individual boring logs. Stratification boundaries on the boring logs represent the approximate location of changes in soil types; in-situ, the transition between materials may be gradual. Details for the borings can be found

¹ Blake, M.C., Graymer, R.W., Jones, D.L., and Soule, Adam, 2000, Geologic map and map database of parts of Marin, San Francisco, Alameda, Contra Costa, and Sonoma Counties, California: U.S. Geological Survey MF-2337, scale 1:75,000

Geotechnical Engineering Report

College of Marin Corporation Yard ■ Kentfield, California March 7, 2017 ■ Terracon Project No. ND165141A



on the boring logs included in Appendix A. Based on the results of the borings, the subsurface conditions on the project site can be generalized as follows:

Description	Approximate Depth to Bottom of Stratum	Material Encountered	Consistency/Density
Stratum 1 ¹	15 feet	Clayey Sand with Variable amount of Gravel	Medium Dense
Stratum 2	15 to 27 feet	Sandy Lean Clay with Variable amounts of Gravel	Stiff to Very Stiff
Stratum 3	20 to 33 feet	Clayey Sand with Variable amounts of Gravel	Medium Dense to Very Dense
Stratum 4	46 ² feet and Undetermined ³	Sandy Lean Clay with Rock Fragments	Very Stiff to Hard

- 1. Stratum only encountered in Boring B1
- 2. Practical auger refusal was encountered at 46 feet bgs in boring B1.
- 3. Boring B2 was terminated at a depth of 26½ feet bgs within this stratum.

3.3 Laboratory Testing

Atterberg limits and fines content testing were performed on four soil samples. One additional soil sample was tested for fines content. The samples tested had the following measured liquid limits, plastic limits, plasticity indices, and fine content passing the No. 200 sieve:

Sample Location	Depth (feet)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Fine Content (%)
Boring B1	10 to 11½	27	19	8	38
Boring B1	20 to 21½	-	-	-	56
Boring B1	31½ to 33	33	22	11	49
Boring B1	40 to 41½	34	20	14	-
Boring B2	1 to 2½	25	18	7	59

Refer to Summary of Laboratory Results contained in Appendix B for the complete results of the laboratory testing conducted on the site soils in conjunction with this geotechnical exploration.

College of Marin Corporation Yard ■ Kentfield, California March 7, 2017 ■ Terracon Project No. ND165141A



3.4 Groundwater

Groundwater was observed in boring B1 at the time of field exploration at a depth of 30 feet bgs. This observation represents groundwater conditions at the time of the field exploration and may not be indicative of other times, or at other locations. Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were drilled. Therefore, groundwater levels during construction or at other times may be higher or lower than the levels indicated on the boring logs.

Records obtained from other geotechnical exploration conducted at the College of Marin Indian Valley Campus indicate groundwater may be as shallow at 10 feet in the vicinity.

3.5 Seismic Considerations

The following table presents the seismic design values and site class as calculated from the USGS U.S. Seismic Design Maps website utilizing ASCE 7-10.

DESCRIPTION	VALUE
2016 California Building Code Site Classification (CBC) 1	С
Site Latitude	38.076486°N
Site Longitude	122.583247°W
S₅ Spectral Acceleration for a Short Period	1.500g
S ₁ Spectral Acceleration for a 1-Second Period	0.600g
Fa Site Coefficient for a Short Period	1.000
F _v Site Coefficient for a 1-Second Period	1.300
S _{Ms} Maximum Considered Spectral Response Acceleration for a Short Period	1.500g
S _{M1} Maximum Considered Spectral Response Acceleration for a 1-Second Period	0.780g
S _{Ds} Design Spectral Response Acceleration for a Short Period	1.000g
S _{D1} Design Spectral Response Acceleration for a 1-Second Period	0.520g

¹ Note: The 2016 California Building Code (CBC) requires a site soil profile determination extending to a depth of 100 feet for seismic site classification. The current scope does not include the required 100 foot soil profile determination. One of our borings extended to a maximum depth of 46 feet and terminated in bedrock. This seismic site class definition considers that similar bedrock conditions continue below the maximum depth of the subsurface exploration. Additional exploration to greater depths could be considered to confirm the conditions below the current depth of exploration. Alternatively, a geophysical exploration could be utilized in order to attempt to confirm the seismic site class.

3.5.1 Faulting and Estimated Ground Motions

The subject site is located on the coast of San Francisco Bay Area which is a high seismically active area. The type and magnitude of seismic hazards affecting the site are dependent on the

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distance to causative faults, the intensity, and the magnitude of the seismic event. The following table indicates the distance of the fault zones and the associated maximum credible earthquake that can be produced by nearby seismic events, as calculated using the United States Geologic Survey 2008 Interactive Deaggregations program. A portion of the San Andreas Fault system, which is located about 17.4 kilometers from the site, is considered to have the most significant effect at the site from a design standpoint.

Fault Name	Contribution	Approximate Distance to Site (kilometers)	Maximum Credible Earthquake (MCE) Magnitude
N. S.Andr.;SAO+SAN+SAP+SAS AF_aP	13.37	17.3	8.01
Hayward-Rodgers Creek;RC aPriori	11.70	11.9	7.01
Hayward-Rodgers Creek;RC MoBal	9.39	11.9	6.99
N. San Andreas;SAO+SAN MoBal	9.44	17.3	7.79

The USGS Design Maps Detailed Report evaluates the Peak Ground Acceleration (PGA_M) to be 0.500g. Based on the 2008 interactive deaggregations, the PGA at the subject site for a 2% probability of exceedance in 50 years (return period of 2475 years) is expected to be about 0.7358g. The site is not located within an Alquist-Priolo Earthquake Fault Zone based on our review of State Fault Hazard Maps.²

3.5.2 Liquefaction Evaluation

Liquefaction is a mode of ground failure that results from the generation of high pore water pressures during earthquake ground shaking, causing loss of shear strength. Liquefaction is typically a hazard where loose sandy soils exist below groundwater. The California Geologic Survey (CGS) has designated certain areas within California as potential liquefaction hazard zones. These are areas considered at a risk of liquefaction-related ground failure during a seismic event, based upon mapped surficial deposits and the presence of a relatively shallow water table. The project site is located within a liquefaction hazard zone and has been mapped as having a moderate susceptibility to liquefaction.

Groundwater was encountered in boring B1 at a depth of 30 feet bgs at the time the borings were drilled. However, records of geotechnical exploration across the campus indicated groundwater may be as shallow as 10 feet bgs.

A liquefaction analysis was performed in general accordance with the DMG Special Publication 117. The liquefaction study utilized the software "LiquefyPro" by CivilTech Software. This analysis was based on the soil data from the soil borings. A Peak Ground Acceleration (PGA) of 0.5g and the mean magnitude of 7.48 for the project site was used. Calculations utilized a groundwater

² California Department of Conservation Division of Mines and Geology (CDMG), "Digital Images of Official Maps of Alquist-Priolo Earthquake Fault Zones of California.

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depth of 10 feet bgs. Settlement analysis used the Tokimatsu/Seed. Fines were corrected for liquefaction using the Stark/Olsen et al. method.

A liquefaction potential analysis was calculated from a depth of 10 to 46 feet below the ground surface. Based on our calculations, the potential for seismically induced liquefaction in the area of the proposed maintenance building is low and anticipated settlements are expected to be less than ½ inch.

4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

4.1 Geotechnical Considerations

From a soil engineering standpoint, we conclude the site is suitable for construction of the proposed improvements; however, all of the conclusions and recommendations presented in this report should be incorporated into the design and construction to help reduce the potential for soil and foundation related problems. The main item of consideration for construction of the improvements is the moderately expansive nature of the near surface sandy lean clay soil encountered in our borings.

The native surficial soils should provide adequate bearing support for spread footing foundations; however, they are expansive and subject to volume changes with variations in moisture content. Spread footings should extend to a minimum depth of 18 inches below lowest adjacent grade and special measures should be taken to protect the slabs from the swelling pressures of the soils as indicated herein.

Concrete slabs-on-grade should bear on a minimum of 12 inches of non-expansive engineered fill. The existing subgrade beneath the slab should be over-excavated to a depth of 12 inches, the exposed existing subgrade should be moisture conditioned if needed, and then the soils should be replaced with 12 inches of non-expansive engineered fill to help provide more stable building pad.

An engineer or geologist from Terracon should be present during grading and when any excavations are being made to observe the soil lithology and help identify any adverse conditions that may be present that would warrant our recommendations to be revised. We recommend Terracon be retained to evaluate the foundation excavations during construction.

Subsurface conditions, as identified by the field and laboratory testing programs, have been reviewed and evaluated with respect to the proposed development known to us at this time. No plans for the building were available for our review at the time this report was prepared. Terracon shall be provided a copy of the project plans once completed for review and shall be afforded to revise the recommendations contained in this report if warranted.

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Geotechnical engineering recommendations for the foundation system on the project are outlined below. The recommendations contained in this report are based upon the results of field and laboratory testing, engineering analyses, experience, and our current understanding of the project.

4.2 Earthwork

The following presents our recommendations for site preparation, excavation, subgrade preparation and placement of structural fill on the project. The recommendations presented for design and construction of earth supported elements including foundations are contingent upon following the recommendations outlined in this section. All grading should incorporate the limits of the proposed improvements plus a lateral distance of at least five feet beyond the outside perimeter of the structure.

Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of structural fill, subgrade preparation, foundation bearing soils, and other geotechnical elements involved with construction of the project. Such evaluation is considered an extension of this study.

4.2.1 Site Preparation

The proposed construction area was developed with asphalt paving at the time of our field exploration. The asphalt paving will be demolished to accommodate construction of the new maintenance building. All existing debris, debris generated from removal of the asphalt, and other deleterious materials should be stripped and removed within the area of the proposed construction. Exposed surfaces should be free of mounds and depressions, which could prevent uniform compaction.

If encountered, abandoned underground utilities and facilities should be removed and the excavations thoroughly cleaned prior to backfill placement and/or construction.

4.2.2 Subgrade Preparation

After removal of unsuitable materials and prior to placing fill, the subgrade should be proof-rolled and approved by the Engineer where possible to aid in locating loose or soft areas prior to the placement of engineered fill. Proof-rolling can be performed with a loaded tandem axle dump truck. Soft, dry and low-density soil may create difficulty in obtaining the desired compaction and should be removed and replaced with compacted backfill as described in this report.

Care should be taken to prevent wetting or drying of the bearing materials during construction. Wet, dry, or loose/disturbed material should be removed before engineered fill and slab/foundation concrete is placed.

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Exposed areas which will receive fill, once properly cleared, should be scarified to a minimum depth of 12 inches, moisture conditioned, and compacted per the compaction requirements in Section 4.2.4.

4.2.3 Material Types

All fill materials from any source should be inorganic soils free of vegetation, debris, and fragments larger than three inches in size. Pea gravel or other similar non-cementitious, poorly-graded materials should not be used as fill or backfill without the prior approval of the geotechnical engineer.

The on-site soils are not suitable for used as engineered fill. Imported soils for use as fill material within the proposed construction area should conform to low volume change (non-expansive) materials as indicated in the following recommendations:

	Percent Finer by Weight
<u>Gradation</u>	(ASTM C 136)
3"	100
No. 4 Sieve	50 - 100
No. 200 Sieve	15 - 40
Liquid Limit	30 (max)
Plasticity Index	10 (max)
Maximum Expansive Index**	20 (max)

Engineered fill should be placed and compacted in horizontal lifts, using equipment and procedures that will produce recommended moisture contents and densities throughout the lift. Fill lifts should not exceed ten inches in loose thickness.



4.2.4 Compaction Requirements

		the Modified Proctor Test (ASTM D 1557)			
Material Type and Location	Minimum Relative Compaction Requirement	Range of Conte Compacti Optii	nts for on Above		
	(%)	Minimum	Maximum		
Approved imported engineered fill soils:					
Building slab area	95	0%	+3%		
Utility trenches (within landscape areas):	90	0%	+3%		
Utility trenches (slab/paved areas):	95	0%	+3%		
On-site Soils:					
Recompacted native soil under foundations	90	2%	+4%		
Miscellaneous fil:	90	2%	+4%		
Utility trenches (Landscape areas):	90	2%	+4%		

We recommend that compacted native soil or any engineered fill be tested for moisture content and relative compaction during placement. Where light compaction equipment is used, as is typical in utility trenches, the lift thickness may need to be reduced to achieve the desired degree of compaction. Fill should be tested frequently for moisture content and compaction during placement. Should the results of the in-place density tests indicate the specified moisture content or compaction requirements have not been met, the area represented by the test should be reworked and retested as required until the specified moisture content and relative compaction requirements are achieved.

4.2.5 Utility Trenches Backfill and Construction

All trench excavations should be made with sufficient working space to permit construction including backfill placement and compaction. If water is encountered within or allowed to enter the excavations, it should be removed prior to fill placement. If utility trenches are backfilled with relatively clean granular material, they should be capped with at least 18 inches of cohesive fill in non-pavement areas to reduce the infiltration and conveyance of surface water through the trench backfill.

Utility trenches are a common source of water infiltration and migration. All utility trenches that penetrate beneath adjacent structures should be effectively sealed to restrict water intrusion and flow through the trenches that could migrate below the buildings. We recommend constructing an effective "trench plug" that extends at least 5 feet out from the face of the building exteriors. The

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plug material could consist of lean clay compacted at a water content at or above the soils optimum water content or lean concrete. The plug should be placed to completely surround the utility line. If lean concrete is used, then the utility line should be sleeved through flexible material and/or designed to be flexible.

4.2.6 Grading and Drainage

All final grades must provide effective drainage away from the building during and after construction. Water permitted to pond next to the building can result in greater soil movements than those discussed in this report. These greater movements can result in unacceptable differential movements, cracked slabs and walls, and roof leaks. Estimated movements described in this report are based on effective drainage for the life of the improvements and cannot be relied upon if effective drainage is not maintained.

Exposed ground should be sloped at least 2 percent away from the building for at least 10 feet beyond the perimeter of the structure. After construction and any landscaping, we recommend the Civil Engineer/Surveyor verify final grades to document that effective drainage has been achieved. Grades around the improvements should also be periodically inspected and adjusted as necessary, as part of the structure's maintenance program.

Positive drainage should be provided during construction and maintained throughout the life of the improvements. Infiltration of water into utility trenches or excavations should be prevented during construction. Backfill against foundations, exterior walls, and in utility and sprinkler line trenches should be well compacted and free of all construction debris to reduce the possibility of moisture infiltration.

Collect roof runoff in drains or gutters. Discharge roof drains and downspouts away from the existing buildings into tight lines that discharge into the storm drains.

4.2.7 Earthwork Construction Considerations

It is anticipated that excavations for the proposed construction can be accomplished with conventional earthmoving equipment. The contractor should budget and plan their work accordingly. Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be at a high water content. On-site soils may pump or become unworkable at high water contents. The workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workability may be improved by scarifying and drying. If the construction schedule does not allow for scarifying and drying by aeration in place, the contractor may utilize dry crushed rock materials and geogrid to stabilize wet subgrade materials or as an alternative chemical stabilization (lime/cement) may be used. If soil stabilization is needed, Terracon should be consulted to evaluate the situation as needed.

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Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of the foundations and slabs-on-grade. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted prior to construction.

As a minimum, all temporary excavations should be sloped or braced as required by Occupational Safety and Health Administration (OSHA) regulations to provide stability and safe working conditions. The contractor, by his contract, is responsible for designing and constructing stable, temporary excavations (including utility trenches) as required to maintain stability of both the excavation sides and bottom. Excavations should be sloped or shored in the interest of safety following local and federal regulations, including current OSHA excavation and trench safety standards.

Terracon should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation, proof-rolling, placement and compaction of controlled compacted fills, and backfilling of excavations to the completed subgrade.

We recommend that the earthwork portion of this project be completed during extended periods of dry weather if possible. If earthwork is completed during the wet season (typically November through April) it may be necessary to take extra precautionary measures to protect subgrade soils. Wet season earthwork may require additional mitigation measures beyond that which would be expected during the drier summer and fall months. This could include diversion of surface runoff around exposed soils and draining of ponded water on the site or chemical stabilization (lime/cement) of the subgrade. Once subgrades are established, it may be necessary to protect the exposed subgrade soils from construction traffic.

4.3 Foundations

4.3.1 Spread Footing Design Recommendations

DESCRIPTION	RECOMMENDATION
Foundation Type	Conventional shallow spread footings
Bearing Material	Firm native soil or re-compacted native soil
Allowable Bearing Pressure ^{1,2}	
- Firm Native Soil:	2,000 psf
- Two feet of Re-compacted Native Soil:	2,500 psf
Minimum Dimensions (Width)	Walls: 1 foot; Columns: 2 feet
Maximum Dimensions (Width)	Walls: 3 feet: Columns: 5 feet

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DESCRIPTION	RECOMMENDATION
Minimum Embedment Depth Below Finished Grade ³	18 inches
Total Estimated Settlement ⁴	Less than 1 inch
Estimated Differential Settlement ⁴	½ inch in 40 feet
Ultimate passive pressure ⁵	300 pcf, equivalent fluid density
Ultimate coefficient of sliding friction ⁵	0.30

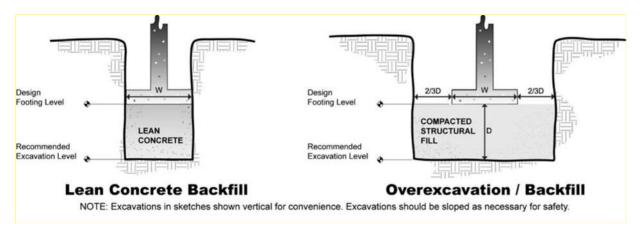
- 1. The recommended allowable bearing pressure is the net pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. Assumes any unsuitable existing fill or soft soils, if encountered, will be undercut and replaced with compacted structural fill. Based upon a minimum Factor of Safety of 3.
- The allowable foundation bearing pressure apply to dead loads plus design live load conditions. The design bearing pressure may be increased by one-third when considering total loads that include wind or seismic conditions. The weight of the foundation concrete below grade may be neglected in dead load computations.
- 3. Finished grade is defined as the lowest adjacent grade within five feet of the foundation for perimeter (or exterior) footings.
- 4. The above settlement estimates from foundation loads have assumed that the minimum footing width is 2 feet for column footings and 1 foot for continuous footings and the maximum footing width is 5 feet for column footings and 3 feet for continuous footings. If different size footings are required to support the building, we should be consulted to provide additional settlement calculations.
- 5. The spread footing foundation excavation sides must be nearly vertical and the concrete should be placed neat against these vertical faces for the passive earth pressure values to be valid. If the loaded side is sloped or benched, and then backfilled, the allowable passive pressure will be significantly reduced. Passive resistance in the upper 1 foot of the soil profile should be neglected. Passive pressure and sliding friction may be combined to resist lateral loads provided the passive pressure is reduced by 50 percent.

4.3.2 Foundation Construction Considerations

If unsuitable bearing soils are encountered in footing excavations, the excavation could be extended deeper to suitable soils and the footing could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. As an alternative, the footings could also bear on properly compacted structural backfill extending down to the suitable soils. Over-excavation for compacted structural fill placement below footings should extend laterally beyond all edges of the footings at least 8 inches per foot of over-excavation depth below footing base elevation. The over-excavation should then be backfilled up to the footing base elevation with well graded granular material placed in lifts of 9 inches or less in loose thickness (6 inches or less if using hand-guided compaction equipment) and compacted to at least 90 percent of the material's modified effort maximum dry density (ASTM D1557). The over-excavation and backfill procedure is described in the following figure.

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Trees or other vegetation whose root systems have the ability to remove excessive moisture from the subgrade and foundation soils should not be planted next to the improvements. Trees and shrubbery should be kept away from the exterior edges of the improvements a distance at least equal to 1.5 times their expected mature height.

To ensure footings have adequate support, special care should be taken when footings are located adjacent to trenches. The bottom of such footings should be at least 1 foot below an imaginary plane with an inclination of 1.5 horizontal to 1.0 vertical extending upward from the nearest bottom edge of the adjacent trench.

4.4 Floor Slabs

4.4.1 Floor Slab Design Recommendations

Item	Description		
Interior floor system	Slab-on-grade concrete		
Sub-base for office areas	4 inches of free draining gravel		
Sub-base for maintenance areas	6 inches of Class 2 aggregate base		
Floor slab support	12 inches of non-expansive engineered fill consisting of low volume change materials.		
Modulus of subgrade reaction	150 pounds per square inch per inch (psi/in) (The modulus was obtained based on prepared subgrade beneath floor slabs, and estimates obtained from NAVFAC 7.1 design charts). This value is for a small loaded area (1 Sq. ft or less) such as for forklift wheel loads or point loads and should be adjusted for larger loaded areas.		

In areas of exposed concrete, control joints should be saw cut into the slab after concrete placement to help control the location and extent of cracking in accordance with the ACI Design

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Manual, Section 302.1R-37 8.3.12 (tooled control joints are not recommended). Tooled joints are not recommended. Additionally, dowels should be placed at the location of proposed construction joints. To control the width of cracking (should it occur) continuous slab reinforcement should be considered in exposed concrete slabs.

4.4.2 Floor Slab Construction Considerations

The use of a vapor retarder should be considered beneath concrete slabs-on-grade that will be covered with wood, tile, carpet or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Some differential movement of a slab-on-grade floor system is possible should the moisture content of the subgrade soils vary significantly. Such movements are anticipated to be within general tolerance for normal slab-on-grade construction. To reduce (not prevent) potential slab movements, the subgrade soils should be prepared as outlined in the **Earthwork** section of this report.

On most project sites, the site grading is generally accomplished early in the construction phase. However as construction proceeds, the subgrade may be disturbed due to utility excavations, construction traffic, desiccation, rainfall, etc. As a result, the floor slab subgrade may not be suitable for placement of base rock and concrete and corrective action will be required.

Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by removing and replacing the affected material with properly compacted fill. All foundation subgrade areas should be moisture conditioned and properly compacted to the recommendations in this report immediately prior to placement of the granular material and concrete.

4.5 Corrosivity/Resistivity Testing

Laboratory soil pH, sulfate content tests, and laboratory resistivity tests were conducted on one selected soil sample recovered from boring B2 at a depth of 2 feet bgs to assess the corrosivity risk of the soils at the site. The results of the laboratory testing are provided in Appendix B of this report and are also discussed herein. These test results are provided to assist in determining the type and degree of corrosion protection that may be required for the project. We recommend that a certified corrosion engineer determine the need for corrosion protection and design appropriate protective measures.

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4.5.1 Resistivity

The resistivity of the laboratory tested samples from boring B1 was determined to be 3,880 ohm-cm. The resistivity values indicate that the samples tested exhibit moderate corrosive potential to buried metal pipes.

Evaluation of the test results is based upon the guidelines of J.F. Palmer, "Soil Resistivity Measurements and Analysis", Materials Performance, Volume 13, January 1974. The following table outlines the guidelines for soil resistivity for corrosion potential.

Corrosion Potential	Corrosion Potential of Soil on Steel						
Soil Resistivity (ohm-cm) Corrosion Potential							
0 to 1,000	Very High						
1,000 to 2,000	High						
2,000 to 5,000	Moderate						
> 5,000	Mild						

4.5.2 Sulfates

The sulfate testing resulted in a water soluble sulfate concentration of 36 parts per million (ppm). According to the California Building Code, shotcrete and concrete that will be exposed to sulfate-containing solutions should be designed in accordance with ACI 318, Section 4.3. Results of soluble sulfate testing indicate the sulfate levels of the subgrade soils are Class S0 (Not Applicable) when considering corrosion to concrete.

4.5.3 Laboratory pH

Data suggests the soil pH should not be the dominant soil variable affecting soil corrosion if the soil has a pH in the 5 to 8 range. Based on our laboratory pH test, the soil sample tested has a pH value of 8.07. The pH of the sample is above the recommended range, and should therefore be considered when determining soil corrosion potential.

5.0 GENERAL COMMENTS

Terracon should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the boring performed at the indicated location and from other information discussed in this report. This report does not reflect variations that may occur across the site, or due to the

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modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing. This report should not be used after 3 years.

APPENDIX A FIELD EXPLORATION

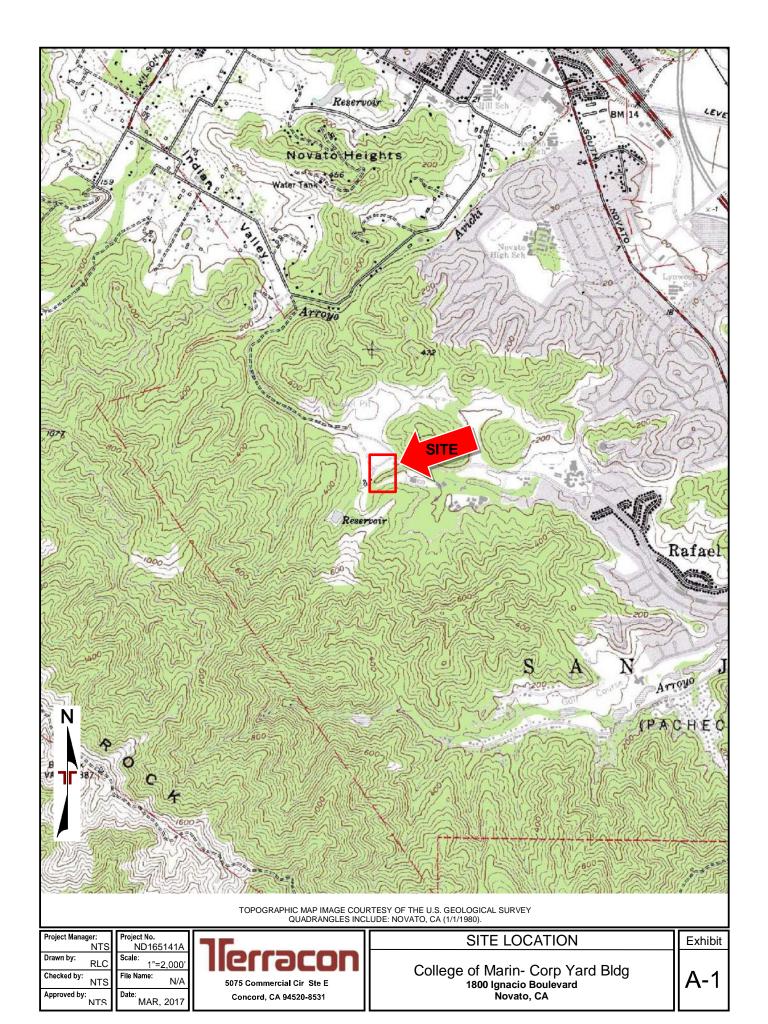




DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS



EXPLORATION PLAN

College of Marin- Corp Yard Bldg 1800 Ignacio Boulevard Novato, CA Exhibit

A-2

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Field Exploration Description

The subsurface exploration consisted of drilling and sampling two borings at the site to depths of 26½ and 46 feet below existing site grades. The boring locations were laid out in the field by a Terracon representative utilizing hand-held GPS equipment. The locations of the borings should be considered accurate only to the degree implied by the means and methods used to define them.

The borings were drilled with a D-50 track mounted drill rig using 6¼-inch diameter, continuous flight, hollow-stem augers to advance the boreholes. Samples of the soil encountered in the borings were obtained using the split-barrel sampling procedures.

Sampling of the drilled borings was performed at various depths using a California Modified (CM) 2.5-inch outer diameter (OD) split spoon sampler with stainless steel tube liners and a Standard Penetration Test (SPT) 2-inch OD split spoon sampler. Penetration resistance measurements (blow counts) were obtained by driving the samplers with a 140-pound hammer falling 30 inches. Raw blow counts required to drive the sampler every 6 inches for a total of 18 inches were recorded and are reported in the Field Test Results column on the logs. Blow counts for the final 12 inches are displayed on the logs as an "N" value when the standard 2-inch OD sampler is used. The penetration resistance value is a useful index in estimating the consistency or relative density of materials encountered.

The samples were tagged for identification, sealed to reduce moisture loss, and taken to our laboratory for further examination, testing, and classification. Information provided on the boring logs attached to this report includes soil descriptions, consistency evaluations, boring depths, sampling intervals, and groundwater conditions. The borings were backfilled with neat cement grout prior to the drill crew leaving the site.

A field log of each boring was prepared by the field engineer. These logs included visual classifications of the materials encountered during drilling as well as the driller's interpretation of the subsurface conditions between samples. Final boring logs included with this report represent the engineer's interpretation of the field logs and include modifications based on laboratory observation and tests of the samples.

APPENDIX B LABORATORY TESTING

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Laboratory Testing

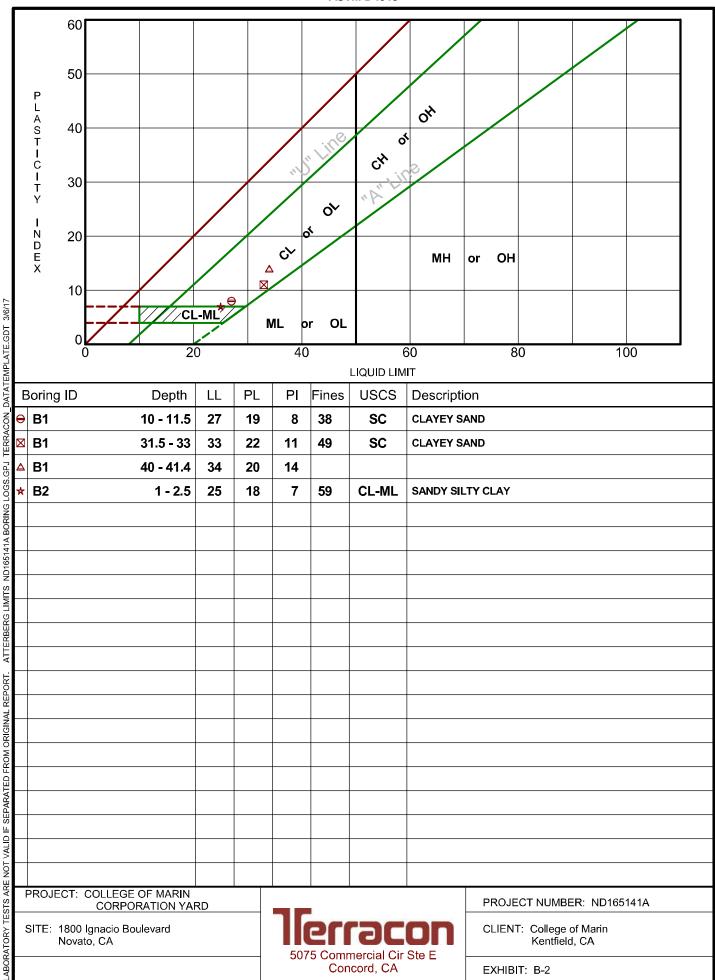
Soil samples were tested in the laboratory to measure their natural water content and dry density. The test results are provided on the boring logs included in Appendix A.

Descriptive classifications of the soils and rock indicated on the boring logs are in accordance with the enclosed General Notes, the Unified Soil Classification System, and Description of Rock Properties. Also shown are estimated Unified Soil Classification Symbols. A brief description of this classification system is attached to this report. All classification was by visual manual procedures. Selected samples were further classified using the results of Atterberg limits testing as well as a No. 200 sieve wash test. The Atterberg limits test and wash test results are also provided on the boring logs.

One soil sample was selected for testing to determine its corrosiveness to buried metal and concrete. The results of the testing are presented on Exhibit B-3.

ATTERBERG LIMITS RESULTS

ASTM D4318



CHEMICAL LABORATORY TEST REPORT

Project Number: ND165141A **Service Date:** 02/19/17 **Report Date:** 02/20/17

Las Vegas, Nevada 89119

Task:

Client **Project**

College of Marin - Corporation Yard Building

(702) 597-9393

Sample Submitted By: Terracon (ND) Lab No.: 17-0131 **Date Received:** 2/15/2017

Results of Corrosion Analysis

Sample Number	I
Sample Location	B2
Sample Depth (ft.)	2.0
pH Analysis, AWWA 4500 H	8.07
Water Soluble Sulfate (SO4), ASTM D 516 (mg/kg)	36
Sulfides, AWWA 4500-S D, (mg/kg)	Nil
Red-Ox, AWWA 2580, (mV)	+664
Total Salts, AWWA 2510, (mg/kg)	218
Chlorides, ASTM D 512, (mg/kg)	50
Resistivity, ASTM G 57, (ohm-cm)	3880

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

APPENDIX C SUPPORTING DOCUMENTS

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

	Modified California		 ✓ Water Initially Encountered ✓ Water Level After a Specified Period of Time 		N (HP)	Standard Penetration Test Resistance (Blows/Ft.) Hand Penetrometer
NG NG	Along Sampler	LEVEL		STS	(T)	Torvane
MPL		∞	Water levels indicated on the soil boring logs are the levels measured in the	LD TES	(DCP)	Dynamic Cone Penetrometer
SA		WATE	borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils,	FE	(PID)	Photo-Ionization Detector
			accurate determination of groundwater levels is not possible with short term water level observations.		(OVA)	Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

	RELATIVE DENSITY OF COARSE-GRAINED SOILS		CONSISTENCY OF FINE-GRAINED SOILS				BEDROCK			
	(More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance			(50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance						
RMS	Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength Qu, (tsf)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.	Ring Sampler Blows/Ft.	Standard Penetration or N-Value Blows/Ft.	Descriptive Term (Consistency)
표표	Very Loose	0 - 3	0 - 6	Very Soft	less than 0.25	0 - 1	< 3	< 30	< 20	Weathered
NGT	Loose	4 - 9	7 - 18	Soft	0.25 to 0.50	2 - 4	3 - 4	30 - 49	20 - 29	Firm
뿔	Medium Dense	10 - 29	19 - 58	Medium-Stiff	0.50 to 1.00	4 - 8	5 - 9	50 - 89	30 - 49	Medium Hard
ြလ	Dense	30 - 50	59 - 98	Stiff	1.00 to 2.00	8 - 15	10 - 18	90 - 119	50 - 79	Hard
	Very Dense	> 50	<u>></u> 99	Very Stiff	2.00 to 4.00	15 - 30	19 - 42	> 119	>79	Very Hard
				Hard	> 4.00	> 30	> 42			

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Major Component Descriptive Term(s) Percent of Particle Size Dry Weight of other constituents of Sample < 15 Boulders Over 12 in. (300 mm) 15 - 29 12 in. to 3 in. (300mm to 75mm) Cobbles Modifier > 30 Gravel 3 in. to #4 sieve (75mm to 4.75 mm)

Sand

Silt or Clay

GRAIN SIZE TERMINOLOGY

PLASTICITY DESCRIPTION

RELATIVE PROPORTIONS OF FINES

Trace

With

<u>Descriptive Term(s)</u> of other constituents	<u>Percent of</u> Dry Weight	<u>Term</u>	Plasticity Index	
		Non-plastic	0	
Trace	< 5	Low	1 - 10	
With	5 - 12	Medium	11 - 30	
Modifier	> 12	High	> 30	



Exhibit: C-1

#4 to #200 sieve (4.75mm to 0.075mm

Passing #200 sieve (0.075mm)

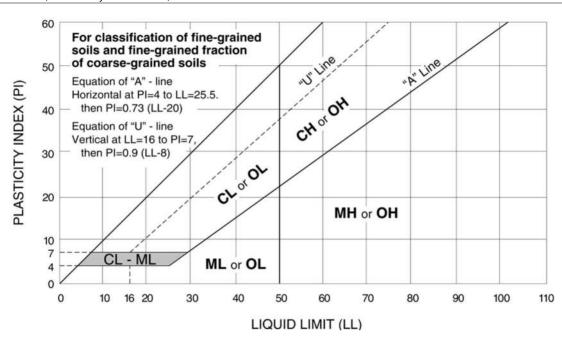
UNIFIED SOIL CLASSIFICATION SYSTEM

					Soil Classification	
Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests A					Group Symbol	Group Name ^B
Coarse Grained Soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels: Less than 5% fines ^C	Cu ≥ 4 and 1 ≤ Cc ≤ 3 ^E		GW	Well-graded gravel F
			Cu < 4 and/or 1 > Cc > 3 ^E		GP	Poorly graded gravel F
		Gravels with Fines: More than 12% fines ^C	Fines classify as ML or MH		GM	Silty gravel F,G,H
			Fines classify as CL or CH		GC	Clayey gravel F,G,H
	Sands: 50% or more of coarse fraction passes No. 4 sieve	Clean Sands: Less than 5% fines D	Cu ≥ 6 and 1 ≤ Cc ≤ 3 ^E		SW	Well-graded sand ^I
			Cu < 6 and/or 1 > Cc > 3 ^E		SP	Poorly graded sand ^I
		Sands with Fines: More than 12% fines ^D	Fines classify as ML or MH		SM	Silty sand G,H,I
			Fines classify as CL or CH		SC	Clayey sand G,H,I
Fine-Grained Soils: 50% or more passes the No. 200 sieve	Silts and Clays: Liquid limit less than 50	Inorganic:	PI > 7 and plots on or above "A" line J		CL	Lean clay K,L,M
			PI < 4 or plots below "A" line J		ML	Silt K,L,M
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay K,L,M,N
			Liquid limit - not dried			Organic silt K,L,M,O
	Silts and Clays: Liquid limit 50 or more	Inorganic:	PI plots on or above "A" line		CH	Fat clay K,L,M
			PI plots below "A" line		MH	Elastic Silt K,L,M
		Organic:	Liquid limit - oven dried	< 0.75	ОН	Organic clay K,L,M,P
			Liquid limit - not dried			Organic silt K,L,M,Q
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

^A Based on the material passing the 3-inch (75-mm) sieve

^E
$$Cu = D_{60}/D_{10}$$
 $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

^Q PI plots below "A" line.





^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^c Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

^F If soil contains ≥ 15% sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

¹ If soil contains ≥ 15% gravel, add "with gravel" to group name.

^J If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

^L If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

M If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

^N PI ≥ 4 and plots on or above "A" line.

 $^{^{\}rm O}$ PI < 4 or plots below "A" line.

P PI plots on or above "A" line.

LIQUEFACTION ANALYSIS

College of Marin Corp Yard



Magnitude=7.48 Acceleration=.5g

