ADDENDUM NUMBER TWO
DATE: APRIL 10, 2023

PROJECTS	Colusa County Office of Education Underground Utility Improvement Williams, CA	
AGENCY	Division of the State Architect (DSA)	
TO	**All Bidders**	
FROM	Nichols, Melburg & Rossetto 555 Main Street, Suite 300 Chico, CA 95928 (530) 891-1710	
PAGES	This Addendum consists of ninety-nine (99) pages.	
ATTACHMENTS	See changes below; not all changes have resulted in the project manual/ specifications/drawings being replaced via attachment; new information/ requirements are described below.	
	Revised Specifications:	None.
	Revised Drawings:	A000, C002, C003, C101, C201, C301, C401, C601, C701, E000, E001, E003, E101, E401, E404
	New Clarification Drawings:	None.
	Revised Details:	None.
	Other:	None.
	Reference Drawings:	Geotechnical Report DSA 103 Underground Utilities Location Map

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents. Colusa County Office of Education documents dated 06/1/2021 and approved by DSA on 07/15/2021.

Acknowledge receipt of this Addendum in the space provided on the Bid Form.

I CHANGES TO PRIOR ADDENDA:

I-1	None.

II CHANGES TO BIDDING REQUIREMENTS:

II-1	None.

III CHANGES TO AGREEMENT AND OTHER CONTRACT FORMS:

III-1	None.

IV CHANGES TO CONDITIONS OF CONTRACT:

IV-1	None.

V CHANGES TO SPECIFICATIONS:

V-1	None.

VI CHANGES TO DRAWINGS:

VI-1	A000 – Scope of work reduced
VI-2	C002 – General notes
VI-3	C003 – General notes
VI-4	C101 – Updated Topographic map and demo plan
VI-5	C201 – Updated site plan
VI-6	C301 – Updated grading and drainage plan
VI-7	C401 – Updated utilities plan
VI-8	C601 – Updated erosion & sediment plan
VI-9	C701 - Details
VI-10	E000 – Updated electrical specifications
VI-11	E001 – Updated electrical schedule
VI-12	E003 – Updated one-line diagram
VI-13	E101 – Updated electrical site plan
VI-14	E401 – Updated details
VI-15	E404 – Updated title 24 documents

VII OTHER CHANGES OR GENERAL INFORMATION:

VII-1	

LICENSED ARCHITECT
WESLEY G. KING JR.
C-29216
REN. 6/30/23
STATE OF CALIFORNIA

Wesley King Jr.
Principal Architect
Nichols, Melburg & Rossetto
king@nmrdesign.com

END OF DOCUMENT

DSA PR 15-01

The POT identified in these construction documents meets the requirements of the current applicable California Building Code (CBC) accessibility provisions for path of travel requirements for alterations, additions and structural repairs. As part of the design of this project, the POT was examined and any elements, components or portions of the POT that were determined to be noncompliant with the CBC have been identified and the corrective work necessary to bring them into compliance has been included within the scope of this project's work through details, drawings and specifications incorporated into these construction documents. Any noncompliant elements, components or portions of the POT that will not be corrected by this project based on valuation threshold limitations or a finding of unreasonable hardship are indicated in these construction documents.

During construction, if POT items within the scope of the project represented as CBC compliant are found to be nonconforming beyond reasonable construction tolerances, the items shall be brought into compliance with the CBC as a part of this project by means of a construction change document.

BUILDING DATA

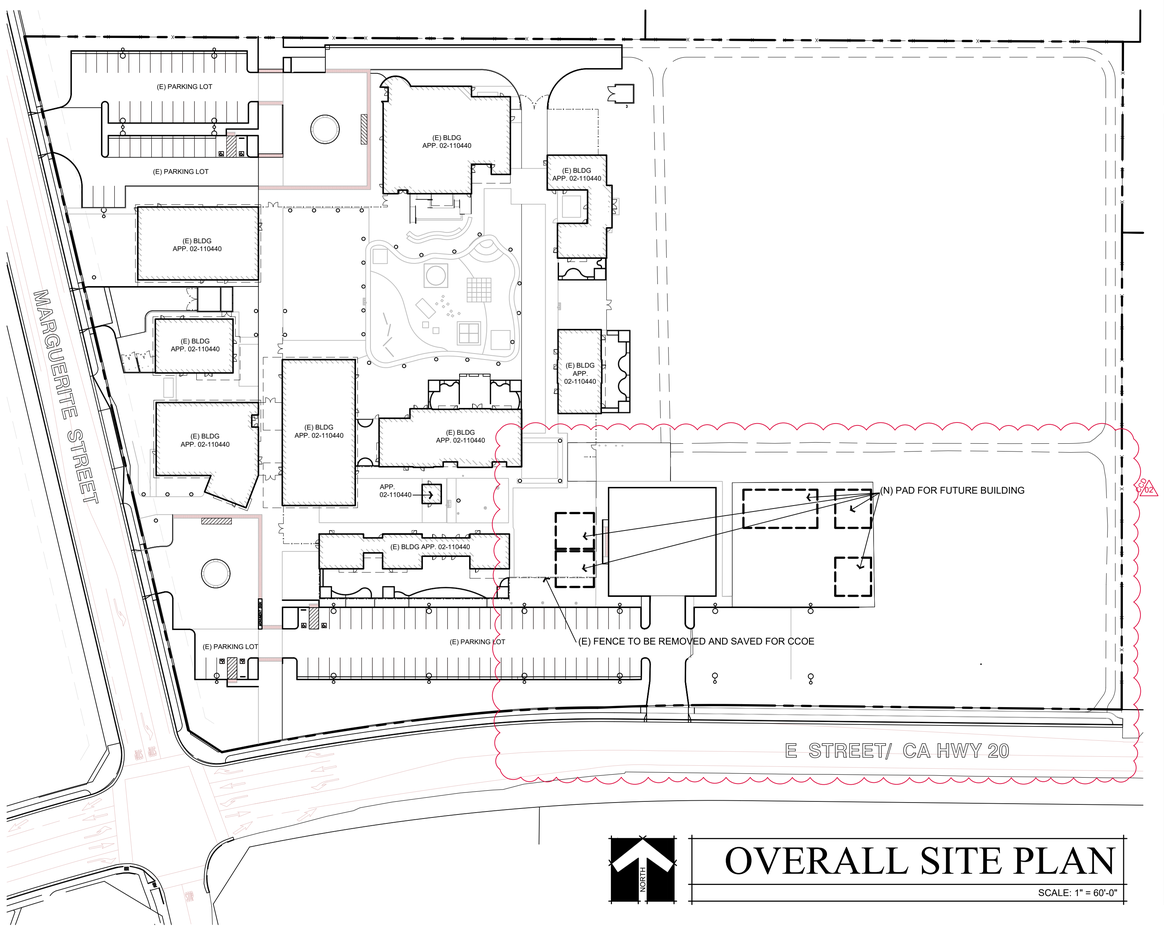
OCCUPANCY:	GROUP B
CONSTRUCTION TYPE:	VB
BASE ALLOWABLE BLDG AREA (CBC TABLE 503):	9,000 s.f.
ACTUAL AREA:	1,080 s.f.

GENERAL SITE NOTES

1. THE ARCHITECT HAS SURVEYED THE PATH OF TRAVEL (P.O.T.) AS INDICATED ON THE PLANS AND FOUND IT TO BE OR HAS INDICATED ON THE PLANS REMEDIAL WORK WHICH WOULD CAUSE IT TO BE A BARRIER-FREE ACCESSIBLE ROUTE:
   - AT LEAST 48" IN WIDTH; OR AS APPROVED BY CODE.
   - WITHOUT ABRUPT LEVEL CHANGES EXCEEDING 1/2" IF BEVELED AT 1/2 MAXIMUM SLOPE, OR VERT. LEVEL CHANGES EXCEEDING 1/4".
   - WITH A FIRM, STABLE AND SLIP RESISTANT WALKING SURFACE
   - WITH A RUNNING SLOPE OF 1:20 OR LESS, UNLESS OTHERWISE INDICATED, AND A CROSS SLOPE OF 1:50 OR LESS.
   - IS FREE OF OVERHEAD OBSTRUCTIONS WITHIN 80" ABOVE THE WALKING SURFACE AND
   - IS FREE OF OBJECTS WHICH PROTRUDE MORE THAN 4" BETWEEN THE HEIGHTS OF 27" AND 80" ABOVE THE WALKING SURFACE.
2. EXISTING UTILITIES ARE ADEQUATE TO SERVE THE NEW CONSTRUCTION
3. CHANGES DURING CONSTRUCTION TO BE BY CONSTRUCTION CHANGE DOCUMENT (CCD) APPROVED BY ARCHITECT AND DSA

SCOPE OF WORK

UNDERGROUND UTILITY WORK TO BRING ELECTRICAL TO LOCATION OF FUTURE PORTABLE BUILDINGS.



OVERALL SITE PLAN

SCALE: 1" = 60'-0"

Login Name: Hana
Plot Date: March 30, 2023, 3:03 pm
File Name: G:\2021\21-2947 Colusa County Adult Ed Modular\0-0 CAD\0-06 Sheets\CCOE A000 - SITE.dwg
XREFS: x-site | 36443_L_TOPO | x-tb_D

DSA 810

FIRE & LIFE SAFETY SITE CONDITIONS SUBMITTAL

Division of the State Architect (DSA) documents referenced within this publication are available on the DSA Forms or DSA Publications webpages.

To facilitate the Division of the State Architect's (DSA) fire and life safety plan review of project site conditions, DSA requires the design professional to provide the following information at time of project submittal for projects consisting of construction of a new campus, construction of new building(s), additions to existing buildings, and for site alternate design means for fire department emergency vehicle access, and fire suppression water supply.

Information associated with compliance items 1 through 3 below is to be provided for all project types indicated above. Information associated with items 4 through 7 is to be completed when an alternate means is utilized. Acknowledgement by the school district and signature from the Local Fire Authority (LFA) is only required when an alternate design means is being requested.

The Project Information and Fire & Life Safety Information sections are to be completed for all projects and imaged onto the fire access site plan. When an alternate design/means is proposed, all sections on pages 1 and 2 are to be completed and imaged on the fire access site plan.

For additional information refer to the instructions at the end of this form and DSA Policy *PL 09-01: Fire Flow for Buildings*.

PROJECT INFORMATION

School District/Owner:	Colusa County Office of Education
Project Name/School:	Colusa County Office of Education
Project Address:	499 Margurite Street, Williams, CA 95987

FIRE & LIFE SAFETY INFORMATION

1.	Has a fire hydrant flow test been performed within the past 12 months? *(If yes, provide a copy of the test data.)*	Yes ☐		No ☑
2.	Was the fire hydrant water flow test performed as part of this LFA review?	Yes ☐		No ☑
3.	Is the project located within a designated fire hazard severity zone (FHSZ) as established by Cal-Fire? *(If yes, indicate FHSZ classification below.)*	Yes ☐		No ☑
	Refer to the following website for FHSZ locations: http://egis.fire.ca.gov/FHSZ/	Moderate ☐	High ☐	Very High ☐
	Wildland Interface Area (WIFA) *(If any designations are checked, project design must meet the requirements of CBC Chapter 7A.)*			WIFA ☐

DSA 810

FIRE & LIFE SAFETY SITE CONDITIONS SUBMITTAL

	CONDITION MEANS AND METHODS RESOLUTION	ALTERNATE ACCEPTED Yes	No	N/A	N/R
4.	Emergency vehicle access roadways do not meet CFC requirements.			✓	
4a.	**Acceptable Alternate:** Emergency vehicle and personnel access as proposed by the project architect is acceptable for providing fire suppression and protection of life and property.				
5.	**Fire Hydrants:** Number and spacing does not meet CFC requirements.			✓	
5a.	**Acceptable Alternate:** Number of fire hydrants and spacing as proposed by the project architect is acceptable for fire suppression and protection of life and property.				
6.	**Fire Hydrants:** Water flow and pressure are less than CFC minimum.			✓	
6a.	**Acceptable Alternate:** The available flow and pressure is acceptable for providing fire suppression and protection of life and property.				
7.	Location of fire department connection(s) serving fire sprinkler systems or standpipe systems does not meet CFC requirements.			✓	
7a.	**Acceptable Alternate:** The location of fire department connection serving the fire sprinkler system and/or standpipe system is acceptable for providing fire suppression and protection of life and property.				

School District Acceptance of Acceptable Design Alternates

By signing this form, the school district acknowledges and accepts the proposed design as an alternative to California Building Code (CBC) and California Fire Code (CFC) minimum requirements, as indicated by one or more of the conditions indicated at items 4a, 5a, 6a or 7a, for providing fire and life safety protection of life and property.

Accepted by: _____ Title: _____

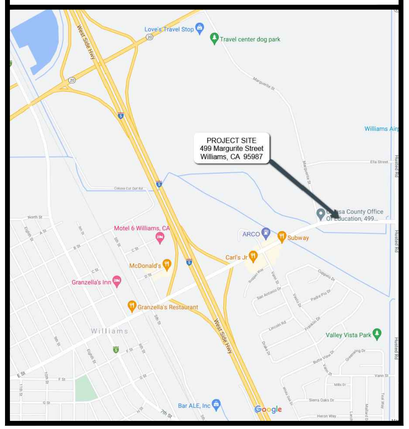
Signature: _____ Date: _____

LOCAL FIRE AUTHORITY (LFA) INFORMATION

LFA Agency Name: Williams Fire Protection Authority	
LFA Review Official: Jeff Gilbert	
Title: Fire Chief	Work Phone: (530) 473-2269
Work Email: c300@williamsfire.net	

LFA Reviewer's Signature: _____ Date: 7-2-21

VICINITY MAP



SHEET INDEX

A000	OVERALL SITE PLAN
~~A010~~	~~ENLARGED SITE PLAN / DETAILS~~
~~A011~~	~~SITE DETAILS~~
~~A201~~	~~ACCESSIBLE RESTROOM PLAN~~
~~A900~~	~~DETAILS~~
C001	CIVIL TITLE SHEET
C002	ABBREVIATIONS & GENERAL NOTES
C003	GENERAL NOTES
C101	TOPOGRAPHIC SURVEY & DEMOLITION PLAN
C201	CIVIL SITE PLAN
C301	GRADING AND DRAINAGE PLAN
~~C302~~	~~GRADING AND DRAINAGE PLAN~~
~~C303~~	~~GRADING AND DRAINAGE PLAN~~
C401	UTILITIES PLAN
~~C601~~	~~EROSION & SEDIMENTATION CONTROL PLAN~~
C701	DETAILS
~~C702~~	~~DETAILS~~
~~C801~~	~~CROSS SECTIONS~~
E000	ELECTRICAL SPECIFICATIONS
E001	ELECTRICAL SCHEDULES
E003	ONE-LINE DIAGRAM
E101	ELECTRICAL SITE PLAN
E401	ELECTRICAL DETAILS
~~E402~~	~~TITLE 24 INDOOR COMPLIANCE DOCUMENTS~~
~~E403~~	~~TITLE 24 OUTDOOR COMPLIANCE DOCUMENTS~~
E404	TITLE 24 ELECTRICAL DOCUMENTS
~~FA000~~	~~FIRE ALARM SPECIFICATIONS~~
~~FA101~~	~~FIRE ALARM SITE PLAN~~
~~FA201~~	~~FIRE ALARM PLAN~~
~~FA401~~	~~FIRE ALARM DETAILS~~
APPLICATION # 02-53908	
~~A2~~	~~FLOOR PLAN, EXTERIOR ELEVATIONS AND GEN. SPECIFICATIONS~~
~~A3~~	~~ELECTRICAL AND REFLECTED CEILING PLAN~~
~~A4~~	~~STANDARD DETAILS AND NOTES~~
~~S1~~	~~FOUNDATION PLAN~~
~~S2.1~~	~~FLOOR AND ROOF FRAMING PLAN~~
~~S5~~	~~GENERAL STRUCTURAL NOTES~~

STATEMENT OF GENERAL CONFORMANCE

DRAWINGS AND/OR SPECIFICATIONS AND/OR CALCULATIONS FOR THE ELECTRICAL ENGINEERING AND THE PORTABLE MANUFACTURING DISCIPLINES LOCATED IN THE DRAWING INDEX HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONALS OR CONSULTANTS WHO ARE LICENSED AND/OR AUTHORIZED TO PREPARE SUCH DRAWINGS IN THIS STATE.

THESE DOCUMENTS HAVE BEEN EXAMINED FOR DESIGN INTENT AND APPEAR TO MEET THE APPROPRIATE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS.

THESE DOCUMENTS HAVE BEEN COORDINATED WITH THE ARCHITECTURAL PLANS AND SPECIFICATIONS AND ARE ACCEPTABLE FOR INCORPORATION INTO THE CONSTRUCTION OF THIS PROJECT FOR WHICH I AM THE INDIVIDUAL DESIGNATED TO BE IN GENERAL RESPONSIBLE CHARGE (OR FOR WHICH I HAVE BEEN DELEGATED RESPONSIBILITY FOR THIS PORTION OF THE WORK.)

SIGNATURE OF THE ARCHITECT — DATE: 03/31/2023

C - 29216 — LICENCE NUMBER — RENEWAL DATE: 06 . 30 . 2021

APPLICABLE CODES

Title 19 CCR, Public Safety, State Fire Marshal Regulations.
Title 24 CCR, Part 1 - 2019 Building Standards Administrative Code
Title 24 CCR, Part 2 - 2019 California Building Code, Vol. 1 & 2 (CBC); (2018 IBC, as amended by CA)
Title 24 CCR, Part 3 - 2019 California Electrical Code (CEC); (2017NEC, as amended by CA)
Title 24 CCR, Part 4 - 2019 California Mechanical Code (CMC); (2018 IAMPO UMC, as amended by CA)
Title 24 CCR, Part 5 - 2019 California Plumbing Code (CPC); (2018 IAPMO UPC, as amended by CA)
Title 24 CCR, Part 9 - 2019 California Fire Code (CFC); (2018 IFC, as amended by CA)
Title 24 CCR, Part 12 - 2019 California Reference Standards 2016 NFPA 72, National Fire Alarm Code (CA amended)

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300 KNOLLCREST DRIVE
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http://www.nmrdesign.com

LICENSE STAMPS

LICENSED ARCHITECT — WESLEY G. KING JR. — C-29216 — REN. 6/30/23 — STATE OF CALIFORNIA

PROJECT NAME

A PROPOSED CLASSROOM RELOCATION FOR

COLUSA COUNTY ADULT EDUCATION CENTER

COLUSA COUNTY OFFICE OF EDUCATION
WILLIAMS, CALIFORNIA

SHEET TITLE

OVERALL SITE PLAN

DRAWING STATUS

REVISIONS

Sym.	Description	By	Date
02	CCD 002		03/2023

Drawn By	
Checked By	DRA
Date Drawn	6.1.21
Scale	AS NOTED
Job No.	21-2947

SHEET No.

A000

ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
ACP	ASBESTOS CEMENT PIPE
ARV	AIR RELEASE VALVE
ASB	AGGREGATE SUBBASE
BC	BEGIN CURVE
BEW	BACK EDGE OF WALK
BM	BENCH MARK
BOC	BACK OF CURB
BOV	BLOW-OFF VALVE
BVC	BEGIN VERTICAL CURVE
BW	BASE OF WALL
CATV	CABLE TELEVISION
C&G	CURB AND GUTTER
C,G,&SW	CURB, GUTTER AND SIDEWALK
CC	CENTER TO CENTER
CICP	CAST IN PLACE CONCRETE PIPE
CL	CENTERLINE, CONTROL LINE, CHAIN LINK OR CLASS
CO	CLEANOUT
CONC	CONCRETE
CONST	CONSTRUCT
COR	CORNER
CP	CONCRETE PIPE
CR	CURB RETURN
CSP	CORRUGATED STEEL PIPE
DC	DOUBLE CHECK
DCA	DETECTOR CHECK ASSEMBLY
DI	DRAINAGE INLET
DIP	DUCTILE IRON PIPE
DTL	DETAIL
DW	DRIVEWAY
DWG	DRAWING
E	EAST
EC	END CURVE
ELEC	ELECTRIC(AL)
EL, ELEV	ELEVATION
EP	EDGE OF PAVEMENT
EQUIV	EQUIVALENT
EVC	END VERTICAL CURVE
EX, EXIST	EXISTING
EXP JT	EXPANSION JOINT
FB	FLUSHER BRANCH
FC	FINISHED CONCRETE
FEW	FRONT EDGE OF WALK
FF, FIN FLR	FINISHED FLOOR
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FOC	FACE OF CURB OR CONCRETE
GB	GRADE BREAK
INTX	INTERSECTION
INV	INVERT
IRR	IRRIGATION
JB	JUNCTION BOX
JT	JOINT-USE TRENCH
L	LEFT
LF	LINEAL FEET
LOG	LIP OF GUTTER
LT	LEFT OR LIGHT
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MOC	MIDDLE OF CURVE
MON	MONUMENT
MRC	MINIMUM RELATIVE COMPACTION
MTD	MOUNTED
N	NORTH
NG	NATURAL GROUND
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OA	OVERALL
OH	OVERHEAD
PB	PULL BOX
PCC	PORTLAND CEMENT CONCRETE OR POINT OF COMPOUND CURVATURE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
POC	POINT OF CONNECTION, POINT ON CURVE
PRC	POINT OF REVERSE CURVATURE
PRVC	POINT OF REVERSE VERTICAL CURVATURE
PROJ	PROJECTED
PROP	PROPERTY
PSE	PUBLIC SERVICE EASEMENT
PT	POINT
PUE	PUBLIC UTILITY EASEMENT
PVCP	POLYVINYL CHLORIDE PIPE
PVMT	PAVEMENT
PWD	PUBLIC WORKS DEPARTMENT
R	RADIUS, RADIAL OR RIGHT
RCP	REINFORCED CONCRETE PIPE
REQ'TS	REQUIREMENTS
RET	RETAINING
RP	RADIUS POINT OR REFERENCE POINT
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
RT	RIGHT
R/W	RIGHT-OF-WAY
S	SOUTH OR SLOPE
SCH	SCHEDULE
SD	STORM DRAIN
SEC	SECTION
SEP	SEPARATION
SIM	SIMILAR
SL	STREET LIGHT
SS	SEWER SERVICE, SANITARY SEWER
STD	STANDARD
SW	SIDEWALK
SYM	SYMMETRICAL
TC	TOP OF CURB OR CONCRETE
TEL	TELEPHONE
TEMP	TEMPORARY
TFOC	TOP FACE OF CURB
TRAF	TRAFFIC
TRANS	TRANSITION
TW	TOP OF WALL
TYP	TYPICAL
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
VAR	VARIES OR VARIABLE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
W	WEST
WM	WATER METER OR WATER MAIN
WS	WATER SERVICE
XFMR	TRANSFORMER
XING	CROSSING

Login Name: ythao
Plot Date: March 30, 2023 - 2:26 pm
File Name: X:\Land Projects\3544-3\dwg\3544-3_C002.dwg
XREFS: _BRDR

GENERAL NOTES:

1. STANDARDS AND PLANS

A. UNLESS SHOWN OR SPECIFIED OTHERWISE, ALL CONSTRUCTION AND MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF THE CITY OF WILLIAMS STANDARD SPECIFICATIONS AND DETAILS, WITH THESE PLANS, THE PROJECT SPECIFICATIONS, AND WITH THE LATEST EDITIONS OF THE STATE "CALTRANS" STANDARD SPECIFICATIONS AND STANDARD PLANS, SIGN SPECIFICATION SHEETS AND TRAFFIC MANUAL AND THE CALIFORNIA MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) AND THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE. THE CONTRACTOR SHALL OBTAIN AND USE ALL APPLICABLE ADDENDUMS.

B. IT IS INTENDED THAT THESE PLANS AND SPECIFICATIONS REQUIRE ALL LABOR AND MATERIALS NECESSARY AND PROPER FOR THE WORK CONTEMPLATED AND THAT THE WORK BE COMPLETED IN ACCORDANCE WITH THEIR TRUE INTENT AND PURPOSE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY REGARDING ANY DISCREPANCIES OR AMBIGUITIES WHICH MAY EXIST IN THE PLANS OR SPECIFICATIONS. THE ENGINEER'S INTERPRETATION OR CORRECTION THEREOF SHALL BE CONCLUSIVE.

C. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE ALL NECESSARY SITE INSPECTIONS AND DETERMINE ALL ITEMS OF WORK NOT SPECIFICALLY SHOWN AS BID ITEMS, OR OTHERWISE INDICATED, PRIOR TO BIDDING. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL ITEMS OF WORK NECESSARY TO PERFORM A COMPLETE AND ACCEPTABLE JOB.

D. WHERE THE PLANS OR SPECIFICATIONS DESCRIBE PORTIONS OF THE WORK IN GENERAL TERMS BUT NOT IN COMPLETE DETAIL, IT IS UNDERSTOOD THAT ONLY THE BEST GENERAL PRACTICE IS TO PREVAIL AND THAT ONLY MATERIALS AND WORKMANSHIP OF THE FIRST QUALITY ARE TO BE USED.

E. THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS AND THE CITY.

F. THE MAP SHOWN ON SHEET 1 IS FOR GENERAL INFORMATION ONLY AND IS NOT INTENDED TO REPLACE THE DETAILED SHEETS ELSEWHERE IN THIS SET OF PLANS.

2. EXISTING UTILITIES AND COORDINATION OF WORK

A. THE TYPES, LOCATIONS, SIZES AND/OR DEPTHS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE IMPROVEMENT PLANS WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE TYPES, EXTENT, SIZES, LOCATIONS AND DEPTHS OF SUCH UNDERGROUND UTILITIES. LAUGENOUR AND MEIKLE ASSUMES NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF ITS DELINEATION OF SUCH UNDERGROUND UTILITIES, NOR FOR THE EXISTENCE OF OTHER BURIED OBJECTS OR UTILITIES WHICH MAY BE ENCOUNTERED BUT WHICH ARE NOT SHOWN ON THESE DRAWINGS.

B. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE UTILITY COMPANIES INVOLVED AND REQUESTING A VISUAL VERIFICATION OF THE LOCATIONS OF THEIR UNDERGROUND FACILITIES. THE INSPECTOR AND THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR OF THE SCHEDULED TIME AND PLACE OF SUCH VISUAL VERIFICATION TO ENABLE THEM TO HAVE REPRESENTATIVES PRESENT. IF IN THE OPINION OF THE INSPECTOR A CONFLICT EXISTS, THEN THE ENGINEER SHALL: (1) MAKE ANY NEEDED GRADE AND/OR ALIGNMENT ADJUSTMENTS AND REVISE THE PLANS ACCORDINGLY; AND/OR (2) CONTACT THE UTILITY PARTY RESPONSIBLE FOR THE RELOCATION OF THE CONFLICTING FACILITY.

C. THE CITY IS A MEMBER OF THE UNDERGROUND SERVICE ALERT (U.S.A.) ONE-CALL PROGRAM. THE CONTRACTOR OR ANY SUBCONTRACTOR FOR THIS CONTRACT SHALL NOTIFY MEMBERS OF U.S.A. 48 HOURS IN ADVANCE OF PERFORMING EXCAVATION WORK BY CALLING THE TOLL-FREE NUMBER 800-227-2600. EXCAVATION IS DEFINED AS BEING MORE THAN 18 INCHES IN DEPTH BELOW THE EXISTING SURFACE.

D. UTILITY COMPANIES ARE PREPARING TO RELOCATE EXISTING FACILITIES AND/OR CONSTRUCT NEW FACILITIES WITHIN PORTIONS OF THE WORK AREA. THE CONTRACTOR SHALL COORDINATE ALL HIS WORK WITH PROJECT RELATED WORK TO BE PERFORMED BY UTILITY COMPANIES (INCLUDING GAS, ELECTRIC, TELEPHONE AND CABLE TV) AND BY OTHER PROJECT CONTRACTORS INCLUDING BUILDING, PLUMBING, LANDSCAPING, ELECTRIC AND FIRE PROTECTION. THE CONTRACTOR SHALL AFFORD THESE UTILITY COMPANIES AND CONTRACTORS REASONABLE OPPORTUNITY FOR THE EXECUTION OF THEIR WORK AND SHALL COORDINATE HIS WORK WITH THEIRS. IN THE EVENT OF DELAYS OR CHANGES IN THE WORK BEYOND THE CONTROL OF THE CONTRACTOR, TIME EXTENSIONS AND NECESSARY CHANGES SHALL BE MADE AS PROVIDED IN THE CONTRACT.

E. ANY EXISTING UNDERGROUND UTILITY (INCLUDING PIPELINES) WHICH IS TO BE EXTENDED, WHICH IS THE CONNECTION POINT FOR NEW UNDERGROUND UTILITIES, OR WHICH NEW FACILITIES CROSS, SHALL BE EXPOSED BY THE CONTRACTOR PRIOR TO CONSTRUCTION STAKING FOR PLACEMENT OF THE NEW UTILITIES. COST OF SUCH EXCAVATION AND SUBSEQUENT BACKFILL SHALL BE INCLUDED IN THE PRICES PAID FOR THE VARIOUS ITEMS OF WORK. THE ELEVATIONS AND LOCATIONS OF THE EXISTING UTILITIES WILL BE CHECKED FOR POSSIBLE CONFLICTS WITH PLANS BY THE PUBLIC WORKS INSPECTOR AND THE ENGINEER. IF IN THE OPINION OF THE INSPECTOR A CONFLICT EXISTS, THEN THE ENGINEER SHALL: (1) MAKE ANY NEEDED GRADE AND/OR ALIGNMENT ADJUSTMENTS AND REVISE THE PLANS ACCORDINGLY; AND/OR (2) CONTACT THE UTILITY PARTY RESPONSIBLE FOR THE RELOCATION OF THE CONFLICTING FACILITY.

3. CONSTRUCTION STAKING

A. CONSTRUCTION STAKING SHALL BE FURNISHED BY THE CONTRACTOR. THE CONTRACTOR WILL BE PROVIDED WITH AN AUTOCAD FILE THAT WILL CONTAIN CONTROL POINTS FROM THE ORIGINAL SURVEY THAT CAN BE UTILIZED TO ASSIST IN THE CONSTRUCTION STAKING OF THE IMPROVEMENTS AFTER SIGNING A DISCLAIMER STATEMENT FROM THE ENGINEER. THE CONTRACTOR SHALL MAKE OR FURNISH ALL SURVEYS AND SET ALL CONSTRUCTION STAKES NECESSARY FOR THE COMPLETION OF THE WORK.

B. THESE IMPROVEMENT PLANS HAVE BEEN PREPARED WITH THE INTENT THAT LAUGENOUR AND MEIKLE WILL BE PERFORMING THE CONSTRUCTION STAKING FOR THE COMPLETE PROJECT. IF, HOWEVER, ANOTHER ENGINEER AND/OR SURVEY FIRM SHOULD BE EMPLOYED TO USE THESE PLANS FOR THE PURPOSE OF CONSTRUCTION STAKING, NOTICE IS HEREBY GIVEN THAT LAUGENOUR AND MEIKLE WILL NOT ASSUME ANY RESPONSIBILITY FOR ANY ERRORS OR OMISSIONS WHICH MIGHT OCCUR AND WHICH COULD HAVE BEEN AVOIDED, CORRECTED OR MITIGATED IF LAUGENOUR AND MEIKLE HAD PERFORMED THE CONSTRUCTION STAKING WORK.

4. FIELD VERIFICATION

WHERE NEW IMPROVEMENTS (CURB, GUTTER, SIDEWALK, PAVEMENT, ASPHALT, UTILITIES, ETC.) ARE DESIGNATED TO MATCH GRADE (±) AT EXISTING IMPROVEMENTS, THE CONTRACTOR'S SURVEYOR SHALL VERIFY THE MATCH POINT GRADES, REPORT ANY DISCREPANCIES AND ADJUST GRADES TO MATCH EXISTING.

5. CONFLICTS

THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO PERFORMING ANY CORRECTIVE ACTION REQUIRED DUE TO UNFORESEEN CONFLICTS IN THE IMPROVEMENT PLANS OR DUE TO POSSIBLE STAKING ERRORS. THE ENGINEER ASSUMES NO LIABILITY FOR THE COST OR DESIGN OF ANY MODIFICATION PERFORMED WITHOUT SUCH NOTIFICATION, AND ALSO ASSUMES NO LIABILITY FOR STAKING PROVIDED BY OTHERS.

6. CONTROL POINTS AND SURVEY MONUMENTS

A. CERTAIN CONTROL POINTS HAVE BEEN SET BY THE ENGINEER, OR ITS REPRESENTATIVE, WHICH ARE CRITICAL TO THE CONSTRUCTION STAKING OF THE PROJECT. THESE POINTS WILL BE DESIGNATED ON THE IMPROVEMENT PLANS. THE CONSTRUCTION SHALL NOT DISTURB THE CONTROL POINTS IN ANY MANNER. IF IT BECOMES NECESSARY TO REMOVE SAID CONTROL POINTS DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE LICENSED SURVEYOR RESPONSIBLE FOR CONSTRUCTION STAKING AND SHALL REMOVE AND REPLACE AS NOTED BELOW.

B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND REPLACEMENT OF ALL EXISTING SURVEY MONUMENTS OF RECORDS AND OTHER CONTROL MARKERS DURING CONSTRUCTION. ALL MONUMENTS OR MARKERS DESTROYED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. WHEN THE LOCATION OF AN EXISTING MONUMENT CONFLICTS WITH PROPOSED WORK, THE CONTRACTOR SHALL HAVE A LICENSED LAND SURVEYOR REFERENCE THE MONUMENT PRIOR TO REMOVAL. AFTER THE MONUMENT HAS BEEN REFERENCED THE CONTRACTOR MAY REMOVE THE MONUMENT AND LATER HAVE IT REPLACED BY A LICENSED LAND SURVEYOR WHO SHALL FILE A CORNER RECORD WITH THE COUNTY.

6. OBSTRUCTIONS

A. THE CONTRACTOR SHALL REMOVE ALL OBSTRUCTIONS, BOTH ABOVE GROUND AND UNDERGROUND, EXCEPT AS NOTED IN ITEM 2 ABOVE, AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS. WHEN FEASIBLE SUCH WORK SHALL BE COMPLETED PRIOR TO GRADING.

B. ALL UNSUITABLE AND SURPLUS MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE UNLESS SPECIFIED OTHERWISE.

C. TREE AND STUMP REMOVAL SHALL INCLUDE REMOVAL OF THE MAJOR ROOT SYSTEM TO THE SATISFACTION OF THE CITY ENGINEER. SUCH REMOVAL SHALL BE PERFORMED WITHOUT DAMAGE TO ADJACENT TREES THAT ARE TO BE PRESERVED. STUMP REMOVAL WITHIN THE DRIP LINE OF A TREE TO BE PRESERVED SHALL BE BY GRINDING METHOD, TO A DEPTH OF 0.5 FEET BELOW ADJACENT GRADE.

D. ALL WATER WELLS AND SEPTIC TANK SYSTEMS FOUND ON THE SITE SHALL BE DESTROYED IN ACCORDANCE WITH COUNTY HEALTH DEPARTMENT STANDARDS AND PERMITS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL SUCH LOCATIONS PRIOR TO COMMENCING WORK IN THESE AREAS.

7. PUBLIC SAFETY AND TRAFFIC CONTROL

A. CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL CURRENTLY APPLICABLE SAFETY LAWS OF ALL JURISDICTIONAL BODIES. THE CONTRACTOR IS DIRECTED TO CONTACT THE STATE INDUSTRIAL RELATIONS DEPARTMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BARRICADES, SAFETY DEVICES, AND CONTROL OF TRAFFIC WITHIN AND AROUND THE CONSTRUCTION AREA. FOR ALL TRENCH EXCAVATIONS 5 FEET OR MORE IN DEPTH, THE CONTRACTOR SHALL OBTAIN A PERMIT FROM THE DIVISION OF INDUSTRIAL SAFETY PRIOR TO BEGINNING ANY EXCAVATION.

B. PUBLIC SAFETY AND TRAFFIC CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH THE CALTRANS TRAFFIC MANUAL (SEE CHAPTER 5, MANUAL OF TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS) AND AS DIRECTED BY THE CITY ENGINEER. ANY LANE CLOSURES (VEHICLE OR BICYCLE) SHALL BE APPROVED BY THE CITY ENGINEER. SAFE VEHICULAR AND PEDESTRIAN ACCESS SHALL BE PROVIDED AT ALL TIMES DURING CONSTRUCTION.

C. THE CONTRACTOR SHALL MAINTAIN CONTINUOUS TEMPORARY CHANNELIZING DEVICES, AND FLAGGING OR FLASHING DEVICES AS NEEDED, SPACED AT INTERVALS NOT TO EXCEED 50 FEET, WHENEVER THE WORK AREA IS ADJACENT TO AN EXISTING TRAFFIC LANE AND THERE IS A PAVEMENT CUT, TRENCH OR DITCH WHICH IS OVER 2 INCHES IN DEPTH. IF THE CUT, TRENCH OR DITCH IS MORE THAN 10 FEET FROM A TRAFFIC LANE, THEN THE SPACING MAY BE GREATER, PROVIDED THAT IT DOES NOT EXCEED 200 FEET.

D. CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE DESIGN PROFESSIONAL.

E. IN THE EVENT THAT ANY STREET OR PORTION OF ANY STREET WILL BE CLOSED TO EMERGENCY TRAFFIC, THE CONTRACTOR SHALL NOTIFY COLUSA COUNTY COMMUNICATIONS DISPATCH AT (530)458-0200 IMMEDIATELY PRIOR TO CLOSURE AND IMMEDIATELY AFTER REOPENING OF SAID STREET OR STREET PORTION.

8. PERMITS, LICENSES AND REGULATIONS

A. PERMITS AND LICENSES OF A TEMPORARY NATURE AND NECESSARY FOR THE PROSECUTION OF THE WORK SHALL BE SECURED AND PAID FOR BY THE CONTRACTOR. PERMITS, LICENSES AND EASEMENTS FOR PERMANENT STRUCTURES OR PERMANENT CHANGES IN EXISTING FACILITIES SHALL BE SECURED AND PAID FOR BY THE OWNER UNLESS OTHERWISE SPECIFIED.

B. THE CONTRACTOR SHALL NOTIFY THE CITY AT LEAST 48 HOURS PRIOR TO THE INTENT TO COMMENCE WORK.

C. ALL WATER WELLS AND SEPTIC TANK SYSTEMS FOUND ON THE SITE SHALL BE DESTROYED IN ACCORDANCE WITH COUNTY HEALTH DEPARTMENT STANDARDS. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FROM THE COUNTY.

D. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES AND REGULATIONS BEARING ON THE CONDUCT OF THE WORK AS SHOWN ON THE PLANS AND DESCRIBED IN THE SPECIFICATIONS. HE SHALL PROMPTLY NOTIFY THE ENGINEER IN WRITING OF ANY SPECIFICATION AT VARIANCE THEREWITH AND ANY NECESSARY CHANGES SHALL BE ADJUSTED AS PROVIDED IN THE CONTRACT FOR CHANGES IN THE WORK. IF THE CONTRACTOR PERFORMS ANY WORK CONTRARY TO SUCH LAWS, ORDINANCES, RULES AND REGULATIONS HE SHALL BEAR ALL COSTS ARISING THEREFROM.

9. STATIONING AND DIMENSIONING

ALL STATIONS REFER TO DISTANCES ALONG STREET CENTER LINE UNLESS INDICATED OTHERWISE. ALL STATIONS OFF CENTER LINE ARE PERPENDICULAR TO OR RADIALLY OPPOSITE CENTER LINE STATIONS. STREET FRONTAGE PROPERTY LINES COINCIDE WITH BACK EDGE OF WALK ALIGNMENT UNLESS INDICATED OTHERWISE. UNLESS NOTED OTHERWISE, DIMENSIONS TO CURBS REFER TO TOP FACE OF CURB AND DIMENSIONS TO BUILDINGS REFER TO FACE OF EXTERIOR WALL.

10. EARTHWORK

A. ALL EARTHWORK ACTIVITIES, INCLUDING EXCAVATION, GRADING, SCARIFYING, MOISTURIZING, FILL PLACEMENT, COMPACTION, LIME TREATMENT, ETC., SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER CONTRACTED TO PERFORM INSPECTIONS. ALL GRADING SHALL CONFORM WITH THE RECOMMENDATIONS GEOTECHNICAL ENGINEER AND IN CONFORMANCE WITH THE CITY STANDARD SPECIFICATIONS, CALIFORNIA BUILDING CODE AND WITH THE GRADING PLAN.

B. THE GEOTECHNICAL ENGINEER SHALL OBSERVE THE GRADING ACTIVITIES AND PERFORM COMPACTION TESTING FOR THIS PROJECT. THE CONTRACTOR SHALL PROVIDE AT LEAST 24 HOURS NOTICE TO THE GEOTECHNICAL ENGINEER OF THE NEED FOR OBSERVATION AND TESTING SERVICES. THE PROJECT OWNER WILL PAY FOR THE COST OF PROVIDING THESE SERVICES; HOWEVER, IF SAMPLES OF MATERIALS ARE SUBMITTED WHICH FAIL TO PASS THE SPECIFIED TESTS OR IF WORK IS PERFORMED WHICH FAILS TO MEET THESE SPECIFICATIONS, THE CONTRACTOR SHALL PAY FOR ALL SUBSEQUENT RE-TESTS AND RE-INSPECTIONS.

C. EARTHWORK SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO CONSTRUCT THE SITE TO THE GRADES SHOWN. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR THE DISPOSAL OF EXCESS EXCAVATED MATERIAL OR FOR THE IMPORT OF MATERIAL. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN ADVANCE OF ANY CHANGES HE MAY DEEM NECESSARY TO OBTAIN BALANCED CUT-FILL GRADING.

D. ALL CUT SLOPES SHALL BE ROUNDED AT THE "BREAK" SO THAT THEY BLEND WITH THE NATURAL GROUND CONTOUR.

E. THE CONTRACTOR SHALL APPLY EITHER WATER OR DUST PALLIATIVE, OR BOTH, FOR THE ALLEVIATION OR PREVENTION OF DUST NUISANCE AS DIRECTED BY THE ENGINEER.

F. EXCAVATION AND EMBANKMENT SIDE SLOPES SHOWN ON THE PLANS AS A RATIO, E.G. 4:1, REFER TO THE RATIO OF HORIZONTAL TO VERTICAL DISTANCES. "MINIMUM" SLOPE MEANS "NOT FLATTER THAN", AND "MAXIMUM" SLOPE MEANS "NOT STEEPER THAN". ALL EMBANKMENT AND EXCAVATION SLOPES SHALL BE 4:1 UNLESS NOTED OTHERWISE.

G. TO ACCOMMODATE TRENCH SPOIL, THE CONTRACTOR'S GRADING SHALL INCLUDE UNDERCUTTING OF STREETS AS APPROPRIATE, OR SOME OTHER METHOD APPROVED BY THE ENGINEER.

H. ALL SECTIONS AND DETAILS SHOWN IN THESE PLANS ARE SOLELY INTENDED TO BE REPRESENTATIVE OF THE GRADING AND DRAINAGE DESIGN FOR THE PROJECT. IN NO WAY ARE THEY INTENDED TO REFLECT THE ACTUAL CONSTRUCTION ELEMENTS OF THE FENCING, WALLS, TRASH ENCLOSURE, ETC., UNLESS SPECIFICALLY CALLED OUT AS "CONSTRUCT" OR "PLACE" IN THESE PLANS.

I. ALLOWABLE GRADING TOLERANCE IS PLUS OR MINUS 0.04 FOOT OF THE ELEVATIONS SHOWN HEREON FOR NON PAVING OR CONCRETE AREAS.

J. EROSION CONTROL MEASURES SHALL BE IMPLEMENTED DURING PROJECT CONSTRUCTION. COMPLY WITH EROSION AND SEDIMENTATION CONTROL PLAN, BMP AND CITY STANDARDS.

K. IF GRADING AND DRAINAGE CONSTRUCTION IS NOT COMPLETE DURING THE PERIOD FROM SEPTEMBER 1 TO MAY 15, THEN THE CONTRACTOR SHALL:

i. PROVIDE EROSION PROTECTION ON SLOPES THAT ARE 10:1 OR STEEPER AND IN SWALES THAT ARE 2% OR STEEPER.

ii. GRADE GUTTER SAG POINTS TO DRAIN.

iii. PROVIDE SILT CATCHMENTS TO PREVENT SEDIMENTATION IN EXISTING STORM DRAIN SYSTEMS.

iv. CLEAN DOWNSTREAM PIPES AS DIRECTED BY THE CITY ENGINEER.

v. CLEAN AND MAINTAIN ALL STREETS AND SIDEWALKS AS DIRECTED BY THE CITY ENGINEER.

L. SUBGRADE PREPARATION FOR ALL PAVEMENT SECTIONS AND FOR CURB, GUTTER AND SIDEWALK SHALL INCLUDE COMPACTION IN AT LEAST THE TOP 8 INCHES TO AT LEAST 95% RELATIVE COMPACTION AT OR ABOVE OPTIMUM MOISTURE CONTENT.

M. ALL STREET ELEVATIONS SHOWN ARE FOR TOP OF CURB (TC) UNLESS OTHERWISE SPECIFIED.

N. THE TOP <u>8 INCHES</u> (MINIMUM) OF ALL LANDSCAPED AREAS SHALL BE CLEAN SOIL.

O. CLEARING, GRUBBING AND PREPARING IMPROVEMENT AREAS:

i. ALL RUBBLE AND RUBBISH AND OTHER ITEMS ENCOUNTERED DURING SITE WORK AND DEEMED UNACCEPTABLE BY THE GEOTECHNICAL ENGINEER, SHALL BE REMOVED AND DISPOSED OF SO AS TO LEAVE THE DISTURBED AREAS WITH A NEAT AND FINISHED APPEARANCE, FREE FROM UNSIGHTLY DEBRIS. EXCAVATIONS AND DEPRESSIONS RESULTING FROM THE REMOVAL OF SUCH ITEMS, AS WELL AS EXISTING EXCAVATIONS OR LOOSE SOIL DEPOSITS, AS DETERMINED BY THE GEOTECHNICAL ENGINEER, SHALL BE CLEANED OUT TO FIRM, UNDISTURBED SOIL AND BACKFILLED WITH SUITABLE MATERIALS IN ACCORDANCE WITH THESE SPECIFICATIONS.

ii. THE SURFACES RECEIVING FILL SHALL BE STRIPPED OF VEGETATION OR THEY SHALL BE THOROUGHLY DISCED PROVIDED THAT A COMPACTABLE MIXTURE OF SOIL CONTAINING MINOR AMOUNTS OF VEGETATION CAN BE ATTAINED WHICH IS FREE OF CLUMPS, LAYERS OR POCKETS OF VEGETATION. IF PROPER COMPACTION OF THE DISTURBED SURFACE SOILS CANNOT BE ACHIEVED, THOSE MATERIALS SHALL BE EXCAVATED, TO A DEPTH SATISFACTORY TO THE GEOTECHNICAL ENGINEER, SO THAT A FIRM BASE FOR SUPPORT OF ENGINEERED FILL CAN BE ATTAINED.

iii. ALL LOOSE AND/OR SATURATED MATERIALS SHALL BE OVER-EXCAVATED TO FIRM SOIL, AS DETERMINED BY THE GEOTECHNICAL ENGINEER, AND THE RESULTING EXCAVATIONS SHALL BE BACKFILLED WITH SUITABLE MATERIALS IN ACCORDANCE WITH THESE SPECIFICATIONS.

iv. THE SURFACES UPON WHICH FILL IS TO BE PLACED SHALL BE PLOWED OR SCARIFIED TO A DEPTH OF AT LEAST 12 INCHES, UNTIL THE SURFACE IS FREE FROM RUTS, MOUNDS OR OTHER UNEVEN FEATURES WHICH WOULD TEND TO PREVENT UNIFORM COMPACTION BY THE SELECTED EQUIPMENT.

v. WHEN THE MOISTURE CONTENT OF THE SUBGRADE IS LESS THAN OPTIMUM, AS DEFINED BY THE ASTM D1557-91 COMPACTION TEST, WATER SHALL BE ADDED UNTIL THE PROPER MOISTURE CONTENT IS ACHIEVED.

vi. WHEN THE MOISTURE CONTENT OF THE SUBGRADE IS TOO HIGH TO PERMIT THE SPECIFIED COMPACTION TO BE ACHIEVED, THE SUBGRADE SHALL BE AERATED BY BLADING OR OTHER METHODS UNTIL THE MOISTURE CONTENT IS SATISFACTORY FOR COMPACTION.

vii. AFTER THE FOUNDATIONS FOR FILL HAVE BEEN CLEARED, MOISTURE CONDITIONED, AND PLOWED OR SCARIFIED, THEY SHALL BE RECOMPACTED IN PLACE TO A DEPTH OF AT LEAST 12 INCHES TO A MINIMUM OF 90 PERCENT OF THE ASTM D1557-91 MAXIMUM DRY DENSITY.

viii. ANY UNSUITABLE MATERIAL ENCOUNTERED BELOW THE SUBGRADE SHALL BE BROUGHT TO THE ATTENTION OF AND REMOVED AT THE DIRECTION OF THE ENGINEER. UNSUITABLE MATERIAL IS DEFINED AS MATERIAL THE ENGINEER DETERMINES TO BE:

- OF SUCH UNSTABLE NATURE AS TO BE INCAPABLE OF BEING COMPACTED TO SPECIFIED DENSITY USING ORDINARY METHODS AT OPTIMUM MOISTURE CONTENT; OR
- TOO WET TO BE PROPERLY COMPACTED AND CIRCUMSTANCES PREVENT SUITABLE IN-PLACE DRYING PRIOR TO INCORPORATION INTO THE WORK; OR
- OTHERWISE UNSUITABLE FOR THE PLANNED USE.

ix. THE PRESENCE OF EXCESSIVE MOISTURE IN A MATERIAL IS NOT, BY ITSELF, SUFFICIENT CAUSE FOR DETERMINING THAT THE MATERIAL IS UNSUITABLE.

x. THE CONTRACTOR SHALL USE EXTRA CARE IN EXCAVATING UNSUITABLE MATERIAL SO AS NOT TO AGGRAVATE THE CONDITION. IF, IN THE OPINION OF THE GEOTECHNICAL ENGINEER, THE CONTRACTOR'S METHODS FOR EXCAVATING ARE INCREASING THE AMOUNT OF UNSUITABLE MATERIAL REQUIRED TO BE EXCAVATED, THE GEOTECHNICAL ENGINEER WILL REQUIRE THE CONTRACTOR TO TAKE THE NECESSARY STEPS TO CORRECT THE CONDITION.

xi. BACKFILL TO REPLACE THE REMOVED UNSUITABLE MATERIAL SHALL BE CL. II AB COMPACTED TO 90% MRC.

xii. REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL, INCLUDING THE ADDITIONAL EXCAVATION GREATER THAN THAT REQUIRED FOR PREPARATION OF SUBGRADE, AND SUBSEQUENT BACKFILLING SHALL BE COMPUTED AND PAID FOR AT THE CONTRACT UNIT PRICE BID PER CUBIC YARD OF UNSUITABLE SUBGRADE MATERIAL REMOVAL, DISPOSAL AND BACKFILL. THE QUANTITY SHOWN FOR THIS ITEM IN THE PROPOSAL SHALL BE CONSIDERED AS APPROXIMATE AND IS INDICATED FOR BID COMPARISON ONLY, AND NO GUARANTEE IS MADE OR IMPLIED THAT THE QUANTITY SHOWN WILL NOT BE REDUCED OR INCREASED OR DELETED AS MAY BE REQUIRED BY THE ENGINEER.

S. CONSTRUCTION OF UNTREATED SUBGRADES:

i. THE SELECTED SOIL FILL MATERIAL SHALL BE PLACED IN LAYERS WHICH, WHEN COMPACTED, DO NOT EXCEED 6 INCHES IN THICKNESS. EACH LAYER SHALL BE SPREAD EVENLY AND SHALL BE THOROUGHLY MIXED DURING THE SPREADING TO PROMOTE UNIFORMITY OF MATERIAL IN EACH LAYER.

ii. WHEN THE MOISTURE CONTENT OF THE FILL MATERIAL IS LESS THAN OPTIMUM MOISTURE, AS DEFINED BY THE ASTM D1557-91 COMPACTION TEST, WATER SHALL BE ADDED UNTIL THE PROPER MOISTURE CONTENT IS ACHIEVED.

iii. WHEN THE MOISTURE CONTENT OF THE FILL MATERIAL IS TOO HIGH TO PERMIT THE SPECIFIED DEGREE OF COMPACTION TO BE ACHIEVED, THE FILL MATERIAL SHALL BE AERATED BY BLADING OR OTHER METHODS UNTIL THE MOISTURE CONTENT IS SATISFACTORY.

iv. AFTER EACH LAYER HAS BEEN PLACED, MIXED AND SPREAD EVENLY, IT SHALL BE THOROUGHLY COMPACTED TO NOT LESS THAN 90 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY THE ASTM D1557-91 COMPACTION TEST. COMPACTION SHALL BE UNDERTAKEN WITH EQUIPMENT CAPABLE OF ACHIEVING THE SPECIFIED DENSITY AND SHALL BE ACCOMPLISHED WHILE THE FILL MATERIAL IS AT THE REQUIRED MOISTURE CONTENT. EACH LAYER SHALL BE COMPACTED OVER ITS ENTIRE AREA UNTIL THE DESIRED DENSITY HAS BEEN OBTAINED.

v. THE FILL OPERATIONS SHALL BE CONTINUED UNTIL THE FILLS HAVE BEEN BROUGHT TO THE SLOPES AND GRADES SHOWN ON THE DRAWINGS.

T. THE UPPER <u>12 INCHES</u> OF ANY UNTREATED FINAL SUBGRADES SHALL BE UNIFORMLY COMPACTED TO AT LEAST <u>90%</u> OF THE ASTM D1557-91 MAXIMUM DRY DENSITY REGARDLESS OF WHETHER FINAL SUBGRADE ELEVATION IS ATTAINED BY FILLING, EXCAVATION OR LEFT AT EXISTING GRADE.

U. SOIL WITHIN 1' OF THE BACK OF CURBS OR SIDEWALK SHALL BE COMPACTED TO 95% MRC FOR THE FULL DEPTH OF THE CURB.

V. IF ANY IMPORT MATERIAL IS REQUIRED, IT SHALL BE APPROVED BY THE SOILS ENGINEER PRIOR TO HAULING IT TO THE SITE.

11. CONCRETE CONSTRUCTION

A. PEDESTRIAN RAMPS SHALL BE CONSTRUCTED AT THE LOCATIONS INDICATED ON THESE PLANS. PEDESTRIAN RAMP AND WALK CONSTRUCTION SHALL COMPLY WITH THE STATE ACCESSIBILITY STANDARDS.

B. ALL CURB RETURNS SHALL HAVE VERTICAL CURB, GUTTER AND SIDEWALK PER CITY DETAIL 114, 116.

C. COMMERCIAL/INDUSTRIAL DRIVEWAYS SHALL BE INSTALLED PER CITY DETAILS 119-121.

D. AS SOON AS THE SURFACE OF THE GUTTER HAS SET SUFFICIENTLY TO PERMIT THE INTRODUCTION OF A SHALLOW STREAM OF WATER WITHOUT CAUSING DAMAGE TO THE GUTTER SURFACE, SAME SHALL BE APPLIED AND ALL FLOWLINE IRREGULARITIES SHALL BE CORRECTED BEFORE THE CONCRETE SURFACE HAS TAKEN INITIAL SET.

E. CONCRETE CONSTRUCTION SHALL COMPLY WITH CALTRANS STANDARD SPECIFICATION SECTIONS 73, 90 AND 52, UNLESS SPECIFIED OTHERWISE.

F. PRIOR TO PLACEMENT OF CONCRETE, SOIL SUBGRADE SHALL BE MOISTURE CONDITIONED TO AN OVER-OPTIMUM MOISTURE CONTENT. COORDINATE WITH GEOTECHNICAL ENGINEER.

G. PRIOR TO CONCRETE CONSTRUCTION THE CONTRACTOR SHALL SUBMIT FOR OWNER'S APPROVAL A COPY OF THE JOINT PLAN, DETAILING THE TYPES AND LOCATIONS OF CONSTRUCTION, CONTROL AND EXPANSION JOINTS.

H. CONCRETE CONSTRUCTION, INCLUDING SUBGRADE PREPARATION, SHALL CONFORM TO THE GEOTECHNICAL ENGINEERS RECOMMENDATIONS.

I. REFER TO "EARTHWORK" NOTE FOR SUBGRADE PREPARATION REQUIREMENTS. COMPACTED SUBGRADE SHALL EXTEND TO 1 MINIMUM FOOT BEYOND THE BACK OF CURB OR SIDEWALK.

J. THE GRADES SHOWN ON THE PLANS FOR SIDEWALKS OR ANY GRADES RELATING TO THE SIDEWALKS ARE INTENDED TO INDICATE THE FOLLOWING MAXIMUM SLOPES:

- CROSS-SLOPE PERPENDICULAR TO THE DIRECTION OF TRAVEL: 2.00% (50:1)
- SLOPE PARALLEL TO THE DIRECTION OF TRAVEL: 5.00% (20:1)
- THE GRADES SHOWN ON PLANS ARE INTENDED TO BE USED AS A GUIDE ONLY.

i. PRIOR TO SETTING FORMS, THE CONTRACTOR SHALL CONFIRM THAT THE GRADES INDICATED WILL RESULT IN SLOPES CONSISTENT WITH THE ABOVE CRITERIA. SHOULD ANY DISCREPANCY APPEAR TO EXIST, THE CONTRACTOR SHALL ADJUST THE GRADES TO CONFORM TO THE ABOVE CRITERIA AND SHALL INFORM THE ENGINEER OF SUCH CHANGES.

ii. PRIOR TO PLACING CONCRETE THE CONTRACTOR SHALL CHECK THE LEVEL OF THE FORMS TO CONFIRM THAT THE AS-BUILT CONCRETE SLOPES WILL CONFORM TO THE ABOVE CRITERIA AND HE SHALL PLACE THE CONCRETE ACCORDINGLY. IT IS RECOMMENDED THAT CONSTRUCTION TOLERANCES USED BY THE CONTRACTOR RESULT IN SLOPES SLIGHTLY FLATTER THAN THE ABOVE CRITERIA, NOT STEEPER; YET THE CONCRETE SURFACES MUST PROPERLY DRAIN. THE ABOVE CRITERIA AND THE SLOPES SUGGESTED BY THE GRADES INDICATED ON THE PLANS ARE INTENDED TO REPRESENT MAXIMUM SLOPES.

L. SIDEWALKS ARE TO BE SET FLUSH WITH THE TOP OF ABUTTING CURBS UNLESS NOTED OTHERWISE.

M. PCC PAVING SHALL BE CALTRANS CLASS "A" CONCRETE, AND SHALL BE CONSTRUCTED IN CONFORMANCE WITH CALTRANS STANDARD SPECIFICATIONS SECTION 90. REGULATE WATER CONTENT OF MIX SO THAT MAXIMUM PENETRATION DOES NOT EXCEED 1.5 INCHES. PAVEMENT SLABS TO BE DOWELED AT ALL JOINTS. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL SUBMIT FOR OWNER'S APPROVAL A COPY OF THE JOINT PLAN, DETAILING THE TYPES AND LOCATIONS OF CONSTRUCTION, CONTROL AND EXPANSION JOINTS.

12. PAVING

A. ALL ASPHALT CONCRETE SHALL CONFORM TO CALTRANS PERFORMANCE GRADED (PG) SYSTEM MEETING PG 64-10 FOR INLAND VALLEY AREAS. ASPHALTIC CONCRETE SHALL BE PLACED IN 3" MAXIMUM LIFTS. USE $\frac{3}{4}$ INCH MAXIMUM, MEDIUM AGGREGATE. ALL PAVING WITHIN CITY R/W SHALL CONFORM TO CITY STANDARDS. ALL AGGREGATE BASE SHALL BE CALTRANS CLASS 2, 3/4 INCH MAXIMUM; OMIT PENETRATION TREATMENT. AGGREGATE SUBBASE SHALL BE CALTRANS CLASS 2. RELATIVE COMPACTION OF BASE AND SUBBASE MATERIALS SHALL NOT BE LESS THAN 95%.

B. ALL EXISTING PAVEMENT TO BE JOINED TO NEW PAVEMENT SHALL BE SAW CUT TO A NEAT, STRAIGHT LINE A MINIMUM OF ONE (1) FOOT FROM THE EXISTING EDGE OF PAVEMENT AND THE EXPOSED EDGE SHALL BE TACKED WITH ASPHALTIC EMULSION PRIOR TO PAVING. THE EXISTING BASE ROCK AND PAVEMENT SHALL BE REMOVED TO THE FULL DEPTH OF THE NEW SECTION.

A TACK COAT SHALL BE APPLIED TO ALL VERTICAL SURFACES OF EXISTING PAVEMENT, CURBS, GUTTERS AND CONSTRUCTION JOINTS IN THE SURFACING AGAINST WHICH ADDITIONAL MATERIAL IS TO BE PLACED, TO A PAVEMENT TO BE SURFACED, AND TO OTHER SURFACES DESIGNATED BY THE ENGINEER.

C. NO PAVEMENT WORK SHALL OCCUR WITHIN THE STREET RIGHT-OF-WAY PRIOR TO COMPLETION OF UTILITY POLE RELOCATION OR REMOVAL. THE CONTRACTOR SHALL COORDINATE WITH ALL OTHER WORK TO ENSURE THAT ALL UNDERGROUND UTILITIES ARE INSTALLED PRIOR TO PAVING.

D. PAVEMENT REINFORCING FABRIC INSTALLATION SHALL COMPLY WITH CALTRANS STANDARD SPECIFICATIONS SECTION 39-4.03, USING GRADE AR-4000 PAVING ASPHALT AS THE BINDER. BEFORE APPLYING BINDER, ALL VEGETATION SHALL BE REMOVED FROM THE EDGE OF PAVEMENT. CRACKS LARGER THAN 3/16 INCH MUST BE CLEANED WITH COMPRESSED AIR AND FILLED WITH SS1 ASPHALTIC EMULSION AND COVERED WITH SAND. ALL EXISTING THERMOPLASTIC LIMIT LINES, CROSSWALKS, AND LEGENDS APPLIED TO THE ROAD SURFACE SHALL BE SCARIFIED PRIOR TO PLACING THE OVERLAY. SCARIFICATION SHALL BE PERFORMED BY GRINDING SUCH THAT NO LESS THAN 20% OF THE UNDERLYING PAVEMENT IS EXPOSED. ALL MATERIAL RESULTING FROM THE GRINDING OPERATIONS OF TRAFFIC MARKINGS BECOMES THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED AND DISPOSED OF. LARGE CRACKS, SPALLS AND CHUCKHOLES IN EXISTING PAVEMENT SHALL BE REPAIRED. THE ENTIRE OVERLAY PAVING SURFACE SHALL BE FREE OF WATER AND SHALL BE SWEPT CLEAN IMMEDIATELY PRIOR TO BINDER APPLICATION.

PAVEMENT REINFORCING FABRIC SHALL BE PHILLIPS PETROMAT, AMOCO AMOPAVE, OR AN ENGINEER APPROVED EQUIVALENT. REQUESTS FOR FABRIC SUBSTITUTIONS WILL NOT BE ACCEPTED AFTER THE BID OPENING.

E. NO SAND SEAL IS REQUIRED.

F. ASPHALT PLANING SHALL BE PERFORMED BY A GRINDING-PROCESS, COLD PLANING MACHINE WHICH SHALL HAVE A MINIMUM CUTTING WIDTH OF 72-INCHES AND SHALL BE OPERATED SO AS NOT TO PRODUCE FUMES OR SMOKE. THE COLD PLANING MACHINE SHALL BE CAPABLE OF PLANING THE PAVEMENT WITHOUT REQUIRING THE USE OF A HEATING DEVICE TO SOFTEN THE PAVEMENT DURING OR PRIOR TO THE PLANING OPERATION. THE CONTRACTOR SHALL MAINTAIN ALL CUTTING TEETH TO INSURE A UNIFORM AND CLEAN CUT.

IN ALL CASES, THE CROSS-SECTIONAL PLANED SURFACE SHALL NOT VARY BY MORE THAN 1/4-INCH WHEN COMPARED TO A STRAIGHT EDGE. THE OUTSIDE LINES OF THE PLANED AREA SHALL BE NEAT AND UNIFORM AND THE REMAINING ROAD SURFACE SHALL NOT BE DAMAGED IN ANY WAY. WHERE THE COLD PLANING MACHINE LEAVES A "SLIVER" OF UNGROUNDED PAVEMENT AT THE LIP OF GUTTER, THAT "SLIVER" SHALL BE REMOVED BY HAND PRIOR TO PLACEMENT OF THE NEW ASPHALT CONCRETE.

STREETS TO BE OVERLAYED SHALL BE COLD PLANED TO THE DEPTH BELOW THE EXISTING LIP OF GUTTER SPECIFIED ON THE PLANS AND TAPERED TO ZERO AT 6 FEET FROM THE LIP OF GUTTER. BOTH ENDS OF THE STREETS TO BE OVERLAYED AND SIDE STREETS SHALL ALSO BE COLD PLANED AS SHOWN ON THE PLANS (CONFORM PLANING). THE CONFORM PLANING SHALL BE MADE IN A STRAIGHT LINE PERPENDICULAR TO THE CENTER LINE OF THE STREET. ALL EXISTING ASPHALT ON CONCRETE GUTTERS ADJACENT TO PLANING SHALL ALSO BE REMOVED.

PAVEMENT FAILURE REPAIR WORK SHALL CONSIST OF GRINDING OUT EXISTING ASPHALT CONCRETE PAVEMENT AND REPLACING THE ASPHALT CONCRETE AS INDICATED ON THE PLANS. PAVEMENT REPAIRS WILL HAVE DIMENSIONS IN 6-FOOT INCREMENTS OF WIDTH TO ACCOMMODATE USE OF COLD PLANING MACHINE.

THE CONTRACTOR SHALL IMMEDIATELY REMOVE ALL PLANED MATERIAL FROM THE WORK SITE AND DISPOSE OF THE MATERIAL. THE REMOVAL CREW SHALL REMOVE ALL PLANED MATERIAL AND SWEEP CLEAN ALL PLANED AND ADJACENT SURFACES WHILE REMAINING WITHIN 100 FEET OF THE PLANER.

WHERE TRANSVERSE JOINTS ARE PLANED IN THE PAVEMENT AT CONFORM LINES, NO DROP-OFF SHALL REMAIN BETWEEN THE EXISTING PAVEMENT AND THE PLANED AREA WHEN THE PAVEMENT IS OPENED TO PUBLIC TRAFFIC. IF NEW ASPHALT CONCRETE HAS NOT BEEN PLACED TO THE LEVEL OF EXISTING PAVEMENT BEFORE THE PAVEMENT IS TO BE OPENED TO THE PUBLIC, A TEMPORARY PAVING RAMP SHALL BE PLACED TO THE LEVEL OF THE EXISTING PAVEMENT AND TAPERED ON A SLOPE OF 18:1 OR FLATTER TO THE LEVEL OF THE PLANED AREA. TEMPORARY RAMPS SHALL REMAIN IN PLACE NO LONGER THAN 7 DAYS.

ASPHALT CONCRETE FOR RAMPS SHALL BE COMMERCIAL QUALITY AND MAY BE SPREAD AND COMPACTED BY ANY METHOD THAT WILL PRODUCE A SMOOTH TRANSITION IN THE RIDING SURFACE. ASPHALT CONCRETE RAMPS SHALL BE COMPLETELY REMOVED, INCLUDING REMOVING ALL LOOSE MATERIAL FROM THE UNDERLYING SURFACE, BEFORE PLACING THE PERMANENT SURFACING. KRAFT PAPER, OR OTHER APPROVED BOND BREAKER, MAY BE PLACED UNDER THE TEMPORARY RAMPS TO FACILITATE THE REMOVAL OF THE RAMPS.

G. AC LIFT THICKNESS PER SECTION 39, CALTRANS STANDARD SPECIFICATIONS.

H. WHENEVER PAVEMENT IS BROKEN OR CUT IN THE INSTALLATION OF THE WORK COVERED BY THESE PLANS, THE PAVEMENT SHALL BE REPLACED, AFTER PROPER BACKFILLING, WITH PAVEMENT MATERIALS EQUAL TO OR BETTER THAN THE MATERIALS USED IN THE ORIGINAL PAVING. THE FINISHED PAVEMENT SHALL BE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER OR CALTRANS, WHERE APPLICABLE.

I. ALL TRAFFIC DETECTOR LOOPS SHALL BE INSTALLED PRIOR TO PLACEMENT OF THE TOP LIFT OF AC PAVING. THERE SHALL BE NO CUTS IN THE TOP LIFT OF AC.

J. THE CONTRACTOR SHALL COORDINATE WITH ALL OTHER WORK TO ENSURE THAT ALL UNDERGROUND UTILITIES ARE INSTALLED PRIOR TO PAVING.

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LICENSE STAMPS

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PROJECT NAME

A PROPOSED CLASSROOM RELOCATION FOR

COLUSA COUNTY ADULT EDUCATION CENTER

COLUSA COUNTY OFFICE OF EDUCATION
WILLIAMS, CALIFORNIA

SHEET TITLE

ABBREVIATIONS & GENERAL NOTES

DRAWING STATUS

REVISIONS

Sym.	Description	By	Date
1	CCD 1	BPB	8/18/21
2	CCD 2	BPB	3/30/23

Drawn By	PF
Checked By	BPB
Date Drawn	07.08.21
Scale	NONE
Job No.	3554-3

SHEET No.

C002

GENERAL NOTES:

12. PAVING (CONTINUED)

L. BETWEEN THE PLAN SPECIFIED GRADE CONTROL POINTS AND LINES, THE FINISHED PAVING SURFACE SHALL HAVE A UNIFORM SLOPE FROM SURFACE DRAINAGE HIGH POINTS AND RIDGE LINES TO GUTTERS AND DRAINAGE INLETS.

M. REFER TO "EARTHWORK" NOTES FOR SUBGRADE PREPARATION REQUIREMENTS.

N. WHEN NEW PAVING IS COMPLETED, IT SHALL BE SUBJECTED TO A FLOOD TEST SHOWING THE SURFACE FREE OF STANDING WATER OR PUDDLES. SHOULD ANY PUDDLING OCCUR, REPAVE IN SUCH A MANNER AS TO CORRECT THE PROBLEM. METHOD OF REPAVING SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL.

13. PIPELINES

A. ALL GRAVITY FLOW PIPELINES TO BE LAID UPGRADE FROM THE LOWEST POINT STARTING AT THE END OF EXISTING IMPROVEMENTS.

B. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 24 HOURS PRIOR TO BACKFILLING OF ANY PIPE WHICH STUBS TO A FUTURE PHASE OF CONSTRUCTION FOR INVERT VERIFICATION. TOLERANCE SHALL BE IN ACCORDANCE WITH CITY STANDARD SPECIFICATIONS.

C. UNLESS NOTED OTHERWISE, SITE PIPELINE LIMIT OF WORK AT BUILDING UTILITY POINT OF CONNECTION SHALL BE 5-FEET OUTSIDE THE BUILDING EXTERIOR WALL.

14. ADJUSTING EXISTING UTILITIES

A. THE CONTRACTOR SHALL ADJUST AND/OR RECONSTRUCT TO GRADE ALL EXISTING UTILITY STRUCTURES, INCLUDING VAULTS, BOXES AND MANHOLE FRAME AND COVER SETS, VALVE BOXES AND MONUMENT BOXES, WITHIN THE WORK AREA UNLESS NOTED OTHERWISE.

B. ALL MANHOLE FRAME AND COVER SETS, WATER VALVE BOXES AND MONUMENT BOXES WITHIN THE WORK AREA THAT DO NOT MEET CURRENT CITY REQUIREMENTS SHALL BE REMOVED AND REPLACED TO CONFORM TO CITY STANDARDS. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE CITY INSPECTOR AND WITH THE ENGINEER.

15. SANITARY SEWER SYSTEM

A. UNLESS SPECIFIED OTHERWISE, ALL SEWER SERVICES SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY STANDARDS.

B. ALL SEWER SERVICES SHALL BE MARKED WITH A 2" X 2" STAKE AT THE END OF EACH SERVICE AND A 2 INCH HIGH "S" STAMPED IN THE TOP OF THE CURB.

C. ALL SEWER MAINS AND SERVICES SHALL BE AIR TESTED TO THE SATISFACTION OF THE ENGINEER AFTER AGGREGATE BASE PLACEMENT IS COMPLETED. SEWER PLUGS TO BE WING NUT TYPE, E-Z TEST OR APPROVED EQUIVALENT. MAINS SHALL BE BALLED AND FLUSHED PER CITY STANDARDS. PRIOR TO STARTING THE CLEANING OPERATION, A FINE MESH WIRE SCREEN SHALL BE PLACED AT THE EXTREME DOWNSTREAM MANHOLE TO PREVENT DEBRIS FROM ENTERING THE EXISTING CITY SEWER SYSTEM.

D. TV INSPECTION OF SEWERS, INCLUDING VIDEO RECORDINGS, SHALL BE PROVIDED BY THE CONTRACTOR. TV INSPECTION SHALL INCLUDE MAINS, SERVICES AND CLEANOUTS.

E. EACH STUB END PIPE SHALL BE PLUGGED WITH A PREFABRICATED, WATERTIGHT PLUG. PLUG SHALL BE GLADDING-MCBEAN SPEED-SEAL CLAY STOPPER OR MISSION CLAY PRODUCTS STD. BAND-SEAL COUPLING WITH PLASTIC SHEAR RING AND ABS STOPPER. "POLYCAP" AND "SPEED-CAP" STOPPERS ARE NOT ACCEPTABLE.

F. BUILDING SEWER CLEANOUTS SHALL BE LOCATED AND INSTALLED IN ACCORD WITH THE UNIFORM PLUMBING CODE AND SHALL BE EXTENDED TO GRADE.

G. ALL GRAVITY SEWER PIPE WITHIN PUBLIC RIGHT OF WAY SHALL CONFORM WITH CITY STANDARDS.

H. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL SEWER LATERAL LOCATIONS WITH THE DESIGN ENGINEER PRIOR TO CONSTRUCTION.

16. STORM DRAIN SYSTEM

A. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING DRAINAGE FACILITIES WITHIN THE CONSTRUCTION AREA UNTIL THE DRAINAGE IMPROVEMENTS ARE IN PLACE AND FUNCTIONING AND ACCEPTED BY THE CITY.

B. UNLESS NOTED OTHERWISE, ALL STORM DRAIN PIPE SHALL BE PRECAST REINFORCED CONCRETE PIPE, CAST-IN-PLACE CONCRETE PIPE (CIPP), PVC, OR HIGH DENSITY POLYETHYLENE PIPE (HDPE). ALL STORM DRAIN WITHIN PUBLIC RIGHT OF WAY SHALL CONFORM WITH CITY STANDARDS.

C. EACH STUB END PIPE SHALL BE PLUGGED WITH A PREFABRICATED, WATERTIGHT PLUG.

D. THE WALLS OF D.I.'S AND OF MANHOLES FUNCTIONING AS D.I.'S SHALL BE PERFORATED WITH 4 - 2 INCH DIAMETER HOLES PER WALL AT THE LEVEL OF THE BOTTOM OF THE AB UNDER THE ADJOINING PAVEMENT TO ALLOW FOR THE ESCAPE OF ANY WATER THAT MAY BUILD UP AROUND THE INLET.

E. CONTRACTOR SHALL MARK ALL NEW AND EXISTING STORM DRAIN INLETS WITH APPROVED POLLUTION PREVENTION MESSAGES. SPECIFIC PLACEMENT OF MARKERS WILL BE AS DIRECTED BY THE CITY INSPECTOR.

F. STORM DRAIN MANHOLES SHALL BE CONSTRUCTED PER CITY OF WILLIAMS STANDARD DETAIL 201 FOR PIPES SMALLER THAN 30" IN DIAMETER, AND PER CITY OF WILLIAMS STANDARD DETAIL 215 FOR PIPE 30" IN DIAMETER AND GREATER.

17. WATER SYSTEM

A. UNLESS SPECIFIED OTHERWISE, ALL WATER SERVICES SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY STANDARDS.

B. WATER LINE INSTALLATION SHALL ACCOMMODATE GRAVITY FLOW PIPELINES INCLUDING SEWER SERVICES AND SHALL MAINTAIN A MINIMUM COVER OF 3.5 FEET FROM FINISHED GRADE IN ALL STREET SECTIONS AND 3 FEET IN ALL OTHER AREAS.

C. FIRE HYDRANT INSTALLATION SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY STANDARDS.

D. REDUCED PRESSURE BACK FLOW PREVENTION DEVICES FOR EACH LANDSCAPE IRRIGATION WATER SERVICE WILL BE INSTALLED BY THE LANDSCAPE IRRIGATION CONTRACTOR.

E. THE WATER DISTRIBUTION SYSTEM SHALL CONFORM TO THE CITY SPECIFIC PROVISIONS. PVC WATER MAIN FOR FIRE SYSTEM SHALL BE C900, CL 200. ALL T-BOLTS ON MECHANICAL JOINT FITTINGS AND MACHINE BOLTS ON FLANGE FITTINGS SHALL BE COATED WITH MASTIC AND WRAPPED IN 8 ML PLASTIC. T-BOLTS, MACHINE BOLTS AND ALL THREAD RODS UNDER BUILDING SLABS SHALL BE STAINLESS STEEL WITH THE FITTING WRAPPED IN 8 ML PLASTIC.

F. PROVIDE EXTERIOR CONTROL VALVES FOR EACH SPRINKLER SYSTEM (WALL MOUNTED P.I.V OR STANDARD P.I.V. PER FIRE PROTECTION PLANS.)

G. ALL ON-SITE FIRE MAINS SHALL BE PVC CLASS 200 C-900.

18. EXISTING SIGNS

A. THE PROTECTION AND MAINTENANCE OF EXISTING SIGNS AND THE REMOVAL, PROTECTION, STORAGE AND RESETTING OF CITY TRAFFIC SIGNS THAT ARE AFFECTED BY THE WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AS DIRECTED BY THE CITY ENGINEER. PRIVATE SIGNS, TRAFFIC SIGNS, AND TRAFFIC CONTROL FACILITIES EXISTING WITHIN THE LIMITS OF THE PROJECT SHALL NOT BE MOVED EXCEPT AS NECESSARY TO PREVENT THEM FROM BEING DAMAGED BY CONSTRUCTION OPERATIONS. WHEN A SIGN NEEDS TO BE REMOVED BECAUSE IT INTERFERES WITH THE CONTRACTOR'S WORK, IT SHALL BE DONE IN ONE OF THE FOLLOWING DESCRIBED MANNERS:

STOP SIGNS SHALL BE MAINTAINED IN THEIR EXISTING POSITIONS. ANY STOP SIGN WHICH MUST BE MOVED FROM ITS EXISTING POSITION AND REINSTALLED IN A NEW POSITION, MUST BE APPROVED BY THE CITY ENGINEER BEFORE SAID STOP SIGN IS MOVED

TRAFFIC SIGNS AND TRAFFIC CONTROL FACILITIES, OTHER THAN STOP SIGNS, NECESSARY FOR THE CONTROL OF TRAFFIC DURING THE PROJECT SHALL BE MAINTAINED IN PLACE IN AN UPRIGHT POSITION AND LOCATED SO AS TO PROPERLY CONTROL TRAFFIC. WHENEVER IT IS NECESSARY TO REMOVE THEM FROM THEIR PERMANENT LOCATION DUE TO CONSTRUCTION WORK, THEY SHALL BE REINSTALLED IN THEIR PERMANENT LOCATION AT THE EARLIEST POSSIBLE TIME. CONTROL OF TRAFFIC DURING THE TIME WHICH THE SIGNS ARE TEMPORARILY REMOVED SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

B. WHENEVER IT IS NECESSARY TO REMOVE A PRIVATELY OWNED SIGN OR A PUBLIC INFORMATION SIGN, ITS TEMPORARY RELOCATION AND ITS FINAL POSITIONING SHALL BE COORDINATED WITH THE SIGN OWNER AND, IF LOCATED WITHIN THE PUBLIC RIGHT-OF-WAY, WITH THE CITY ENGINEER.

19. MAILBOXES

MAILBOXES AND NEWSPAPER TUBES WHICH ARE AFFECTED BY THE CONSTRUCTION SHALL BE REMOVED, TEMPORARILY RELOCATED AND FINALLY RESET. ALL MAILBOXES SHALL BE MAINTAINED IN AN UPRIGHT POSITION ADJACENT TO THE CONSTRUCTION AREA BETWEEN THE TIME THE MAILBOX IS REMOVED AND RESET IN ITS FINAL LOCATION. MAILBOXES SHALL BE RESET IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE LOCAL POSTMASTER; SUCH WORK SHALL BE COORDINATED WITH MAILBOX OWNERS.

20. PRESERVATION OF PROPERTY

TREES AND SHRUBBERY THAT ARE NOT TO BE REMOVED, AND POLE LINES, FENCES, SIGNS, SURVEY MARKERS AND MONUMENTS, BUILDINGS AND STRUCTURES, CONDUITS, PIPELINES, ALL STREET FACILITIES, AND ANY OTHER IMPROVEMENTS OR FACILITIES WITHIN OR ADJACENT TO THE STREET OR CONSTRUCTION AREA SHALL BE PROTECTED FROM INJURY OR DAMAGE, AND UPON ORDER BY THE CITY ENGINEER, THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN SAFEGUARDS SUCH AS PROTECTIVE FENCING OR OTHER SUITABLE BARRIERS APPROVED BY THE CITY ENGINEER TO PROTECT SUCH OBJECTS FROM INJURY OR DAMAGE. IF SUCH OBJECTS ARE INJURED OR DAMAGED BY REASON OF THE CONTRACTOR'S OPERATIONS, THEY SHALL BE REPLACED OR RESTORED AT THE CONTRACTOR'S EXPENSE. THE FACILITIES SHALL BE REPLACED OR RESTORED TO A CONDITION AS GOOD AS WHEN THE CONTRACTOR ENTERED UPON THE WORK, OR AS GOOD AS REQUIRED BY THE SPECIFICATION ACCOMPANYING THE CONTRACT, IF ANY SUCH OBJECTS ARE A PART OF THE WORK BEING PERFORMED UNDER CONTRACT. THE CITY ENGINEER MAY MAKE OR CAUSE TO BE MADE SUCH TEMPORARY REPAIRS AS ARE NECESSARY TO RESTORE TO SERVICE ANY DAMAGED FACILITY. THE COST OF SUCH REPAIRS SHALL BE BORNE BY THE CONTRACTOR.

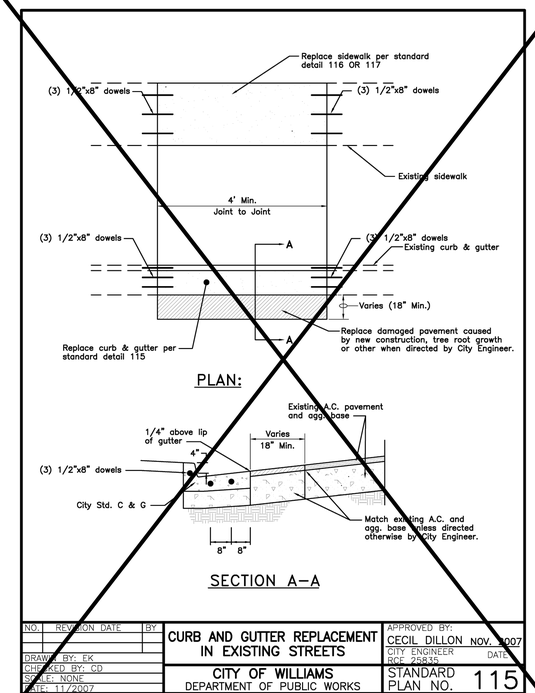
21. RECORD DRAWINGS

A. "RECORD DRAWINGS" IS DEFINED AS BEING THOSE DRAWINGS MAINTAINED BY THE CONTRACTOR TO SHOW THE CONSTRUCTION OF A PARTICULAR STRUCTURE OR WORK AS ACTUALLY COMPLETED UNDER THE CONTRACT. "RECORD DRAWINGS" SHALL BE SYNONYMOUS WITH "AS-BUILT DRAWINGS". AS REQUIRED BY THE ENGINEER, THE CONTRACTOR SHALL PROVIDE THE ENGINEER ACCURATE INFORMATION TO BE USED IN THE PREPARATION OF PERMANENT RECORD DRAWINGS. FOR THIS PURPOSE, THE CONTRACTOR SHALL RECORD ON ONE SET OF CONTRACT DRAWING PRINTS ALL CHANGES FROM INSTALLATIONS ORIGINALLY INDICATED, AND RECORD FINAL LOCATIONS OF UNDERGROUND LINES BY DEPTH FROM FINISH GRADE AND BY ACCURATE HORIZONTAL OFFSET DISTANCES TO PERMANENT SURFACE IMPROVEMENTS SUCH AS BUILDINGS, CURBS OR EDGES OF WALKS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL AS-BUILT INFORMATION PREPARED BY SUBCONTRACTORS IS INCLUDED IN HIS RECORD DRAWINGS.

B. THE CONTRACTOR SHALL MAINTAIN AT LEAST ONE COMPLETE SET OF UPDATED "RECORD DRAWING" IMPROVEMENT PLAN PRINTS. THESE PRINTS SHALL BE READILY AVAILABLE TO THE CITY AND TO THE ENGINEER. UPON COMPLETION OF THE PROJECT, AND PRIOR TO FINAL PAYMENT, THESE RECORD DRAWING PRINTS SHALL BE SUBMITTED TO THE ENGINEER.

22. INSURANCE

CONTRACTOR SHALL MAINTAIN SUCH INSURANCE AS WILL PROTECT IT FROM CLAIMS UNDER WORKERS' COMPENSATION ACTS AND FROM CLAIMS FOR DAMAGES BECAUSE OF BODILY INJURY, INCLUDING DEATH, OR INJURY TO PROPERTY WHICH MAY ARISE FROM AND DURING THE OPERATION OF THIS CONTRACT. INSURANCE COVERAGE SHALL INCLUDE PROVISION OR ENDORSEMENT NAMING THE OWNER, THE ENGINEER AND HIS CONSULTANTS, AND EACH OF THEIR OFFICERS, EMPLOYEES AND AGENTS, EACH AS ADDITIONAL INSURED IN REGARDS TO LIABILITY ARISING OUT OF THE PERFORMANCE OF ANY WORK UNDER THE CONTRACT. A CERTIFICATE OF SUCH INSURANCE SHALL BE FURNISHED TO THE OWNER PRIOR TO COMMENCEMENT OF ANY WORK.



NO.	REVISION	DATE	BY

DRAWN BY: EK
CHECKED BY: CD
SCALE: NONE
DATE: 11/2007

CURB AND GUTTER REPLACEMENT IN EXISTING STREETS

CITY OF WILLIAMS
DEPARTMENT OF PUBLIC WORKS

APPROVED BY:
CECIL DILLON NOV. 2007
CITY ENGINEER DATE
RCE 25835

STANDARD PLAN NO. 115

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A PROPOSED CLASSROOM RELOCATION FOR

COLUSA COUNTY ADULT EDUCATION CENTER

COLUSA COUNTY
OFFICE OF EDUCATION
WILLIAMS, CALIFORNIA

SHEET TITLE

GENERAL NOTES

DRAWING STATUS

REVISIONS

Sym.	Description	By	Date
1	CCD 1	BPB	8/18/21
2	CCD 2	BPB	3/30/23

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Checked By	BPB
Date Drawn	07.08.21
Scale	NONE
Job No.	3554-3

SHEET No.

C003

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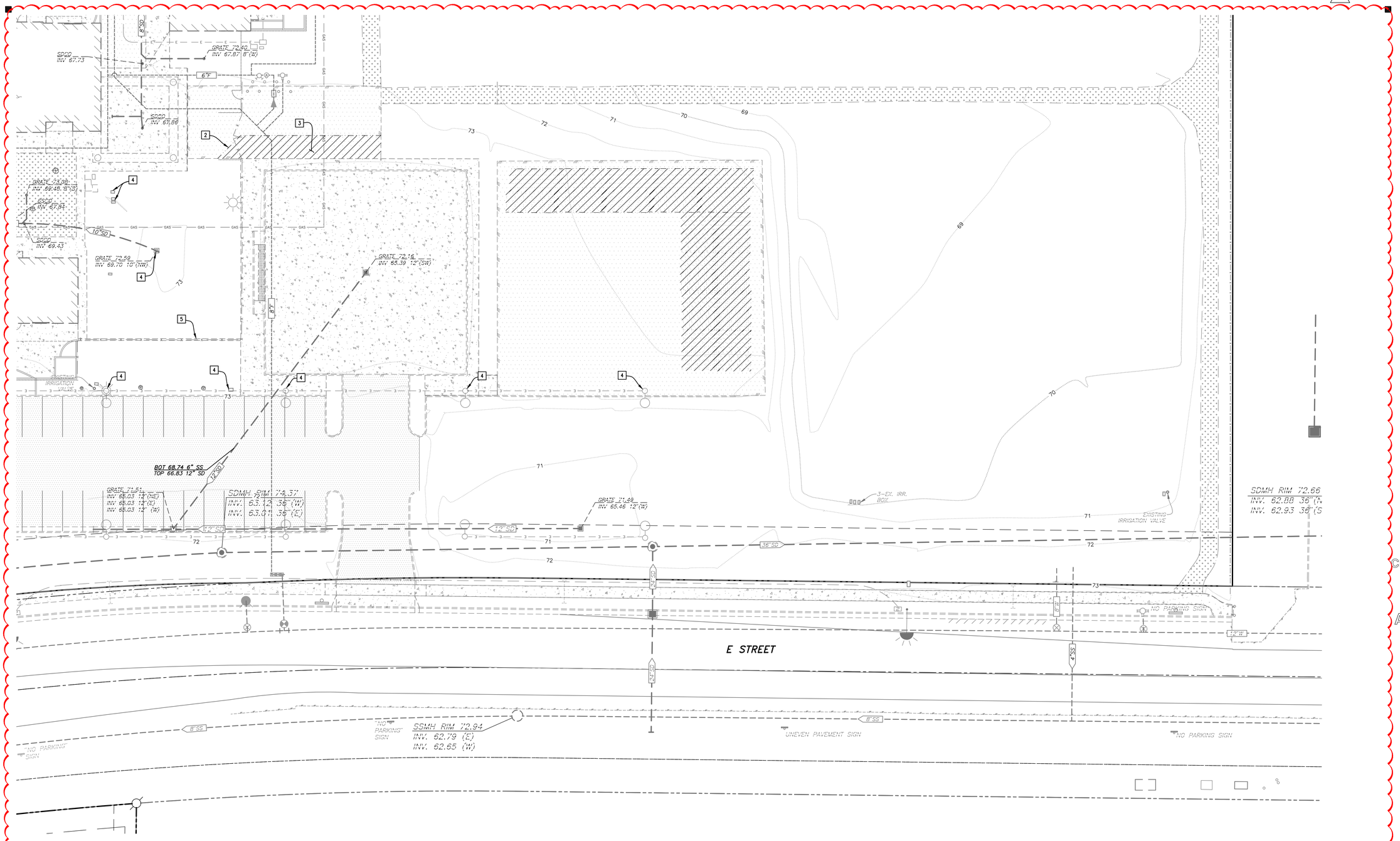

GENERAL NOTES:

A. CONTRACTOR SHALL POTHOLE AND VERIFY DEPTHS AND LOCATIONS OF EXISTING UTILITIES AS FIRST ITEM OF WORK, AND NOTIFY ENGINEER OF ANY CONFLICTS.

B. CONTRACTOR SHALL COORDINATE UTILITY SHUTOFFS AND TERMINATIONS WITH UTILITY COMPANIES. CONTRACTOR SHALL PROVIDE PROOF OF SHUTOFFS PRIOR TO BEGINNING WORK.

C. THE CONTRACTOR SHALL REMOVE ALL OBSTRUCTIONS, BOTH ABOVE AND BELOW GROUND AS REQUIRED FOR THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS. WHEN FEASIBLE SUCH WORK SHALL BE COMPLETED PRIOR TO GRADING.

D. ALL UNSUITABLE AND SURPLUS MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE UNLESS SPECIFIED OTHERWISE.

E. WHERE EXISTING LANDSCAPE AREAS ARE DISTURBED, REPLACE IN KIND OR EXTEND AS REQUIRED TO MATCH EXISTING.

F. THE CONTRACTOR SHALL ADJUST ALL EXISTING MANHOLES, VAULTS AND VALVE BOXES WITHIN THE WORK AREA TO GRADE, EVEN THOSE THAT MAY NOT SPECIFICALLY BE NOTED. ALL DAMAGED BOXES SHALL BE REPLACED WITH NEW BOXES.

CONSTRUCTION NOTES

2 PAVEMENT REMOVAL LINE, SAWCUT (— · — · — · —).

3 HATCHING DENOTES EXISTING PAVEMENT TO BE REMOVED AND REPLACED IN KIND

4 PROTECT EXISTING UTILITY DURING CONSTRUCTION AND ADJUST TO GRADE AS NECESSARY.

5 CONFIRM WITH CLIENT ON LIMITS OF DEMO FOR FENCE AND MOW STRIP, AS WELL AS IF FENCE IS GETTING RELOCATED AROUND FUTURE PADS.

0 10 20 40

SCALE: 1"=20'

Login Name: pchoate
Plot Date: April 10, 2023 - 10:50 am
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PROJECT NAME

A PROPOSED CLASSROOM RELOCATION FOR COLUSA COUNTY ADULT EDUCATION CENTER

COLUSA COUNTY
OFFICE OF EDUCATION
WILLIAMS, CALIFORNIA

SHEET TITLE

TOPOGRAPHIC SURVEY & DEMOLITION PLAN

DRAWING STATUS

REVISIONS

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1	CCD 1	BPB	8/18/21
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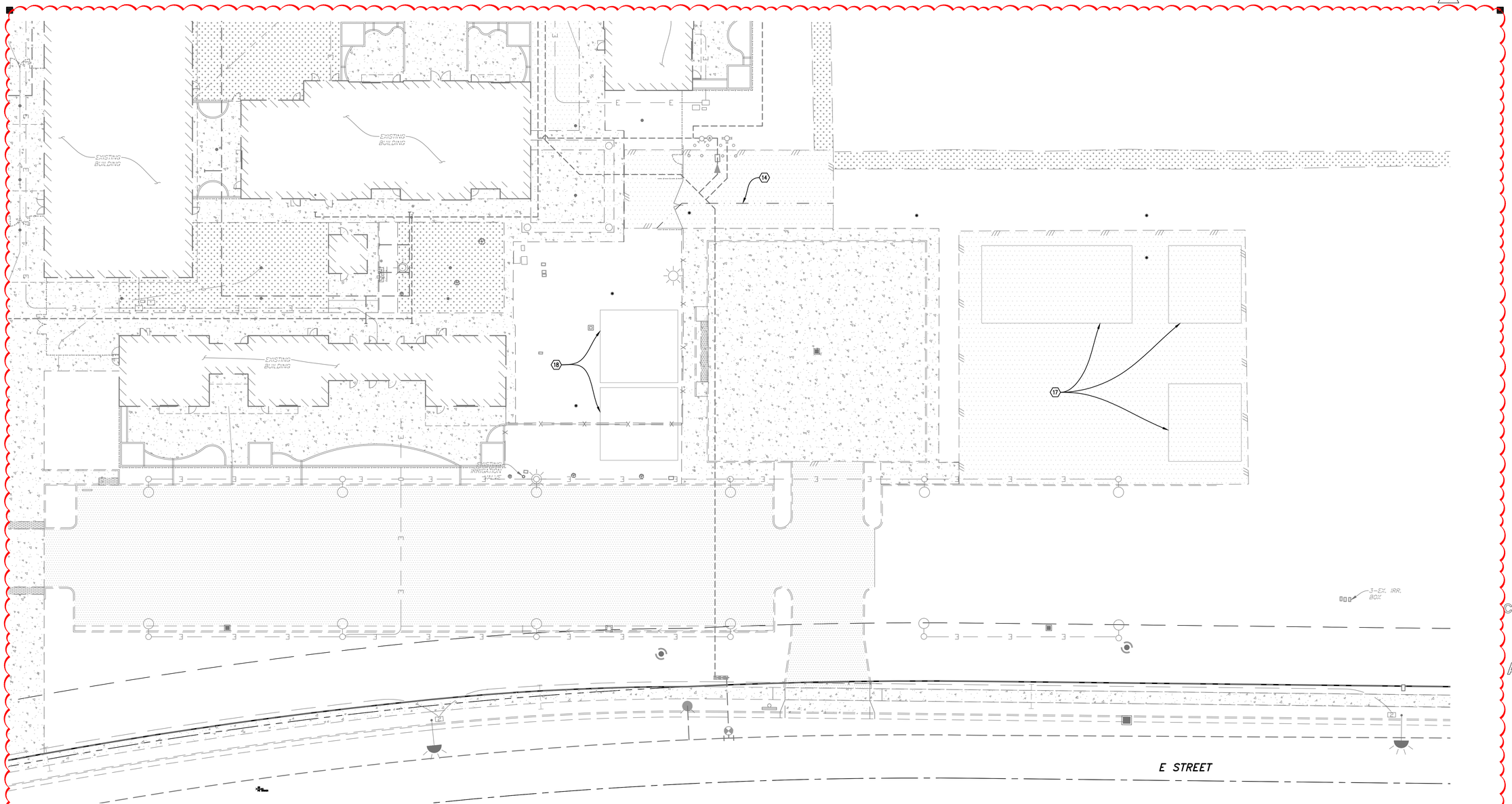
Checked By	BPB
Date Drawn	07.08.21
Scale	1" = 20'
Job No.	3554-3

SHEET No.

C101



GENERAL NOTES:

A. SEE ARCHITECTURAL PLANS FOR PARKING DETAILS AND COUNTS.

B. 4" WIDE WHITE STANDARD PAINTED PARKING STALL STRIPES (TYPICAL). VERIFY WITH ARCHITECTURAL SITE PLAN. SEE ARCHITECTURAL PLAN FOR FIRE LANE MARKINGS. FIELD VERIFY FIRE LANES WITH FIRE MARSHALL PRIOR TO SIGNING AND STRIPING.

C. SEE ARCHITECTURAL PLANS FOR ACCESSIBLE PARKING STALL AND SIGNAGE DETAILS

D. PCC SLABS SHOULD BE CONSTRUCTED WITH THICKENED EDGES. THE THICKENED EDGES SHOULD BE CONSTRUCTED AND TAPERED OVER A MINIMUM DISTANCE OF 48 INCHES IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 330R DESIGN DETAILS. REINFORCING FOR CRACK CONTROL, IF DESIRED, SHOULD CONSIST OF AT LEAST NO. 4 REINFORCING BARS PLACED ON MAXIMUM 12-INCH CENTERS EACH WAY THROUGH THE SLAB. REINFORCEMENT MUST BE LOCATED AT THE MID-SLAB DEPTH TO BE EFFECTIVE. JOINT SPACING AND DETAILS SHOULD BE DETERMINED BY THE PROJECT ENGINEER AND SHOULD CONFORM WITH CURRENT PCA OR ACI GUIDELINES.

E. 1.8% MAXIMUM SLOPE AT ADA PARKING STALLS. CONTRACTOR SHALL VERIFY TOP OF A.B. PRIOR TO PAVING FOR SLOPE COMPLIANCE. FINISHED GRADES WILL BE VERIFIED BY ENGINEER PRIOR TO ACCEPTANCE. FOR ANY SLOPES GREATER THAN THE 1.8% MAXIMUM ALLOWED, THE CONTRACTOR SHALL REMOVE AND REPLACE AS REQUIRED FOR FULL COMPLIANCE.

CONSTRUCTION NOTES

(14) SAWCUT AND REMOVED EXISTING A.C. AS NEEDED FOR INSTALLATION OF UTILITIES PER SHEET C401A.

(17) FUTURE BUILDING LOCATION.

(18) INSTALL 12" A.B. PER GEOTECH REPORT FOR THE FUTURE I.T. BUILDINGS. GRADE TO DRAIN PER SHEET C301A.

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LM
SCALE: 1"=20'

Login Name: pchoate
Plot Date: April 10, 2023 - 10:51 am
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COLUSA COUNTY ADULT EDUCATION CENTER

COLUSA COUNTY
OFFICE OF EDUCATION
WILLIAMS, CALIFORNIA

SHEET TITLE

CIVIL SITE PLAN

DRAWING STATUS

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1	CCD 1	BPB	8/18/21
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Drawn By	PF
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SHEET No.

C201

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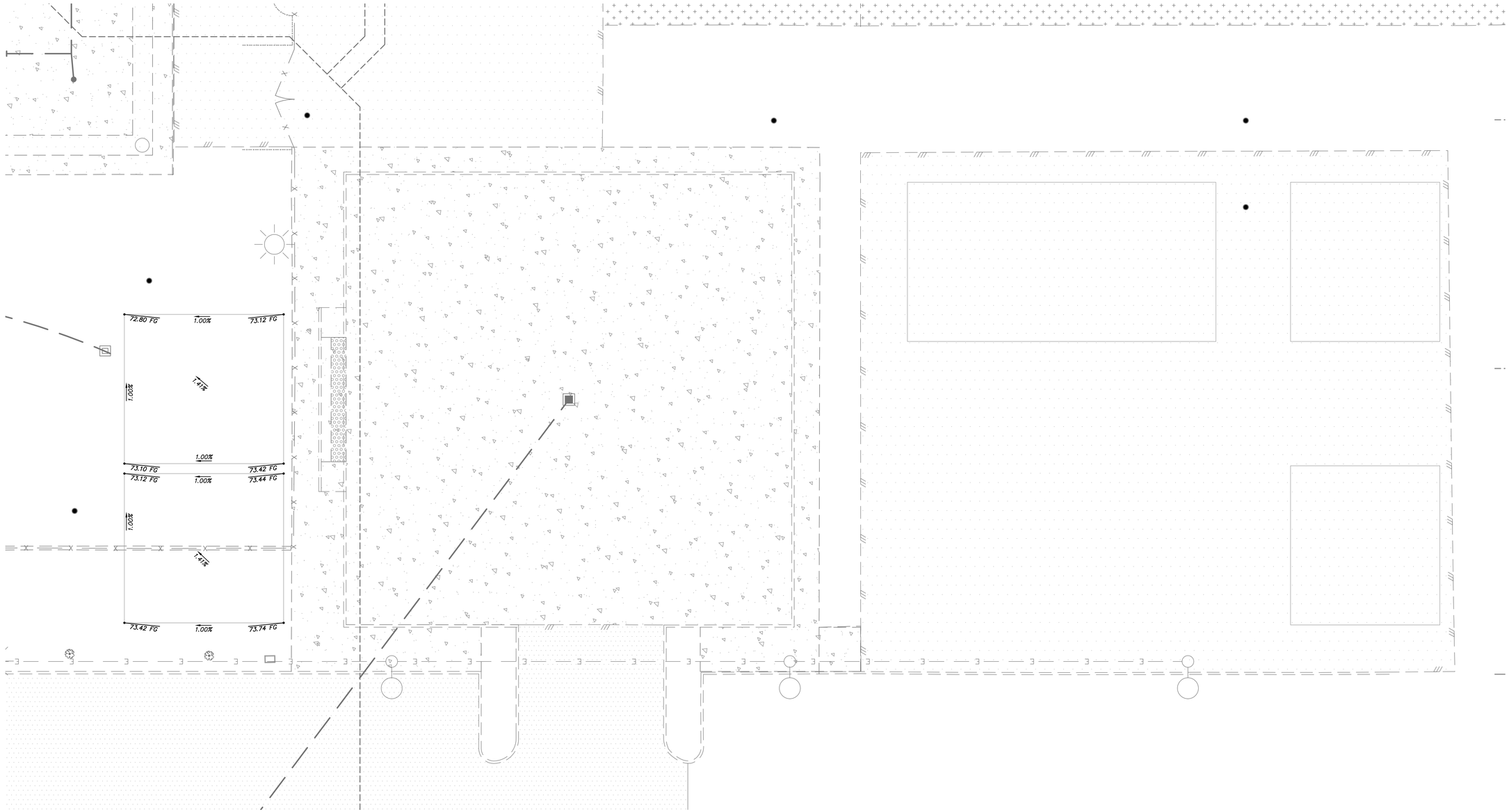

GENERAL GRADING NOTES:

A. ALL EARTHWORK ACTIVITIES, INCLUDING EXCAVATION, GRADING, SCARIFYING, MOISTURIZING, FILL PLACEMENT, COMPACTION, ETC., SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE CITY STANDARD SPECIFICATIONS, CALIFORNIA BUILDING CODE (C.B.C.), AND WITH THE GRADING PLAN.

B. THE GEOTECHNICAL ENGINEER SHALL OBSERVE THE GRADING ACTIVITIES AND PERFORM COMPACTION TESTING FOR THIS PROJECT. THE CONTRACTOR SHALL PROVIDE AT LEAST 24 HOURS NOTICE TO THE GEOTECHNICAL ENGINEER OF THE NEED FOR OBSERVATION AND TESTING SERVICES. THE PROJECT OWNER WILL PAY FOR THE COST OF PROVIDING THESE SERVICES; HOWEVER, IF SAMPLES OF MATERIALS ARE SUBMITTED WHICH FAIL TO PASS THE SPECIFIED TESTS OR IF WORK IS PERFORMED WHICH FAILS TO MEET THESE SPECIFICATIONS, THE CONTRACTOR SHALL PAY FOR ALL SUBSEQUENT RE-TESTS AND RE-INSPECTIONS.

C. EARTHWORK SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO CONSTRUCT THE SITE TO THE GRADES SHOWN. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR THE DISPOSAL OF EXCESS EXCAVATION OR FOR THE IMPORT OF MATERIAL.

D. TO ACCOMMODATE TRENCH AND FOUNDATION SPOILS, THE CONTRACTOR'S GRADING SHALL INCLUDE UNDERCUTTING OF PAVED AREAS AS APPROPRIATE, OR SOME OTHER METHOD APPROVED BY THE ENGINEER. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR THE DISPOSAL OF EXCESS EXCAVATION OR FOR THE IMPORT OF MATERIAL.

E. CONTRACTOR SHALL OVEREXCAVATE LANDSCAPE AREAS TO ACCOMMODATE SITE STRIPPINGS. STRIPPINGS ARE NOT ALLOWED IN PAVING OR BUILDING AREAS.

F. ALL CUT SLOPES SHALL BE ROUNDED AT THE "BREAK" SO THAT THEY BLEND WITH THE NATURAL GROUND CONTOUR.

GRADING NOTES:

B1. THERE ARE NO PLANNED PERMANENT GRADING SPOILS AREAS PLANNED FOR THE SITE.

B2. ALL TEMPORARY GRADING SPOILS AREAS REQUIRED FOR THE CONSTRUCTION OF THE SITE SHALL BE MAINTAINED UTILIZING BMP'S WHICH WILL BE REQUIRED WITH THE PROJECT SWPPP.

B3. PRIOR TO FINISHED GRADING AND LANDSCAPE WORK, CONTRACTOR SHALL SCHEDULE A SITE WALK WITH THE ENGINEER TO VERIFY CRITICAL GRADING ISSUES.

0 5 10 20
SCALE: 1"=10'

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LICENSE STAMPS

REGISTERED PROFESSIONAL ENGINEER
BRIAN P. BONINO
No. 41804
CIVIL
STATE OF CALIFORNIA

PROJECT NAME

A PROPOSED CLASSROOM RELOCATION FOR

COLUSA COUNTY ADULT EDUCATION CENTER

COLUSA COUNTY
OFFICE OF EDUCATION
WILLIAMS, CALIFORNIA

SHEET TITLE

GRADING & DRAINAGE PLAN

DRAWING STATUS

REVISIONS

Sym.	Description	By	Date
1	CCD 1	BPB	8/18/21
2	CCD 2	BPB	4/10/23

Drawn By	PF
Checked By	BPB
Date Drawn	07.08.21
Scale	1" = 10'
Job No.	3554-3

SHEET No.

C301

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Login Name: pchoate
Plot Date: April 10, 2023 – 10:51 am
File Name: X:\Land Projects\3544-3\dwg\3544-3_C301A.dwg
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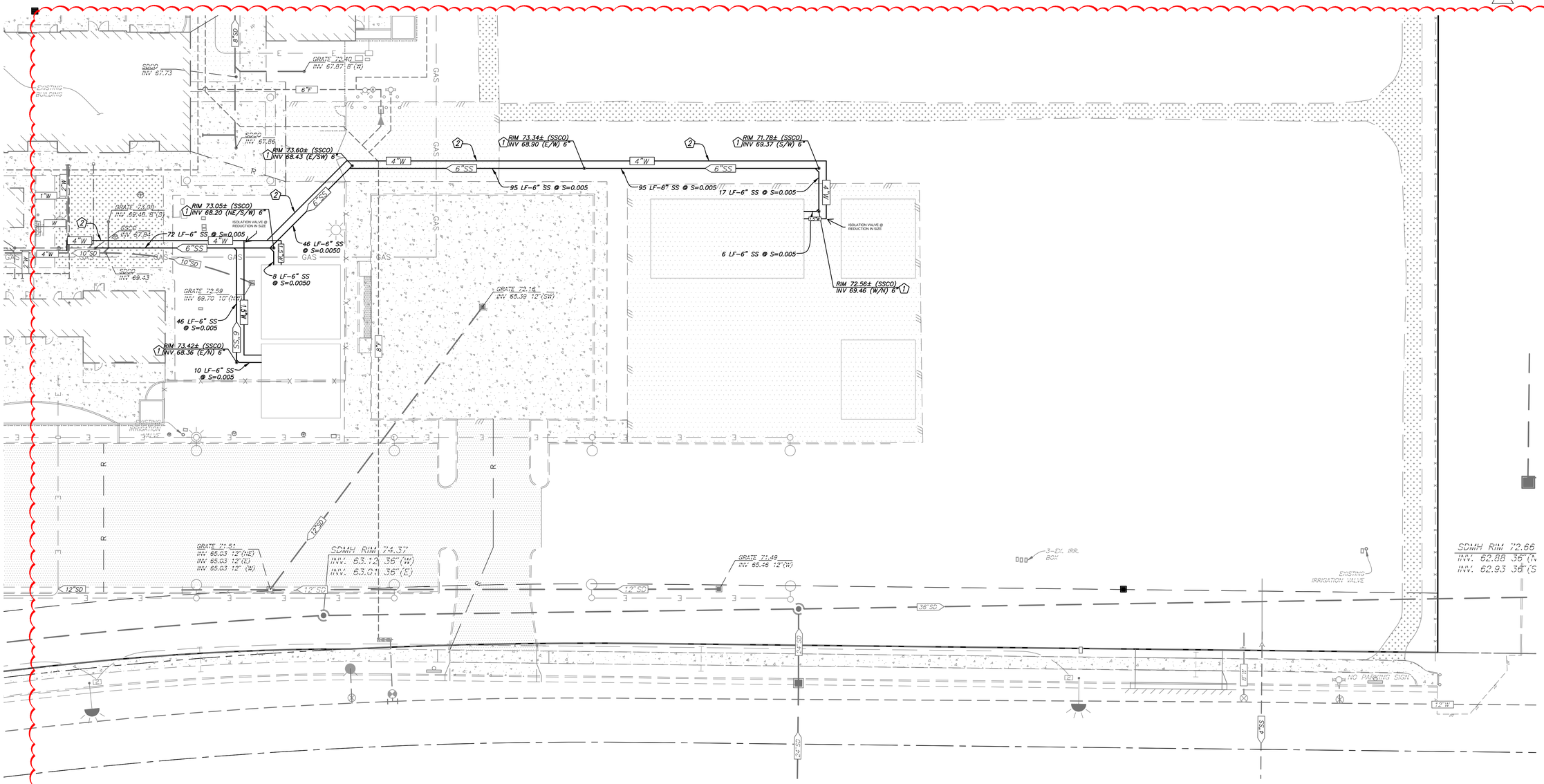

GENERAL UTILITY NOTES:

A. POTHOLE & VERIFY EXISTING SEWER/STORM DRAIN AS FIRST ITEM OF WORK AND VERIFY INVERT ELEVATIONS WITH ENGINEER PRIOR TO BEGINNING WORK. CAUTION!!!! EXISTING UTILITIES. CAUTION!!

B. MAINTAIN 6" MIN. CLEAR SPACE BETWEEN ON-SITE PIPES, EXCEPT AS NOTED. AT ALL LOCATIONS WHERE WATER MAIN CROSSES BELOW SEWER AND STORM DRAIN LINES, CENTER PIPE LENGTH SO THAT JOINTS ARE 10' FROM THE CENTERLINE OF THE STORM DRAIN OR SEWER MAIN (TYPICAL).

C. ELECTRICAL AND GAS LAYOUT TO BE VERIFIED WITH PG&E. SEE ELECTRICAL & MECHANICAL PLANS FOR EXACT LOCATION.

D. IF CONTRACTOR IS ORDERING PRECAST DRAINAGE INLETS, CONTRACTOR SHALL SUBMIT AN INSTALLATION MATRIX FOR EACH INLET WITH ALL INVERTS AND GRATES SHOWN FOR ENGINEERS APPROVAL PRIOR TO ORDERING.

CONSTRUCTION NOTES

1. INSTALL SEWER CLEANOUT PER DETAIL 9, SHEET C701.
2. INSTALL 4" DOMESTIC WATER SERVICE, SCHEDULE 80 PVC WATER PIPE PER ASTM D1785.

0 10 20 40
SCALE: 1"=20'

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Login Name: pchoate
Plot Date: April 10, 2023 – 10:53 am
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LICENSE STAMPS

REGISTERED PROFESSIONAL ENGINEER BRYAN P. BONINO No. 41804 CIVIL STATE OF CALIFORNIA

PROJECT NAME

A PROPOSED CLASSROOM RELOCATION FOR

COLUSA COUNTY ADULT EDUCATION CENTER

COLUSA COUNTY OFFICE OF EDUCATION
WILLIAMS, CALIFORNIA

SHEET TITLE

UTILITIES PLAN

DRAWING STATUS

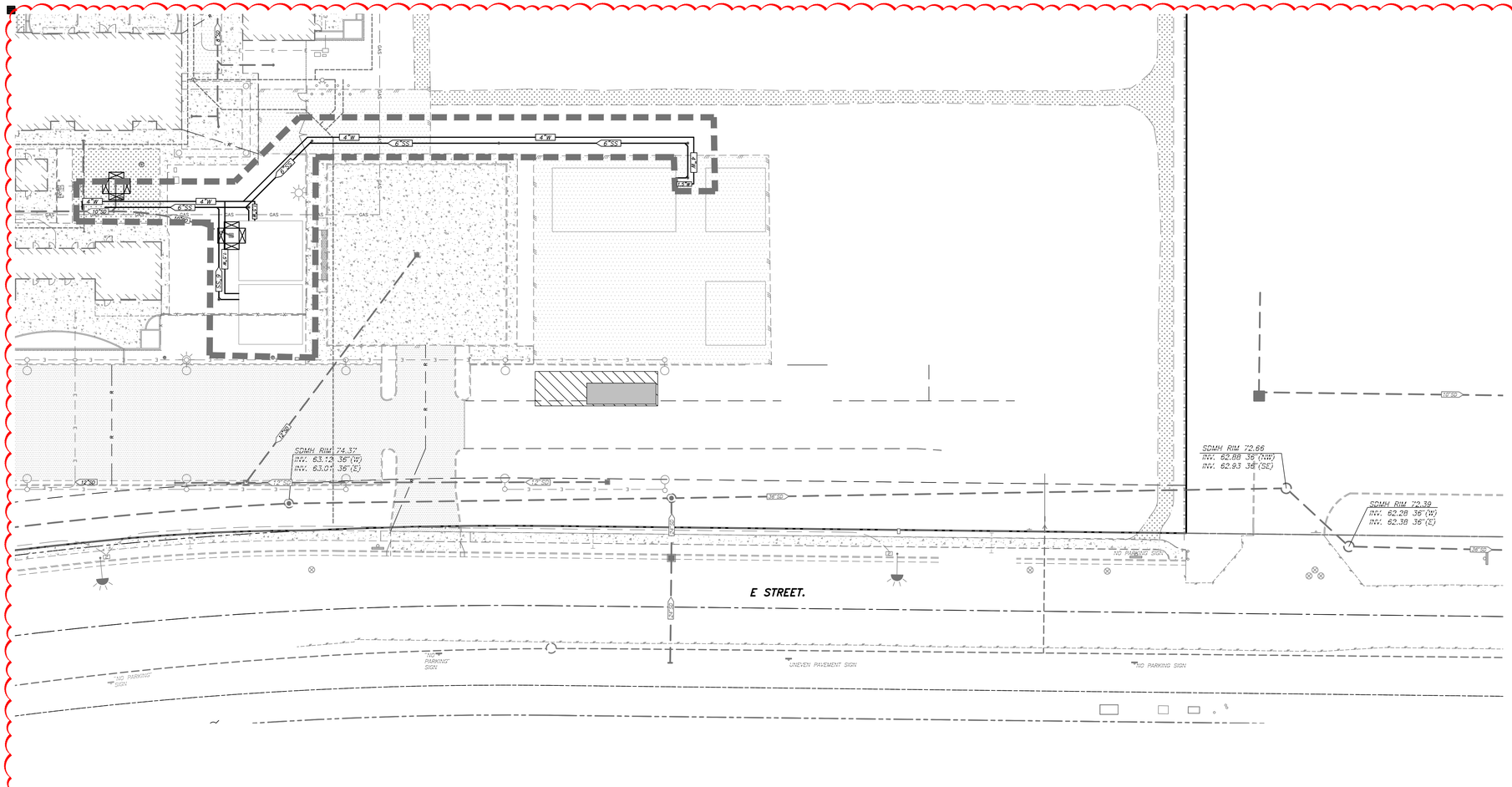
REVISIONS

Sym.	Description	By	Date
1	CCD 1	BPB	8/18/21
2	CCD 2	BPB	4/10/23

Drawn By	PF
Checked By	BPB
Date Drawn	07.08.21
Scale	1" = 20'
Job No.	3554-3

SHEET No.

C401



SITE BMP's

CASQA FACT SHEET	BMP NAME	REQUIRED
EC-1	SCHEDULING	✓
EC-2	PRESERVATION OF EXISTING VEGETATION	✓
EC-3	HYDRAULIC MULCH	
EC-4	HYDROSEEDING	
EC-5	SOIL BINDERS	
EC-6	STRAW MULCH	
EC-7	GEOTEXTILES AND MATS	
EC-8	WOOD MULCHING	
EC-9	EARTH DIKES AND DRAINAGE SWALES	
EC-10	VELOCITY DISSIPATION DEVICES	
EC-11	SLOPE DRAINS	
EC-12	STREAMBANK STABILIZATION	
EC-14	COMPOST BLANKET	
EC-15	SOIL PREPARATION/ROUGHENING	✓
EC-16	NON-VEGETATIVE STABILIZATION	
WE-1	WIND EROSION CONTROL	✓
SE-1	SILT FENCE	
SE-2	SEDIMENT BASIN	
SE-3	SEDIMENT TRAP	
SE-4	CHECK DAMS	
SE-5	FIBER ROLLS	
SE-6	GRAVEL BAG BERM	
SE-7	STREET SWEEPING AND VACUUMING	✓
SE-8	SANDBAG BARRIER	
SE-9	STRAW BALE BARRIER	
SE-10	STORM DRAIN INLET PROTECTION	✓
SE-11	ACTIVE TREATMENT SYSTEM (ATS)	
SE-12	TEMPORARY SILT DIKE	
SE-13	COMPOST SOCKS AND BERMS	
SE-14	BIOFILTER BAGS	
TC-1	STABILIZED CONSTRUCTION ENTRANCE/EXIT	
TC-2	STABILIZED CONSTRUCTION ROADWAY	
TC-3	ENTRANCE/OUTLET TIRE WASH	
NS-1	WATER CONSERVATION PRACTICES	✓
NS-2	DEWATERING OPERATIONS	
NS-3	PAVING AND GRINDING OPERATIONS	✓
NS-4	TEMPORARY STREAM CROSSING	
NS-5	CLEAR WATER DIVERSION	
NS-6	ILLICIT CONNECTION/DISCHARGE	✓
NS-7	POTABLE WATER/IRRIGATION	
NS-8	VEHICLE AND EQUIPMENT CLEANING	
NS-9	VEHICLE AND EQUIPMENT FUELING	✓
NS-10	VEHICLE & EQUIPMENT MAINTENANCE	✓
NS-11	PILE DRIVING OPERATIONS	
NS-12	CONCRETE CURING	
NS-13	CONCRETE FINISHING	
NS-14	MATERIAL OVER WATER	
NS-15	DEMOLITION ADJACENT TO WATER	
NS-16	TEMPORARY BATCH PLANTS	
WM-1	MATERIAL DELIVERY AND STORAGE	✓
WM-2	MATERIAL USE	✓
WM-3	STOCKPILE MANAGEMENT	✓
WM-4	SPILL PREVENTION AND CONTROL	✓
WM-5	SOLID WASTE MANAGEMENT	✓
WM-6	HAZARDOUS WASTE MANAGEMENT	✓
WM-7	CONTAMINATED SOIL MANAGEMENT	
WM-8	CONCRETE WASTE MANAGEMENT	✓
WM-9	SANITARY/SEPTIC WASTE MANAGEMENT	✓
WM-10	LIQUID WASTE MANAGEMENT	

LEGEND:

STORM DRAIN INLET PROTECTION PER CASQA SE-10

LIMIT OF CLEARING AND GRADING

CONCRETE WASHOUT PIT MATERIAL PER CASQA WM-8 WITH POSTED SIGNS

PLANNED STAGING, MATERIAL AND WASTE STORAGE AREA AND SOLID WASTE STORAGE AREA PER CASQA WM-1 TO WM-5

EROSION CONTROL NOTES:

1. ALL WORK SHALL CONFORM TO THE CURRENT COLUSA COUNTY STANDARD SPECIFICATIONS AND ALL APPLICABLE ADDENDA.
2. CONTRACTOR MUST ENSURE THAT THE CONSTRUCTION SITE IS PREPARED PRIOR TO THE ONSET OF ANY STORM. CONTRACTOR SHALL HAVE ALL EROSION AND SEDIMENT CONTROL MEASURES IN PLACE PRIOR TO ANY CONSTRUCTION ACTIVITIES.
3. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED. CHANGES TO THIS EROSION AND SEDIMENT CONTROL PLAN SHALL BE MADE TO MEET FIELD CONDITIONS ONLY WITH THE APPROVAL OF OR AT THE DIRECTION OF A REPRESENTATIVE OF THE DEPARTMENT OF UTILITIES.
4. THIS PLAN MAY NOT COVER ALL THE SITUATIONS THAT ARISE DURING CONSTRUCTION DUE TO UNANTICIPATED FIELD CONDITIONS. VARIATIONS MAY BE MADE TO THE PLAN IN THE FIELD SUBJECT TO THE APPROVAL OF OR AT THE DIRECTION OF A REPRESENTATIVE OF THE DEPARTMENT OF UTILITIES.
5. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED BEFORE AND AFTER ALL STORMS TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.
6. CONTRACTOR SHALL MAINTAIN A LOG AT THE SITE OF ALL INSPECTIONS OR MAINTENANCE OF BMP'S, AS WELL AS, ANY CORRECTIVE CHANGES TO THE BMP'S OR EROSION AND SEDIMENT CONTROL PLAN.
7. IN AREAS WHERE SOIL IS EXPOSED, PROMPT REPLANTING WITH NATIVE COMPATIBLE, DROUGHT-RESISTANT VEGETATION SHALL BE PERFORMED. NO AREAS WILL BE LEFT EXPOSED OVER THE WINTER SEASON.
8. THE CONTRACTOR SHALL INSTALL THE STABILIZED CONSTRUCTION ENTRANCE PRIOR TO COMMENCEMENT OF GRADING. LOCATION OF THE ENTRANCE MAY BE ADJUSTED BY THE CONTRACTOR TO FACILITATE GRADING OPERATIONS. ALL CONSTRUCTION TRAFFIC ENTERING THE PAVED ROAD MUST CROSS THE STABILIZED CONSTRUCTION ENTRANCE. THE STABILIZED CONSTRUCTION ENTRANCE SHALL REMAIN IN PLACE UNTIL THE ROAD BASE ROCK COURSE IS COMPLETED.
9. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE SWEPT AT THE END OF EACH WORKING DAY OR AS NECESSARY.
10. CONTRACTOR SHALL PLACE INLET FILTER BAGS AROUND ALL NEW DRAINAGE STRUCTURE OPENINGS IMMEDIATELY AFTER THE STRUCTURE OPENING IS CONSTRUCTED. THESE INLET FILTER BAGS SHALL BE MAINTAINED AND REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED. STRAW BALES OR GRAVEL BAGS SHALL BE PLACED AROUND ALL EXISTING DRAINAGE INLETS IN THE VICINITY OF PROJECT SITE.
11. CONTRACTOR SHALL PLACE SILT FENCING OR FILTER ROLL ALONG THE PERIMETER OF PROJECT SITE.
12. GRADING SHALL NOT OCCUR WHEN WIND SPEEDS EXCEED 20 MPH OVER A ONE (1) HOUR PERIOD.
13. CONTRACTOR SHALL IMPLEMENT HOUSEKEEPING PRACTICES AS FOLLOWS:

A. **SOLID WASTE MANAGEMENT:**
PROVIDE DESIGNATED WASTE COLLECTION AREAS AND CONTAINERS. ARRANGE FOR REGULAR REMOVAL AND DISPOSAL. CLEAR SITE OF TRASH INCLUDING ORGANIC DEBRIS, PACKAGING MATERIALS, SCRAP OR SURPLUS BUILDING MATERIALS AND DOMESTIC WASTE DAILY.

B. **MATERIAL DELIVERY AND STORAGE:**
PROVIDE A DESIGNATED MATERIAL STORAGE AREA WITH SECONDARY CONTAINMENT SUCH AS BERMING. STORE MATERIAL ON PALLETS AND PROVIDE COVERING FOR SOLUBLE MATERIALS. RELOCATE STORAGE AREA INTO BUILDING SHELL WHEN POSSIBLE. INSPECT AREA WEEKLY.

C. **CONCRETE WASTE:**
PROVIDE A DESIGNATED AREA FOR A TEMPORARY PIT TO BE USED FOR CONCRETE TRUCK WASH-OUT. DISPOSE OF HARDENED CONCRETE OFFSITE. AT NO TIME SHALL A CONCRETE TRUCK DUMP ITS WASTE AND CLEAN ITS TRUCK INTO THE CITY STORM DRAINS VIA CURB AND GUTTER. INSPECT DAILY TO CONTROL RUNOFF, AND WEEKLY FOR REMOVAL OF HARDENED CONCRETE.

D. **PAINT AND PAINTING SUPPLIES:**
PROVIDE INSTRUCTION TO EMPLOYEES AND SUBCONTRACTORS REGARDING REDUCTION OF POLLUTANTS INCLUDING MATERIAL STORAGE, USE, AND CLEAN UP. INSPECT SITE WEEKLY FOR EVIDENCE OF IMPROPER DISPOSAL.

E. **VEHICLE FUELING, MAINTENANCE AND CLEANING:**
PROVIDE A DESIGNATED FUELING AREA WITH SECONDARY CONTAINMENT SUCH AS BERMING. DO NOT ALLOW MOBILE FUELING OF EQUIPMENT. PROVIDE EQUIPMENT WITH DRIP PANS. RESTRICT ONSITE MAINTENANCE AND CLEANING OF EQUIPMENT TO A MINIMUM. INSPECT AREA WEEKLY.

F. **HAZARDOUS WASTE MANAGEMENT:**
PREVENT THE DISCHARGE OF POLLUTANTS FROM HAZARDOUS WASTES TO THE DRAINAGE SYSTEM THROUGH PROPER MATERIAL USE, WASTE DISPOSAL AND TRAINING OF EMPLOYEES. HAZARDOUS WASTE PRODUCTS COMMONLY FOUND ON-SITE INCLUDE BUT ARE NOT LIMITED TO PAINTS & SOLVENTS, PETROLEUM PRODUCTS, FERTILIZERS, HERBICIDES & PESTICIDES, SOIL STABILIZATION PRODUCTS, ASPHALT PRODUCTS AND CONCRETE CURING PRODUCTS.

TOTAL DISTURBED AREA: 0.26 ACRES

0 15 30 60
SCALE: 1"=30'

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LICENSE STAMPS

REGISTERED PROFESSIONAL ENGINEER BRYAN P. BONILHO No. 41804 CIVIL STATE OF CALIFORNIA

PROJECT NAME

A PROPOSED CLASSROOM RELOCATION FOR

COLUSA COUNTY ADULT EDUCATION CENTER

COLUSA COUNTY OFFICE OF EDUCATION
WILLIAMS, CALIFORNIA

SHEET TITLE

EROSION & SEDIMENTATION CONTROL PLAN

DRAWING STATUS

REVISIONS

Sym.	Description	By	Date
1	CCD 1	BPB	8/18/21
2	CCD 2	BPB	4/10/23

Drawn By	PF
Checked By	BPB
Date Drawn	07.08.21
Scale	1" = 30'
Job No.	3554-3

SHEET No.

601

LM LAUGENOUR AND MEIKLE
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Login Name: pchoate
Plot Date: April 10, 2023 - 10:53 am
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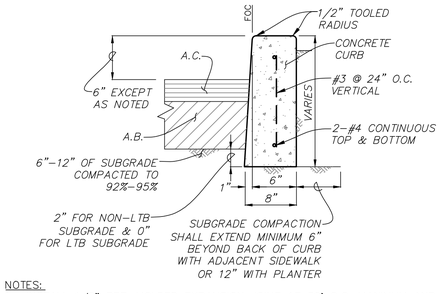
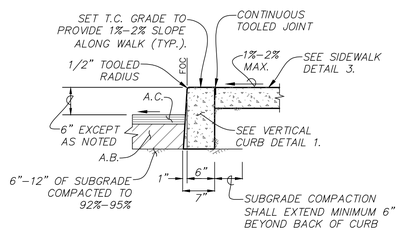
XREFS: _BRDR | _0_BDRY | _1_TOPO | _2_LINE



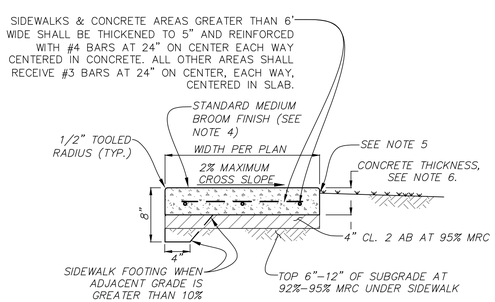
NOTES:
1. INSTALL 1/2" PRE-MOLDED EXPANSION JOINT AT 30' O.C. MAXIMUM AND AT EACH END OF RADIUS SECTIONS.
2. CONTRACTOR SHALL VERIFY WITH ENGINEER AND ARCHITECT PLAN INTENT FOR CURB HEIGHT DEPRESSIONS FOR RAMPS, TRANSITIONS, ETC. PRIOR TO CONSTRUCTION.
3. INSTALL 1/4" EXPANSION JOINTS @ ALL E.C., B.C., ANGLE POINTS AND COLD JOINTS. INSTALL DEEP TOOLED JOINTS @ 10' O.C. MAXIMUM.

1 VERTICAL CURB
NTS



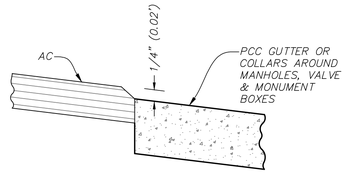
NOTES:
1. INSTALL 1/2" PRE-MOLDED EXPANSION JOINT WITH DOWELS @ 30' ON CENTER MAXIMUM AND AT EACH END OF RADIUS SECTION.
2. CONTRACTOR SHALL VERIFY WITH ENGINEER AND ARCHITECT PLAN INTENT FOR CURB HEIGHT DEPRESSIONS FOR ADA RAMPS, TRANSITIONS, ETC. PRIOR TO CONSTRUCTION.
3. INSTALL 1/2" EXPANSION JOINTS @ ALL E.C., B.C., ANGLE POINTS AND COLD JOINTS. INSTALL DEEP TOOLED CONTROL JOINTS AT 10' ON CENTER MAXIMUM.

2 VERTICAL CURB AT SIDEWALK
NTS

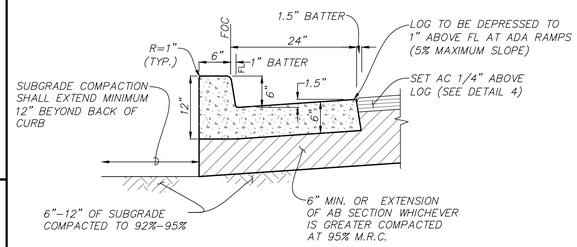


NOTES:
1. INSTALL 1/2" PRE-MOLDED EXPANSION JOINT WITH DOWELS @ 30' ON CENTER MAXIMUM, COLD JOINTS AND AT EACH END OF RADIUS SECTION.
2. INSTALL 1/2" EXPANSION JOINTS @ ALL E.C., B.C., ANGLE POINTS AND COLD JOINTS. INSTALL DEEP TOOLED CONTROL JOINTS AT 10' ON CENTER MAXIMUM.
3. STANDARD SCORE PATTERN SHALL BE SQUARE PATTERN BASED ON WIDTH OF SIDEWALK.
4. VERIFY WITH ARCHITECT'S PLAN FOR ADDITIONAL REQUIREMENTS/TREATMENT.
5. FINISHED LANDSCAPE MATERIAL SHALL BE MAINTAINED 1" BELOW FINISHED CONCRETE OR PAVING TO MAINTAIN CROSS DRAINAGE WITHOUT PUDDLING ON CONCRETE OR PAVING. GRADING CONTRACTOR SHALL VERIFY FINISHED GRADE ELEVATION WITH LANDSCAPER SO FINAL LANDSCAPE MATERIALS ARE SET BELOW ADJACENT GRADE.
6. 4" THICK CONCRETE (4'-6' WIDE SIDEWALKS), 5" THICK CONCRETE (> 6' WIDE SIDEWALKS) WITH #4 BARS AT 24" ON CENTER, EACH WAY, CENTERED IN SLAB..

3 ON-SITE SIDEWALK
NTS

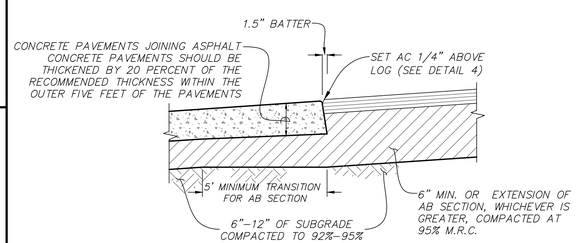


4 AC PAVEMENT EDGE AT CONCRETE
NTS

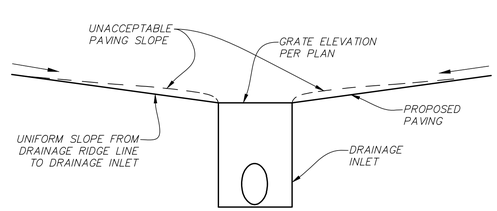


NOTES:
1. INSTALL 1/2" PRE-MOLDED EXPANSION JOINT WITH DOWELS @ 30' ON CENTER MAXIMUM AND AT EACH END OF RADIUS SECTION.
2. CONTRACTOR SHALL VERIFY WITH ENGINEER AND ARCHITECT PLAN INTENT FOR CURB HEIGHT DEPRESSIONS FOR RAMPS, TRANSITIONS, ETC. PRIOR TO CONSTRUCTION.
3. INSTALL 1/2" EXPANSION JOINTS @ ALL E.C., B.C., ANGLE POINTS AND COLD JOINTS. INSTALL DEEP TOOLED CONTROL JOINTS AT 10' ON CENTER MAXIMUM.
4. APPLY MEDIUM BROOM FINISH TO SURFACE OF GUTTER PARALLEL WITH FLOWLINE.

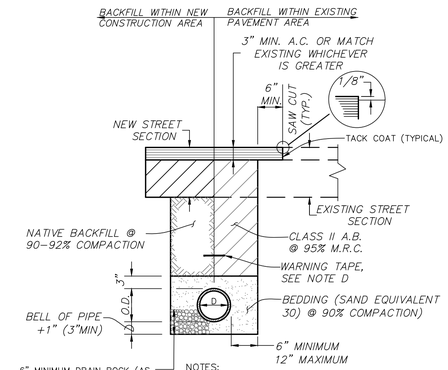
5 6" VERTICAL CURB & 24" GUTTER
NTS



6 CONCRETE/PAVING JOINT CONSTRUCTION
NTS

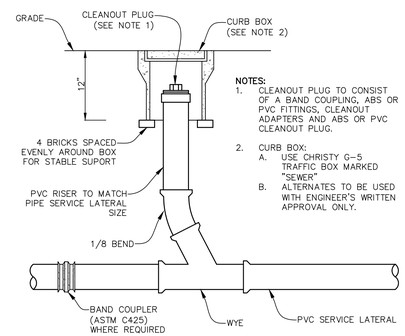


7 GRADING AT DRAINAGE INLETS
NTS



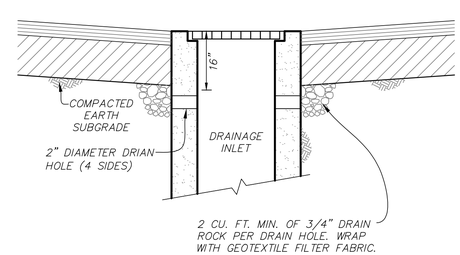
NOTES:
A. BACKFILL SHALL BE MECHANICALLY COMPACTED IN 6" LIFTS WITH NO JETTING.
B. THE CONTRACTOR SHALL COORDINATE COMPACTION TESTING WITH THE PROJECT GEOTECHNICAL ENGINEER.
C. AGENCY STANDARDS SHALL OVERRIDE REQUIREMENTS WITHIN R/W.
D. INSTALL WARNING TAPE OF APPROPRIATE COLOR 12 INCHES ABOVE TOP OF UTILITY, EXCEPT 18 INCHES BELOW SUBGRADE UNDER PAVEMENTS AND SLABS WITH 6 INCHES MINIMUM ABOVE TOP OF UTILITY.

8 TRENCH BACKFILL DETAIL
NTS

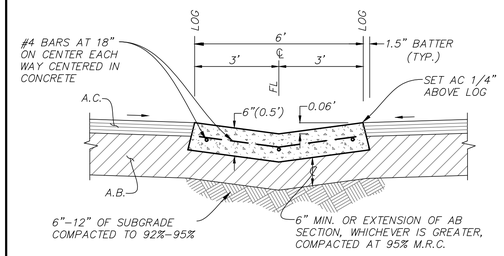


NOTES:
1. CLEANOUT PLUG TO CONSIST OF A BAND COUPLING, ABS OR PVC FITTINGS, CLEANOUT ADAPTERS AND ABS OR PVC CLEANOUT PLUG.
2. CURB BOX:
   A. USE CHRISTY G-5 TRAFFIC BOX MARKED "SEWER"
   B. ALTERNATES TO BE USED WITH ENGINEER'S WRITTEN APPROVAL ONLY.

9 SEWER CLEANOUT
NTS



10 D.I. MODIFICATIONS FOR SUBGRADE DRAINAGE
NTS



NOTES:
1. INSTALL 1/2" PRE-MOLDED EXPANSION JOINT WITH DOWELS @ 30' ON CENTER MAXIMUM, COLD JOINTS AND AT EACH END OF RADIUS SECTION.
2. INSTALL 1/2" EXPANSION JOINTS @ ALL E.C., B.C., ANGLE POINTS AND COLD JOINTS. INSTALL DEEP TOOLED CONTROL JOINTS AT 10' ON CENTER MAXIMUM.
3. ALL EXPOSED EDGES SHALL HAVE 1/2" RADIUS.
4. APPLY MEDIUM BROOM FINISH TO SURFACE OF GUTTER PARALLEL WITH FLOWLINE.

11 6' WIDE CONCRETE VALLEY GUTTER
NTS

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LICENSE STAMPS

REGISTERED PROFESSIONAL ENGINEER BRYAN P. BONITO No. 41804 CIVIL STATE OF CALIFORNIA

PROJECT NAME

A PROPOSED CLASSROOM RELOCATION FOR

COLUSA COUNTY ADULT EDUCATION CENTER

COLUSA COUNTY OFFICE OF EDUCATION
WILLIAMS, CALIFORNIA

SHEET TITLE

DETAILS

DRAWING STATUS

REVISIONS

Sym.	Description	By	Date
1	CCD 1	BPB	8/18/21
2	CCD 2	BPB	3/30/23

Drawn By	PF
Checked By	BPB
Date Drawn	07.08.21
Scale	NONE
Job No.	3554-3

SHEET No.

C701

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Login Name: ythao
Plot Date: March 30, 2023 - 2:30 pm
File Name: X:\Land Projects\3544-3\dwg\3544-3_C701.dwg
XREFS: _BRDR

ELECTRICAL SPECIFICATIONS

PART 1 – GENERAL

1.1 INTENT OF PLANS
A. ELECTRICAL PLAN DRAWINGS SHOW ONLY GENERAL LOCATIONS OF EQUIPMENT, DEVICES, AND RACEWAY UNLESS SPECIFICALLY DIMENSIONED. THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER ROUTING OF RACEWAY, SUBJECT TO THE APPROVAL OF THE ENGINEER. MAKE ADJUSTMENTS AS NECESSARY TO WIRING, CONDUIT, DISCONNECTS, BRANCH CIRCUIT PROTECTION, AND OTHER AFFECTED MATERIAL OR EQUIPMENT TO ACCOMMODATE ACTUAL EQUIPMENT SUPPLIED FOR THIS PROJECT.
1.2 CODES, PERMITS, AND REGULATIONS
A. DO ALL WORK AND INSTALL PRODUCTS IN ACCORDANCE WITH APPLICABLE NECA REQUIREMENTS, THE REQUIREMENTS OF APPLICABLE STATE AND LOCAL LAWS, CODES AND ORDINANCES. THE CONTRACTOR SHALL ADHERE TO THE SPECIFIC PRODUCT AND INSTALLATION REQUIREMENTS OF THE UTILITY COMPANIES. CONFLICTS, IF ANY, WILL BE RESOLVED AT THE DISCRETION OF THE ENGINEER.
B. IT IS OF THE UTMOST IMPORTANCE THAT THE INSTALLING CONTRACTOR HAVE A MASTERY OF THE PROJECT-SPECIFIC REQUIREMENTS SHOWN IN SPECIFICATIONS AND PLANS. IT IS STRONGLY ADVISED THAT THE CONTRACTOR CONTACT THE EEOR FOR CLARIFICATION OR RFI THE EEOR IF FURTHER INFORMATION IS REQUIRED. THE EEOR SHALL REQUIRE REVISIONS TO BE MADE IN THE FIELD IF THE INSTALLATION DOES NOT FALL WITHIN THESE PROJECT-SPECIFIC GUIDELINES. NO ALLOWANCE SHALL BE MADE FOR INSTALLATIONS NOT ADHERING TO THESE REQUIREMENTS.
1.3 SUBMITTALS
A. GENERAL:
1. BEFORE ANY MATERIAL IS FABRICATED OR SHIPPED, FURNISH TO THE ENGINEER FULL DETAILS, SHOP DRAWINGS, DIMENSIONS, CATALOG CUTS, SCHEMATIC (ELEMENTARY) DIAGRAMS, AND OTHER DESCRIPTIVE MATTER AS REQUIRED TO FULLY DESCRIBE THE EQUIPMENT SPECIFIED. FOR SERVICE ENTRANCE EQUIPMENT, METER BASE, AND OTHER RELATED MATERIALS, OBTAIN WRITTEN APPROVAL OF SUBMITTALS FROM THE SERVING UTILITY BEFORE SUBMITTING TO THE ENGINEER.
1.4 TESTING RELATED SUBMITTALS
A. TEST PROCEDURES: SUBMIT THE PROCEDURES TO BE FOLLOWED DURING THE OPERATIONAL READINESS TEST. PROCEDURES SHALL INCLUDE TEST DESCRIPTIONS, FORMS, AND CHECKLISTS TO BE USED TO CONTROL AND DOCUMENT THE REQUIRED TESTS. UPON COMPLETION OF EACH REQUIRED TEST, DOCUMENT THE TEST BY SUBMITTING A COPY OF THE SIGNED OFF TEST PROCEDURES.
1.5 ADDITIONAL SERVICES
A. ELECTRICAL CONTRACTOR SHALL PROVIDE TEMPORARY POWER AND LIGHTING FOR ALL TRADES FOR THE DURATION OF THIS PROJECT. PROVIDE AND INSTALL TEMPORARY PANELBOARDS, SPYDER BOXES, FESTOON LIGHTING OR OTHER ELECTRICAL ITEMS AS NEEDED. COORDINATE WITH THE GENERAL CONTRACTOR.

PART 2 – PRODUCTS

2.1 NOTE
A. UNLESS OTHERWISE INDICATED, PROVIDE ALL FIRST-QUALITY NEW MATERIALS, FREE FROM ANY DEFECTS, AND SUITABLE FOR THE INTENDED USE AND THE SPACE PROVIDED. PROVIDE MATERIALS APPROVED BY UL WHEREVER STANDARDS HAVE BEEN ESTABLISHED BY THAT ORGANIZATION. FURNISH AND INSTALL ALL INCIDENTAL ITEMS NOT SPECIFICALLY SHOWN OR SPECIFIED WHICH ARE REQUIRED TO PROVIDE THE COMPLETE SYSTEMS SPECIFIED HEREIN. WHERE TWO OR MORE UNITS OF THE SAME CLASS OF MATERIAL OR EQUIPMENT ARE REQUIRED, PROVIDE PRODUCTS OF A SINGLE MANUFACTURER. COMPONENT PARTS OF MATERIALS OR EQUIPMENT NEED NOT BE PRODUCTS OF THE SAME MANUFACTURER.
2.2 EQUIPMENT FINISH
A. UNLESS OTHERWISE INDICATED, FINISH FOR ELECTRICAL EQUIPMENT AND ENCLOSURES SHALL BE MANUFACTURER'S STANDARD GRAY OR ANSI 61 GRAY OVER A PRIMER AND RUST INHIBITOR.
2.3 OUTLET AND DEVICE BOXES
A. SHEET STEEL: ONE-PIECE DRAWN TYPE, ZINC- OR CADMIUM-PLATED.
2.4 JUNCTION AND PULL BOXES
A. OUTLET BOXES USED AS JUNCTION OR PULL BOX: AS SPECIFIED UNDER OUTLET AND DEVICE BOXES.
B. LARGE WEATHERPROOF: NEMA 3R.
1. BOX: GALVANIZED STEEL.
2. COVER: SCREW WITH PROVISIONS FOR PAD LOCKING.
3. EMBOSSED MOUNTING HOLES ON BACK OF ENCLOSURE.
4. NO GASKETING.
C. CONCRETE PULL BOX:
1. BOX: PRECAST CONCRETE.
2. EXTENSIONS: PRECAST CONCRETE, 12 INCHES DEEP, PROVIDE MINIMUM OF TWO PER BOX.
3. COVER: STEEL TRAFFIC COVER, CLEARLY AND PERMANENTLY LABEL BOX ELECTRICAL, TELEPHONE, OR TELEMETRY, AS APPLICABLE.
4. SIZE: SIZED IN ACCORDANCE WITH CEC, BUT MINIMUM SIZE 17"H X 30"W WITH DEPTH AS REQUIRED OR AS SHOWN.
2.5 CONDUIT AND TUBING
A. GALVANIZED RIGID STEEL CONDUIT (GRS):
1. MEET REQUIREMENTS OF ANSI C80.1 AND UL 6.
2. MATERIAL: HOT-DIP GALVANIZED, WITH CHROMATED PROTECTIVE LAYER.
B. PVC SCHEDULE 40 CONDUIT:
1. MEET REQUIREMENTS OF NEMA TC2 AND UL 651.
2. UL LISTED FOR CONCRETE ENCASEMENT, UNDERGROUND DIRECT BURIAL, CONCEALED OR DIRECT SUNLIGHT EXPOSURE, AND 90°C INSULATED CONDUCTORS.
C. RACEWAY WARNING TAPE:
1. HEAVY-GAUGE, YELLOW PLASTIC TAPE OF 6-INCH MINIMUM WIDTH FOR USE IN TRENCHES CONTAINING ELECTRIC CIRCUITS.
2. UTILIZE TAPE MADE OF MATERIAL RESISTANT TO CORROSIVE SOIL.
3. PRINTED WARNING THAT AN ELECTRIC CIRCUIT IS LOCATED BELOW THE TAPE.
2.6 FITTINGS
A. GALVANIZED RIGID STEEL:
1. MEET REQUIREMENTS OF UL 514B.
2. TYPE: THREADED, GALVANIZED. SETSCREW FITTINGS NOT PERMITTED.
3. MATERIAL: MALLEABLE IRON WITH INSULATED THROAT.
B. PVC CONDUIT:
1. MEET REQUIREMENTS OF NEMA TC-3 AND UL 514B.
2. TYPE: PVC, SLIP-ON.
2.7 CONDUCTORS
A. ELECTRICAL TERMINALS AND TERMINATIONS: IT IS ASSUMED THAT ALL TERMINATIONS IN THE FIELD SHALL HAVE MINIMUM RATED 75°C RATED TERMINALS. THE CONTRACTOR SHALL FIELD VERIFY ALL TERMINALS FOR CONNECTION IN COMPLIANCE WITH CEC 110.14. THE CONTRACTOR SHALL INFORM THE ENGINEER OF RECORD OF ANY TERMINALS DEVIATING FROM A RATING OF 75°C.
1. ALL CONDUCTORS ARE RATED FOR 75°C ON PLANS UNLESS OTHERWISE NOTED.
B. ALL CONDUCTORS SHOWN SHALL BE NEW UNLESS OTHERWISE INDICATED.
C. CONDUCTOR TYPE:
1. ALL OTHER CIRCUITS: STRANDED.
2. INSULATION: TYPE THHN/THWN, 90°C DRY OR 75°C WET.
D. COPPER BUILDING WIRE:
1. DESCRIPTION: FLEXIBLE, INSULATED AND UNINSULATED, DRAWN COPPER CURRENT-CARRYING CONDUCTOR WITH AN OVERALL INSULATION LAYER OR JACKET, OR BOTH, RATED 600 VAC OR LESS.
a. INSULATION:
• TYPE THHN AND TYPE THWN-2: COMPLY WITH UL 83.
2.8 CONDUCTOR ACCESSORIES
A. TAPE:
1. GENERAL PURPOSE, FLAME RETARDANT: 7-MIL, VINYL PLASTIC, RATED FOR 90°C MINIMUM MEETING REQUIREMENTS OF UL 510.
2. FLAME RETARDANT, COLD AND WEATHER RESISTANT: 8.5 MIL, VINYL PLASTIC.
B. CABLE TIES:
1. NYLON, ADJUSTABLE, AND SELF-LOCKING.
2. COMPLY WITH UL 20 AND FS W-S-896.
2.9 SWITCHBOARDS
A. PROVIDE A SWITCHBOARD, WHICH WILL PROVIDE SERVICE TO THE FACILITY, AND ATTACHMENT OF SERVICE CONDUCTORS.
B. CONSTRUCTION:
1. THE ENTIRE ASSEMBLY SHALL BE FRONT ACCESSIBLE AND SHALL CONSIST OF MAIN CIRCUIT BREAKER, AND DISTRIBUTION PANEL AS INDICATED.
2. ALL METERING SHALL BE IN ACCORDANCE WITH UTILITY REQUIREMENTS WITH A METERING AND CURRENT TRANSFORMER COMPARTMENT WITH BUSING FOR UTILITY BAR TYPE CURRENT TRANSFORMERS.
3. PROVIDE UNDERGROUND PULL SECTIONS AS REQUIRED WITH LUG LANDING KITS PROVIDING STUDS FOR INCOMING CABLES PER UTILITY COMPANY.
C. BUS:
1. ALL BUS BARS SHALL BE TIN-PLATED ALUMINUM. MAIN HORIZONTAL BUS BARS SHALL BE MOUNTED WITH ALL THREE PHASES ARRANGED IN THE SAME VERTICAL PLANE. BUS SIZING SHALL BE BASED ON NEMA STANDARD TEMPERATURE RISE CRITERIA OF 65°C OVER A 40°C AMBIENT (OUTSIDE THE ENCLOSURE).
2. PROVIDE A FULL CAPACITY NEUTRAL BUS.
3. A COPPER GROUND BUS (MINIMUM ¼- Î2-INCH), SHALL BE FURNISHED FIRMLY SECURED TO EACH VERTICAL SECTION STRUCTURE, AND SHALL EXTEND THE ENTIRE LENGTH OF THE SWITCHBOARD.
D. ENCLOSURES:
1. TYPE: NEMA 3R ENCLOSURE.
2. OUTDOOR ENCLOSURE SHALL BE NON-WALK-IN AND MEET APPLICABLE NEMA 3R REQUIREMENTS OF UL.
3. ENCLOSURE SHALL HAVE FLAT ROOF.
4. DOORS SHALL HAVE PROVISIONS FOR PADLOCKING.
5. VENTILATING OPENINGS SHALL BE PROVIDED COMPLETE WITH REPLACEMENT AIR FILTERS.
E. NAMEPLATES:
1. ENGRAVED NAMEPLATES, MOUNTED ON THE FACE OF THE ASSEMBLY, SHALL BE FURNISHED FOR ALL MAIN AND FEEDER CIRCUITS AS INDICATED. NAMEPLATES SHALL BE LAMINATED PLASTIC, WHITE CHARACTERS ON BLACK BACKGROUND. CHARACTERS SHALL BE 3/16-INCH HIGH, MINIMUM. NAMEPLATES SHALL GIVE ITEM DESIGNATION AND CIRCUIT NUMBER AS WELL AS FRAME AMPERE SIZE AND APPROPRIATE TRIP RATING. FURNISH MASTER NAMEPLATE GIVING SWITCHBOARD DESIGNATION, VOLTAGE AMPERE RATING, SHORT-CIRCUIT RATING, MANUFACTURER'S NAME, GENERAL ORDER NUMBER, AND ITEM NUMBER.
2.10 LOW VOLTAGE TRANSFORMERS:
A. GENERAL TRANSFORMER REQUIREMENTS
1. DESCRIPTION: FACTORY-ASSEMBLED AND -TESTED, AIR-COOLED UNITS FOR 60-HZ SERVICE.
2. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
3. TRANSFORMERS RATED 15 KVA AND LARGER: COMPLY WITH NEMA TP 1 ENERGY-EFFICIENCY LEVELS AS VERIFIED BY TESTING ACCORDING TO NEMA TP 2.
4. CORES: ELECTRICAL GRADE, NON-AGING SILICON STEEL WITH HIGH PERMEABILITY AND LOW HYSTERESIS LOSSES.
5. COILS: CONTINUOUS WINDINGS WITHOUT SPLICES EXCEPT FOR TAPS.
6. INTERNAL COIL CONNECTIONS: BRAZED OR PRESSURE TYPE.
7. COIL MATERIAL: ALUMINUM.
B. DISTRIBUTION TRANSFORMERS:
1. COMPLY WITH NFPA 70, AND LIST AND LABEL AS COMPLYING WITH UL 1561.
2. CORES: ONE LEG PER PHASE.
C. ENCLOSURE:
a. 6KVA AND ABOVE: VENTILATED.
b. TRANSFORMERS IN WET LOCATIONS SHALL BE NEMA 3R RATED. SEE DRAWINGS.
c. FINISH COLOR: NSF/ANSI 61 GRAY.
D. TAPS FOR TRANSFORMERS 25 KVA AND LARGER: TWO 2.5 PERCENT TAPS ABOVE AND TWO 2.5 PERCENT TAPS BELOW NORMAL FULL CAPACITY.
E. INSULATION CLASS, 30 KVA AND LARGER: 220 DEG C, UL-COMPONENT-RECOGNIZED INSULATION SYSTEM WITH A MAXIMUM OF 150-DEG C RISE ABOVE 40-DEG C AMBIENT TEMPERATURE.
F. K-FACTOR RATING: TRANSFORMERS INDICATED TO BE K-FACTOR RATED SHALL COMPLY WITH UL 1561 REQUIREMENTS FOR NONSINUSOIDAL LOAD CURRENT-HANDLING CAPABILITY TO THE DEGREE DEFINED BY DESIGNATED K-FACTOR.
1. UNIT SHALL NOT OVERHEAT WHEN CARRYING FULL-LOAD CURRENT WITH HARMONIC DISTORTION CORRESPONDING TO DESIGNATED K-FACTOR.
2. INDICATE VALUE OF K-FACTOR ON TRANSFORMER NAMEPLATE.
3. UNIT SHALL MEET REQUIREMENTS OF NEMA TP 1 WHEN TESTED ACCORDING TO NEMA TP 2 WITH A K-FACTOR EQUAL TO ONE.
G. NEUTRAL: RATED 200 PERCENT OF FULL LOAD CURRENT FOR K-FACTOR RATED TRANSFORMERS.
H. WALL BRACKETS: MANUFACTURER'S STANDARD BRACKETS.
I. LOW-SOUND-LEVEL REQUIREMENTS: MAXIMUM SOUND LEVELS WHEN FACTORY TESTED ACCORDING TO IEEE C57.12.91, AS FOLLOWS:
1. 51 TO 150 KVA: 50 DBA.

PART 3 – EXECUTION

3.1 NOTE:
A. COORDINATE ELECTRICAL WORK WITH THE OWNER AND THE WORK OF OTHER TRADES TO AVOID CONFLICTS, ERRORS, DELAYS, AND UNNECESSARY INTERFERENCE DURING CONSTRUCTION.
3.2 PROTECTION DURING CONSTRUCTION
A. FOLLOWING INSTALLATION, PROTECT MATERIALS, EQUIPMENT, AND INSULATION FROM CORROSION, PHYSICAL DAMAGE, AND MOISTURE. CAP CONDUIT RUNS DURING CONSTRUCTION WITH MANUFACTURED SEALS. KEEP OPENINGS IN BOXES OR EQUIPMENT CLOSED DURING CONSTRUCTION.
3.3 MATERIAL AND EQUIPMENT INSTALLATION
A. FOLLOW THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS UNLESS OTHERWISE INDICATED. FOLLOW THE ENGINEER'S DECISION, WHEREVER ANY CONFLICT ARISES. KEEP COPY OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AVAILABLE ON THE JOBSITE FOR REVIEW AT ALL TIMES. INSTALL FREESTANDING EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. SECURE FREESTANDING EQUIPMENT RIGIDLY TO FLOORS OR MOUNTING PADS WITH ANCHOR BOLTS, EXPANSION SHIELDS, OR OTHER APPROVED MEANS.
3.4 CUTTING AND PATCHING
A. DO NOT CUT OR NOTCH ANY STRUCTURAL MEMBER OR BUILDING SURFACE WITHOUT SPECIFIC APPROVAL OF THE ENGINEER. FOLLOWING SUCH WORK, RESTORE SURFACES NEATLY TO NEW CONDITION USING SKILLED CRAFTSMEN OF THE TRADES INVOLVED.
3.5 CLEANING AND TOUCH-UP PAINTING
A. KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL OR RUBBISH. UPON COMPLETION OF WORK, REMOVE MATERIALS, SCRAPS, AND DEBRIS FROM THE PREMISES AND FROM THE INTERIOR AND EXTERIOR OF ALL DEVICES AND EQUIPMENT. REFINISH DAMAGED SURFACES TO NEW CONDITION USING SKILLED CRAFTSMEN OF THE TRADES INVOLVED.
3.6 RACEWAY SYSTEM
A. UNLESS OTHERWISE SPECIFIED OR INDICATED, WIRING SHALL CONSIST OF INSULATED CONDUCTORS INSTALLED IN RACEWAYS OF THE TYPES INDICATED:
B. DIRECT EARTH BURIAL: PVC SCHEDULE 40.
C. UNDER SLABS-ON-GRADE: PVC SCHEDULE 40.
D. ALL CONDUIT PENETRATIONS THROUGH CONCRETE FLOOR SLABS SHALL BE GALVANIZED RIGID ENTIRE DEPTH OF FLOOR SLAB.
E. BOX TYPE (ALL RACEWAY SYSTEMS):
1. EXTERIOR LOCATIONS: WEATHERPROOF TYPE 3R.
2. BURIED RACEWAY: CONCRETE PULLBOX.
F. INSTALL PULL BOXES WHERE SHOWN AND WHERE NECESSARY TO TERMINATE, TAP-OFF, OR REDIRECT MULTIPLE CONDUIT RUNS. INSTALL PULL BOXES WHERE NECESSARY IN RACEWAY SYSTEM TO FACILITATE CONDUCTOR INSTALLATION. INSTALL PULL BOXES IN CONDUIT RUNS AT LEAST EVERY 150 FEET OR AFTER THE EQUIVALENT OF THREE RIGHT-ANGLE BENDS. USE OUTLET BOXES AS JUNCTION AND PULL BOXES WHEREVER POSSIBLE AND ALLOWED BY APPLICABLE CODES.
G. SUPPORT BOXES INDEPENDENTLY OF CONDUIT BY ATTACHMENT TO BUILDING STRUCTURE OR STRUCTURAL MEMBER. INSTALL BAR HANGERS IN FRAME CONSTRUCTION, OR FASTEN BOXES DIRECTLY WITH WOOD SCREWS ON WOOD, BOLTS AND EXPANSION SHIELDS ON CONCRETE OR BRICK, TOGGLE BOLTS ON HOLLOW MASONRY UNITS, AND MACHINE SCREWS OR WELDED THREADED STUDS ON STEELWORK.
3.7 RACEWAY INSTALLATION
A. CONDUIT AND TUBING SIZES SHOWN ARE BASED ON THE USE OF COPPER CONDUCTORS.
B. MAINTAIN RACEWAY ENTIRELY FREE OF OBSTRUCTIONS AND MOISTURE.
C. GROUP RACEWAYS INSTALLED IN SAME AREA.
D. FOLLOW STRUCTURAL SURFACE CONTOURS WHEN INSTALLING EXPOSED RACEWAYS. AVOID OBSTRUCTION OF PASSAGEWAYS. RUN EXPOSED RACEWAYS PARALLEL OR PERPENDICULAR TO WALLS, STRUCTURAL MEMBERS, OR INTERSECTIONS OF VERTICAL PLANES.
E. INSTALL WATERTIGHT FITTINGS IN OUTDOOR, UNDERGROUND, OR WET LOCATIONS.
F. ALL METAL CONDUIT TO BE REAMED, BURRS REMOVED, AND CLEANED BEFORE INSTALLATION OF CONDUCTORS, WIRES, OR CABLES.
G. HORIZONTAL RACEWAYS INSTALLED UNDER FLOOR SLABS SHALL LIE COMPLETELY UNDER SLAB, WITH NO PART EMBEDDED WITHIN SLAB.
H. INSTALL CONCEALED, EMBEDDED, AND BURIED RACEWAYS SO THAT THEY EMERGE AT RIGHT ANGLES TO SURFACE AND HAVE NO CURVED PORTION EXPOSED.
I. FOR EMPTY CONDUITS INSTALL A NYLON PULL CORD TO BE USED FOR FUTURE INSTALLATIONS.
3.8 RACEWAY PENETRATIONS
A. MAKE AT RIGHT ANGLES, UNLESS OTHERWISE SHOWN.
B. NOTCHING OR PENETRATION OF STRUCTURAL MEMBERS, INCLUDING FOOTINGS AND BEAMS, NOT PERMITTED.
C. APPLY SINGLE LAYER OF WRAPAROUND DUCT BAND TO ALL METALLIC CONDUIT PROTRUDING THROUGH CONCRETE FLOOR SLABS TO A POINT 2 INCHES ABOVE CONCRETE SURFACE.
D. CONCRETE WALLS, FLOORS, OR CEILINGS (ABOVEGROUND): PROVIDE NONSHRINK GROUT DRY-PACK, OR USE WATERTIGHT SEAL DEVICE.
3.9 RACEWAY BENDS
A. INSTALL CONCEALED RACEWAYS WITH A MINIMUM OF BENDS IN THE SHORTEST PRACTICAL DISTANCE.
B. AVOID FIELD-MADE BENDS AND OFFSETS, BUT WHERE NECESSARY, MAKE WITH ACCEPTABLE HICKEY OR BENDING MACHINE. DO NOT HEAT METAL RACEWAYS TO FACILITATE BENDING.
C. PVC CONDUIT:
1. BENDS 30° AND LARGER: PROVIDE FACTORY-MADE ELBOWS.
2. 90° BENDS: PROVIDE GALVANIZED RIGID STEEL ELBOWS; EXCEPT ON UTILITY SERVICE RUNS IF NOT ALLOWED BY THE UTILITY.
3.10 PVC CONDUIT
A. SOLVENT WELDING:
1. PROVIDE MANUFACTURER RECOMMENDED SOLVENT; APPLY TO ALL JOINTS.
2. INSTALL SUCH THAT JOINT IS WATERTIGHT.
B. ADAPTERS:
1. PVC TO METALLIC FITTINGS: PVC TERMINAL TYPE.
2. PVC TO RIGID METAL CONDUIT: PVC FEMALE ADAPTER.
3.11 TERMINATION AT ENCLOSURES
A. SHEET METAL BOXES, CABINETS, AND ENCLOSURES:
1. GALVANIZED RIGID STEEL CONDUIT:
a. PROVIDE ONE LOCK NUT EACH ON INSIDE AND OUTSIDE OF ENCLOSURE.
b. INSTALL GROUNDING BUSHING.
c. PROVIDE BONDING JUMPER FROM GROUNDING BUSHING TO EQUIPMENT GROUND BUS OR GROUND PAD; IF NEITHER GROUND BUS NOR PAD EXISTS, CONNECT JUMPER TO LAG BOLT ATTACHED TO METAL ENCLOSURE.
d. INSTALL INSULATED BUSHING ON ENDS OF CONDUIT WHERE GROUNDING IS NOT REQUIRED.
e. PROVIDE INSULATED THROAT WHEN CONDUIT TERMINATES IN SHEET METAL BOXES HAVING THREADED HUBS.
3.12 UNDERGROUND RACEWAYS
A. COVER: MAINTAIN MINIMUM 2-FOOT COVER ABOVE CONDUIT, UNLESS OTHERWISE SHOWN.
B. INSTALLATION WITH OTHER PIPING SYSTEMS: MAINTAIN MINIMUM 12-INCH SEPARATION UNLESS OTHERWISE INDICATED. INSTALLATION OVER VALVES OR COUPLINGS NOT PERMITTED.
3.13 CONDUCTORS
A. DO NOT SPLICE INCOMING SERVICE CONDUCTORS AND BRANCH POWER DISTRIBUTION CONDUCTORS NO. 6 AWG AND LARGER UNLESS SPECIFICALLY INDICATED OR APPROVED BY ENGINEER.
B. CONNECTIONS AND TERMINATIONS:
1. INSTALL WIRE NUTS ONLY ON SOLID CONDUCTORS.
2. INSTALL NYLON SELF-INSULATED CRIMP CONNECTORS AND TERMINATORS FOR CIRCUIT CONDUCTORS NO. 6 AWG AND SMALLER.
3. INSTALL UNINSULATED CRIMP CONNECTORS AND TERMINATORS FOR CIRCUIT CONDUCTORS NO. 4 AWG THROUGH NO. 2/0 AWG.
4. INSTALL UNINSULATED, BOLTED, TWO-WAY CONNECTORS AND TERMINATORS FOR CIRCUIT CONDUCTORS NO. 4/0 AWG AND LARGER.
5. TAPE INSULATE ALL UNINSULATED CONNECTIONS.
6. PLACE NO MORE THAN ONE CONDUCTOR IN ANY SINGLE-BARREL PRESSURE CONNECTION.
7. INSTALL CRIMP CONNECTORS WITH TOOLS APPROVED BY CONNECTOR MANUFACTURER.
8. COMPRESSION LUGS:
a. ATTACH WITH A TOOL SPECIFICALLY DESIGNED FOR PURPOSE.
b. TOOL SHALL PROVIDE COMPLETE, CONTROLLED CRIMP AND SHALL NOT RELEASE UNTIL CRIMP IS COMPLETE.
c. DO NOT USE PLIER TYPE CRIMPERS.
C. DO NOT USE SOLDERED MECHANICAL JOINTS.
D. SPLICES AND TERMINATIONS:
1. INDOORS: USE GENERAL PURPOSE, FLAME RETARDANT TAPE.
2. OUTDOORS: USE FLAME RETARDANT, COLD- AND WEATHER-RESISTANT TAPE.
E. CAP SPARE CONDUIT WITH UL LISTED END CAPS.
F. CABINETS AND PANELS:
1. REMOVE SURPLUS WIRE, BRIDLE AND SECURE.
2. WHERE CONDUCTORS PASS THROUGH OPENINGS OR OVER EDGES IN SHEET METAL, REMOVE BURRS CHAMFER EDGES, AND INSTALL BUSHINGS AND PROTECTIVE STRIPS OF INSULATING MATERIAL TO PROTECT THE CONDUCTORS.
3.14 GROUNDING
A. UNLESS OTHERWISE INDICATED, GROUND ALL EXPOSED NON-CURRENT-CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, RACEWAY SYSTEMS, AND THE NEUTRAL OF ALL WIRING SYSTEMS IN ACCORDANCE WITH THE CEC, STATE, AND OTHER APPLICABLE LAWS AND REGULATIONS.
B. WHERE GROUND RODS ARE INDICATED OR USED, THEY SHALL BE COPPER CLAD, NOT LESS THAN ¾-INCH IN DIAMETER, 10 FEET LONG, DRIVEN FULL LENGTH INTO THE EARTH.
C. MAKE GROUND CONNECTIONS BY BRAZING, THERMITE WELDING, OR WITH APPROVED PRESSURE TERMINALS OR MECHANICAL GROUNDING DEVICES, EXCEPT INACCESSIBLE CONNECTIONS SHALL BE MADE BY THERMITE WELDING. THE POINT OF CONTACT OF EACH THERMITE WELD SHALL BE WIRE BRUSHED OR FILED TO A BARE METAL SURFACE. THERMITE WELDING CARTRIDGES AND MOLDS SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. AFTER THE WELDS HAVE BEEN MADE AND COOLED, SLAG SHALL BE BRUSHED FROM THE WELDED AREA AND THE JOINT THOROUGHLY CLEANED.
3.1 TRANSFORMER FIELD QUALITY CONTROL
A. PERFORM TESTS AND INSPECTIONS.
B. TESTS REFERENCED IN SUBPARAGRAPH BELOW ARE FROM NETA ATS AND INCLUDE INSPECTION PROCEDURES TO VERIFY PROPER INSTALLATION. THEY ALSO INCLUDE TESTS AND MEASUREMENTS OF INSULATION RESISTANCE AND TURNS RATIOS. COST OF EXTENSIVE TESTING MAY NOT BE WARRANTED FOR SOME PROJECTS. REVISE SUBPARAGRAPH TO SUIT PROJECT.
C. TESTS AND INSPECTIONS:
1. INSPECT PHYSICAL AND MECHANICAL CONDITION.
2. INSPECT ANCHORAGE, ALIGNMENT AND GROUNDING.
3. VERIFY RESILIENT MOUNTS ARE FREE AND THAT SHIPPING BRACKETS HAVE BEEN REMOVED.
4. VERIFY THE UNIT IS CLEAN.
5. PERFORM RESISTANCE MEASUREMENTS THROUGH BOLTED CONNECTIONS WITH A LOW-RESISTANCE OHMMETER, IF APPLICABLE, IN ACCORDANCE WITH 2009 NETA ACCEPTANCE TESTING SPECIFICATIONS.
6. PERFORM INSULATION-RESISTANCE TEST WINDING-TO-WINDING AND EACH WINDING-TO-GROUND WITH 1,000 VDC TEST VOLTAGE. CALCULATE DIELECTRIC ABSORPTION RATIO OR POLARIZATION INDEX.
D. TEST VALUES:
1. INSULATION-RESISTANCE TEST VALUES AT ONE MINUTE SHOULD BE IN A MINIMUM 500 MEGOHMS.
2. THE DIELECTRIC ABSORPTION RATIO OR POLARIZATION INDEX SHALL BE GREATER THAN 1.0 AND SHALL BE RECORDED FOR FUTURE REFERENCE.
3.16 OPERATIONAL READINESS TEST (ORT)
A. TESTING, TEST PLANS, AND TEST REPORTS SHALL BE PROVIDED BY THE CONTRACTOR AS SPECIFIED HEREIN. THE CONTRACTOR SHALL PROVIDE LABOR, INSTRUMENTS, AND OTHER MATERIAL TO COMPLETE THE TEST.
B. THE ENTIRE INSTALLED ELECTRICAL SYSTEM SHALL BE CERTIFIED (INSPECTED, TESTED, AND DOCUMENTED) THAT IT IS READY FOR OPERATION. THE OBJECTIVE OF THIS TEST IS TO DEMONSTRATE THAT THE ELECTRICAL SYSTEM IS COMPLETE AND READY FOR USE.
1. INSULATION RESISTANCE TEST:
a. PERFORM INSULATION RESISTANCE TEST ON EACH CONDUCTOR NO. 6 AND LARGER WITH RESPECT TO GROUND. APPLIED POTENTIAL TO BE 1,000 VDC FOR ONE MINUTE.
b. RECORD TEST VALUES AND SUBMIT TO THE ENGINEER. INSULATION RESISTANCE TO BE 50 MEGAOHMS MINIMUM.
c. MEASURE INSULATION RESISTANCE OF COMPLETE CIRCUITS WITH THE CIRCUIT BREAKERS OPEN.
d. NOTIFY THE ENGINEER ONE WEEK PRIOR TO THE INSULATION TEST.
2. GROUNDING SYSTEM:
a. VERIFY GROUND SYSTEM IS IN COMPLIANCE WITH THE PLANS.
b. PERFORM FALL-OF-POTENTIAL TEST OR ALTERNATIVE IN ACCORDANCE WITH IEEE STANDARD 81-1991 ON THE MAIN GROUNDING ELECTRODE OR SYSTEM.
c. PERFORM POINT-TO-POINT TESTS TO DETERMINE THE RESISTANCE BETWEEN THE MAIN GROUNDING SYSTEM AND ALL MAJOR ELECTRICAL EQUIPMENT FRAMES.
d. THE RESISTANCE BETWEEN THE MAIN GROUNDING ELECTRODE AND GROUND SHOULD BE NO GREATER THAN 5 OHMS. INVESTIGATE POINT-TO-POINT RESISTANCE VALUES WHICH EXCEED 0.5 OHMS.
3. DEMONSTRATION:
a. DEMONSTRATE PROPER CIRCUITING.
b. DEMONSTRATE PROPER SWITCHING OF FIXTURES.
c. DEMONSTRATE THAT ALL FIXTURES ARE OPERATING AND ALL LAMPS ARE LIT.
d. DEMONSTRATE PROPER PANEL RELABELING.
C. PANELBOARD DIRECTORIES SHALL MEET MINIMUM CEC 408.4 REQUIREMENTS. THE CONTRACTOR SHALL IDENTIFY EACH CIRCUIT WITH ROOM NUMBER, ROOM NAME AND EQUIPMENT SERVED. STANDARD ABBREVIATIONS FROM THE NEC AND WEBSTER'S DICTIONARY ARE ALLOWED. (E.G., "207 JANITOR WH" OR "102,103 RR RCPT".)
D. LABELS SHALL BE MELAMINE, FLEXI-BRASS, OR EQUAL MATERIAL, 1.5"HX3"L, WITH 3/8"H TIMES NEW ROMAN LETTERING.
1. BACKGROUND/LETTERING COLOR SHALL BE AS FOLLOWS:
a. BLACK/WHITE (NORMAL BRANCHES)
2. EQUIPMENT LABELING (FOR ALL PROJECT TYPES) SHALL FOLLOW AFTER THE EXAMPLES SHOWN BELOW (FOR GENERATOR/ATS, PANELBOARDS, DISCONNECTS, LIGHTING CONTROL PANELS, ETC.):

PANEL A2
FED FROM PNL B1
400A, 120/208V, 3Ø

DISCONNECT B1
FED FROM PNL M1
60A/15F, 208V/3Ø

CCD 2

DSA ANCHORAGE AND BRACING NOTE

APPLICABLE CODE : 2019 CBC   02/05/2020   REVISED: 02/14/2020

MEP COMPONENT ANCHORAGE NOTE
ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA-APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26, AND 30:

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE, OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G., HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS, OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220-VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE, OR MOBILE EQUIPMENT THAT IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORTS THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.
4.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORTS THE COMPONENT.
B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, THAT ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE
PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTIONS 13.6.5, 13.6.6, 13.6.7, 13.6.8 AND 2019 CBC SECTIONS 1617A.1.24, 1617A.1.25, AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., OSHPD OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP ☐ MD ☐ PP ☐ E ■ OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP ☐ MD ☐ PP ☐ E ☐ OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVAL (OPM #) #_________.

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COLUSA COUNTY OFFICE OF EDUCATION WILLIAMS, CALIFORNIA

SHEET TITLE

ELECTRICAL SPECIFICATIONS

DRAWING STATUS

FOR DSA APPROVAL

REVISIONS

Sym.	Description	By	Date
CCD 2	CCD 02	EY	3/29/23

Drawn By	EY
Checked By	BB
Date Drawn	7/23/20
Scale	AS NOTED
Job No.	21-2947

SHEET No.

E000

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ELECTRICAL SYMBOLS

LINE TYPES AND SYMBOLS		CONDUIT EXPOSED
		CONDUIT CONCEALED or BURIED
		INDICATES FIRE RATED WALL
		CONDUIT DOWN
		CONDUIT UP
	LA-2	HOME RUN-DESTINATION SHOWN
TICK MARKS		TICK MARKS W/BARS INDICATES NUMBER OF #10 CONDUCTORS WITH #10 GROUND
		TICK MARKS WITHOUT BARS INDICATES NUMBER OF #12 CONDUCTORS WITH #12 GROUND
	L	"L" WITH TICK MARKS INDICATES #18 SOLID PAIR WITH ASSOCIATED POWER CONDUCTORS
EQUIPMENT	MCC	MAJOR ELECTRICAL COMPONENT OR DEVICE NAME OR IDENTIFYING SYMBOL AS SHOWN
		FLUSH MOUNT PANELBOARD
		SURFACE MOUNT PANELBOARD
		EXOTHERMIC WELD, TERMINATION OR SPLICE POINT
		GROUND ROD
		GROUNDING ELECTRODE
		CIRCUIT BREAKER
		CURRENT TRANSFORMER, NUMBER INDICATED
ANNOTATION	1	KEYNOTE
	(A : B)	INDICATES INTERCONNECTION OF PATHWAYS AND/OR CONDUCTORS, E.G., 4"C-4#500,1#3G (MSB : PNL A) INDICATES CONDUIT AND CONDUCTORS ROUTED FROM THE MAIN SWITCHBOARD TO PANELBOARD A.
	26 00 00	SPECIFICATION NUMBER REFERENCE TAG, CONFORMANCE TO PROJECT SPECIFICATIONS IS REQUIRED, WHERE TAGS ARE SHOWN ON THE DRAWINGS, IT IS THE ENGINEER'S INTENT TO RAISE ADDITIONAL AWARENESS TO PRODUCTS OR EXECUTION METHODS THAT ARE CRITICAL, ATYPICAL OR NOT EXPRESSLY DETAILED ON THE DRAWINGS.

NOTE: THIS IS A SUPPLEMENTAL STANDARD ELECTRICAL LEGEND. SOME SYMBOLS MAY APPEAR ON THIS LEGEND AND NOT ON THE PLANS. SEE LIGHTING CONTROL SHEET FOR LIGHTING LEGEND.

ELECTRICAL ABBREVIATIONS

A	- AMMETER, AMPERE
AC	- ALTERNATING CURRENT
ACH	- ABOVE COUNTER HEIGHT
AFCI	- ARC FAULT CIRCUIT INTERRUPT
AFF	- ABOVE FINISHED FLOOR OR GRADE
AIC	- AMPS INTERRUPTING CAPACITY
AL	- ALUMINUM
ATS	- AUTOMATIC TRANSFER SWITCH
BCT	- BONDING CONDUCTOR FOR TELECOMMUNICATIONS.
BGES	- BUILDING GROUND ELECTRODE SYSTEM
BRKR	- BREAKER
BOD	- BOTTOM OF DEVICE
C or COND	- CONDUIT
CAB	- CABINET
CEB	- CRITICAL EMERGENCY BRANCH
CEC	- CALIFORNIA ELECTRIC CODE
CKT	- CIRCUIT
COD	- CENTER OF DEVICE
CR	- CONTROLLED RECEPTACLE
CT	- CURRENT TRANSFORMER
DC	- DIRECT CURRENT
(E) or EXIST	- EXISTING
EEB	- EQUIPMENT EMERGENCY BRANCH
EEOR	- ELECTRICAL ENGINEER OF RECORD
EGC	- EQUIPMENT GROUNDING CONDUCTOR
ENC	- ENCLOSURE
(F)	- FUTURE
FACP	- FIRE ALARM CONTROL PANEL
FACU	- FIRE ALARM CONTROL UNIT
FSD	- FIRE SMOKE DAMPER
G	- EQUIPMENT GROUNDING CONDUCTOR
GEC	- GROUNDING ELECTRODE CONDUCTOR
GFCI	- GROUND FAULT CIRCUIT INTERRUPT
GND	- GROUND
J	- JUNCTION BOX
LAUN	- LAUNDRY
LCP	- LIGHTING CONTROL PANEL
LFEB	- LIFE SAFETY EMERGENCY BRANCH
LTG	- LIGHTING
MBJ	- MAIN BONDING JUMPER
MCB	- MAIN CIRCUIT BREAKER
MFR	- MANUFACTURER
MLO	- MAIN LUG ONLY
MOCP	- MAXIMUM OVERCURRENT PROTECTION
MSB	- MAIN SWITCH BOARD
MTS	- MANUAL TRANSFER SWITCH
NEC	- NATIONAL ELECTRIC CODE
NEMA	- NATIONAL ELECTRIC MANUFACTURER'S ASSOCIATION
N	- NEUTRAL
(N)	- NEW
NB	- NORMAL BRANCH
NSEB	- NON-SEGREGATED EMERGENCY BRANCH
OFCI	- OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	- OWNER FURNISHED, OWNER INSTALLED
PB	- PULLBOX
PNL	- PANELBOARD
PLR	- PLUG LOAD RELAY
RCPT	- RECEPTACLE
RM	- ROOM
SWBD	- SWITCHBOARD
SBJ	- SYSTEM BONDING JUMPER
SSBJ	- SUPPLY SIDE BONDING JUMPER
T	- THERMOSTAT OR TELE CONDUIT
TBB	- TELECOMMUNICATIONS BONDING
TGB	- TELECOMMUNICATIONS GROUND BUS
TMGB	- TELECOMMUNICATIONS MAIN GROUND BUS
TOD	- TOP OF DEVICE
TR	- TAMPER
TYP	- TYPICAL
V	- VOLTMETER, VOLT
W	- WATT
WW	- WIREWAY
WP	- WEATHERPROOF (NEMA 3R)
XFMR	- TRANSFORMER

NOTE: THIS IS A SUPPLEMENTAL STANDARD LEGEND. SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS LEGEND AND NOT ON THE PLANS

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COLUSA COUNTY OFFICE OF EDUCATION WILLIAMS, CALIFORNIA

SHEET TITLE

ELECTRICAL SCHEDULES

DRAWING STATUS

FOR DSA APPROVAL

REVISIONS

Sym.	Description	By	Date
2	CCD 02	EY	3/29/23

Drawn By	EY
Checked By	BB
Date Drawn	7/23/20
Scale	AS NOTED
Job No.	21-2947

SHEET No.

E001

PACE ENGINEERING

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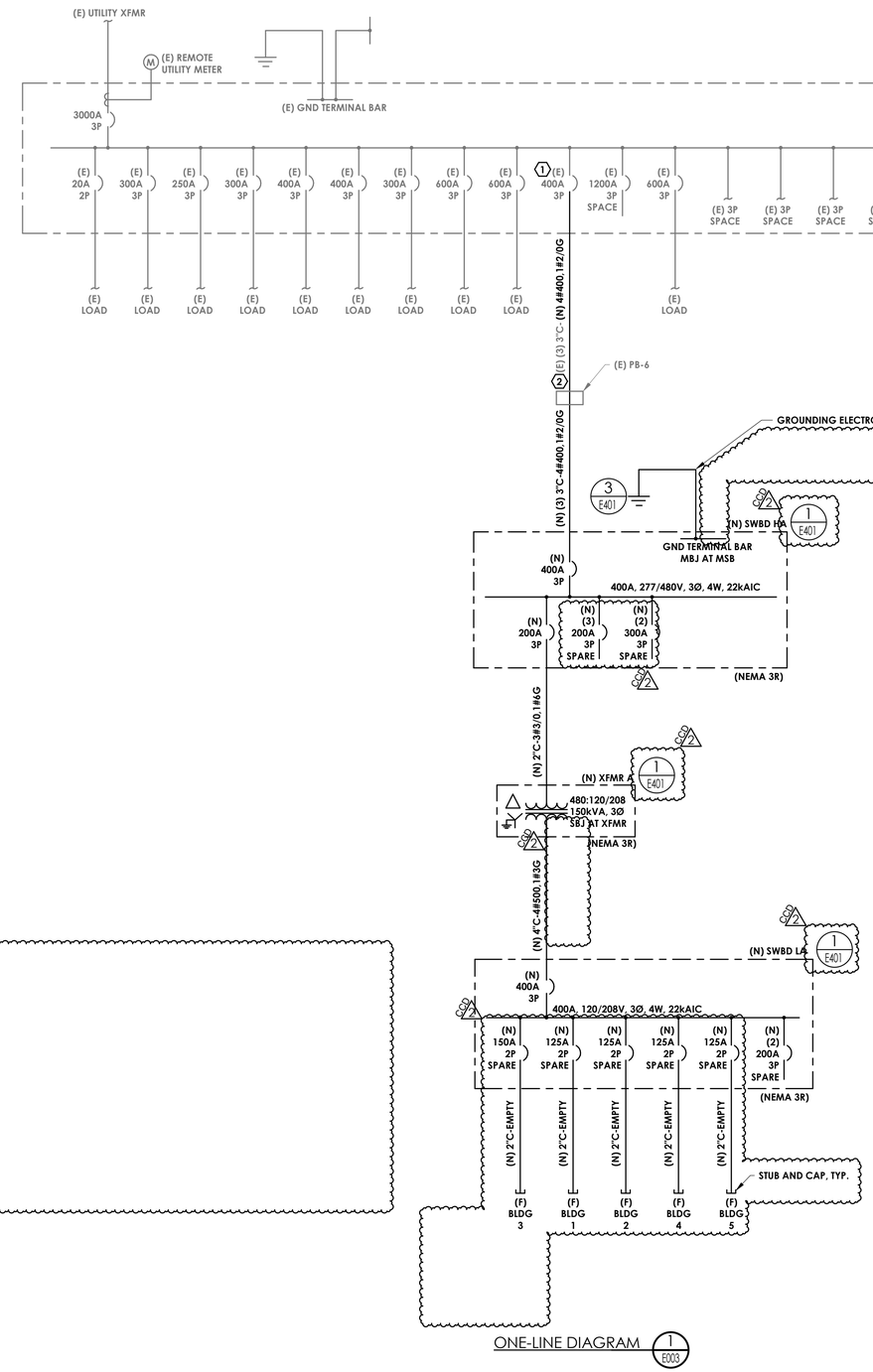
KEYNOTES

#	NOTE
1.	UTILIZE EXISTING SPARE BREAKER TO FEED NEW SWITCHBOARD HA. UPDATE LABELING PER ELECTRICAL SPECIFICATIONS.
2.	ROUTE NEW CONDUCTORS TO EXISTING PULLBOX 6 IN EXISTING SPARE CONDUITS AS INDICATED.



ONE-LINE DIAGRAM 1 E003

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ONE-LINE DIAGRAM

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Drawn By	EY
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Job No.	21-2947

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E003

PACE ENGINEERING

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VOLTAGE DROP CALCULATIONS

DISTRIBUTION	LOAD TYPE	CONDUIT MATERIAL	CONDUCTOR MATERIAL	QUANTITY OF RUNS	CONDUCTOR SIZE (AWG)	CURRENT (A)	DISTANCE (FT)	VOLTAGE (V)	IMPEDANCE (Z)	VOLTAGE DROP (VD)	**VOLTAGE DROP (%)**
MSB : SWBD HA	LINE-LINE (3Ø)	PVC	CU	3	400	320	1070	480	0.02	9.69	**2.02%**
SWBD HA : XFMR A	LINE-LINE (3Ø)	PVC	CU	1	3/0	160	10	480	0.09	0.24	**0.05%**
XFMR A : SWBD LA	LINE-LINE (3Ø)	PVC	CU	1	500	320	10	208	0.04	0.24	**0.11%**
										TOTAL VOLTAGE DROP:	**2.18%**

LINE-NEUTRAL VD = (2 * L * Z * I)/1000 LINE-LINE (3Ø) VD = (SQRT(3) * L * X * I)/1000 L = DISTANCE Z = IMPEDANCE
LINE-LINE (1Ø) VD = (2 * L * Z * I)/1000 I = CURRENT VD = VOLTAGE DROP

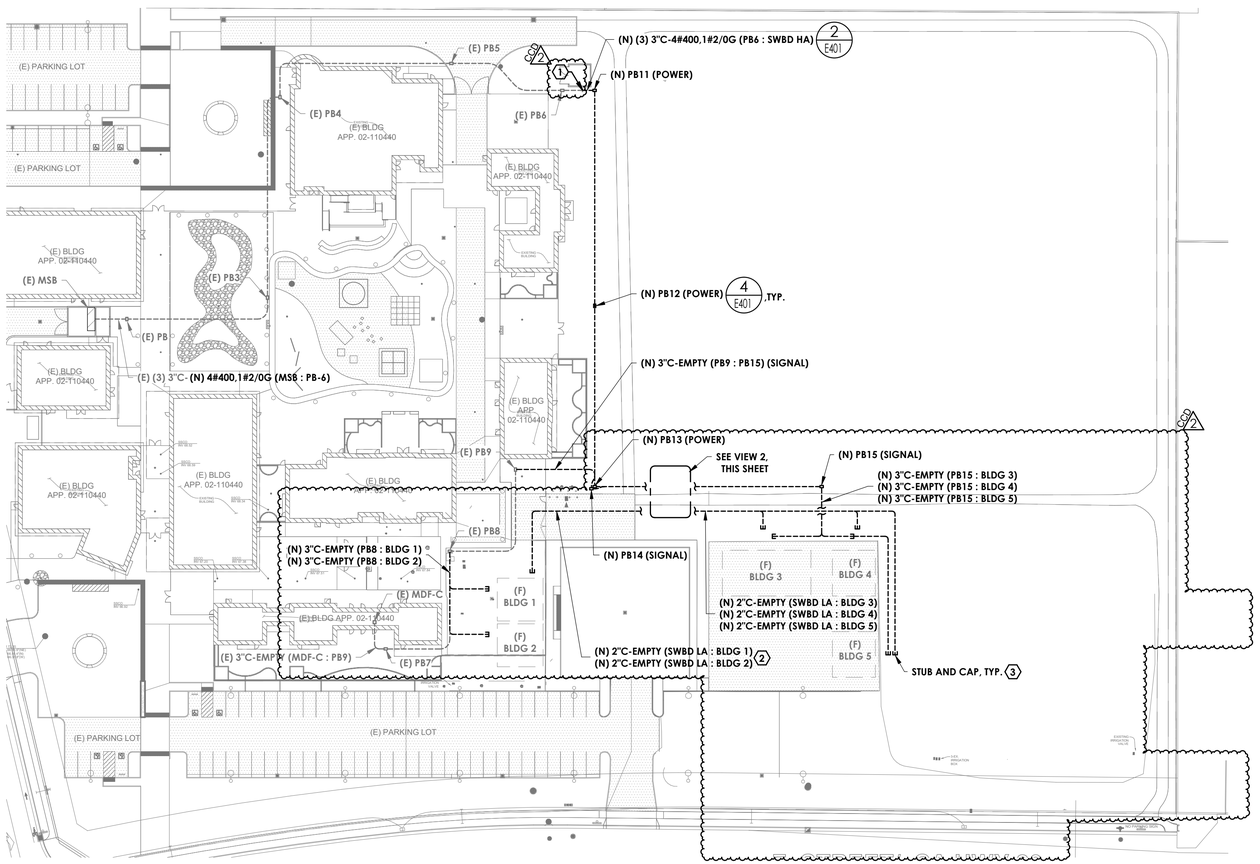
SHORT CIRCUIT CALCULATIONS

EQUIPMENT	INCOMING FAULT CURRENT (AIC)	CONDUIT MATERIAL	CONDUCTOR MATERIAL	QUANTITY OF RUNS	CONDUCTOR SIZE (AWG)	DISTANCE (FT)	VOLTAGE (V)	IMPEDANCE (Z)	SHORT CIRCUIT CURRENT (AIC)	**SHORT CIRCUIT CURRENT RATING (AIC)**
MSB : SWBD HA	65000	PVC	CU	3	400	1070	480	0.02	19307	**22000**
SWBD HA : XFMR A	19307	PVC	CU	1	3/0	10	480	0.09	18647	**22000**
XFMR A : SWBD LA	18647	PVC	CU	1	500	10	208	0.04	17955	**22000**

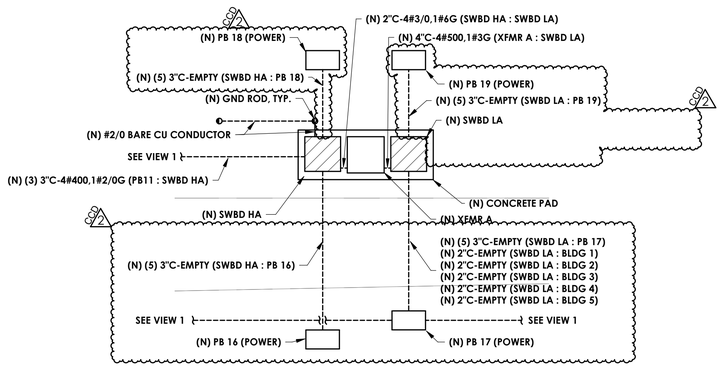
SHORT CIRCUIT AIC = V/((D*(Z/1000))+(V/I)) D = DISTANCE Z = IMPEDANCE
I=INCOMING FAULT CURRENT AIC = SHORT CIRCUIT CURRENT

KEYNOTES

#	NOTE
1.	COUPLE NEW CONDUIT WITH EXISTING CONDUIT STUB AT LOCATION SHOWN.
2.	SAWCUT ASPHALT AS REQUIRED TO FACILITATE INSTALLATION OF UNDERGROUND CONDUIT. PATCH AND REPAIR ASPHALT TO MATCH EXISTING CONDITIONS.
3.	COORDINATE FINAL LOCATION OF CONDUIT STUB WITH OWNER.



ELECTRICAL SITE PLAN 1 E101
1" = 50'-0"



ENLARGED SITE PLAN 2 E101
3/16" = 1'-0"

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SHEET TITLE

ELECTRICAL SITE PLAN

DRAWING STATUS

FOR DSA APPROVAL

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Job No.	21-2947

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E101

PACE ENGINEERING

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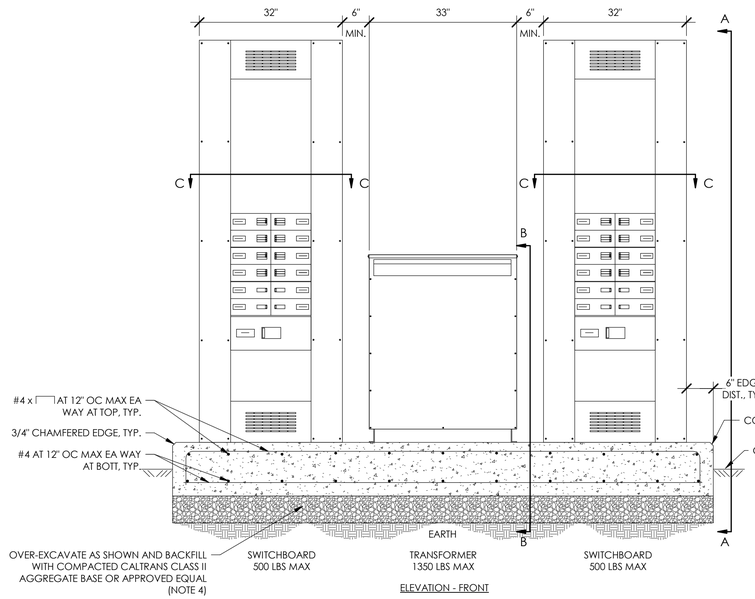
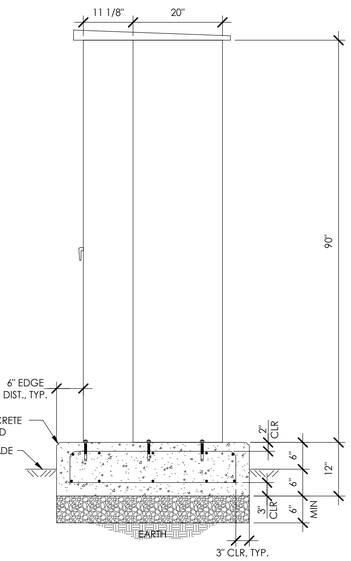
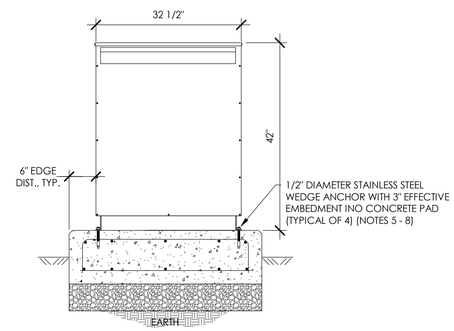


ELEVATION - FRONT

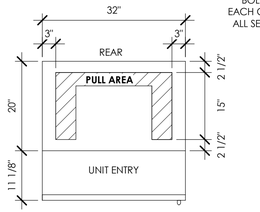


ELEVATION - SWITCHBOARD SIDE (A - A)

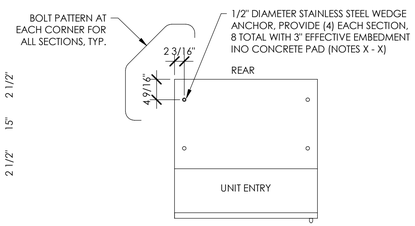
kVA RATING	DIMENSIONS (INCHES) WIDTH	HEIGHT	DEPTH	WEIGHT (LBS)
150	33	42	32.5	1350
TRANSFORMER SPECS FOR 480VAC : 208Y/120VAC				



ELEVATION - TRANSFORMER SIDE (B - B)



SWITCHBOARD PLAN - PULL AREA (C-C)

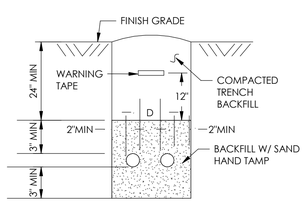


SWITCHBOARD PLAN - ANCHORAGE (C-C)

NOTES:

1. SWITCHBOARD CABINET DIMENSIONS AND WEIGHTS MAY VARY. THIS DETAIL SHALL ACCOUNT FOR THE LARGEST EQUIPMENT AVAILABLE. FASTENING AND ANCHORAGE SHALL BE USED EQUALLY FOR SMALLER CABINET CONFIGURATIONS.
2. CONCRETE 28-DAY COMPRESSIVE STRENGTH SHALL BE 3,000 PSI MINIMUM.
3. ESTIMATED CONCRETE PAD FOOTPRINT IS 10' - 1" LONG x 3' - 7" WIDE. CONTRACTOR SHALL VERIFY PAD DIMENSIONS WITH EQUIPMENT MANUFACTURERS PRIOR TO CONSTRUCTION OF CONCRETE PAD. NOTIFY ENGINEER OF ANY DISCREPANCY.
4. AFTER OVER-EXCAVATION, UNDERLYING EARTH SHALL BE SCARIFIED 6-INCHES MINIMUM AND COMPACTED TO 95% RELATIVE DENSITY PRIOR TO PLACING AGGREGATE BASE. AGGREGATE BASE SHALL BE PLACED IN 6-INCH MAXIMUM LIFTS AND COMPACTED TO 95% RELATIVE DENSITY. COMPACTION SHALL BE MEASURED BY ASTM D-1557. AGGREGATE BASE SHALL BE 3/4" CLASS II AGGREGATE PER STATE SPECIFICATIONS SECTION 26.
5. CONTRACTOR SHALL VERIFY ANCHOR BOLT SIZE, QUANTITY, AND LOCATION WITH EQUIPMENT MANUFACTURERS. NOTIFY ENGINEER OF ANY DISCREPANCY.
6. CONTRACTOR SHALL ADJUST REINFORCEMENT LOCATIONS AS REQUIRED TO AVOID CONFLICT WITH ANCHOR LOCATIONS.
7. WEDGE ANCHOR BOLTS SHALL BE SIMPSON SS STRONG-BOLT 2 (ICC ESR-3037), HILTI SS KB-TZ2 (ICC ESR-1917), OR APPROVED EQUAL. TORQUE TEST 1/2" DIAMETER BOLTS FOR 65 FT-LBS UNLESS NOTED OTHERWISE.
8. POST-INSTALLED ANCHORS SHALL BE INSPECTED AND TESTED IN ACCORDANE WITH 2022 CBC TABLE 1705.A.3 AND SECTION 1910A.5.5. TORQUE-CONTROLLED POST-INSTALLED ANCHORS SHALL BE TESTED TO A TORQUE OF 65 FT-LBS FOR 1/2" DIAMETER ANCHORS UNLESS NOTED OTHERS. TORQUE-CONTROLLED ANCHORS SHALL ALL THE SPECIFIED TORQUE WITHIN 1/2 TURN OF THE NUT.

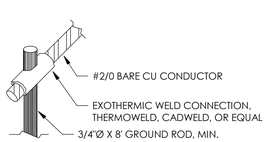
SWITCHGEAR EQUIPMENT PAD PLAN (1 / E401)
3/4" = 1'-0"



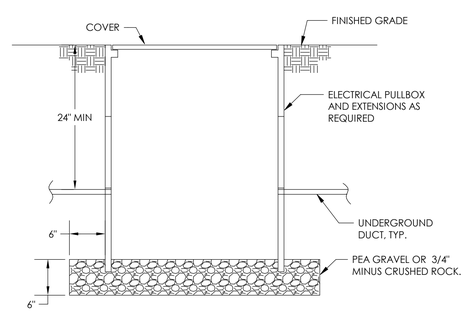
NOTES:

1. D=3" MIN FOR 2" AND LARGER CONDUIT
2. D=2" MIN FOR 1 1/2" AND SMALLER CONDUIT
3. CONDUIT DETAIL FOR LESS THAN 4 RACEWAYS PER TRENCH

RACEWAY - UNDERGROUND CONDUIT (2 / E401)
NTS



GROUNDING - CABLE TO GROUND ROD (3 / E401)
NTS



BOXES - UNDERGROUND PULL THROUGH (4 / E401)
NTS

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REGISTERED PROFESSIONAL ENGINEER
EDWARD YAZHAEV
No. E22549
ELECTRICAL
STATE OF CALIFORNIA

PROJECT NAME

A PROPOSED CLASSROOM RELOCATION FOR

COLUSA COUNTY ADULT EDUCATION CENTER

COLUSA COUNTY OFFICE OF EDUCATION WILLIAMS, CALIFORNIA

SHEET TITLE

ELECTRICAL DETAILS

DRAWING STATUS

FOR DSA APPROVAL

REVISIONS

Sym.	Description	By	Date
1	CCD 02	EY	3/29/23

Drawn By	EY
Checked By	BB
Date Drawn	7/23/20
Scale	AS NOTED
Job No.	21-2947

SHEET No.

E401

PACE ENGINEERING

Plot Date: 4/4/2023 2:11:10 PM
File Name: C:\Revit Local Files\940404\0404.748 Colusa Modular\0404.748_E_Colusa Modular_EEY_L20.rvt

STATE OF CALIFORNIA

Electrical Power Distribution

NRCC-ELC-E (Created 01/20) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE NRCC-ELC-E

This document is used to demonstrate compliance with mandatory requirements in §130.5 for electrical systems in newly constructed nonresidential, high-rise residential and hotel/motel occupancies. Additions and alterations to electrical service systems in these occupancies will also use this document to demonstrate compliance per §141.0(a) or §141.0(b)2P for alterations.

Project Name:	A Proposed Classroom Relocation for Colusa County Adult Education Center	Report Page:	Page 1 of 4
Project Address:	499 Marguerite Street	Date Prepared:	3/15/23

A. GENERAL INFORMATION

01	Project Location (city)	Williams	02	Occupancy Types Within Project:

☐ Office ☐ Retail ☐ Warehouse ☐ Hotel/ Motel ☑ School ☐ Support Areas
☐ Parking Garage ☐ High-Rise Residential ☐ Relocatable ☐ Healthcare Facilities ☐ Other (Write In):

B. PROJECT SCOPE

Table Instructions: Include any electrical service systems that are within the scope of the permit application.

01	02	03	04	05	06
Electrical Service Designation/ Description	Scope of Work[1]	Rating (kVA)	Utility Provided Metering System Exception to §130.5(a)[2]	System subject to CA Elec Code Article 517 Exception to §130.5(a)&(b)	Demand Response Controls Where required, demand response controls must be specified which are capable of receiving and automatically responding to at least one standards based messaging protocol which enables demand response after receiving a demand response signal. Sections §120.2, §130.1 and §130.3 and compliance documents NRCC-MCH, NRCC-LTI and NRCC-LTS will indicate when demand response controls are required.
MSB	Add/Alt to feeders and branch circuits only		☐	☐	

[1] FOOTNOTES: Adding only new feeders and branch circuits triggers Voltage Drop 130.5(c), no other requirements from 130.5 are required.
[2] Applicable if the utility company is providing a metering system that indicates instantaneous kW demand and kWh for a utility-defined period.

C. COMPLIANCE RESULTS

Table Instructions: If this table says "DOES NOT COMPLY" refer to Table D. for guidance and review the Table that indicates "No".

01		02		03		04	05
Service Electrical Metering §130.5(a)	AND	Separation for Monitoring §130.5(b)	AND	Voltage Drop §130.5(c)	AND	Controlled Receptacles §130.5(d)	**Compliance Results**
(See Table F)		(See Table G)		(See Table H)		(See Table I)	
	AND		AND	Yes	AND		**COMPLIES**

STATE OF CALIFORNIA

Electrical Power Distribution

NRCC-ELC-E (Created 01/20) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE NRCC-ELC-E

Project Name:	A Proposed Classroom Relocation for Colusa County Adult Education Center	Report Page:	Page 2 of 4
Project Address:	499 Marguerite Street	Date Prepared:	3/15/23

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

No exceptional conditions apply to this project.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. SERVICE ELECTRICAL METERING

This Section Does Not Apply

G. SEPARATION OF ELECTRICAL CIRCUITS FOR ENERGY MONITORING

This Section Does Not Apply

H. VOLTAGE DROP

Table Instructions: Please complete this table for entirely new or complete replacement electrical power distribution systems, or alterations that add, modify or replace both feeders and branch circuits to demonstrate compliance with §130.5(c). For alterations, only the altered circuits must demonstrate compliance per §141.0(b)2Pii.

01	02		03	04	05	
Electrical Service Designation/ Description	Combined Voltage Drop on Installed Feeder/Branch Circuit Conductors Compliance Method		Location of Voltage Drop Calculations[1]	Sheet Number for Voltage Drop Calculations in Construction Documents	Field Inspector	
					Pass	Fail
MSB	☑ Voltage drop < 5%	☐ Permitted by CA Elec Code (Exception to §130.5(c))*	In construction documents	E101	☐	☐

**NOTES if "Permitted by CA Elec Code*" is selected under Compliance Method above, please indicate where the exception applies in the space provided below.*
[1] FOOTNOTES: Voltage drop calculations may be attached to the permit application outside the construction documents if allowed by the Authority Having Jurisdiction. Select "attached" if applicable. If calculations will be the responsibility of the installing contractor, select "Contractor Responsible".

I. CIRCUIT CONTROLS FOR 120-VOLT RECEPTACLES AND CONTROLLED RECEPTACLES

This Section Does Not Apply

STATE OF CALIFORNIA

Electrical Power Distribution

NRCC-ELC-E (Created 01/20) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE NRCC-ELC-E

Project Name:	A Proposed Classroom Relocation for Colusa County Adult Education Center	Report Page:	Page 3 of 4
Project Address:	499 Marguerite Street	Date Prepared:	3/15/23

J. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Table Instructions: Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://ww2.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCI/

YES	NO	Form/Title	Field Inspector	
			Pass	Fail
◉	○	NRCI-ELC-01-E - Must be submitted for all buildings.	☐	☐

K. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

There are no Certificates of Acceptance applicable to electrical power distribution requirements.

STATE OF CALIFORNIA

Electrical Power Distribution

NRCC-ELC-E (Created 01/20) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE NRCC-ELC-E

Project Name:	A Proposed Classroom Relocation for Colusa County Adult Education Center	Report Page:	Page 4 of 4
Project Address:	499 Marguerite Street	Date Prepared:	3/15/23

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:	Bryan Barnes	Documentation Author Signature:	
Company:	PACE Engineering	Signature Date:	3/15/23
Address:	5155 Venture Parkway	CEA/ HERS Certification Identification (if applicable):	
City/State/Zip:	Redding, CA 96002	Phone:	(530) 244-0202

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. **The information provided on this Certificate of Compliance is true and correct.**
2. **I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)**
3. **The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.**
4. **The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.**
5. **I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.**

Responsible Designer Name:	Bryan Barnes	Responsible Designer Signature:	
Company :	PACE Engineering	Date Signed:	3/15/23
Address:	5155 Venture Parkway	License:	E22549
City/State/Zip:	Redding, CA 96002	Phone:	(530) 244-0202

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LICENSE STAMPS

REGISTERED PROFESSIONAL ENGINEER BRYAN M. BARNES No. E22549 ELECTRICAL STATE OF CALIFORNIA

PROJECT NAME

A PROPOSED CLASSROOM RELOCATION FOR

COLUSA COUNTY ADULT EDUCATION CENTER

COLUSA COUNTY OFFICE OF EDUCATION WILLIAMS, CALIFORNIA

SHEET TITLE

TITLE 24 ELECTRICAL DOCUMENTS

DRAWING STATUS

FOR DSA APPROVAL

REVISIONS

Sym.	Description	By	Date
2	CCD 02	EY	3/29/23

Drawn By	EY
Checked By	BB
Date Drawn	7/23/20
Scale	AS NOTED
Job No.	21-2947

SHEET No.

E404

PACE ENGINEERING

Plot Date: 4/4/2023 2:11:11 PM
File Name: C:\Revit Local Files\04040\0404.748 Colusa Modular\0404.748_E_Colusa Modular_EEY_L20.rvt

GEOTECHNICAL INVESTIGATION

COLUSA COUNTY SPECIAL EDUCATION

& COMMUNITY SCHOOL

NORTHEAST CORNER OF E ST. & FUTURE D ST.

WILLIAMS, CALIFORNIA

REPORT PREPARED FOR:

COLUSA COUNTY OFFICE OF EDUCATION

OUR PROJECT NUMBER: SGE080543

DECEMBER 2, 2008

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NEIL O. ANDERSON
AND ASSOCIATES

GEOTECHNICAL
ENVIRONMENTAL
INSPECTIONS & TESTING
LABORATORY SERVICES
POOL ENGINEERING
POST TENSION DESIGN

December 2, 2008
Our Project Number: SGE08-0543

Mr. Dennis Roney
Colusa County Office of Education
c/o Architecture for Education, Inc.
46 Smith Alley, Suite 200
Pasadena, California 91103

Subject: **Geotechnical Investigation**
Colusa County Special Education & Community School
Northeast Corner of E Sreet & Future D Street
Williams, California

Dear Mr. Roney:

The following report presents the findings and conclusions of our geotechnical investigation conducted at the subject site. The purpose of the report was to provide recommendations for the site grading, foundations, slab support (including subgrade modulus), retaining walls, utility construction, corrosion protection, liquefaction potential, and pavement sections, as indicated in our proposal dated November 10, 2008 and accepted November 12, 2008. Recommendations for this project have been provided in the body of the report. Coordination between our office and your grading contractor will help reduce the potential for soil related problems.

Key information regarding this geotechnical report is presented on the following page. This information sheet has been provided to aid you in assessing the limitations of this geotechnical investigation as well as to indicate when additional information from our office may be required.

We appreciate the opportunity of working with you on this project and look forward to providing our services in the future. Please contact us if you have any questions.

Sincerely,
NEIL O. ANDERSON & ASSOCIATES, INC.

REGISTERED PROFESSIONAL ENGINEER
ROBERT HOLMER
No. 2672
Exp. 12/09
GEOTECHNICAL
STATE OF CALIFORNIA

Ryan King, Staff Engineer
EIT No. 122451, B.Sc.

12/02/2008
Robert E. Holmer, Principal Engineer
Registered Geotechnical Engineer 2672

KEY INFORMATON REGARDING YOUR GEOTECHNICAL REPORT

➢ *The Applicability of Geotechnical Reports is Limited*

Geotechnical reports are written to provide test results, observations, and professional opinions regarding a specific site for a specific project. Reports are tailored to the client and are influenced by each client's risk management strategies, economical constraints, and personal preferences. Since each report is a "custom fit" for a particular client, reports should not be transferred to anyone else without first consulting the geotechnical engineer.

Each geotechnical report considers only the construction information and site boundaries that existed at the time of the investigation. Modification of construction plans, such as a change in the shape, size, weight, location, or intended use of a project, nullifies the recommendations contained in the report, unless the geotechnical engineer indicates otherwise. A geotechnical report can not be used for an adjacent site. Time and money can often be saved by consulting with the geotechnical engineer when circumstances change from those which existed when the report was written.

➢ *Site Conditions Can Change*

The conditions which existed at the time of a geotechnical investigation can change. Investigations can only report conditions at a particular time and place and no guarantee exists to ensure that recommendations will apply after natural or man made changes occur. Examples of some possible changes include: earthquakes, floods, fluctuations in groundwater, construction on or *next* to the site, and the addition or removal of soil. In addition, even the mere passing of time can affect site conditions. Consult with the geotechnical engineer to verify site conditions have not changed since the geotechnical report was completed.

➢ *Geotechnical Findings Are Comprised Primarily of Professional Opinions*

Even if typical 6 inch borings were spaced 5 feet apart across an entire site (typical borehole spacings are on the order of at least 10's or 100's of feet apart), *less than one percent* of the soil or rock on the site would actually be explored. From this limited exploration, the geotechnical engineer is called on to provide an opinion regarding the subsurface conditions across the site, provide appropriate foundation recommendations, and predict the response of subsurface materials to numerous scenarios using information from samples that may or may not be representative of the entire site. Obviously, most of the geotechnical report is based on the professional opinion of the geotechnical engineer. The actual subsurface conditions may significantly differ from those which were encountered during the geotechnical investigation. Consequently, the most effective method of managing the risks associated with a project is to retain the geotechnical engineer who provided the report throughout construction of the project.

➢ *Contact Your Geotechnical Engineer When in Doubt*

Time, money, and confusion can all be saved by simple explanations at critical moments. Please contact your geotechnical engineer whenever there is any doubt regarding subsurface conditions or their effect on part or all of any project.

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GEOTECHNICAL INVESTIGATION
COLUSA COUNTY SPECIAL EDUCATION & COMMUNITY SCHOOL
WILLIAMS, CALIFORNIA

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December 2, 2008

GEOTECHNICAL INVESTIGATION

COLUSA COUNTY SPECIAL EDUCATION & COMMUNITY SCHOOL

NORTHEAST CORNER OF E STREET & FUTURE D STREET

WILLIAMS, CALIFORNIA

OUR PROJECT NUMBER: SGE08-0543

1.0 INTRODUCTION

This report presents the findings, conclusions, and recommendations of a geotechnical investigation conducted for the proposed Colusa County Special Education and Community School to be constructed at the northeast corner of E Street and the future D Steet in Williams, California. We understand that the proposed site encompasses approximately 9.4 acres. The Colusa County Special Education and Community School project will consist of a Special Education School with seven (7) classrooms and a Community School with three (3) classrooms, a multi-purpose kitchen building and District Administration Buildings. The total building area will encompass approximately 45,000 square feet. We anticipate construction may consist of either wood or steel stud, masonry, or concrete tilt-up frame. Since the site is relatively flat, we expect that grading will consist of minor cuts and fills, less than 5 feet in vertical extent. The project will also include asphalt parking, drives, bus lanes, concrete walks, and landscaping.

The geotechnical study conducted at this site was prepared for the use of the architect and engineer for application to the design of the building and grading plans in accordance with generally accepted geotechnical engineering practices. No warranty is expressed or implied. This report presents the results of this study.

2.0 SUMMARY OF CONCLUSIONS

1. Two of the primary geotechnical-related items of consideration that will affect the development of this site are the presence of expansive clay soils and the shallow groundwater. We are providing three options for building pad preparation to reduce the risk of expansive soil related problems. Other items of consideration are the corrosive potential of the soil, both to concrete and to buried ferrous materials.

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2. Over-excavation and compaction of the surficial clay soils may be required if construction is occurring during the dry season. Over-excavation is recommended in an effort to reduce the swell potential of the expansive clays. The depth of over-excavation shall be determined in the field by a representative of our firm at the time of construction.

3. The soils encountered during our field investigation were fairly consistent between the test holes. Subgrade soils generally consisted of medium stiff to very stiff clays that extended to depths between 12 and 33 feet below the existing ground surface. The upper clays were highly plastic. The clays were underlain by inter-bedded layers of clayey/silty sands and sandy clays to the maximum depth explored of 41½ feet. For a more detailed description of the soils encountered in the test holes see the Logs of Test Boring sheets. Groundwater was encountered in our test holes as shallow as 5½ feet at the time of our investigation.

4. Good surface drainage should be constructed to provide rapid removal of runoff away from the buildings.

5. We recommend the proposed buildings be founded on spread footings or post-tensioned slabs. Detailed design and construction criteria are presented in this report.

6. Groundwater was encountered in our tests holes as shallow as 5½ feet. The grading contractor should anticipate trench dewatering during underground utility construction.

7. Flexible (asphalt) and rigid (concrete) pavement sections are provided for various traffic indices.

3.0 GENERAL (SURFICIAL) SITE CONDITIONS

At the time of our investigation the site was a vacant parcel and was covered by loose soil and minor amounts of grass and weeds scattered throughout the lot. Manhole covers were located along the southern end of the project parallel and adjacent to E Street. Vacant fields, with future plans of construction, were located north and west of the site. The site was bordered to the west and north by undeveloped lots, to the east by a California Highway Patrol (CHP) Office, and to the south by E Street. Existing E Street pavement had minor rutting and cracking. The site is relatively flat and the surrounding area is mixed residential and retail development.

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4.0 PREVIOUS INVESTIGATIONS

Neil O. Anderson & Associates performed Geotechnical Investigations recently for projects on adjacent parcels including Valley Ranch Phase I, NOA Job No. SGE08-0513, report dated May 26, 2008, and Valley Ranch Phase IV, parts 1 and 2, NOA Job No SGG-0055, reports dated October 26, 2007 and November 14, 2007. These reports were reviewed in preparation of this report.

At the time of this report, we were in the process of performing a Geotechnical Investigation for the Yuba Community College District located adjacent to and north of this site. Data from this adjacent investigation was used in our analysis at this Colusa County Special Education and Community School project.

5.0 GENERAL GEOLOGIC CONDITIONS

A geologic map of the area was reviewed and indicated the surface soils are described as basin deposits of the Great Valley. The subgrade consists mainly of flood basin deposits from flood stages of major streams. Following is a table of the 2007 California Building Code Soil Parameters[1] which may be used for design of structures at the subject site:

2007 CALIFORNIA BUILDING CODE SEISMIC DESIGN PARAMETERS	
Site Class	D
Mapped Spectral Acceleration Value of Rock (Short Period), S_S	1.025g
Mapped Spectral Acceleration Value of Rock (1-Second Period), S_1	0.368g
Site (Amplification) Coefficient, F_a	1.090
Site (Amplification) Coefficient, F_v	1.664
Maximum Considered Earthquake/Site Modified (MCE) Spectral Response Acceleration Value (Short Period), S_{MS}	1.117g
Maximum Considered Earthquake/Site Modified (MCE) Spectral Response Acceleration Value (1-Second Period), S_{M1}	0.612g
Design Spectral Acceleration Value (Short Period), S_{DS}	0.745g
Design Spectral Acceleration Value (1-Second Period), S_{D1}	0.408g

[1] USGS Earthquake Ground Motion Parameters Version: 5.0.9 – 10/68/08

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A site latitude and longitude of 39.160717° and -122.135739° were utilized in conjunction with the tools provided by United States Geologic Survey web site. In accordance with 2007 California Building Code, Section 1802.2.7.2, a ground acceleration of 0.298g (S_{DS}/2.5) should be anticipated.

6.0 FIELD EXPLORATION AND LABORATORY TESTING

The field investigation conducted at this site consisted of drilling 20 exploratory test holes carried to depths of between 5 and 41½ feet. The test holes were drilled with a truck mounted Mobile B-53 drill rig, utilizing 4-inch continuous flight auger. In addition to the 20 test holes drilled on this site, we also drilled 4 additional test holes on the Yuba Community College site located adjacent to and north of this site. The locations of the test holes are shown on the Location Map, Plate No. 1. The locations of the test holes were determined by pacing from existing site features; hence, accuracy can be implied only to the degree that this method warrants.

Sampling of the drilled test holes was performed at various depths using a California Modified 2.5 inch o.d. split spoon sampler with stainless steel tube liners. The samplers were driven by a 140 pound hammer with a 30-inch drop. Blow counts required to drive the sampler every 6 inches for a total of 18 inches were recorded.

Soil samples obtained from the test holes were preserved in stainless steel tubes until the samples could be tested in the laboratory. Samples were taken to the laboratory of Neil O. Anderson & Associates, Inc., Sacramento, California and used for performing various laboratory tests. Tests performed consisted of unit weights, moisture contents, Minus No. 200 Wash, R-Value, expansion index, Atterberg Limits, Pocket Penetrometer readings, consolidation test, and corrosive soil evaluation. Graphical representation of the laboratory testing is presented in Appendix D. A summary of the test results are presented on the Log of Test Boring sheets, Plates 2 through 21. Boring logs for the test holes drilled for the adjacent project are presented in Appendix E.

7.0 SOIL CONDITIONS

Visual classification of each soil stratum encountered according to ASTM D2488 (Visual – Manual Procedure) was made in the field by a representative from our office at the time the test holes were drilled. The samples obtained were checked in the laboratory by an engineer and classification verified according to ASTM D2487. A classification and graphical representation of each soil encountered is presented on the Log of Test Boring sheets. The test boring legend is presented on Plate No. 22.

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The soils encountered during our field investigation were relatively consistent between the test holes. Subgrade soils generally consisted of medium stiff to very stiff, highly plastic clays that extended to depths between 12 and 33 feet below the existing ground surface. The clays were underlain by inter-bedded layers of clayey/silty sands and sandy clays to the maximum depth explored of 41.5 feet. For a more detailed description of the soils encountered in the test holes see the Logs of Test Boring sheets. Test hole logs show subsurface conditions at the date and location indicated and it is not warranted that they are representative of subsurface conditions at other locations and times.

Six samples of the sandy clay were tested in our laboratory for Atterberg Limits and exhibited liquid limits of 32 to 64, plasticity indexes of 16 to 41, and contained 54 to 91 percent silt and clay-sized particles (passing the No. 200 sieve). One sample of the near surface sandy clay was also tested for expansion index and rendered a value of 54. Laboratory testing indicates that the near surface sandy clay soil has a moderate to high expansion potential.

Groundwater was encountered in our test borings and stabilized as shallow as 5½ feet at the time the borings were drilled. Groundwater conditions in the future could change due to rainfall, construction activities, irrigation, or other factors. The evaluation of these factors is beyond the scope of this study.

8.0 ANALYSIS FOR SEISMICALLY INDUCED LIQUEFACTION

The detailed analysis of earthquake induced liquefaction for the proposed site was completed for the purpose of determining the potential of liquefaction and any associated induced settlement.

Liquefaction is a loss of strength in soil when a cyclic stress, such as that caused by an earthquake, is applied to loose saturated sands and silts. A cyclic stress subjected to these soils causes them to densify rapidly elevating the pore pressures which causes the soil to act as a liquid. Factors that *may* affect the likelihood of liquefaction include the age and density of soils, *recent* depths to subsurface water (5½ feet) and the potential ground acceleration from a seismic event.

The results of the dynamic blow count testing performed during the drilling of the 41½ foot boring, boring B-9, have been used in our liquefaction analysis. Data from boring, B-2A, drilled on the adjacent parcel was also reviewed for this analysis. Blow counts were taken at various intervals and a liquefaction analysis of each distinct stratum has been performed. Our analysis of the potential for liquefaction at the site was performed using two methods (both are based on blow count result values obtained

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during drilling activities). The first, and probably the most commonly used method, is that proposed by the National Center for Earthquake Engineering Research (NCEER)[2]. This method results in a calculated factor of safety against liquefaction. The second method is a newer method proposed by R. B. Seed and result in a calculated probability of liquefaction[3].

As indicated, a Mobile B-53 drill rig, utilizing 4-inch continuous flight augers was used to drill the 41½ foot borings. The drill rig has a calculated energy efficiency of 45 percent. Our calculations are based on **corrected** blow counts; values of blow counts reported in the bore logs are also corrected.

As was mentioned, two methods of analysis were used to assess the liquefaction potential of the site. Both of these methods require the same data. Besides data obtained during field and laboratory testing, a value of peak ground acceleration at the site and a magnitude of the earthquake responsible for the peak ground acceleration is required. Our office used a magnitude of 6.7 from the Great Valley fault and a peak horizontal ground acceleration of 0.298g in our liquefaction analysis. The shear wave velocity was calculated to be 650 feet per second (206 meters per second) based on the in-situ down hole sampling. Saturated conditions and soil lithology from the test holes were utilized for design purposes. The following table shows the results of our liquefaction analysis.

LIQUEFACTION ANALYSIS			
Layer (depth below ground surface in feet)	**Factor of Safety based on NCEER method[1]**	**Probability of Liquefaction based on Seed et. al. method[2]**	**Comments**
0-33	**1.95**	**0.00**	Low potential for liquefaction
33-40	**2.15**	**0.00**	Low potential for liquefaction

Note 1: A value less than 1.0 indicates liquefaction is predicted.
Note 2: The closer the value is to 1.0, the more probable liquefaction becomes.

[2] Youd, Leslie T., Idriss, Izzat M., *Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils*, Technical Report NCEER-97-0022, December 31, 1997.

[3] Seed, R.B., *Recent Advances in Soil Liquefaction Engineering and Seismic Site Response Evaluation*, Proceedings of the Fourth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics and Symposium in Honor of Professor W.D. Liam Finn, San Diego, California, March 26-31, 2001, Paper No. SPL-2.

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The results of our analysis indicate that there is a low potential for liquefaction at this site due to the high clay content and distance to a significant seismically active source. These calculations are applicable only to the soils encountered in our test holes.

9.0 DESIGN STUDIES AND RECOMMENDATIONS

From a soil engineering standpoint, our office concludes that the site is suitable for construction of the proposed buildings; 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 problems. The primary geotechnical concern for construction of the buildings is the presence of expansive clay soils. Other items include the shallow groundwater and the corrosivity of the soils.

Subsurface conditions encountered at foundations depths consist of stiff, highly plastic clay soils that are suitable to support the proposed Colusa County Education Village. The sandy clay soil is expansive and subject to volume changes with variations in moisture content. We are providing three options to help protect the building slabs. Following is a summary of the options:

> **Option-1:** Over-excavate the building pads to a depth of 18 inches, moisture condition the resulting subgrade, and replace the over-excavated expansive clay soil with an 18 inch layer of non-expansive fill.
>
> **Option-2:** Construct the building pads with moisture conditioned on-site clay soils and treat the top 12 inches of the building pads with a minimum spread rate of 4.5 pounds per square foot high calcium quick lime.
>
> **Option-3:** Moisture condition the native sub-grade to a depth of 12 inches and cast a uniform thickness post-tensioned slab.

The three options are presented in order to provide a latitude of methods in dealing with the expansive soils. Post tensioned slabs on grade remain relatively crack free and not only significantly reduce the potential for damage caused by differential movement, but decrease the potential of moisture damage within the structures due to thickened slab construction. **If Option 3 is desired our office can provide the necessary post-tensioned structural design.**

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9.1 Over-Excavation

The near surface soils are highly expansive. In their dry state, the expansive soils can heave upon wetting, lifting and damaging building foundations, slabs, exterior concrete flatwork, side walks, curb and gutter, and pavement surfaces. The risk of expansive soil related problems increase if construction is occurring during certain times of the year. Depending on the time of year and the amount of precipitation received in the preceding wet season, it may be necessary to over-excavate the dry clay soil, moisture condition, and compact the clay at an elevated moisture content. Our experience indicates the clay soils may need to be over-excavated to a depth of 2½ feet below the existing ground surface if construction is occurring during the late summer or early fall. Conversely, if construction is occurring during the late winter or early spring, and the clays are in a moist condition at the time of construction, then over-excavation may not be necessary.

The depth of over-excavation must be determined by a representative of our firm in the field at the time of construction. We recommend over-excavation be included as an alternative line item during the bidding process. For budgeting purposes, we recommend assuming a 24 inch depth of over-excavation with line items for adding and subtracting the depth in 6 inch intervals. Over-excavation will need to extend at least 5 feet beyond all buildings, floor slabs, exterior concrete flatwork, sidewalks, and curb and gutter. Over-excavation and re-compaction shall be performed in accordance with Appendix A. Over-excavation and compaction will be required regardless of which Building Pad Option is selected.

It is important to note that groundwater was encountered in our borings as shallow as 5½ feet below the ground surface. If the depth of over-excavation of the clay soils extends too close to the groundwater, then pumping subgrade conditions may develop which may require additional stabilization. In our opinion, considerable cost savings can be realized if the construction schedule is planned to avoid over-excavation.

9.2 Building Pad Option 1: Moisture Conditioning & 18 inches of Non-Expansive Fill

9.2.1 Grading Recommendations

The site should initially be cleared of all surface organic growth, loose organic soil, and miscellaneous debris. After the building pads have been cleared, the pads should be over-excavated to a minimum depth of 18 inches below finished pad grade. The

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resulting subgrade shall be scarified to a depth of 12 inches moisture conditioned, and compacted as specified in Appendix A, Engineered Fill Specifications.

After over-excavation, scarification and compaction of the subgrade, the building pads should be topped with 18 inches of non-expansive, engineered fill and compacted to at least 90 percent relative compaction, as recommended in Appendix A, Engineered Fill Specifications. The onsite clays are not suitable for use as engineered fill. Engineered fill should be non-expansive with a plasticity index less than 12, and no more than 50 percent passing the No. 200 sieve. **A sample of any import engineered fill material should be submitted to our office for testing and approval at least 7 days prior to import.** Engineered fill should extend a minimum of five feet beyond proposed foundation lines or under any perimeter sidewalks or other exterior concrete flatwork. **A representative of our office should be present during construction to observe site grading and test compaction.**

9.2.2 Building Foundation - Spread Foundations

If grading is accomplished as specified, foundations for the proposed buildings may consist of shallow, spread or continuous foundations. The building structure foundations should be embedded a minimum depth of 24 inches below nearest surrounding grade and should be at least 12 inches wide. The structure foundations may be designed using a bearing capacity of 2000 pounds per square foot (psf), for dead plus live loads. Bearing capacity may be increased by 1/3 for temporary wind and seismic loads.

Potential settlement, either immediate or long term, of foundations constructed and loaded in the manner described above, should be less than 1 inch total and ½ inch differential across the width of the buildings. Care should be taken to understand settlements may vary based on actual loads and footing sizes.

To ensure footings have adequate support, special care should be taken when footings are located adjacent to trenches. The bottom of such footing 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.

Lateral resistance for spread footing may be provided by assuming a passive pressure acting against the side of the footings equal to 300 pounds per cubic foot (pcf) equivalent fluid pressure. Lateral resistance may also be provided by computing friction between the bottom of the footing and the soil. A coefficient of friction of 0.30 should be utilized. If footings are cast against firm native soil, passive and frictional resistance may be combined but the passive resistance should be reduced by 50 percent. **A**

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representative of our firm should observe the completed footing excavation to verify that suitable bearing material has been encountered.

9.2.3 Building Slabs

A modulus of subgrade reaction of 75 pounds per square inch per inch of deflection (pci) may be used for design of floor slabs at this site.

Moisture transmission through concrete slab-on-grade floors has been known to cause delamination, warping and other damage to floor coverings. Wood and vinyl floorings are particularly susceptible to damage. Neil O. Anderson & Associates does not profess to be experts in moisture proofing concrete slabs-on-grade, and our firm knows of no construction method that will completely eliminate the risk of damage. In order to provide some level of protection against damage, it is common practice in this area to place a capillary break and a vapor retarder beneath the slab.

There are additional measures that may be incorporated to further reduce, but not eliminate, the risk. Some (but not all) of these measures include: using concrete with a water-cement ratio less than 0.45, employing a qualified testing laboratory to provide materials testing and quality control during concrete placement and curing, using topical concrete sealers, installing water stops at cold joints between the foundation and slab on grade, sealing the vapor retarder where plumbing penetrations occur, limiting the use of vinyl and wood flooring, and testing the concrete slab for moisture transmission rates immediately prior to placement of floor coverings. These measures may be considered if additional protection is desired.

The following recommendations are commonly used in this area and we believe these measures should be incorporated to provide a minimum level of protection against damage.

Minimum Recommendations:

The upper 12 inches of all building pads should be scarified and compacted as engineered fill. Four inches of clean ¾ inch gravel should be placed beneath the slabs on grade. The gravel should be covered by an impervious vapor retarder such as 10 mil sheet vinyl or equivalent. The vapor retarder should be continuous and lapped a minimum of 2 feet and draped down the side of the footings at least 1 foot. The vapor retarder should be covered by 2 inches of sand to protect it during construction and to aid in curing the concrete. This sand should meet the requirements of ACI 302.1R. However, we know from experience that most local sand will not meet these requirements. In our opinion, the sand should be a sand or silty sand containing no

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more than 20 percent passing the No. 200 sieve. Alternative materials must be approved by the geotechnical engineer prior to being brought to the site.

The sand should be moist but not saturated at the time of concrete placement. If the sand is saturated or free water is visible, the concrete should not be placed until the sand is dried sufficiently to only be moist or is replaced. If construction will take place in winter, sand may be substituted with 3/8 inch pea-gravel. The pea gravel may not be saturated. Free water must not be visible on the gravel. If the gravel is saturated, it must be dried sufficiently to only be moist or be replaced prior to placement of concrete.

Our office recommends the floor slab thickness and reinforcing design be determined by the project structural engineer. Exterior finish grades should be below the floor subgrade level unless special drainage and waterproofing features are employed to reduce the potential for moisture migration under the slab.

9.3 Building Pad Option 2: Lime Treatment

9.3.1 Lime Treatment Grading Recommendations

For this option, the building pads are constructed with moisture-conditioned on-site clay soils, but once pads are brought to grade, the upper 12 inches are thoroughly mixed with a minimum of 4.5 pounds per square foot of high calcium quick lime and compacted. This will significantly reduce the swelling potential of the clays soils within the treated layer. Lime treatment should be performed according to Section 24 of the Cal Trans Standard Specifications, latest edition. The current Cal Trans specification is presented in Appendix B. Lime treatment of the building pads provides the added benefit of creating a workable building surface during wet weather. The treatment should extend at least 3 feet beyond the footing lines and under any attached perimeter sidewalks. Clearing, over-excavation, moisture-conditioning, scarification, and compaction of the original ground should be performed as indicated in Option 1. The landscape architect should be informed that plants will not grow in lime-treated soil.

9.3.2 Building Foundation - Spread Foundations

See Section 8.1.2 for Foundation recommendations.

9.3.3 Building Slabs

See Section 8.1.3 for Building Slab recommendations.

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9.4 Building Pad Option-3: Post-Tensioned Slabs

The native clay subsurface soils should be in a moist condition for a depth of 12 inches. Uniform thickened post-tensioned foundations will be used to structurally span differential movement of the clay soils. This option will not prevent the clay soil from heaving. This option will help reduce the differential movement of the structures.

9.4.1 Grading Recommendations

The site should initially be cleared of all miscellaneous debris. After the building pads have been cleared, the pads should be scarified to a minimum depth of 12 inches below finished pad grades, moisture conditioned, and compacted as specified in Appendix A, Engineered Fill Specifications, with the following modification:

All on-site clay soil that is either scarified and compacted or utilized for fill shall be placed and compacted to between **88 an 92 percent relative compaction, at a minimum of 3 percent above optimum moisture content as determined in ASTM D1557**. If compaction or the required minimum moisture content has not been achieved, the fill or compacted subgrade will be considered unacceptable and reworking of the fill or subgrade shall be required.

After scarification and compaction of the subgrade, any required fills for the building pads should be placed and compacted as engineered fill as specified in Appendix A with the noted modification. The onsite clays are suitable for use as engineered fill with this option. Any additional fill material should be non-expansive as specified in Appendix A. **A sample of any proposed import engineered fill material should be submitted to our office for testing and approval prior to construction.** Engineered fill should extend a minimum of five feet beyond proposed foundation lines or under any perimeter sidewalks or other exterior concrete flat work. **A representative of our firm should be present during construction to observe site grading and test compaction.**

9.4.2 Floor Slabs/Foundations

For this option the slabs/foundations should be post-tensioned so that they may act as a unit. Post-tensioned foundations should consist of a monolithic slab (California Uniformed Thickened Slab) with deepened areas for concentrated column loads. The post-tensioned foundation should encompass a 8 to 12 inch thick slab constructed with concrete with a minimum compressive strength of 3,500 pounds per square inch (psi) concrete with a minimum 12 inch deep (measured from top of slab) continuous shovel footing around the perimeter of the building. The slabs should utilize a minimum 60 psi internal compressive force. The post-tensioned design engineer should be allowed to

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calculate the most feasible slab for the given soil conditions and design parameters presented herein. The slab should be designed using California Building Code, section 1815, using the following parameters:

Edge Moisture Distance, Em	
Center	5.3 feet
Edge	2.5 feet
Estimated Differential Swell, ym	
Center Lift	1.7 inches
Edge Lift	0.3 inches
Allowable Bearing Capacity (total load, dead plus live)	1,500 psf
Coefficient of Friction (between slab and subgrade)	0.3

The moistened subgrade should be covered by two layers of a vapor barrier such as 10 mil sheet vinyl or equivalent, with seams and penetrations taped, in order to reduce subgrade friction when stressing and reduce the potential for moisture vapor traveling up through the slab. The vapor barrier should be covered by 2 inches of sand to protect it during construction and to aid in curing the concrete. Exterior finish grades should be at or below the floor subgrade level unless special drainage and waterproofing features are employed to prevent moisture migration under the slab.

For this option, subgrade moisture conditions should be achieved, maintained, and checked by a representative from our office. *If a post-tensioned foundation is desired, our office is qualified and experienced in designing this type of foundation.*

9.5 Winterization and Construction Equipment Mobilization

Cohesive soils located across the site can trap moisture from winter rains within the upper zones of the subgrade. This is known to cause unstable "pumping" subgrade conditions which can hinder the movement of grading equipment if construction is occurring in the winter or early spring. This should be taken into consideration when planning the site construction schedule. If it is desired to proceed with site grading during wet conditions, our office can provide recommendations for subgrade stabilization.

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9.6 Retaining/Screen Walls

Site retaining walls may be constructed. Retaining walls will be subject to lateral earth pressures. Site retaining walls may be supported by a spread footing type foundation designed using the same parameters provided in Section 9.2.2 of this report.

The lateral earth pressure on a retaining wall depends on the height of the wall, type of backfill, slope of the backfill surface, and allowable horizontal movement on top of the wall. A calculated at-rest earth pressure of 75 pcf equivalent fluid density should be used for retaining walls which are restrained from rotating at the top. A calculated active earth pressure of 60 pcf equivalent fluid density should be used for site retaining walls which are allowed to rotate at the top. The above active earth pressure assumes the retaining wall will support a backslope no steeper than 5:1 (H:V). We have assumed the backfill will be the on-site soils. For lateral load resistance, footings may be designed with a passive earth pressure of 300 pcf. Equivalent fluid densities do not include allowances for surcharge loads or hydrostatic pressures. The hydrostatic pressure on the retaining walls should be relieved using drains behind the walls connected to tight lines. A typical retaining wall detail is presented in Plate 23.

9.7 Exterior Concrete Flatwork

The subgrade soil that will support exterior concrete flatwork shall be prepared in accordance with Appendix A of this report. We recommend the concrete flatwork to be at least 5 inches thick and be reinforced with #3 bars spaced at 18 inches on center each way. At least 6 inches of Caltrans Class 2 aggregate base shall be placed beneath the slab. Aggregate base shall be compaction to at least 95% relative compaction.

9.8 Drainage

Special care should be taken to ensure adequate drainage is provided throughout the life of the structures. Properly designed and constructed foundations can be seriously damaged by neglecting to install and regularly verify performance of recommended drainage systems. Appropriate down spout extensions from roof drainage should fall on splash blocks a minimum of 2 feet from the structure or be connected to tight lines that drain away from the buildings. Any flatwork adjacent to the buildings should slope a minimum of 1 percent for a distance of 5 feet. Exposed exterior subgrade (soil or non-paved areas) should slope away from the structures at a minimum slope of ½ inch per foot for a distance of 8 to 10 feet beyond the building perimeters. If this grade is unable to be obtained, proper drainage inlets will need to be placed to carry surface water away from the foundations.

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Care should be taken to ensure that landscaping is not excessively irrigated and to ensure that landscaping drains away from the structures. Implementation of adequate drainage for this project can affect the surrounding developments. Consequently in addition to designing and constructing drainage for the subject site, the effects of site drainage must be taken into consideration for surrounding sites.

9.9 Excavation

As indicated previously, highly plastic clay soils were encountered in our test borings. Consequently, conventional excavating equipment may be utilized on this site. The contractor should plan his work accordingly. Ground water was encountered in our test holes as shallow as 5½ feet. The grading contractor should anticipate trench dewatering during utility construction.

9.10 Testing, Inspections and Review

Our office should be afforded the opportunity of reviewing the completed foundation and grading plans to verify that our recommendations have been properly interpreted and incorporated. Unless our office is allowed this opportunity, we disavow any responsibility from problems arising from failure to follow geotechnical recommendations or improper interpretation and implementation of our recommendations.

Our office should be retained to perform the recommended foundation inspections, grading observations and compaction testing. If post tensioned foundations are constructed, cable layout, full-time concrete placement observations, concrete testing, and stressing observations will be required. Unless we have been retained to provide these services, our office cannot be held responsible for problems arising during or after construction that could have been avoided had these services been performed. The fees for these services are in addition to that associated with this report.

10.0 EVALUATION FOR SOIL CORROSION

Neil O. Anderson & Associates, Inc. is not corrosion engineers. We are providing the following information for use by the design engineer. A competent corrosion engineer should be consulted to determine the necessary corrosion protection for the concrete and proposed underground utilities and if additional testing is warranted.

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A total of four (4) soil samples were submitted to Sunland Analytical Laboratory in Rancho Cordova, California for testing. The tests performed on these samples included pH, resistivity, sulfate concentration, and chloride concentration. The results of these tests are presented below. The test results from the laboratory are included in the Log of Test Borings, Appendix C and Appendix E.

Boring ID	Depth, ft.	pH	Resistivity, ohm-cm	Sulfate concentration, ppm	Chloride concentration, ppm
B3	0-5	7.79	880	332.0	68.4
B20	0-5	7.94	880	215.6	72.1
B2A	0-5	7.73	240	1221.2	83.1
B4A	0-5	7.92	270	1887.1	83.7

According to the ACI Code 318, Sections 4.3, sulfate concentrations between 150 ppm to 1500 ppm are considered moderate and sulfate concentrations between 1500 ppm to 10,000 ppm are considered severe. We tested sulfate concentrations between 150 ppm to 1500 ppm in three test samples and tested sulfate concentrations between 1500 ppm to 10,000 ppm in one test sample. ACI recommends Type II, IP(MS), IS(MS), P(MS), I(PM)(MS), I(SM)(MS) cement, a maximum water cement ratio of 0.50, and a minimum compressive strength of 4000 psi for concrete exposed to moderate sulfate exposure. ACI recommends Type V, a maximum water cement ratio of 0.45, and a minimum compressive strength of 4500 psi for concrete exposed to severe sulfate exposure. The new 2007 California Building Code does not include references to specific amounts of sulfate or chloride concentrations. For further information see the ACI Code 318, Sections 4.3 and 4.4.

The results for resistivity of these four (4) samples ranged from 240 to 880 ohm-cm. Testing indicates the soils are severely corrosive towards buried ferrous metals. A generally accepted correlation between soil resistivity and corrosivity towards buried ferrous metals is provided below:

Minimum Resistivity, ohm-cm	Corrosion Potential
0-1,000	Severely corrosive
1,000-2,000	Corrosive
2,000-10,000	Moderately corrosive
Greater than 10,000	Mildly corrosive

These test results are only an indication of the potential corrosivity of the soils encountered in our test borings at the depths indicated. Other soils present on the site

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may produce widely varying test results. As previously mentioned above, a competent corrosion engineer should be consulted to determine the necessary corrosion protection for the proposed underground utilities and if additional testing is warranted. Laboratory test results are included in Appendix D.

11.0 PAVEMENT RECOMMENDATIONS

Bulk samples were obtained from the near surface soils on the site. Due to similar soils, the samples were combined into two R-value specimens and were subjected to R-value tests in our laboratory. From the results of the R-value tests, a design R-value of 5 was utilized. As an alternative to conventional pavement sections, lime treatment of the subgrade soils may be performed to improve their physical support characteristics. This procedure involves treating the pavement subgrade soils with a certain percentage of high calcium quicklime, usually 3 to 5 percent based on the dry unit weight of the soil, for a depth of 12 to 18 inches. For estimating purposes, a spread rate of about 4.4 pounds per square foot may be used for a 12 inch mixing depth and 6.6 pounds per square foot for an 18 inch mixing depth. The determination of the amount of lime to be used needs to be determined in the laboratory on samples of the subgrade soils. Lime treatment is performed after rough grading of the pavement areas is completed. Recommendations for both conventional and lime treated pavement sections are presented below.

Traffic indices of 3.5, 5.0, 6.0, and 7.0 were used to design the pavement sections for the site based on our experience with similar sites. **The project civil engineer should be afforded the opportunity of specifying the most appropriate traffic index for the proposed traffic and usage.** If a different traffic index is desired or required, please contact our office and a suitable recommended design can be provided. Flexible (asphalt) pavement sections have been designed according to the latest addition of the Cal Trans Highway design manual and using a 20-year pavement life. The pavement sections designs are shown below.

FLEXIBLE PAVEMENT SECTION DESIGN				
Subgrade R-Value	Traffic Index	Traffic	Pavement Section, inches	
			Asphalt Concrete	Aggregate Base
5	3.5	Auto Parking	2.5	6.0
5	5.0	Auto Drive	3.0	10.0
5	6.0	Fire Lane/Bus	3.5	12.5
5	7.0	Fire & Truck Drive	4.0	15.5

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The recommended concrete pavement sections have been designed utilizing the Portland Cement Associations manual "Thickness Design for Concrete Highway and Street Pavements". Design is based on a 20 year pavement life. The rigid pavement sections are presented next:

RIGID (CONCRETE) PAVEMENT SECTION DESIGN				
Subgrade Strength	**Traffic Pattern**	**Pavement Section, inches**		
		Concrete Pavement	**Compressive Strength, psi**	**Aggregate Base**
low	6 trucks per day	6.0	4,000	4.0
low	13 trucks per day	7.0	4,000	6.0

The paving materials must conform to the requirements of the State of California, Department of Transportation, Standard Specifications, latest edition. Type B asphalt concrete and class 2 aggregate base should be used.

The lime treated pavement sections presented below are based on the following assumptions:

Lime treated subgrade soil will produce a minimum R-value of 50.
Lime treated subgrade soil will produce a minimum unconfined compressive strength of 200 pounds per square inch.
Since it is not possible to compact the subgrade soil beneath the lime treated portion, an additional 3 inches of lime treated soil has been added to the calculated pavement section.
Lime treated materials shall conform to the requirements in Section 24 of the Caltrans Standard Specifications, latest edition.

LIME TREATED FLEXIBLE PAVEMENT SECTIONS					
Subgrade R-Value	**Traffic Index**	**Traffic**	**Pavement Section, inches**		
			Asphalt Concrete	**Aggregate Base**	**Lime Treated Subgrade**
50	3.5	Auto Parking	2.0	3.0	12
50	5.0	Auto Drive	3.0	4.0	12
50	6.0	Fire Lane/Bus	3.0	6.0	12
50	7.0	Fire & Truck Drive	4.0	7.0	12

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Lime treated subgrade has performed well under similar clay soil conditions. As previously mentioned, for estimating purposes, a spread rate of about 4.4 pounds per square foot may be used for a 12 inch mixing depth. The determination of the amount of lime to be used needs to be determined in the laboratory on samples of the subgrade soils at least two weeks prior to the start of grading operations. Lime treatment for the areas should be performed according to **Section 24 of the California Transportation Standard Specifications, latest edition, with special emphasis on the need to seal or cover with aggregate base the finished lime treated subgrade within 24 hours.** The lime treated subgrade should be compacted to dry densities in excess of 95 percent of the maximum dry density obtainable in the ASTM D1557 Compaction Test.

The pavement area should be stripped of all organic matter, loose soil, etc., and any required cuts or fills made. A minimum of 8 inches of compacted subgrade should be provided beneath the pavement sections. The subgrade should be compacted to dry densities in excess of 95 percent of the maximum dry density obtainable by the ASTM D1557 test method.

Studies have indicated that a major factor in extending pavement life is to provide adequate drainage for both the pavement surface and subgrade. Care should be made during the development of the grading plan to provide for good drainage. We recommend extruded curbs not be utilized for planters. Landscaped and irrigated planters that are constructed adjacent to pavement should have cut-off curbing constructed around them that extends a minimum of 4 inches into the subgrade soil. We recommend rigid concrete pavements in areas where heavy trucks, such as garbage trucks, will travel or make sharp turns. The above recommended pavement sections assume periodic maintenance, such as crack sealing, etc., will be performed over the life of the pavements.

12.0 UTILITY CONSTRUCTION

Based on Occupational Safety and Health Standards, the soils encountered in our test holes classify as Type A (clay) soils. Type A soils require a maximum slope of ¾:1 (horizontal to vertical) for dry excavations less than 20 feet deep. The contractor should have a competent person identify all soils encountered in excavation and refer to OSHA and Cal-OSHA standards to determine appropriate methods to protect individuals working in excavations.

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Backfill placed in trenches should be placed in approximately 8 inch lifts in uncompacted thickness. However, thicker lifts may be used, provided the method of compaction is approved by the soil engineer and the required minimum degree of compaction is achieved. Material should be compacted to at least 90 percent of the maximum dry density obtained by the ASTM D1557 test method. The upper 8 inches of trench backfill within pavement areas should be compacted to at least 95 percent relative compaction. Ground water was encountered in our test holes as shallow as 5½ feet. The grading contractor should anticipate trench dewatering during utility construction.

13.0 LIMITATIONS

The recommendations of this report are based on the information provided regarding the proposed construction as well as the subsoil conditions encountered at the test hole locations. If the proposed construction is modified or re-sited, or if it is found during construction that subsurface conditions differ from those described on the test hole logs, the conclusions and recommendations of the report should be considered invalid unless the changes are reviewed and the conclusions and recommendations modified or approved in writing.

The analysis, conclusions and recommendations contained in this report are based on the site conditions as they existed at the time we drilled our test holes. It was assumed that the test holes are representative of the subsurface conditions throughout the site. If there is a substantial lapse of time between the submission of our report and the start of the work at the site, or if conditions have changed due to natural causes or construction operations at or adjacent to the site, we urge that our report be reviewed to determine the applicability of the conclusions and recommendations considering the changed conditions and time lapse. This report is applicable only for the project and site studied. **This report should not be used after 3 years.**

Our professional services were performed, our findings obtained, and our recommendations proposed in accordance with generally accepted engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied. Test findings and statements of professional opinion do not constitute a guarantee or warranty, expressed or implied.

The scope of our services did not include any environmental assessment or investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, surface water, groundwater or air, on or below or around this site. Any statements in this report or on the soil logs regarding odors noted or unusual or suspicious items or conditions observed are strictly for the information of our client.

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APPENDIX A
Engineered Fill Specifications

SCOPE
Principal items of work included in this section are as follows:

A. Cleaning and Striping
B. Construction of Fill

A. CLEANING AND STRIPPING

Work includes cleaning and stripping of the building pad and surrounding area as indicated on the drawings. From this area remove all debris, irrigation lines, old pavement, trees, brush, roots, and vegetable ruin and grub out all large roots (1/2 inch or greater diameter) to a depth of at least two feet below the footing elevation. The vegetable materials and all materials from the cleaning operation shall be removed from the site.

B. CONSTRUCTION OF FILL

1. Preliminary Operations

After the cleaning and stripping operation and the cuts have been completed and before any fill is placed in any particular area, the existing surface shall be scarified to a depth of 8 inches and compacted to dry densities in excess of 90 percent of the maximum dry density as obtained by the Standard Test Methods for Laboratory Compaction Characteristics of Soil using Modified Effort, ASTM D1557 designation. The soil should be compacted at a moisture content at least 3 percentage points above the optimum moisture content. It may be necessary to adjust the moisture content of the subgrade soil by watering or aeration, to bring the moisture content of the soil near optimum in order that the specified densities can be obtained.

2. Source of Material

Engineered fill materials (on site or import) shall consist of sandy silts, sands, or sands and gravels unless stated otherwise in the report. Engineered fill material shall not contain rocks greater than 3 inches in greatest dimension and should be non-expansive in nature with a plasticity index less than 12.

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At least seven days prior to the placement of any fill, the engineer shall be notified of the source of materials. Samples of the proposed fill shall be obtained to determine the suitability of the materials for use as engineered fill.

3. Placing and Compacting

Fill materials shall be spread in layers and shall have a uniform moisture content that will provide the specified dry density after compaction. If necessary to obtain uniform distribution of moisture, water shall be added to each layer by sprinkling and the soil disked, harrowed, or otherwise manipulated after the water is added. The layers of the fill material shall not exceed 8 inches and each layer shall be compacted with suitable compaction equipment to provide the specified dry densities.

4. Required Densities

The dry density of the compacted earth shall be at least 90 percent of the maximum dry density obtainable by the ASTM D1557 test method. The optimum moisture content and maximum dry density will be determined by the engineer and this information supplied to the contractor.

5. Seasonal Limits

No fill shall be placed during weather conditions which will alter the moisture content of the fill materials sufficiently to make adequate compaction impossible. After placing operations have been stopped because of adverse weather conditions, no additional fill material shall be placed until the last layer compacted has been checked and found to be compacted to the specified densities.

6. Control of Compaction

The density of the upper 6 inches of subgrade and of each layer of fill shall be checked by the engineer after each layer has been compacted. Field density tests shall be used to check the compaction of the fill materials. Sufficient tests shall be made on each layer by the engineer to assure adequate compaction throughout the entire area. If the dry densities are not satisfactory, the contractor will be required to increase the weight of the roller, the number of passes of the roller, or manipulate the moisture content as required to produce the specified densities.

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APPENDIX B
Lime Stabilization
Caltrans Standard Specifications, Section 24

24-1.01 Description

This work shall consist of mixing lime and water with soil and compacting the mixture to the lines, grades and dimensions shown on the plans and as specified in these specifications and the special provisions.

24-1.02 Materials

Material to be stabilized shall be the native soil or embankment, containing no rocks or solids, other than soil clods, larger than 21/2 inches in any dimension. Removing and disposing of said rocks and solids larger than 21/2 inches, from native soil or embankment other than imported borrow, will be paid for as extra work as provided in Section 4-1.03D. Removing and disposing of said rocks and solids larger than 21/2 inches from imported borrow shall be at the expense of the Contractor.

Lime shall conform to the requirements in ASTM Designation: C 977 with the exception that when a 250 gram test sample of quicklime is dry sieved in a mechanical sieve shaker for 10 minutes and 30 seconds it shall conform to the following grading requirements:

Sieve Sizes	Percentage Passing
3/8"	98-100
No.100	0-25
No. 200	0-15

A Certificate of Compliance in accordance with the provisions in Section 6-1.07, 'Certificates of Compliance,' shall be furnished with each delivery of lime and shall be submitted to the Engineer with a certified copy of the weight of each delivery.

Water for mixing with soil and lime shall be free from oil and shall contain not more than 650 parts per million of chlorides as Cl, nor more than 1,300 parts per million of sulfates as S04. The water shall not contain an amount of impurities that will cause a reduction in the strength of the stabilized material.

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24-1.03 General

The amount of lime to be added to the material to be stabilized shall be as specified in the special provisions.

All handling, spreading and mixing operations shall be conducted in such a manner that a hazard is not presented to construction personnel or the public. Lime shall be prevented from blowing by suitable means selected by the Contractor.

If lime of more than one type or from more than one source are used on the project, separate application rates will be determined for lime of each source or type. Lime from more than one source or of more than one type shall not be mixed.

The lime shall be protected from exposure to moisture until used and shall be sufficiently dry to flow freely when handled.

Lime shall not be spread while the ambient temperature is below 35' F., nor when the ambient temperature is expected to drop below 35' F. before mixing and compacting are be completed.

The in-place moisture of the material to be stabilized shall be maintained above the optimum moisture, as determined by California Test 373, during the mixing operation. During compaction, finish rolling and grading, sufficient water shall be added to the surface of the material to prevent the surface from drying until curing seal is applied.

No traffic other than the equipment performing the work will be al- lowed to pass over the spread lime, the mixed material or the compacted surface of the lime stabilized material. After application of the curing seal, no traffic will be permitted on the lime stabilized material for a period of 3 days. Damage to curing seal or lime stabilized material shall be repaired promptly by the Contractor at his expense, as directed by the Engineer.

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24-1.04 Preparing Material

Unless otherwise ordered or approved by the Engineer, the material to be stabilized shall be placed to the lines, grades and dimensions shown on the plans and compacted to a relative compaction of not less than 90 percent, before lime is added. The surface of the material to be stabilized shall not vary more than 0.08-foot above or below the grade established by the Engineer, before lime is added.

24-1.05 Spreading

Lime shall be spread using equipment which will uniformly distribute the lime over the area to be stabilized.

Tailgate spreading of lime will not be permitted.

Lime shall be spread uniformly on the roadbed, and the rate of spread per square foot shall not vary by more than 10 percent of the rate designated by the Engineer.
Lime may be spread on the prepared material in either a slurry or dry form at the option of the Contractor. Hydrated lime shall not be spread in dry form. Either hydrated lime or quicklime may be used to prepare the slurry.

The distance which lime may be spread ahead of the mixing operation will be determined by the Engineer. In no case shall spread lime be al- lowed to remain exposed at the end of the work day.

Lime applied in slurry form shall be prepared and distributed using equipment and procedures capable of keeping the slurried lime in suspension and spreading the slurry uniformly over the area to be stabilized. The lime content of the slurry shall be as approved by the Engineer.

24-1.06 Mixing

Mixing lime and the material to be stabilized shall be conducted using equipment capable of mixing the materials uniformly to the depth specified.

Lime and the material to be stabilized may be mixed off site.

Mixing or remixing operations, regardless of the equipment used, shall continue until the material is uniformly mixed and free of streaks or pockets of lime. Prior to compaction, all mixed material other than rock or aggregate previously treated with asphalt, lime, or cement shall comply with the following grading requirements:

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Sieve Sizes	Percentage Passing
1"	98 min.
No. 4	60 min.

When granular lime in dry form is used, the material shall be mixed at least twice. The first and final mixings shall not be performed on the same day.

When the stabilized material, exclusive of one-inch or larger clods, is sprayed with a phenolphthalein alcohol indicator solution, areas showing no color reaction will be considered evidence of inadequate mixing.

The depth of mixing of the lime stabilized material shall not vary more than 0.1-foot from the planned depth at any point. Mixing to a depth that exceeds the planned depth by 10 percent or more shall be considered evidence of an inadequate amount of lime and additional lime shall be added at the Contractor's expense.

The entire mixing operation shall be completed within 7 days of the initial spreading of lime, unless otherwise permitted by the Engineer.

24-1.07 Compaction

Compaction shall begin as soon as possible, but not more than 24 hours after final mixing.

Prior to initial compaction, maximum density will be determined on a composite of material from 5 random locations within the test area by California Test 216. The composite sample will be obtained after all mixing has been completed. The moisture content of the composite sample will be determined by California Test 226.

Initial compaction shall be by means of sheepsfoot or segmented wheel rollers. This shall be immediately followed with final compaction by rolling with steel drum or pneumatic-tired rollers. Vibratory rollers will not be allowed.

Where the required thickness is 0.50-foot or less, the mixture shall be compacted in one layer. Where the required thickness is more than 0.50- foot, the mixture shall be compacted in 2 or more layers of approximately equal thickness, and the maximum compacted thickness of any one layer shall not exceed 0.50-foot, except that the maximum compacted thick- ness of a single layer may be increased provided the Contractor can demonstrate to the Engineer that the equipment and method of operation will provide uniform distribution of the lime and the required compacted density throughout the layer.

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Areas inaccessible to rollers shall be compacted to the required relative compaction by other means satisfactory to the Engineer.

The lime stabilized soil shall be compacted to a relative compaction of not less than 95 percent, except that the minimum relative compaction may be reduced to 92 percent provided the Contractor increases the lime content 0.5 percent at his expense.

The relative compaction will be calculated on the dry weight basis.

In-place density of the compacted lime stabilized material will be determined by California Test 231. A composite of material from a mini- mum of 5 random selected sites, taken at the time in-place density is determined, will be used to determine the in-place moisture content, by California Test 226.

24-1.08 Finish Rolling and Grading

The finished surface of the lime stabilized material shall be the grading plane and at any point shall not vary more than 0.08-foot above or below the grade established by the Engineer, except that when the lime stabilized material is to be covered by material which is paid for by the cubic yard, the surface of the finished lime stabilized material shall not extend above the grade established by the Engineer.

If the compacted material is above the grade tolerances specified in this section, the excess material shall be trimmed, removed, and dis- posed of. No loose material shall be left on the finished plane. Trimming of excess material shall not be conducted unless finish rolling can be completed within 2 hours after trimming.

All trimmed surfaces shall receive finish rolling consisting of at least one complete coverage with steel drum or pneumatic-tired rollers. Vibratory rollers will not be allowed. Minor indentations may remain in the surface of the finished material after final trimming and rolling. Under no circumstances will it be permissible to add new or trimmed lime stabilized material to fill low areas or to raise the grade of compacted lime stabilized material.

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24-1.09 Curing

A curing seal, consisting of SS or CSS grade asphaltic emulsion, shall be furnished and applied to the surface of the top layer of lime stabilized material in accordance with the provisions in Section 94, 'Asphaltic Emulsions."

Curing seal shall be applied at a rate of between 0. 10- and 0.20-gallon per square yard of surface. The exact rate will be determined by the Engineer.

Curing seal shall be applied within 48 hours of completion of initial compaction and on the same day as trimming and finish rolling are completed. The curing seal shall be applied as soon after finish rolling as is practicable. The lime stabilized material shall be at optimum moisture when the curing seal is applied.

Curing seal shall not be placed when the atmospheric temperature is below 40' F.

Curing by water will not be allowed, unless authorized by the Engineer.

Damage to the curing seal shall be promptly repaired by the Contractor at his expense, as directed by the Engineer.

24-1.10 Measurement

Lime stabilization will be measured by the square yard, determined from horizontal measurements of the planned surface of the lime stabilized material.

Lime will be measured by the ton in accordance with the provisions in Section 9-1.01, 'Measurement of Quantities," except that if the minimum relative compaction is reduced to 92 percent, the quantity of lime to be paid for will be the weight of lime multiplied by the factor L / (L+0.5) where L equals the percent of lime ordered by the Engineer.

Bituminous curing seal will be measured as provided in Section 94, 'Asphaltic Emulsions."

24-1.11 Payment

Items of work, measured as provided in Section 24-1.10, 'Measurement," will be paid for at the contract prices per square yard for lime stabilization, per ton for lime, and per ton for asphaltic emulsion (curing seal).

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The above contract prices and payments shall include full compensation for furnishing all labor, materials, too], equipment, and incidentals, and for doing all the work involved in constructing the lime stabilization complete in place, as shown on the plans, and as specified in the specifications and the special provisions, and as directed by the Engineer.

Full compensation for preparing material, spreading lime and mixing and compacting the lime stabilized material shall be considered as included in the contract price paid per square yard for lime stabilization and no additional compensation will be allowed therefore.
No adjustment of compensation will be made for any increase or decrease in the quantity of lime required, regardless of the reason for such increase or decrease. The provisions in Section 4-1.03B, 'Increased or Decreased Quantities,' shall not apply to the item of lime.

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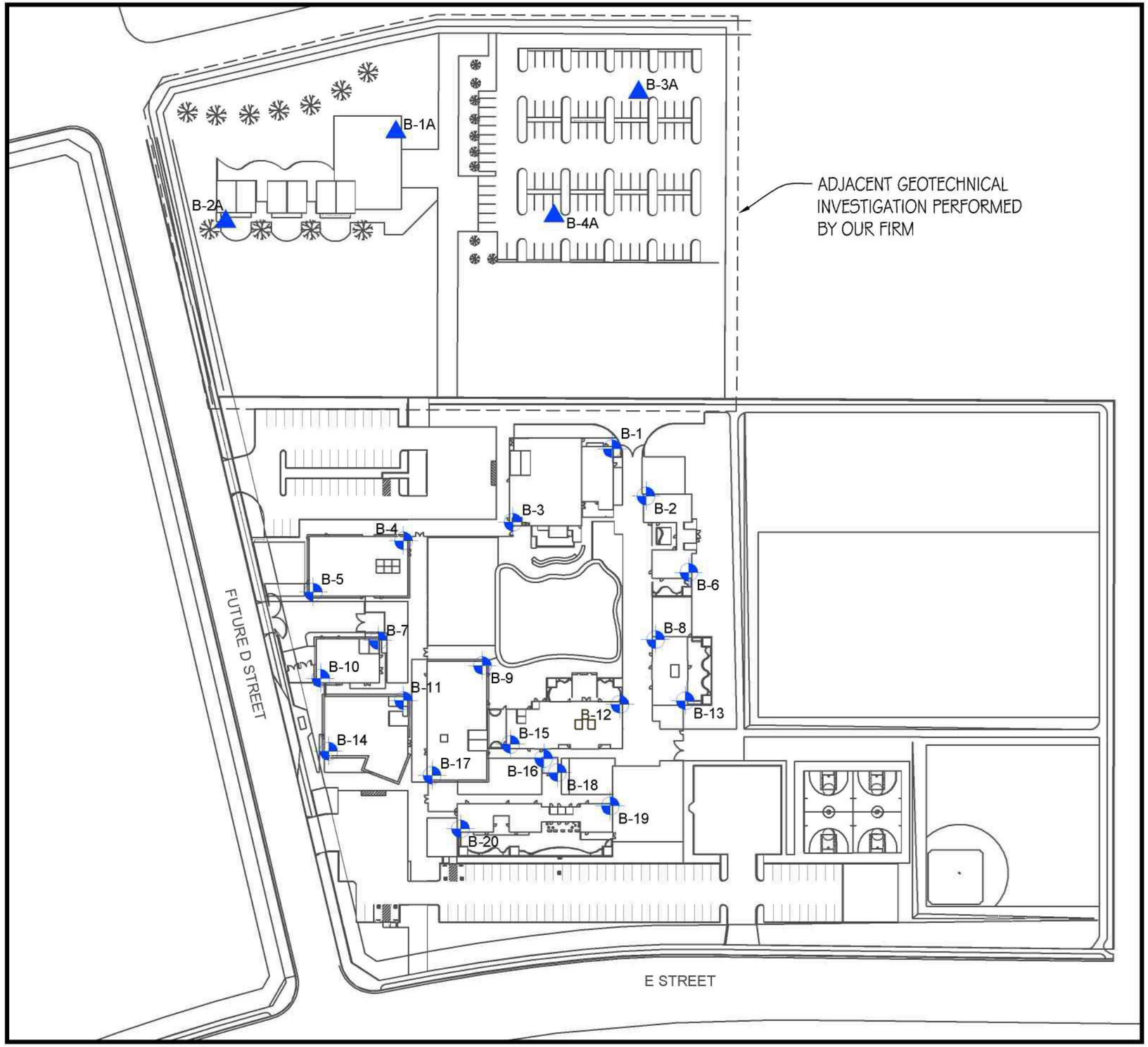

VICINITY MAP
N.T.S.

LEGEND

- Approximate location of boring
- Approximate location of adjacent test borings drilled by our firm in another geotechnical investigation.

Note: Boring locations are approximate.
Base plan provided by: Architecture For Education Incorporated

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PROJECT: COLUSA OFFICE OF EDUCATION
BORING LOCATION MAP
WILLIAMS, CA

CLIENT: ARCHITECTURE FOR EDUCATION, INC.
46 SMITH ALLEY, SUITE 200
PASADENA, CA 91103

JOB #:	SGE080543
DATE:	11/14/08
SCALE:	AS NOTED
DRAWN BY:	E. NUÑEZ
CHECKED BY:	R. KING
SHEET #:	PLATE 1

L:\Projects\Geotech\2008 Sac Geotech\SGE080543 Colusa Special Ed (Williams)\NOA CAD Files\SGE080543 Colusa Special Ed Boring Location Map.dwg December/2/2008 11:07 AM By:Ryan King

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LOG OF TEST BORING

TEST BORING NUMBER

B-1

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/17/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 2

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CH) Clay, slightly sandy (fine), stiff, moist to saturated, dark brown to brown	
-1										
-2		CM	23.8	94	9					
-3										
-4										
-5										
-6		CM	22.5	98	10					-200 = 64% PI(LL=51, PI=34)
-7										
-8										
-9										
-10										
-11		CM	24.3	103	18					
-12										
-13										
-14										
-15										
-16		CM	25.6	96	11					
-17										
-18										
-19										
-20										

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LOG OF TEST BORING

TEST BORING NUMBER

B-2

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/19/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 3

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CH) Clay, sandy (fine), stiff, moist to saturated, brown	
-1										
-2										
-3										
-4		CM	26.7	94	11					
-5										
-6										
-7										
-8										
-9		CM	19.3	103	16					
-10										
-11										
-12										
-13										
-14										
-15										
-16										
-17									SANDY CLAY: (CL) Clay, sandy (fine to medium), very stiff, moist to saturated, brown	
-18										
-19										
-20										
-21		SPT			17					

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LOG OF TEST BORING

TEST BORING NUMBER

B-3

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/17/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 4

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CL) Clay, sandy (fine), stiff, moist to saturated, brown	
-1										
-2										pp = 1.5 tsf pH = 7.79 Resistivity = 880 ohm-cm Sulfate = 332 ppm Chloride = 68.4 ppm
-3		CM			12					
-4		G								-200 = 89% PI(LL=48; PI=26)
-5										
-6										
-7										
-8		CM	24.4	96	11					
-9										
-10										
-11										
-12										
-13		CM	23.5	101	13					
-14										
-15										
-16										
-17										
-18										
-19										
-20										

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LOG OF TEST BORING

TEST BORING NUMBER

B-4

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/17/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 5

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CH) Clay, sandy (fine), stiff, moist to saturated, brown	
-1										
-2										
-3										
-4										
-5										
-6					6					
-7										
-8										
-9										
-10										
-11		CM	31.9		12					-200 = 91% PI(LL=64; PI=41)
-12										
-13										
-14										
-15										
-16										
-17										
-18									SANDY CLAY: (CL) Sand, clayey, medium dense, wet, brown	
-19										
-20										
-21		CM	17.1	108	17					

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LOG OF TEST BORING

TEST BORING NUMBER

B-5

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/17/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 6

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CH) Clay, slightly sandy (fine), stiff, moist to saturated, brown	
-1										
-2		CM	16.5	105	15					
-3										
-4		G								pp < 1.0 tsf
-5										
-6										
-7		CM	23.0	98	7					
-8										
-9										
-10										
-11										
-12										
-13										
-14										
-15										
-16		CM	19.8	104	12					
-17										
-18										
-19										
-20										

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LOG OF TEST BORING

TEST BORING NUMBER

B-6

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/19/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 7

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CH) Clay, slightly sandy (fine), stiff, moist to saturated, brown	
-1										
-2		CM	21.5	96	13					
-3										
-4										
-5										
-6		CM	23.1	99	11					
-7										
-8										
-9										
-10										
-11		CM	22.5	99	9					
-12										
-13										
-14										
-15										
-16										
-17										
-18										
-19										
-20										

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LOG OF TEST BORING

TEST BORING NUMBER

B-7

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/19/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 8

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CH) Clay, sandy (fine), stiff, moist to saturated, brown	
-1										
-2										
-3										
-4										
-5										
		CM	22.1	100	13					
-6										
-7										
-8										
-9										
-10										
-11										
-12										
-13										
-14										
-15										
		CM	18.6	107	18					
-16										
-17										
-18										
-19										
-20										

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LOG OF TEST BORING

TEST BORING NUMBER

B-8

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/19/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 9

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CH) Clay, sandy (fine), stiff, moist to saturated, brown	
-1										
-2										
-3		CM	28.0	93	10					
-4										
-5										
-6										
-7										
-8		CM	23.2	99	8					
-9										
-10										
-11										
-12										
-13		CM	24.3	100	10					
-14										
-15										
-16										
-17										
-18										
-19										
-20										

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LOG OF TEST BORING

TEST BORING NUMBER

B-9

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/18/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 10

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0										
-1										
-2		CM	24.8		18				SANDY CLAY: (CL) Clay, slightly sandy (fine), stiff to very stiff, moist to saturated, brown	-200 = 91%
-3										
-4										
-5										
-6		CM	22.5	99	12					-200 = 89% PI(LL=48; PI=26)
-7										
-8										
-9										
-10										
-11		CM	29.0	98	26					
-12										
-13										
-14										
-15										
-16										
-17										
-18										
-19										
-20										
-21		CM	20.5	106	26					
-22										
-23										
-24										
-25										
-26										
-27									SANDY CLAY: (CL) Clay, sandy (fine to medium), very stiff, saturated	
-28										
-29										
-30										
-31		CM	20.4	105	19					-200 = 54% PI(LL=32; PI=16)
-32										
-33										
-34										
-35										
-36										
-37										
-38										
-39										
-40										
-41		CM	16.4	113	39					

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LOG OF TEST BORING

TEST BORING NUMBER

B-10

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/18/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 11

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CH) Clay, sandy (fine), stiff to very stiff, moist to saturated, brown	
-1										
-2										
-3										
-4										
-5										
-6							▼			
-7										
-8		CM	24.6	94	7					
-9										
-10										
-11										
-12										
-13										
-14										
-15										
-16										
-17										
-18										
-19										
-20										
-21		CM	19.4	104	19					

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LOG OF TEST BORING

TEST BORING NUMBER

B-11

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/19/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 12

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CL) Clay, sandy (fine), stiff to very stiff, moist to saturated, brown	
-1										
-2		CM	19.4	101	12					
-3										
-4										
-5										
-6										
-7		CM	25.5	101	9					
-8										
-9										
-10										
-11		CM	25.6	91	16					
-12										
-13										
-14										
-15										
-16										
-17										
-18										
-19										
-20										

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LOG OF TEST BORING

TEST BORING NUMBER

B-12

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/19/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 13

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CL) Clay, sandy (fine), stiff to very stiff, moist to saturated, brown	
-1										
-2										
-3										
-4										
-5										
-5		CM	22.9	95	13					
-6										
-7										
-8										
-9										
-10										
-10		CM	17.5	107	22					
-11										
-12										
-13										
-14										
-15										
-16										
-17										
-18										
-19										
-20										

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LOG OF TEST BORING

TEST BORING NUMBER

B-13

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/19/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 14

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CH) Clay, sandy (fine), stiff to very stiff, moist to saturated, brown	
-1										
-2										
-3										
-4										
-5										
-6		CM			7					
-7										
-8										
-9										
-10										
-11		CM	26.0	91	12					
-12									CLAY AND SAND: (CL, SC) Layers of Clay, sandy, stiff, saturated, brown and sand, clayey, medium dense, saturated, brown	
-13										
-14										
-15										
-16										
-17										
-18										
-19										
-20										
-21		CM	22.9	103	29					

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LOG OF TEST BORING

TEST BORING NUMBER

B-14

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/19/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 15

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CH) Clay, sandy (fine), stiff to very stiff, moist to saturated, brown	
-1										
-2										
-3										
-4										
-5										
-6							▼			
-7										
-8										
-9										
-10										
-11		CM	24.6	94	20					
-12										
-13										
-14										
-15										
-16										
-17										
-18										
-19										
-20										
-21		CM	17.6	108	22					

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LOG OF TEST BORING

TEST BORING NUMBER

B-15

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/18/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 16

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CL) Clay, sandy (fine), stiff to very stiff, moist to saturated, brown	
-1										
-2										
-3										
-4										
-5										
-6										
-7										
-8										
-9		CM			10					
-10										
-11										
-12										
-13										
-14		CM	20.4	106	15					
-15										
-16										
-17										
-18										
-19										
-20										

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LOG OF TEST BORING

TEST BORING NUMBER

B-16

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/18/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 17

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CL) Clay, sandy (fine), stiff to very stiff, moist to saturated, brown	
-1		CM	22.1		14					
-2										
-3										
-4										
-5										
-6										
-7										
-8										
-9										
-10										
-11		CM	19.7	105	20					
-12										
-13										
-14										
-15										
-16										
-17										
-18										
-19										
-20										
-21		CM	19.1	107	24					

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LOG OF TEST BORING

TEST BORING NUMBER

B-17

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/18/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 18

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CL) Clay, sandy (fine), stiff to very stiff, moist to saturated, brown	
-1										
-2										
-3										
-4										
-5										
-6		CM			15					
-7										
-8										
-9										
-10										
-11		CM	26.0	97	10					
-12									CLAY AND SAND: (CL, SC) Layers of Clay, sandy, stiff, saturated, brown and sand, clayey, medium dense, saturated, brown	
-13										
-14										
-15										
-16		SPT			14					
-17										
-18										
-19										
-20										
-21										

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LOG OF TEST BORING

TEST BORING NUMBER

B-18

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/18/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 19

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CL) Clay, sandy (fine), stiff to very stiff, moist to saturated, brown	
-1										
-2										
-3										
-4										
-5										
-6		CM	24.0	99	9					
-7										
-8										
-9										
-10										
-11		CM	20.8	105	19					
-12										
-13										
-14										
-15										
-16										
-17										
-18										
-19										
-20										
-21		CM	20.1	105	20					

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LOG OF TEST BORING

TEST BORING NUMBER

B-19

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/18/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 20

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CL) Clay, sandy (fine), stiff to very stiff, moist to saturated, brown	
-1										
-2										
-3										
-4										
-5										
-6							▼			
-7										
-8										
-9										
-10										
-11		CM	20.6	103	19					
-12										
-13										
-14										
-15										
-16										
-17										
-18										
-19										
-20										
-21		CM	19.0	104	23					
-22										
-23										
-24										
-25										
-26										
-27										
-28										
-29										
-30										
-31		CM	20.5	104	14					

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LOG OF TEST BORING

TEST BORING NUMBER

B-20

PROJECT NUMBER: **SGE08-0543**
DATE EXCAVATED: **11/18/2008**
PROJECT NAME: **COLUSA COUNTY EDUCATION VILLAGE**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST CORNER OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 21

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CL) Clay, sandy (fine), stiff to very stiff, moist to saturated, brown	
-1										
-2										
-3		CM			9					EI = 54 pH = 7.97 Resistivity = 880 ohm-cm Sulfate = 215.6 ppm Chloride = 72.1 ppm
-4										
-5										
-6										
-7										
-8		CM	22.3	99	8					-200 = 86% PI(LL=49; PI=31)
-9							▼			
-10										
-11										
-12										
-13		CM	24.2	97	13					
-14										
-15										
-16										
-17										
-18										
-19										
-20										

UNIFIED SOIL CLASSIFICATION SYSTEM AND BORING LOG SYMBOLS

	DESCRIPTION	MAJOR DIVISIONS		
GW	Well-graded gravels, gravel sand mixtures, little or no fines.	Clean gravels (little or no fines)	Gravel and gravelly soils More than 50% of coarse fraction retained on No. 4 sieve	Coarse grained soils more than 50% larger than No. 200 sieve
GP	Poorly-graded gravels, gravel sand mixtures, little or no fines			
GM	Silty gravels, gravel-sand-clay mixtures	Sands with appreciable amount of fines		
GC	Clayey gravels, gravel-sand-clay mixtures			
SW	Well-graded sands, gravelly sands, little or no fines	Clean sand (little or no fines)	Sands and sandy soils More than 50% of coarse fraction passing No. 4 sieve	
SP	Poorly-graded sands, gravelly sands, little or no fines			
SM	Silty sands, sand-silt mixtures	Sands with appreciable amount of fines		
SC	Clayey sands, sand-silt mixtures			
ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	Liquid limit less than 50	Silts and clays	Fine grained soils more than 50% smaller than No. 200 sieve
CL	Inorganic clays of low to medium plasticity, gravelly clays, lean clays			
OL	Organic silts and organic silty clays of low plasticity			
MH	Inorganic silts, micacious or diatomaceous fine sand or silty soils	Liquid limit greater than 50	Silts and clays	
CH	Inorganic clays of high plasticity, fat clays			
OH	Organic clays of medium to high plasticity, organic silts			
PT	Peat, humas swamp soils with high organic content	Highly organic soils		

DEPTH (FEET)	SAMPLE	SAMPLE TYPE	TEST TYPE	NOTES
	PS	**Push Sample**	Plasticity Grain Size Analysis Uniformity Coefficient Coefficient of Gradation Coefficient of Consolidation Specific Gravity Shrink/Swell Direct Shear Unconfined Compression Triaxial Compression Pocket Penetrometer Torvane Shear Consolidations	pi gr Cu Cc Cv sg s/s ds uc tx p ts c
	SPT	**Drive Sample**, 2.0" o.d., 1.38" i.d., sampler driven with 140 lb. hammer, 30" drop (Standard Penetration Test, SPT).		
	CM	**Drive Sample**, 2.5" o.d., 1.92" i.d., sampler driven with 140 lb. hammer, 30" drop, with 6" tube liners (California Modified, CM).		
	ES	**Ely Sample**, Used to determine unit weight.		
	HS	**Hand Sampler**, 2.0" o.d. sampler driven with 10 lb. hammer, 18" drop, with 4" tube liners.		
	GS	**Grab Sample**, disturbed sample taken from auger tailings and sealed in plastic bag.		

Plate Number 22

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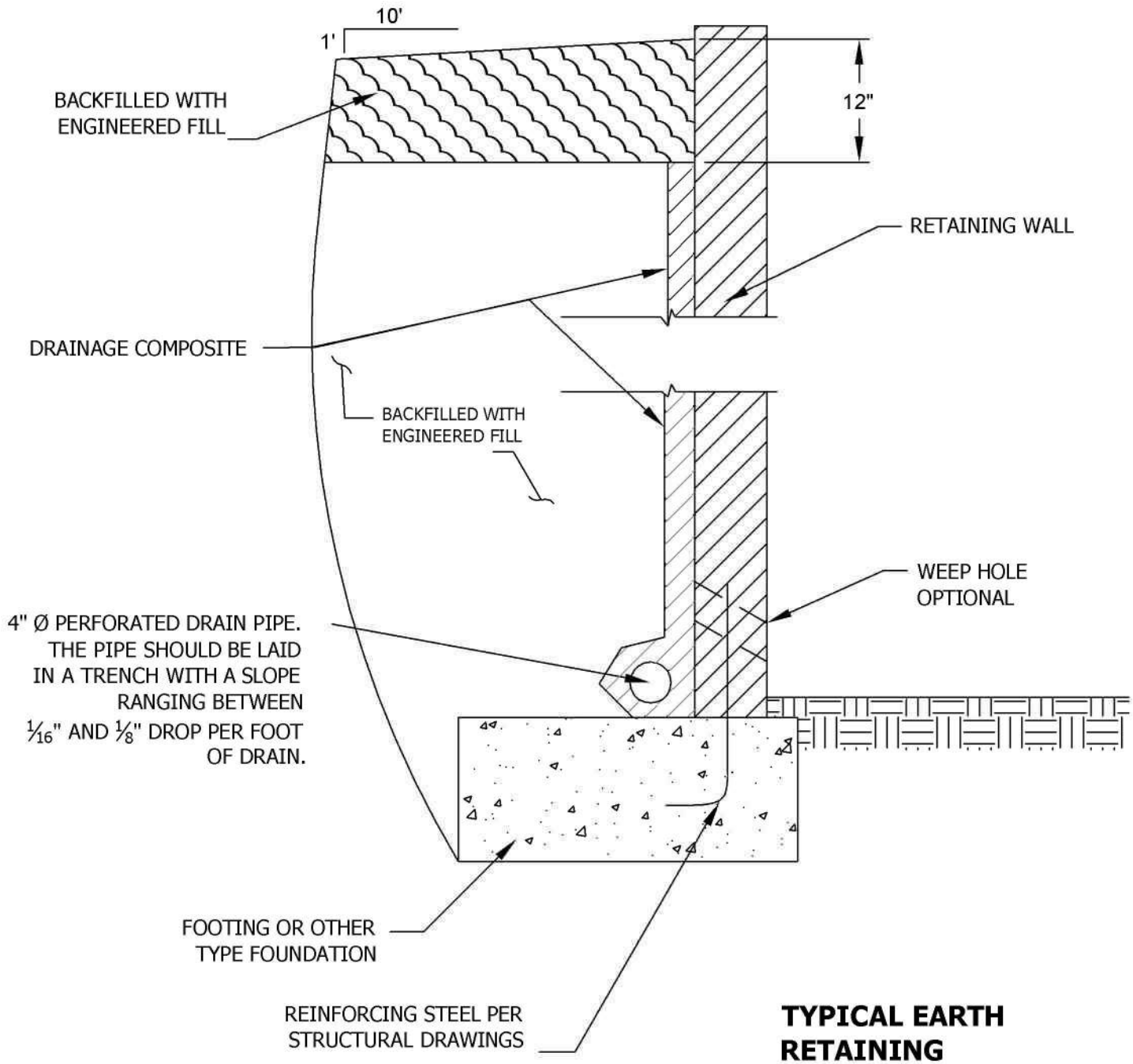


TYPICAL EARTH RETAINING WALL DRAIN

PLATE NO. 23

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 11/21/2008
Date Submitted 11/18/2008

To: Ryan King
Neil O. Anderson & Associates
50 Goldenland Ct #100
Sacramento, CA 95834

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : SGE08-0543 Site ID : B3-1-1.
Thank you for your business.

* For future reference to this analysis please use SUN # 54813-110154.

EVALUATION FOR SOIL CORROSION

Soil pH	7.79	
Minimum Resistivity	0.88 ohm-cm (x1000)	
Chloride	68.4 ppm	00.00684 %
Sulfate	332.0 ppm	00.03320 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 11/21/2008
Date Submitted 11/18/2008

To: Ryan King
Neil O. Anderson & Associates
50 Goldenland Ct #100
Sacramento, CA 95834

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : SGE08-0543 Site ID : B20-1-II.
Thank you for your business.

* For future reference to this analysis please use SUN # 54813-110155.

EVALUATION FOR SOIL CORROSION

Soil pH	7.94	
Minimum Resistivity	0.88 ohm-cm (x1000)	
Chloride	72.1 ppm	00.00721 %
Sulfate	215.6 ppm	00.02156 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 11/21/2008
Date Submitted 11/18/2008

To: Ryan King
Neil O. Anderson & Associates
50 Goldenland Ct #100
Sacramento, CA 95834

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : SGE08-0544 Site ID : B2A@3-4'.
Thank you for your business.

* For future reference to this analysis please use SUN # 54814-110156.

EVALUATION FOR SOIL CORROSION

Soil pH	7.73		
Minimum Resistivity	0.24 ohm-cm (x1000)		
Chloride	83.1 ppm	00.00831	%
Sulfate	1221.2 ppm	00.12212	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 11/21/2008
Date Submitted 11/18/2008

To: Ryan King
Neil O. Anderson & Associates
50 Goldenland Ct #100
Sacramento, CA 95834

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : SGE08-0544 Site ID : B4A@3'.
Thank you for your business.

* For future reference to this analysis please use SUN # 54814-110157.

EVALUATION FOR SOIL CORROSION

Soil pH	7.92		
Minimum Resistivity	0.27 ohm-cm (x1000)		
Chloride	83.7 ppm	00.00837	%
Sulfate	1887.1 ppm	00.18871	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

NEIL O. ANDERSON & ASSOC., INC.

Job Name:	Colusa County Special Ed	**Date:**	11/25/08
Job #:	SGE080543	**Lab #:**	
Location:	Colusa County, CA		

CONSOLIDATION

Sample #: B4-1-1 **Depth:** -5' **Material:** CLAY

Station #:	4		**Ht. Ring:**	0.758	in.
Ring #:	12		**Dia. Ring:**	1.929	in.
Wt. Ring:	434.3	grms	**Area R.:**	0.0203	sq. ft.

Specific Gravity of Soil: 2.7

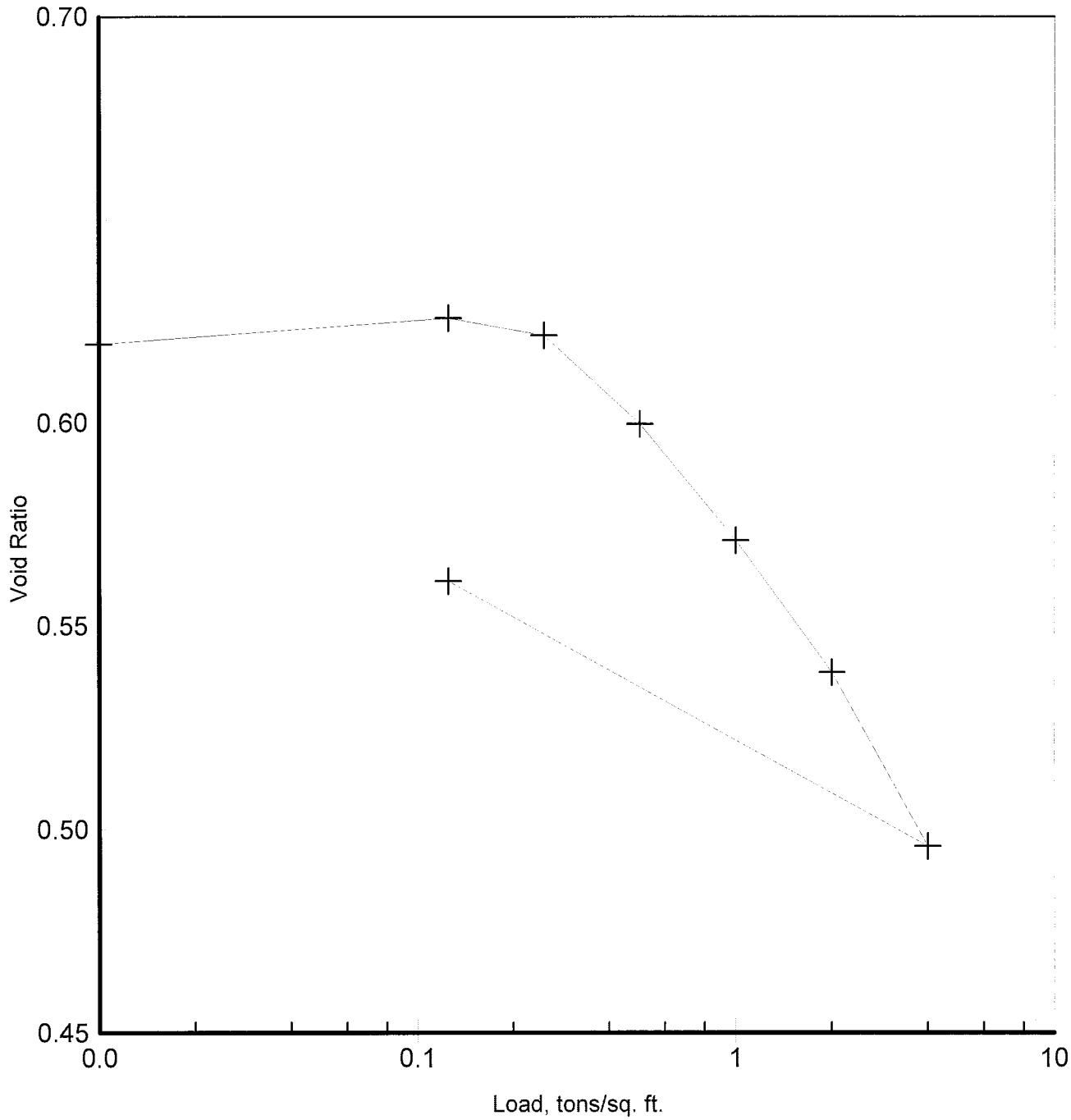
	At Start of Test		At End of Test	
Wt.R & Wet Soil:	508.5	grms	508.5	grms
Wt.R & Dry Soil:	494.8	grms	494.8	grms
% Moisture:	22.6	%	22.6	%
Dry Unit Wt.:	104.0	pcf	107.9	pcf
Void Ratio:	0.619		0.561	
Degree of Sat.:	98.7	%	109.0	%
Dial Reading:	0.1430	in.	0.1157	in.

Height of Solids: 0.4681 in.

Date	Time Load Applied	Elasped Time	Load (TSF)	Air Pressure (psi)	Dial Reading	Void Rato	Water Content, %
11/18/08		0	0.010		0.1430	0.619	
11/18/08	01:45 PM	4:20	0.125		0.1460	0.626	
11/18/08	06:05 PM	16:30	0.250		0.1440	0.622	
11/19/08	06:15 AM	23:15	0.500		0.1338	0.600	
11/19/08	01:00 PM	49:30	1.000		0.1204	0.571	
11/20/08	03:15 PM	69:00	2.000		0.1052	0.539	
11/21/08	10:45 AM	122:15	4.000		0.0852	0.496	
11/23/08	04:00 PM	146:15	0.125		0.1157	0.561	

Consolidation Test

Loading vs. Void Ratio



Sample: B4-1-1
Depth: -5'
Material: CLAY

	At Start of Test	At End of Test
% Moisture:	22.6 %	22.6 %
Dry Unit Wt.:	104.0 pcf	107.9 pcf

Project: *Colusa County Special Ed.*

Location: Colusa County, CA

NEIL O. ANDERSON AND ASSOCIATES

EXPANSION INDEX

UBC SWELL

$$S = \frac{wG}{e}$$

$$e = \frac{V(t)}{V(s)} - 1$$

$$V(s) = \frac{W(s)}{GP(w)}$$

S =	Saturation	**50.8%**
w =	% Moisture	16.0 %
G =	2.7	2.65
e =	void ratio	83.5
V(t) =	Total Volume of mold	207.0 cm^3
V(s) =	Volume of soil	2.4 cm^3
W(s) =	Wt. Of solid	405.0 gm
P(w) =	Density of water - 62.4	62.4 lb/ft^3
Wt_{sat} =	Saturated Wieght	636.5 gm

Date	Time	Reading (in.)	Change (in.)
20-Nov	1045am	0.0412	-
20-Nov	1100am	0.0503	0.0091
20-Nov	215pm	0.0778	0.0275
20-Nov	400pm	0.0810	0.0032
21-Nov	800am	0.0952	0.0142

$$E.I. = \frac{Thickness(f) - Thickness(i)}{Thickness(i)} * 1000$$

Initial Thickness = 1

Final Thickness = 1.0540

E.I. = 54.0

JOB NAME:	**Colusa County Educ.**	DATE:	**Nov. 20, 08**
JOB NUMBER:	**SGE080543**	TECH:	**RB**
TEST LOCATION:		LAB NUMBER:	

NEIL O. ANDERSON
AND ASSOCIATES

LODI ▪ SACRAMENTO ▪ RENO ▪ MODESTO ▪ WALNUT CREEK

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LOG OF TEST BORING

TEST BORING NUMBER

B-1A

PROJECT NUMBER: **SGE08-0544**
DATE EXCAVATED: **11/17/2008**
PROJECT NAME: **COLUSA COUNTY OUTREACH FACILITY (J-42)**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 1A

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CH) Clay, slightly sandy (fine), stiff, moist to saturated, brown	
-1										
-2		CM	27.7		16					-200 = 91% PI(LL=51; PI=31)
-3										
-4		G								pp = 2.0 tsf pH = 7.73 Resistivity = 240 ohm-cm Sulfate = 1221.2 ppm Chloride = 83.1 ppm
-5										
-6		CM	22.1	101	10					
-7										
-8										
-9										
-10										
-11		CM	28.2	93	20					
-12										
-13										
-14										
-15										
-16										
-17										
-18										
-19										
-20										
-21		CM	23.3	101	30					

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LOG OF TEST BORING

TEST BORING NUMBER

B-2A

PROJECT NUMBER: **SGE08-0544**
DATE EXCAVATED: **11/17/2008**
PROJECT NAME: **COLUSA COUNTY OUTREACH FACILITY (J-42)**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 2A

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0										
-1										
-2		CM	20.5	102	12				SANDY CLAY: (CH) Clay, slightly sandy (fine), stiff, moist to saturated, brown	
-3										
-4										
-5										
-6										
-7										
-8										
-9										
-10										
-11		CM	28.0	94	19					
-12										
-13										
-14										
-15										
-16										
-17										
-18										
-19										
-20										
-21		CM	25.4	102	16					-200 = 81% PI(LL=51; PI=29)
-22										
-23										
-24										
-25										
-26										
-27										
-28										
-29										
-30										
-31		CM	31.1	90	20					
-32										
-33										
-34									CLAYEY SAND: (SC) Sand (medium to coarse), clayey, medium dense, saturated, brown	
-35										
-36										
-37										
-38										
-39										
-40										Non-Plastic
-41		SPT	19.1	99	20					-200 = 11%

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LOG OF TEST BORING

TEST BORING NUMBER

B-3A

PROJECT NUMBER: **SGE08-0544**
DATE EXCAVATED: **11/17/2008**
PROJECT NAME: **COLUSA COUNTY OUTREACH FACILITY (J-42)**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 3A

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CH) Clay, slightly sandy (fine), stiff, moist, brown	
-1										
-2										
-3	G									R-Value = 5
-4										
-5										
-6										
-7										
-8										
-9										
-10										
-11										
-12										
-13										
-14										
-15										
-16										
-17										
-18										
-19										
-20										

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LOG OF TEST BORING

TEST BORING NUMBER

B-4A

PROJECT NUMBER: **SGE08-0544**
DATE EXCAVATED: **11/17/2008**
PROJECT NAME: **COLUSA COUNTY OUTREACH FACILITY (J-42)**
GROUND SURFACE ELEVATION: **0.0** Feet
LOCATION: **NORTHEAST OF 'E' ST. & FUTURE 'D' ST., WILLIAMS, CALIFORNIA**
DRILLING EQUIP.: **B-53 TRUCK MOUNTED DRILL RIG**

PLATE NO. 4A

Elevation, ft.	Sample	Sampling Method	Moisture, %	Dry Density, pcf	Blow Counts	Blow Count Histogram	Ground Water	Soil Lithology	Soil Lithology Description	Notes
0									SANDY CLAY: (CH) Clay, slightly sandy (fine), stiff, moist, brown	
-1										
-2										pH = 7.92 Resistivity = 270 ohm-cm Sulfate = 1887.1 ppm Chloride = 83.7 ppm
-3	G									
-4										
-5										
-6										
-7										
-8										
-9										
-10										
-11										
-12										
-13										
-14										
-15										
-16										
-17										
-18										
-19										
-20										

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS, 2019 CBC

Application Number:	School Name:	School District:
02-119321	Colusa County Office of Education	Colusa County Office of Education
DSA File Number:	**Increment Number:**	**Date Created:**
6-23		2021-07-13 16:04:05

2019 CBC

IMPORTANT: This form is only a summary list of structural tests and some of the special inspections required for the project. Generally, the structural tests and special inspections noted on this form are those that will be performed by the Geotechnical Engineer of Record, Laboratory of Record, or Special Inspector. The actual complete test and inspection program must be performed as detailed on the DSA approved documents. The appendix at the bottom of this form identifies work NOT subject to DSA requirements for special inspection or structural testing. The project inspector is responsible for providing inspection of all facets of construction, including but not limited to, special inspections not listed on this form such as structural wood framing, high-load wood diaphragms, cold-formed steel framing, anchorage of non-structural components, etc., per Title 24, Part 2, Chapter 17A (2019 CBC).

****NOTE:** Undefined section and table references found in this document are from the CBC, or California Building Code.

KEY TO COLUMNS

1. TYPE	2. PERFORMED BY
Continuous – Indicates that a continuous special inspection is required **Periodic** – Indicates that a periodic special inspection is required **Test** – Indicates that a test is required	**GE** – Indicates that the special inspection shall be performed by a registered geotechnical engineer or his or her authorized representative. **LOR** – Indicates that the test or special inspection shall be performed by a testing laboratory accepted in the DSA Laboratory Evaluation and Acceptance (LEA) Program. See CAC Section 4-335. **PI** – Indicates that the special inspection may be performed by a project inspector when specifically approved by DSA. **SI** – Indicates that the special inspection shall be performed by an appropriately qualified/approved special inspector.

Geotechnical Reports: Project does NOT have and does NOT require a geotechnical report

	1. GENERAL:	Table 1705A.6		
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Verify that: • Site has been prepared properly prior to placement of controlled fill and/or excavations for foundations. • Foundation excavations are extended to proper depth and have reached proper material. • Materials below footings are adequate to achieve the design bearing capacity.	**See Notes**	**PI**	Refer to specific items identified in the Appendix listing exemptions for limitations. Placement of controlled fill exceeding 12" depth under foundations is not permitted without a geotechnical report.

	2. SOIL COMPACTION AND FILL:	Table 1705A.6		
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Verify use of proper materials, densities and inspect lift thicknesses, placement and compaction during placement of fill.	**Continuous**	**LOR***	* Under the supervision of a geotechnical engineer or LOR's engineering manager. Refer to specific items identified in the Appendix listing exemptions for limitations.
☑	**b.** Compaction testing.	**Test**	**LOR***	* Under the supervision of a geotechnical engineer or LOR's engineering manager. Refer to specific items identified in the Appendix listing exemptions for limitations.

	3. DRIVEN DEEP FOUNDATIONS (PILES):	Table 1705A.7

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (SOILS), 2019 CBC

Application Number:
02-119321
DSA File Number:
6-23

School Name:
Colusa County Office of Education
Increment Number:

School District:
Colusa County Office of Education
Date Created:
2021-07-13 16:04:05

	Test or Special Inspection	Type	Performed By	Code References and Notes
☐	**a.** Verify pile materials, sizes and lengths comply with the requirements.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**b.** Determine capacities of test piles and conduct additional load tests as required.	**Test**	**LOR***	* Under the supervision of the geotechnical engineer.
☐	**c.** Inspect driving operations and maintain complete and accurate records for each pile.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**d.** Verify locations of piles and their plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and record any pile damage.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**e.** Steel piles.	Provide tests and inspections per STEEL section below.		
☐	**f.** Concrete piles and concrete filled piles.	Provide tests and inspections per CONCRETE section below.		
☐	**g.** For specialty piles, perform additional inspections as determined by the registered design professional in responsible charge.	*	*	* As defined on drawings or specifications.

	4. CAST-IN-PLACE DEEP FOUNDATIONS (PIERS):	**Table 1705A.8**		
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**

☐	**a.** Inspect drilling operations and maintain complete and accurate records for each pier.	**Continuous**	**PI**	Continuous inspection to be provided by project inspector. Refer to specific items identified in the Appendix listing exemptions for limitations.
☐	**b.** Verify pier locations, diameters, plumbness and lengths.Record concrete or grout volumes.	**Continuous**	**PI**	Continuous inspection to be provided by project inspector. Refer to specific items identified in the Appendix listing exemptions for limitations.
☐	**c.** Concrete piers.	Provide tests and inspections per CONCRETE section below.		

	5. RETAINING WALLS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Placement, compaction and inspection of backfill.	**Continuous**	**GE***	**1705A.6.1.** * By geotechnical engineer or his or her qualified representative. (See Section 2 above).
☐	**b.** Placement of soil reinforcement and/or drainage devices.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**c.** Segmental retaining walls; inspect placement of units, dowels, connectors, etc.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative. See DSA IR 16-3.
☐	**d.** Concrete retaining walls.	Provide tests and inspections per CONCRETE section below.		
☐	**e.** Masonry retaining walls.	Provide tests and inspections per MASONRY section below.		

	6. OTHER SOILS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (SOILS), 2019 CBC

Application Number:
02-119321
DSA File Number:
6-23

School Name:
Colusa County Office of Education
Increment Number:

School District:
Colusa County Office of Education
Date Created:
2021-07-13 16:04:05

☐	**a.** Soil Improvements	**Test**	**GE***	Submit a comprehensive report documenting final soil improvements constructed, construction observation and the results of the confirmation testing and analysis to CGS for final acceptance. * By geotechnical engineer or his or her qualified representative.
☐	**b.** Inspection of Soil Improvements	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**c.**			

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (Concrete), 2019 CBC

Table 1705A.3; ACI 318-14 Sections 26.12 & 26.13

Application Number: 02-119321	**School Name:** Colusa County Office of Education	**School District:** Colusa County Office of Education
DSA File Number: 6-23	**Increment Number:**	**Date Created:** 2021-07-13 16:04:05

	7. CAST-IN-PLACE CONCRETE			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
Material Verification and Testing:				
☑	**a.** Verify use of required design mix.	**Periodic**	**SI**	**Table 1705A.3 Item 5, 1910A.1.**
☐	**b.** Identifiy, sample, and test reinforcing steel.	**Test**	**LOR**	**1910A.2;** ACI 318-14 Section 26.6.1.2; DSA IR 17-10. (See Appendix for exemptions.)
☑	**c.** During concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	**Test**	**LOR**	**Table 1705A.3 Item 6**; ACI 318-14 Sections 26.5 & 26.12.
☑	**d.** Test concrete (f'_c).	**Test**	**LOR**	**1905A.1.15;** ACI 318-14 Section 26.12.
Inspection:				
☒	**e.** Batch plant inspection: - PERODIC	**See Notes**	**SI**	Default of **'Continuous'** per **1705A.3.3**. If approved by DSA, batch plant inspection may be reduced to **'Periodic'** subject to requirements in Section **1705A.3.3.1,** or eliminated per **1705A.3.3.2.** (See Appendix for exemptions.)
☐	**f.** Welding of reinforcing steel.	Provide special inspection per STEEL, Category 19.1(d) & (e) and/or 19.2(g) & (h) below.		

	8. PRESTRESSED / POST-TENSIONED CONCRETE (in addition to Cast-in-Place Concrete tests and inspections):

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (Concrete), 2019 CBC

Table 1705A.3; ACI 318-14 Sections 26.12 & 26.13

Application Number:	**School Name:**	**School District:**
02-119321	Colusa County Office of Education	Colusa County Office of Education
DSA File Number:	**Increment Number:**	**Date Created:**
6-23		2021-07-13 16:04:05

	Test or Special Inspection	Type	Performed By	Code References and Notes
☐	**a.** Sample and test prestressing tendons and anchorages.	**Test**	**LOR**	**1705A.3.4, 1910A.3**
☐	**b.** Inspect placement of prestressing tendons.	**Periodic**	**SI**	**1705A.3.4, Table 1705A.3 Items 1 & 9.**
☐	**c.** Verify in-situ concrete strength prior to stressing of post-tensioning tendons.	**Periodic**	**SI**	**Table 1705A.3 Item 11.** Special inspector to verify specified concrete strength test prior to stressing.
☐	**d.** Inspect application of post-tensioning or prestressing forces and grouting of bonded prestressing tendons.	**Continuous**	**SI**	**1705A.3.4, Table 1705A.3 Item 9;** ACI 318-14 Section 26.13

	9. PRECAST CONCRETE (in addition to Cast-in-Place Concrete tests and inspections):			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Inspect fabrication of precast concrete members.	**Continuous**	**SI**	ACI 318-14 Section 26.13.
☐	**b.** Inspect erection of precast concrete members.	**Periodic**	**SI***	**Table 1705A.3 Item 10.** * May be performed by PI when specifically approved by DSA.

	10. SHOTCRETE (in addition to Cast-in-Place Concrete tests and inspections):			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**

☐	**a.** Inspect shotcrete placement for proper application techniques.	**Continuous**	**SI**	**1705A.19, Table 1705A.3 Item 7, 1908A.6, 1908A.7, 1908A.8, 1908A.9, 1908A.11, 1908A.12.** See ACI 506.2-13 Section 3.4, ACI 506R-16.
☐	**b.** Sample and test shotcrete (f'_c).	**Test**	**LOR**	**1908A.5, 1908A.10.**

	11. POST-INSTALLED ANCHORS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Inspect installation of post-installed anchors	**See Notes**	**SI***	**1617A.1.19, Table 1705A.3 Item 4a (Continuous) & 4b (Periodic), 1705A.3.8** (See Appendix for exemptions). ACI 318-14 Sections 17.8 & 26.13. * May be performed by the project inspector when specifically approved by DSA.
☑	**b.** Test post-installed anchors.	**Test**	**LOR**	**1910A.5.** (See Appendix for exemptions.)

	12. OTHER CONCRETE:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.**			

Appendix: Work Exempt from DSA Requirements for Structural Tests / Special Inspections

Application Number: 02-119321	**School Name:** Colusa County Office of Education	**School District:** Colusa County Office of Education
DSA File Number: 6-23	**Increment Number:**	**Date Created:** 2021-07-13 16:04:05

Exempt items given in DSA IR A-22 or the 2019 CBC (including DSA amendments) and those items identified below with a check mark by the design professional are NOT subject to DSA requirements for the structural tests / special inspections noted. **Items marked as exempt shall be identified on the approved construction documents**. The project inspector shall verify all construction complies with the approved construction documents.

	SOILS:
☐	1. Deep foundations acting as a cantilever footing designed based on minimum allowable pressures per CBC Table 1806A.2 and having no geotechnical report for the following cases: A) free standing sign or scoreboard, B) cell or antenna towers and poles less than 35'-0" tall (e.g., lighting poles, flag poles, poles supporting open mesh fences, etc.), C) single-story structure with dead load less than 5 psf (e.g., open fabric shade structure), or D) covered walkway structure with an apex height less than 10'-0" above adjacent grade.
☑	2. Shallow foundations, etc. are exempt from special inspections and testing by a Geotechnical Engineer for the following cases: A) buildings without a geotechnical report and meeting the exception item #1 criteria in CBC Section 1803A.2 supported by native soil (any excavation depth) or fill soil (not exceeding 12" depth per CBC Section 1804A.6), B) soil scarification/recompaction not exceeding 12" depth, C) native or fill soil supporting exterior non-structural flatwork (e.g., sidewalks, site concrete ramps, site stairs, parking lots, driveways, etc.), D) unpaved landscaping and playground areas, or E) utility trench backfill.

	CONCRETE/MASONRY:
☐	1. Post-installed anchors for the following: A) exempt non-structural components (e.g., mechanical, electrical, plumbing equipment - see item 7 for "Welding") given in CBC Section 1617A.1.18 (which replaces ASCE 7-16, Section 13.1.4) or B) interior nonstructural wall partitions meeting criteria listed in exempt item 3 for "Welding."
☒	2. Concrete batch plant inspection is not required for items given in CBC Section 1705A.3.3.2 subject to the requirements and limitations in that section.

☐	3. Non-bearing non-shear masonry walls may be exempt from certain DSA masonry testing and special inspection items as allowed per DSA IR 21-1.16. Refer to construction documents for specific exemptions accordingly for each applicable wall condition.
☐	4. Epoxy shear dowels in site flatwork and/or other non-structural concrete.
☒	5. Testing of reinforcing bars is not required for items given in CBC Section 1910A.2 subject to the requirements and limitations in that section.

	Welding:
☐	1. Solid-clad and open-mesh gates with maximum leaf span or rolling section for rolling gates of 10' and apex height less than 8'-0" above lowest adjacent grade. When located above circulation or occupied space below, these gates are not located within 1.5x gate/fence height (max 8'-0") to the edge of floor or roof.
☐	2. Handrails, guardrails, and modular or relocatable ramps associated with walking surfaces less than 30" above adjacent grade (excluding post base connections per the 'Exception' language in Section 1705A.2.1); fillet welds shall not be ground flush.
☐	3. Non-structural interior cold-formed steel framing spanning less than 15'-0", such as in interior partitions, interior soffits, etc. supporting only self weight and light-weight finishes or adhered tile, masonry, stone, or terra cotta veneer no more than 5/8" thickness and apex less than 20'-0" in height and not over an exit way. Maximum tributary load to a member shall not exceed the equivalent of that occurring from a 10'x10' opening in a 15' tall wall for a header or king stud.
☐	4. Manufactured support frames and curbs using hot rolled or cold-formed steel (i.e., light gauge) for mechanical, electrical, or plumbing equipment weighing less than 2000# (equipment only) (connections of such frames to superstructure elements using welding will require special inspection as noted in selected item(s) for Sections 19, 19.1 and/or 19.2 of listing above).
☐	5. Manufactured components (e.g., Tolco, B-Line, Afcon, etc.) for mechanical, electrical, or plumbing hanger support and bracing (connections of such components to superstructure elements using welding will require special inspection as noted in selected item(s) for Sections 19, 19.1 and/or 19.2 of listing above).

Appendix: Work Exempt from DSA Requirements for Structural Tests / Special Inspections

Application Number: 02-119321	**School Name:** Colusa County Office of Education	**School District:** Colusa County Office of Education
DSA File Number: 6-23	**Increment Number:**	**Date Created:** 2021-07-13 16:04:05

☐	6. TV Brackets, projector mounts with a valid listing (see DSA IR A-5) and recreational equipment (e.g., playground structures, basketball backstops, etc.) (connections of such elements to superstructure elements using welding will require special inspection as noted in selected item(s) for section 19, 19.1 and/or 19.2 located in the Steel/Aluminum category).
☐	7. Any support for exempt non-structural components given in CBC Section 1617A.1.18 (which replaces ASCE 7-16, Section 13.1.4) meeting the following: A) when supported on a floor/roof, <400# and resulting composite center of mass (including component's center of mass) ≤4' above supporting floor/roof, B) when hung from a wall or roof/floor, <20# for discrete units or <5 plf for distributed systems.

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS(SIGNATURE), 2019 CBC

Application Number:
02-119321

School Name:
Colusa County Office of Education

School District:
Colusa County Office of Education

DSA File Number:
6-23

Increment Number:

Date Created:
2021-07-13 16:04:05

Name of Architect or Engineer in general responsible charge:

Wesley King

Name of Structural Engineer (When structural design has been delegated):

Signature of Architect or Structural Engineer:

Date:

7.13.2021

Note: To facilitate DSA electronic mark-ups and identification stamp application, DSA recommends against using secured electronic or digital signatures.

DSA STAMP

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT

02 119321

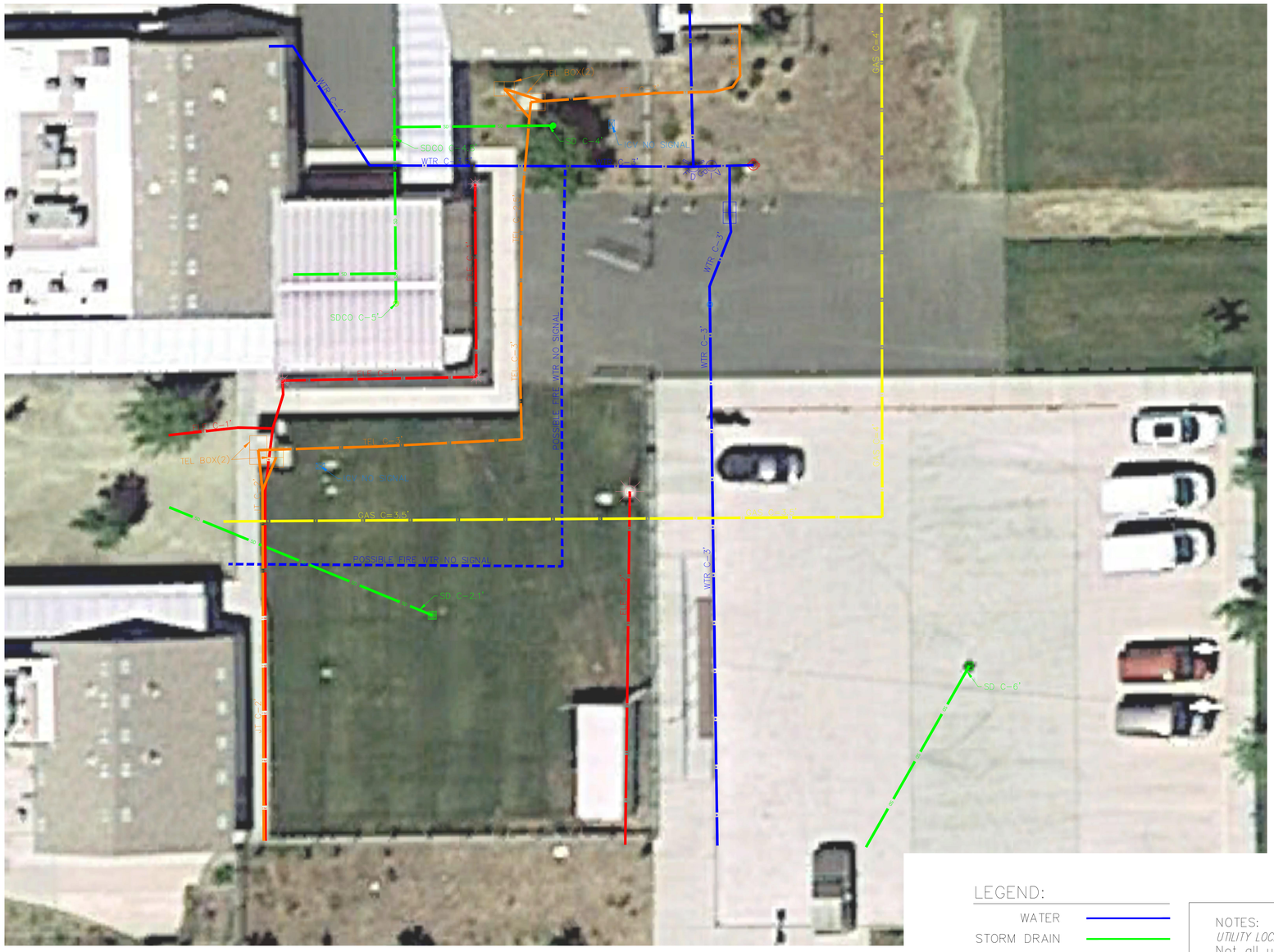
AC — FLS — SS

DATE 7·15·21

DSA 103-19: LIST OF REQUIRED VERIFIED REPORTS, CBC 2019

Application Number:	School Name:	School District:
02-119321	Colusa County Office of Education	Colusa County Office of Education
DSA File Number:	**Increment Number:**	**Date Created:**
6-23		2021-07-13 16:04:05

1. Structural Testing and Inspection: Laboratory Verified Report Form DSA 291
2. Post-installed Anchors: Laboratory Verified Report Form DSA 291, or, for independently contracting SI, Special Inspection Verified Report Form DSA 292



LEGEND:

- WATER
- STORM DRAIN
- SEWER
- ELECTRICAL
- IRRIGATION
- GAS
- UNKNOWN
- COMMUNICATIONS

NOTES:
UTILITY LOCATIONS MAY NOT BE TO SCALE
Not all utilities may be shown.
Some laterals were not accessible & were therefore not located.
Depths shown are to center of conductive utility & are generally +/−10% of actual depth, when not distorted by adjacent conductors. Critical depths require verification by potholing.

B&B LOCATING INC.
4535 MISSOURI FLAT RD.
SUITE 2C
PLACERVILLE, CA 95667
(916) 799-8904
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chadb@bandblocating.com

UNDERGROUND UTILITY LOCATION MAP
FOR
COLUSA COUNTY OFFICE OF EDUCATION

CITY OF WILLIAMS STATE OF CALIFORNIA

NOTES:
1. ALL DEPTHS ARE TO TOP OF PIPE
2. DATE OF AERIAL IMAGE UNKOWN

SCALE
HORIZ.: 1"10'

DATE: 3-30-23

SHEET 1 OF 1