SITE IMPROVEMENT PLANS - PHASE II

SANTA ROSA TECHNOLOGY MAGNET ELEMENTARY SCHOOL

SITE PIPING REPLACEMENT, PHASE 2 & QUAD RENOVATION PROJECT

CITY OF CAMARILLO, CALIFORNIA

LIST OF SYMBOLS:

AC	ASPHALTIC CONCRETE
ACP	ASBESTOS CEMENT PIPE
AB	AGGREGATE BASE
BC	BEGIN CURVE
BCR	BEGIN CURB RETURN
BD	BASEMENT DRAIN
BFV	BUTTERFLY VALVE
BM	BENCHMARK
BV	BALL VALVE
BVC	BEGIN VERTICAL CURVE
BW	BACK OF WALK
CIP	CAST IRON PIPE
CJ	CRACK CONTROL JOINT
CL	CLASS
℄ OR C/L	CENTERLINE
CMP	CORRUGATED METAL PIPE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
CTV	CABLE TELEVISION
DIP	DUCTILE IRON PIPE
D	DRAIN
E	ELECTRICAL
DI	DROP INLET
EC	END CURVE
ECR	END CURB RETURN
EG	EXISTING GRADE
EJ	EXPANSION JOINT
EL	ELEVATION
EP	EDGE OF PAVEMENT
EVC	END VERTICAL CURVE
EW	EACH WAY
EX	EXISTING
FD	FLOOR DRAIN
FF	FINISH FLOOR
FG	FINISH GRADE
FH	FIRE HYDRANT
℄ OR FL	FLOWLINE
FLG	FLANGE
FS	FINISH SURFACE
G	GAS
GB	GRADE BREAK
GM	GAS METER
GSP	GALVANIZED STEEL PIPE
GSV	GAS VALVE
GV	GATE VALVE
HB	HOSE BIB
HP	HIGH POINT
INV	INVERT
L	CURVE LENGTH
LF	LINEAL FEET
MH	MANHOLE
MJ	MECHANICAL JOINT
NIC	NOT INCLUDED IN CONTRACT
OC	ON CENTER
OCEW	ON CENTER EACH WAY
PCC	POINT OF COMPOUND CURVATURE
PI	POINT OF INTERSECTION (OF CURVE TANGENTS)
℄ OR P/L	PROPERTY LINE
PRC	POINT OF REVERSE CURVATURE
PVC	POLY-VINYL CHLORIDE
PV	PLUG VALVE
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RG	RETAINING GLAND
RSJ	ROUGH SURFACE JOINT
R/W	RIGHT-OF-WAY
S	SEWER
SD	STORM DRAIN
SL	STREET LIGHT
ST STL	STAINLESS STEEL
STA	STATION
STD DTL	STANDARD DETAIL
T	TELEPHONE
T BLK	THRUST BLOCK
TB	TOP OF BERM
TC	TOP OF CURB
TCN	TOP OF CONCRETE
TD	TOP OF DIKE
TF	TOP OF FOOTING
TG	TOP OF GRATE
TI	TRAFFIC INDEX
TL	TRAFFIC LIGHT
TP	TOP OF PAVEMENT
TYP	TYPICAL
TW	TOP OF WALL
VCP	VITRIFIED CLAY PIPE
VPI	VERTICAL POINT OF INTERSECTION (OF VERTICAL CURVE TANGENTS)
W	WATER
W/	WITH
WD	WALL DRAIN
WM	WATER METER
WV	WATER VALVE
△	DELTA (CURVE CENTRAL ANGLE)
±	APPROXIMATELY
%	PERCENT
<	LESS THAN
>	GREATER THAN

IMPORTANT NOTICE

ALL UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR IS TO NOTIFY UNDERGROUND SERVICE ALERT TWO WORKING DAYS PRIOR TO STARTING ANY EXCAVATION OR RESURFACING.

811

Know what's **below.**
Call before you dig.

LEGEND:

DESCRIPTION	EXISTING	PROPOSED
CENTERLINE		
EDGE OF A.C. PAVEMENT		
ELEVATION	100.00 OR (100.00)	100.00
CONCRETE PAVEMENT		
A.C. PAVEMENT		
PROPERTY LINE		
RIGHT-OF-WAY LINE		
EASEMENT LINE		
CONTOURS (MAJOR)	10	10
CONTOURS (MINOR)	11	12
BENCH MARK		
TREE CANOPY		
APPROX. SAW CUT LINE		
LIMIT OF GRADING LINE		
GRADE BREAK LINE		GB
FLOW LINE		
SLOPE LINE		
FENCE		
RETAINING WALL		
WATER	W	W
SEWER	S	S
STORM DRAIN	SD	SD
POWER	E	E
GAS	G	G
TELEPHONE	T	T
CABLE TV	CTV	CTV
MANHOLE	MH	MH
CLEANOUT	CO	CO
WATER METER & LATERAL	W WM	W WM
FIRE HYDRANT		
THRUST BLOCK		
FITTING		
STREET LIGHT		

OWNERS RESPONSIBILITIES:

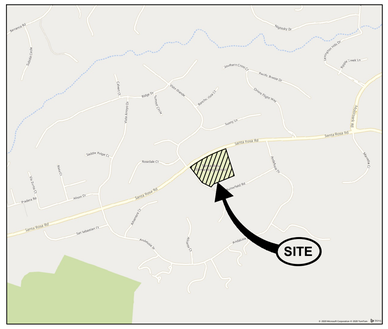
A. PRIOR TO COMMENCING CONSTRUCTION CALLED FOR BY THESE PLANS, SPECIFICATIONS AND DETAILS, THE OWNER SHALL ENGAGE A GEOTECHNICAL ENGINEER TO PROVIDE CONSTRUCTION PHASE OBSERVATION AND TESTING SERVICES AN SHALL ALSO ENGAGE THE PROJECT ENGINEER OR ANOTHER QUALIFIED PARTY TO PROVIDE PROJECT CONSTRUCTION OBSERVATION AND ASSURANCES ON CONFORMANCE WITH THE APPROVED PLANS, SPECIFICATIONS AND AGENCY REQUIREMENTS. THE OWNER SHALL ALSO ASSURE THAT CONTRACTOR(S) ENGAGED TO PROPERLY IMPLEMENT THE CONSTRUCTION CALLED FOR ON THESE PLANS, SPECIFICATIONS AND DETAILS INCLUDING THOSE TASKS CALLED FOR ON THE PROJECT STORM WATER POLLUTION PREVENTION PLAN DOCUMENT OR EROSION CONTROL PLAN SHEETS ATTACHED AS PART OF THESE PLANS.

B. GEOTECHNICAL ENGINEER'S RESPONSIBILITIES:

1. A GEOTECHNICAL ENGINEER SHALL REVIEW THESE PLANS WITH RESPECT TO GENERAL CONFORMANCE WITH THE INTENT OF THE RECOMMENDATIONS PRESENTED IN THE PROJECT SOILS ENGINEERING REPORT. THE PLAN REVIEW SHALL BE PERFORMED SPECIFICALLY WITH RESPECT TO GEOTECHNICAL FACTORS DISCUSSED IN THE REFERENCED REPORT. IN PERFORMING THE REVIEW, A GEOTECHNICAL ENGINEER SHALL ATTEMPT TO VERIFY THAT THE CONCEPTS AND RECOMMENDATIONS PRESENTED IN THE REPORT ARE GENERALLY INCORPORATED INTO THE PLANS. IN ACCORDANCE WITH THIS LEVEL REVIEW, THE PLANS ARE TO BE FOUND IN SUBSTANTIAL CONFORMANCE WITH THE CONCEPTS AND RECOMMENDATIONS PRESENTED IN THE NOTED REPORT.
2. UPON BEING RETAINED BY THE OWNER, PRIOR TO CONSTRUCTION THE GEOTECHNICAL, ENGINEER SHALL RECOMMEND TO THE OWNER AND THE CONTRACTOR THE LEVEL OF OBSERVATION AND TESTING THAT WILL BE PROVIDED DURING CONSTRUCTION. PROVIDED THAT THE CONTRACTOR FULFILLS HIS OR HER RESPONSIBILITY FOR TIMELY REQUESTS FOR THOSE SERVICES DURING CONSTRUCTION. THE GEOTECHNICAL ENGINEER SHALL PROVIDE OBSERVATION AND TESTING AT THE PROJECT WORK AREA OF EARTHWORK OPERATIONS, INCLUDING TRENCHING AND PAVEMENT SUBGRADE PREPARATION, AS NECESSARY TO HAVE REASONABLE CERTAINTY THAT THE EARTHWORK IS PERFORMED IN GENERAL COMPLIANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS, AND WITH THE REQUIREMENTS OF THE CITY OF CAMARILLO.
3. UPON COMPLETION OF EARTHWORK, THE GEOTECHNICAL ENGINEER SHALL, UPON REQUEST, PROVIDE A FINAL REPORT WITH RESULTS OF THEIR OBSERVATION AND TESTING DURING EARTHWORK OPERATIONS. PROVIDED THAT THE WORK IS PERFORMED IN CONFORMANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS, THE REPORT WILL STATE THEIR OPINION THAT THE GRADING WAS COMPLETED IN SUBSTANTIAL COMPLIANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.

C. CONTRACTORS STORM WATER POLLUTION CONTROL RESPONSIBILITIES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONSTRUCT AND MAINTAIN POLLUTION PREVENTION MEASURES, INCLUDING THOSE FOR EROSION AND SEDIMENT CONTROL, AS NECESSARY TO PREVENT ANY POLLUTANT AT ANY LEVEL FROM BEING CONVEYED OFF THE CONSTRUCTION SITE AND THAT THESE MEASURES MUST CONTINUE TO BE MAINTAINED UNTIL THE REQUIRED POST-CONSTRUCTION POLLUTION PREVENTION MEASURES ARE IN PLACE AND COMPLETELY FUNCTIONAL, INCLUDING PERMANENT LANDSCAPING.
2. THE SPECIFIC MEASURES WHICH MAY BE CALLED FOR ON THE PROJECT STORM WATER POLLUTION PREVENTION PLAN CANNOT ADDRESS ALL SITE DEVELOPMENT AND STORM CHARACTERISTICS WHICH WILL EVOLVE OVER THE COURSE OF CONSTRUCTION AND THAT IT IS THE CONTRACTORS RESPONSIBILITY TO NOT ONLY IMPLEMENT THE PLAN, BUT TO MAKE ADJUSTMENTS AND EXPANSIONS IN THE IMPLEMENTATION AS NECESSARY TO ADAPT TO THE CONTRACTOR'S CONSTRUCTION OPERATIONS AND SCHEDULE AND ADDRESS EVOLVING SITE CONDITIONS AND ACTUAL WEATHER CONDITIONS.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE EMPLOYEES AND SUBCONTRACTORS ARE TRAINED REGARDING THESE REQUIREMENTS AND TO MAINTAIN RECORDS OF THE INSTALLATION, MODIFICATION, INSPECTION, AND MAINTENANCE OF STORM WATER POLLUTION PREVENTION MEASURES INCLUDING, BUT NOT LIMITED TO: TRAINING, INSPECTION, MAINTENANCE LOG; RECORD DRAWINGS SHOWING LOCATIONS, LIMITS, AND DATES OF INSTALLATION FOR VARIOUS MEASURES; DATED PHOTOGRAPHERS AND FIELD SKETCHES.
4. THE CONTRACTOR SHALL BE FAMILIAR WITH AND AGREE TO IMPLEMENT THE MEASURES AND INSTALLATIONS DEPICTED ON THE PROJECT STORM WATER POLLUTION PREVENTION PLAN INCLUDING INSTALLATION, ROUTINE INSPECTION AND MAINTENANCE, ADJUSTMENTS AND EXPANSION DUE TO EVOLVING SITE CONDITIONS, EMERGENCY MAINTENANCE AND ADJUSTMENTS DUE TO ACTUAL STORM AND SITE CONDITIONS, AND DOCUMENTATION.



VICINITY MAP
NOT TO SCALE

USE OF PLANS

THIS DRAWING IS PROVIDED IN AN ELECTRONIC FORMAT (ON COMPUTER DISK) AS A COURTESY IF REQUESTED BY THE USER. THE DELIVERY OF THE ELECTRONIC FILE DOES NOT CONSTITUTE THE DELIVERY OF OUR PROFESSIONAL WORK PRODUCT. THE SIGNED HARD COPY PREPARED FOR THE PROJECT CONSTITUTES OUR PROFESSIONAL WORK PRODUCT AND THE HARD COPY MUST BE REFERRED TO FOR THE CORRECT DESIGN INFORMATION. THESE PLANS HAVE BEEN PREPARED SOLELY FOR USE FOR THE PROJECT SCOPE AND SITE SPECIFICALLY IDENTIFIED HEREON AT THE TIME THESE PLANS ARE SIGNED. THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, USE OF ANY PART OF THESE PLANS, INCLUDING ANY NOTE OR DETAIL, FOR ANY UNAPPROVED OR REVISED PROJECT SCOPE, OR FOR ANY OTHER PROJECT AT THIS OR ANY OTHER SITE. USER AGREES TO INDEMNIFY AND HOLD HARMLESS F&A FOR ALL COSTS AND DAMAGES IF USED.

USE OF ELECTRONIC INFORMATION

ELECTRONIC INFORMATION MAY BE PROVIDED BY THE ENGINEER FOR CONVENIENCE; UNDER NO CIRCUMSTANCES SHALL DELIVERY OF ELECTRONIC FILES FOR USE BY OTHERS BE DEEMED A SALE BY THE ENGINEER AND THE ENGINEER MAKES NO WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE. IN NO EVENT SHALL THE ENGINEER BE LIABLE FOR INDIRECT OR CONSEQUENTIAL DAMAGES AS A RESULT OF THE USE OR REUSE OF THE ELECTRONIC FILES BY OTHERS.

ELECTRONIC INFORMATION IS INTENDED TO PROVIDE INFORMATION SUPPLEMENTAL AND SUBORDINATE TO THE CONSTRUCTION CONTRACT DOCUMENTS. LAYOUT AND CONSTRUCTION OF PROJECT ELEMENTS SHALL BE BASED ON DIMENSIONS AND INFORMATION INCLUDED ON THE SIGNED AND SEALED CONSTRUCTION CONTRACT DOCUMENTS WHICH SHALL CONTROL OVER ELECTRONIC INFORMATION. USER IS RESPONSIBLE FOR CONFIRMING LOCATION OF PROPOSED IMPROVEMENTS BASED ON DIMENSIONS AND INFORMATION INCLUDED ON THE CONSTRUCTION CONTRACT DOCUMENTS; INCONSISTENCIES BETWEEN THE ELECTRONIC INFORMATION AND THE CONSTRUCTION CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION PRIOR TO CONSTRUCTION.

PROJECT ELEMENTS SUCH AS MANHOLES, CATCH BASINS, UTILITY VAULTS, VALVE ASSEMBLIES, STAIRS, RAMPS, WALLS, ETC. ARE SHOWN SCHEMATICALLY IN THE ELECTRONIC INFORMATION AND CONSTRUCTION OF THESE ELEMENTS SHALL BE IN ACCORDANCE WITH THE CONSTRUCTION NOTES AND DETAILS PRESENTED OR REFERENCED IN THE SIGNED AND SEALED CONSTRUCTION CONTACT DOCUMENTS. IMPROVEMENTS CONSTRUCTED BASED ON ELECTRONIC INFORMATION AND IN CONFLICT WITH THE DRAWING DIMENSIONS DETAILS, AND THE CONSTRUCTION CONTRACT DOCUMENTS SHALL BE REMOVED AND CONSTRUCTED IN THE PROPER LOCATION AND DIMENSIONS AT CONTRACTOR'S SOLE EXPENSE.

DIGITAL DRAWINGS ARE TYPICALLY A COMPILATION OF DRAWINGS FROM A NUMBER OF SOURCES AND, AS SUCH, THERE IS INFORMATION IN THE ELECTRONIC FILE ISSUED BY THE ENGINEER THAT WAS NOT DEVELOPED BY THE ENGINEER AND IS NOT AUTHORIZED BY THE ENGINEER FOR USE BY OTHERS. ELECTRONIC INFORMATION PROVIDED BY THE ENGINEER SHALL ONLY BE APPLICABLE FOR IMPROVEMENTS DESIGNED BY THE ENGINEER AND WHICH ARE SPECIFICALLY DESIGNATED BY CONSTRUCTION NOTES AND/OR DETAILS ON THE SIGNED AND SEALED CONTRACT DOCUMENTS.

IF DIGITAL FILES ARE OBTAINED WITH THE INTENT TO USE THEM FOR PROJECT STAKING, THEY SHALL ONLY BE USED BY A QUALIFIED ENGINEER OR LAND SURVEYOR REGISTERED IN THE STATE OF CALIFORNIA. DIGITAL INFORMATION SHALL ONLY BE USED FOR STAKING HORIZONTAL LOCATION OF PROPOSED IMPROVEMENTS AFTER IT HAS BEEN CONFIRMED WITH THE SIGNED AND SEALED CONSTRUCTION CONTRACT DOCUMENTS.

THE DIGITAL DRAWINGS ARE NOT INTENDED TO BE USED DIRECTLY FOR CONTROL OF CONTRACTOR'S GRADING OPERATIONS WITHOUT STAKING BY ENGINEER OR LAND SURVEYOR. THE INTERSECTION OF PROPOSED CUT AND FILL SLOPES WITH EXISTING GRADE IS APPROXIMATE WHERE SHOWN ON THE DRAWINGS AND SHALL BE CONFIRMED BY FIELD STAKING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONSTRUCT SLOPES IN CONFORMANCE WITH THE SPECIFIED AND DETAILED REQUIREMENTS CONTAINED IN THE CONTRACT DOCUMENTS.

BENCHMARK:

HORIZONTAL BASIS OF COORDINATES ARE NAD83 PER CAMARILLO HEIGHTS ELEMENTARY CONTROL POINTS 1, 2 3.

VERTICAL DATUM IS NAVD88 PER CAMARILLO HEIGHTS ELEMENTARY CONTROL POINT 1. SANTA ROSA ELEMENTARY LOCAL CONTROL POINTS 1-5.

ELEVATION = 270.05'

CAUTION! CONFIRM BENCHMARK DATA AND CONDITION WITH PROJECT SURVEYOR (WATERS CARDENAS LAND SURVEYING) PRIOR TO USE.

TOPOGRAPHY:

EXISTING TOPOGRAPHY COMPILED BY FIELD SURVEY(S) BY WATERS CARDENAS LAND SURVEYING DATED JANUARY, 2021.

SURVEY MONUMENT PROTECTION:

PROTECT AND PRESERVE, IN PLACE, ALL SURVEY MONUMENTS AND BENCHMARKS. DO NOT DISTURB, MOVE, OR RELOCATE MONUMENTS OR BENCHMARKS WITHOUT THE PRIOR REVIEW AND APPROVAL BY THE AGENCY HAVING JURISDICTION OVER THE MONUMENT OR BENCHMARK. THE CONTRACTOR SHALL CONTRACT WITH A LICENSED SURVEYOR FOR MONUMENTS REQUIRING DISTURBANCE OR REMOVAL, AND THE SURVEYOR SHALL RESET THE MONUMENTS OR PROVIDE PERMANENT WITNESS MONUMENTS AND FILE THE REQUIRED DOCUMENTATION WITH THE COUNTY SURVEYOR PURSUANT TO BUSINESS AND PROFESSIONAL CODE SECTION 8771.

SHEET INDEX

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4	C-1 SITE IMPROVEMENT PLAN
5	CD-1 DETAILS
6	CD-2 DETAILS

PLEASANT VALLEY SCHOOL DISTRICT

600 TEMPLE AVENUE, CAMARILLO, CA 93010

ENGINEER

ENGINEER'S STAMP

CONSULTANT

F&A
FLOWERS & ASSOCIATES, INC.
CIVIL ENGINEERING • PLANNING
CONSTRUCTION ENGINEERING
115 W. CANON PERDIDO STREET
SANTA BARBARA, CA 93101
PHONE: 805.966.2224

CONSULTANT'S STAMP

REGISTERED PROFESSIONAL ENGINEER ROBERT A. SCHWARTZ No. 71335 CIVIL STATE OF CALIFORNIA

PROJECT TITLE AND ADDRESS

SITE PIPING REPLACEMENT, PHII & QUAD RENOVATION PROJECT

SANTA ROSA TECHNOLOGY MAGNET SCHOOL
13282 SANTA ROSA RD, CAMARILLO, CA 93012

REVISIONS

1		

BUILDING & ASSOCIATES INC. CONSULTING ENGINEERS. THESE DOCUMENTS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY FORM OR MANNER WHATSOEVER WITHOUT FIRST OBTAINING THE EXPRESSED WRITTEN PERMISSION OF BUILDING & ASSOCIATES INC. NOR ARE THESE DOCUMENTS TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT OBTAINING SAID WRITTEN PERMISSION & CONSENT FROM BUILDING & ASSOCIATES INC.

SHEET TITLE

TITLE SHEET

DATE

SCALE

PROJECT NO.

DRAWN BY

CHECKED BY

SHEET NUMBER

G-1

GENERAL REQUIREMENTS OF CONTRACTOR

1. CONTRACTOR SHALL MAINTAIN A COMPLETE AND ACCURATE RECORD OF ALL CHANGES OF CONSTRUCTION FROM THAT SHOWN IN THESE PLANS AND SPECIFICATIONS FOR THE PURPOSE OF PROVIDING A BASIS FOR CONSTRUCTION-RECORD DRAWINGS. NO CHANGES SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER AND THE AGENCY HAVING JURISDICTION.

   UPON COMPLETION OF THE PROJECT, THE LICENSED CONTRACTOR SHALL DELIVER THIS RECORD OF ALL CONSTRUCTION CHANGES TO THE ENGINEER ALONG WITH A LETTER WHICH DECLARES THAT OTHER THAN THESE NOTED CHANGES "THE PROJECT WAS CONSTRUCTED IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS."

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

2. CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER AND THE AGENCY HAVING JURISDICTION BY TELEPHONE AND IN WRITING UPON DISCOVERY OF, AND BEFORE DISTURBING, ANY PHYSICAL CONDITIONS DIFFERING FROM THOSE REPRESENTED BY THE APPROVED PLANS AND SPECIFICATIONS.

3. CONTRACTOR AGREES THAT, IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS 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 CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONALS HARMLESS FROM ALL LIABILITY AND CLAIMS, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONALS.

4. CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR PROTECTION OF PUBLIC AND PRIVATE PROPERTY AT OR IN THE VICINITY OF THE JOB SITE AND FURTHER AGREES TO, AT CONTRACTOR'S EXPENSE, REPAIR OR REPLACE TO ORIGINAL CONDITION ALL EXISTING IMPROVEMENTS WITHIN OR IN THE VICINITY OF THE JOB SITE WHICH ARE NOT DESIGNATED FOR REMOVAL AND WHICH ARE DAMAGED OR REMOVED AS A RESULT OF CONTRACTOR'S OPERATIONS.

5. EXISTING BURIED CONDUITS AND STRUCTURES KNOWN TO THE ENGINEER ARE SHOWN ON THESE PLANS. HOWEVER, ALL SUCH CONDUITS AND STRUCTURES MAY NOT BE SHOWN AND THE LOCATIONS OF THOSE SHOWN ARE APPROXIMATE ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE PREPARER OF THE PLANS. [ELECTRICAL CONDUITS AND WIRING WHICH EXIST BETWEEN ON-SITE LIGHT STANDARDS AND BETWEEN PUBLIC STREET AND TRAFFIC LIGHTS ARE NOT SHOWN ON THESE PLANS.]

   CONTRACTOR SHALL INDEPENDENTLY VERIFY THE PRESENCE OF BURIED CONDUITS AND STRUCTURES, BOTH ACTIVE AND ABANDONED-IN-PLACE AND, BEFORE COMMENCING WORK, CONTRACTOR SHALL DETERMINE THE EXACT LOCATION INCLUDING DEPTHS OF ALL EXISTING UNDERGROUND UTILITIES, CONDUITS AND STRUCTURES, INCLUDING SERVICE CONNECTIONS, WHICH MAY AFFECT OR BE AFFECTED BY HIS OPERATIONS. CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, CONDUITS AND STRUCTURES.

   UPON ENCOUNTERING EXISTING BURIED CONDUITS OR STRUCTURES NOT SHOWN OR LOCATED DIFFERENTLY THAN SHOWN ON THE PLANS, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND THE OWNER OF THE CONDUIT OR STRUCTURE BY TELEPHONE AND IN WRITING. IF SUCH CONDUIT OR STRUCTURE AFFECTS OR IS AFFECTED BY THE WORK, CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION AND DIRECTION BEFORE PROCEEDING WITH THE WORK, EXCEPTING THAT IN AN EMERGENCY AFFECTING SAFETY OF LIFE, WORK OR ADJACENT PROPERTY, CONTRACTOR SHALL ACT AT ONCE WITHOUT INSTRUCTIONS TO PREVENT INJURY OR LOSS.

6. SECTION 4215.5 THROUGH 4217 OF THE GOVERNMENT CODE OF THE STATE OF CALIFORNIA REQUIRES THAT, TWO WORKING DAYS PRIOR TO COMMENCING ANY EXCAVATION, "UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA" BE NOTIFIED BY PHONE, TOLL FREE 1-800-422-4133, FOR THE ASSIGNMENT OF AN INQUIRY IDENTIFICATION NUMBER.

   NO EXCAVATION SHALL COMMENCE UNLESS THE CONTRACTOR HAS OBTAINED THE INQUIRY IDENTIFICATION NUMBER AND EACH UTILITY OR OTHER OWNER OF SUBSURFACE FACILITIES HAS LOCATED AND PHYSICALLY MARKED THEIR SUBSURFACE FACILITIES IN THE AREA OF WORK.

7. BEFORE COMMENCING EXCAVATION, CONTRACTOR SHALL CONTACT THE COUNTY ROAD PERMITS OFFICE AND EACH UTILITY COMPANY OR OTHER OWNER OF SUBSURFACE FACILITIES WITHIN THE WORK SITE, SHALL VERIFY WHETHER OR NOT A REPRESENTATIVE WILL BE PRESENT BEFORE AND/OR DURING EXCAVATION, AND SHALL DETERMINE SITE-SPECIFIC REQUIREMENTS FOR EXCAVATION.

8. CONTRACTOR SHALL NOTIFY THE COUNTY GRADING SECTION OF THE PLANNING & DEVELOPMENT, THE GEOTECHNICAL ENGINEER AND THE ENGINEER AT LEAST 48 HOURS BEFORE START OF ANY CONSTRUCTION AND THE TIME AND LOCATION OF PRECONSTRUCTION CONFERENCE.

9. AT THE TIME OF THE PRECONSTRUCTION CONFERENCE THE GEOTECHNICAL ENGINEER IS TO DISCUSS WITH THE COUNTY GRADING INSPECTOR THE LEVEL OF OBSERVATION AND TESTING TO BE REQUIRED.

10. CONTRACTOR IS RESPONSIBLE FOR PRESERVATION AND/OR PERPETUATION OF ALL EXISTING MONUMENTS WHICH CONTROL SUBDIVISIONS, TRACTS, BOUNDARIES, EASEMENTS, STREETS, HIGHWAYS OR OTHER RIGHTS-OF-WAY, OR WHICH PROVIDE SURVEY CONTROL WHICH WILL BE DISTURBED OR REMOVED DUE TO CONTRACTOR'S WORK. PRIOR TO DISTURBANCE OR REMOVAL OF EXISTING MONUMENTS, CONTRACTOR SHALL CONTRACT WITH LICENSED LAND SURVEYOR TO RESET MONUMENTS OR PROVIDE PERMANENT WITNESS MONUMENTS AND FILE THE REQUIRED DOCUMENTATION WITH THE COUNTY SURVEYOR PURSUANT TO BUSINESS AND PROFESSIONS CODE SECTION 8771.

CONSTRUCTION NOTES (SPECIFICATIONS)

GENERAL NOTES:

1. UNLESS MODIFIED OR OTHERWISE SPECIFIED BY THE CONSTRUCTION NOTES THAT FOLLOW HEREON INCLUDING THOSE UNDER SEPARATE HEADINGS, MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE GREENBOOK STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (SSPWC), 2015 EDITION, INCLUDING THE LATEST SUPPLEMENTS, PUBLISHED BY BUILDING NEWS, INC., LOS ANGELES, HEREINAFTER REFERRED TO AS "STANDARD SPECIFICATIONS." CONSTRUCTION SHALL ALSO CONFORM TO APPLICABLE SECTIONS OF THE 2010 CALIFORNIA BUILDING CODE AS IT HAS BEEN ADOPTED BY THE COUNTY OF VENTURA.

   ALL REFERENCED SPECIFICATIONS, CODES, DRAWINGS, AND DETAILS SHALL BE INCORPORATED INTO THESE PLANS AND MADE A PART HEREOF AS IF SPELLED OUT OR DELINEATED IN THEIR ENTIRETY HEREON.

2. GRADING OR OTHER CONSTRUCTION WORK OUTSIDE OF PUBLIC RIGHTS-OF-WAY IS NOT PROPOSED AND IS NOT PERMITTED WITHOUT PRIOR WRITTEN PERMISSION OF THE AFFECTED OFFSITE PROPERTY OWNER.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WORK AND INTERFACING IMPROVEMENTS WITH WORK BY OTHER CONTRACTORS AT THIS JOB SITE AND WITH IMPROVEMENTS REQUIRED BY PLANS BY OTHERS.

   CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR BUILDING AND SITE LAYOUT DIMENSIONING.

4. ALL WORK SHALL BE DONE IN CONFORMANCE WITH THE RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL ENGINEERING AND GEOLOGICAL REPORTS FOR THIS PROJECT INCLUDING THOSE LISTED BELOW:

   PREPARED BY　　FILE NO.　　DATE

   THESE REPORTS AND ANY ADDENDA SHALL BE INCORPORATED INTO THESE PLANS AND MADE A PART HEREOF AS IF SPELLED OUT IN THEIR ENTIRETY HEREON. IT IS CONTRACTOR'S RESPONSIBILITY TO REVIEW THE APPLICABLE GEOTECHNICAL AND GEOLOGY REPORTS. CONTRACTOR SHALL CONTACT THE GEOTECHNICAL ENGINEER [AND THE GEOLOGIST] TO OBTAIN OR REVIEW COPIES OF THESE REPORTS AND ADDENDA.

   PRIOR TO BIDDING, CONTRACTOR SHALL CONTACT THE GEOTECHNICAL ENGINEER [AND GEOLOGIST] TO DETERMINE THE LOCATION AND DEPTH OF ALL TEST BORINGS AND EXPLORATORY PITS AND EXCAVATIONS. CONTRACTOR SHALL DETERMINE FROM THE GEOTECHNICAL ENGINEER [AND GEOLOGIST] WHAT REMEDIAL WORK IS RECOMMENDED TO MAKE THESE DISTURBED LOCATIONS SUITABLE FOR THE PROPOSED IMPROVEMENTS. CONTRACTOR SHALL INCLUDE IN HIS BID ALL COSTS FOR THE RECOMMENDED REMEDIAL WORK AND SHALL ADJUST HIS OPERATIONS TO PROPERLY SEQUENCE THE WORK TO ACCOMMODATE REMEDIAL WORK WITH CONSTRUCTION OF PROPOSED IMPROVEMENTS.

5. ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH APPLICABLE HEALTH AND SAFETY LAWS, ORDINANCES, REGULATIONS, RULES, AND STANDARDS INCLUDING ALL REQUIREMENTS OF THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY AND OF CAL-OSHA.

6. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR VEHICULAR AND PEDESTRIAN TRAFFIC CONTROL AND SAFETY AND SHALL FURNISH, INSTALL, AND MAINTAIN SUCH FENCING, SIGNS, LIGHTS, TRENCH PLATES, BARRICADES, AND/OR OTHER PROTECTION AS IS NECESSARY FOR SAID CONTROL AND SAFETY.

7. CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN SUCH SHEETING, SHORING, BRACING, AND/OR OTHER PROTECTION AS IS NECESSARY TO PREVENT FAILURE OF TEMPORARY EXCAVATIONS AND EMBANKMENTS AND TO PREVENT DAMAGE TO EXISTING IMPROVEMENTS, TEMPORARY IMPROVEMENTS, AND PARTIALLY COMPLETED PORTIONS OF THE WORK. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE SUFFICIENCY OF SUCH SUPPORTS AND/OR OTHER PROTECTION.

8. BEFORE BEGINNING WORK, CONTRACTOR SHALL CONFIRM WITH AGENCIES HAVING JURISDICTION THAT ALL REQUIRED PERMITS AND LICENSES HAVE BEEN OBTAINED AND ALL REQUIRED NOTICES GIVEN.

   CONTRACTOR SHALL NOT BEGIN WORK BEFORE "GENERAL CONSTRUCTION ACTIVITY STORM WATER PERMIT" HAS BEEN OBTAINED FROM, OR HAS BEEN DETERMINED TO NOT BE REQUIRED BY, THE STATE WATER RESOURCES CONTROL BOARD-CENTRAL COAST REGION.

9. BEFORE BEGINNING WORK, CONTRACTOR SHALL CONTACT THE COUNTY PUBLIC WORKS DEPARTMENT, THE COUNTY BUILDING AND SAFETY DIVISION, THE UTILITY COMPANIES, THE GEOTECHNICAL ENGINEER, THE GEOLOGIST, AND THE ENGINEER (FLOWERS & ASSOCIATES, INC.) AND SHALL DETERMINE FROM EACH: (1) SCOPE OF WORK TO BE OBSERVED AND BY WHOM, (2) SCOPE OF TESTING, AND (3) ADVANCE NOTICE REQUIRED (MINIMUM OF 48 HOURS).

   DURING THE COURSE OF WORK, CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR OBSERVATION AND TESTING AS STIPULATED PURSUANT TO ABOVE DETERMINATIONS.

   WORK NOT OBSERVED AND TESTED WILL BE SUBJECT TO REJECTION.

10. ALL UNSUITABLE CONSTRUCTION MATERIALS AND RUBBISH AND DEBRIS SHALL BE REMOVED FROM THE JOB SITE, BE TRANSPORTED TO A SUITABLE LOCATION, AND BE DISPOSED OF IN A PROPER AND LEGAL MANNER.

11. CONTRACTOR SHALL SCHEDULE GRAVITY PIPELINE WORK AHEAD OF OTHER UNDERGROUND CONDUIT CONSTRUCTION. [AND SHALL SCHEDULE GRAVITY SEWER AHEAD OF STORM DRAIN WORK].

12. GRAVITY SEWER AND STORM DRAIN WORK SHALL BEGIN AT THE LOWEST POINT OF DISCHARGE AND PROCEED UPSTREAM.

13. ALL WORK INVOLVING EXCAVATION, INCLUDING THAT FOR WATER, SEWER, STORM DRAIN AND UTILITY CONDUITS AND ALL SERVICE CONNECTIONS AND METER BOXES (NOT PERMITTED IN DRIVEWAYS) SHALL BE COMPLETED AND OBSERVED AND APPROVED BY THE AGENCY HAVING JURISDICTION AND THE STRUCTURAL BACKFILL OBSERVED AND TESTED FOR COMPACTION AND APPROVED BY THE GEOTECHNICAL ENGINEER BEFORE AGGREGATE BASE, PAVING AND OTHER PERMANENT SURFACE CONSTRUCTION MAY COMMENCE.

14. BEFORE BEGINNING WORK, CONTRACTOR SHALL DETERMINE OR VERIFY THE LOCATION AND FLOWLINE ELEVATION OF ALL EXISTING WATER, SEWER, AND DRAINAGE STRUCTURES AND/OR CONDUITS TO BE JOINED BY NEW CONSTRUCTION.

    BEFORE BEGINNING WORK, CONTRACTOR SHALL DETERMINE OR VERIFY THE LOCATION AND DEPTH OF ALL EXISTING STRUCTURES AND/OR CONDUITS WHICH CROSS OR OTHERWISE MAY CONFLICT WITH NEW CONSTRUCTION.

GRADING NOTES:

1. ALL GRADING SHALL BE IN CONFORMANCE WITH THESE PLANS AND SANTA BARBARA COUNTY CODE CHAPTER 14 (ORDINANCE NO. 4766) AND THE STANDARDS AND REQUIREMENTS PERTAINING THERETO AND WITH THE RECOMMENDATIONS AND REFERENCED STANDARD GRADING SPECIFICATIONS CONTAINED IN THE GEOTECHNICAL REPORT [AND THOSE CONTAINED IN THE GEOLOGY REPORT] REFERENCED IN THE GENERAL NOTES ON THESE PLANS.

2. GRADING SHALL ALSO BE IN CONFORMANCE WITH RECOMMENDATIONS MADE BY THE GEOTECHNICAL ENGINEER [AND THE GEOLOGIST] DURING OBSERVATION AND TESTING OF SITE DEMOLITION, PREPARATION, GRADING, AND DEVELOPMENT WORK.

   FOR ANY CONFLICT BETWEEN THESE PLANS AND THE RECOMMENDATIONS AND/OR SPECIFICATIONS OF THE GEOTECHNICAL ENGINEER [AND THE GEOLOGIST], THE MORE STRINGENT PROVISION SHALL GOVERN.

3. CONTRACTOR SHALL EMPLOY ALL LABOR, EQUIPMENT AND METHODS REQUIRED TO PREVENT HIS OPERATIONS FROM PRODUCING DUST IN AMOUNTS DAMAGING TO PROPERTY, CULTIVATED VEGETATION AND DOMESTIC ANIMALS OR CAUSING A HAZARD TO VEHICULAR TRAFFIC OR CAUSING A NUISANCE TO PERSONS OCCUPYING BUILDINGS, IN THE VICINITY OF THE JOB SITE. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY DUST RESULTING FROM HIS OPERATIONS. DUST ABATEMENT MEASURES SHALL BE CONTINUED UNTIL RELIEF IS GRANTED BY THE COUNTY INSPECTOR.

4. AREAS TO BE GRADED SHALL BE CLEARED OF ALL VEGETATION (EXCEPT TREES INDICATED TO REMAIN), INCLUDING ROOTS AND ROOT STRUCTURES, OTHER ORGANIC MATERIAL, DEBRIS, NON-COMPLYING FILL, AND OTHER MATERIAL UNSUITABLE FOR SUPPORT OF FILL AND/OR PROPOSED IMPROVEMENTS, AS RECOMMENDED BY AND UNDER THE OBSERVATION AND TESTING OF THE GEOTECHNICAL ENGINEER.

5. THE CONTRACTOR SHALL MAKE A THOROUGH SEARCH FOR ALL ABANDONED MAN-MADE FACILITIES SUCH AS SEPTIC TANK SYSTEMS, FUEL OR WATER STORAGE TANKS, AND PIPELINES OR CONDUITS. ANY SUCH FACILITIES ENCOUNTERED SHALL BE REMOVED AND THE VOIDS FILLED AND COMPACTED AS RECOMMENDED BY, AND UNDER THE OBSERVATION AND TESTING OF, THE GEOTECHNICAL ENGINEER.

   VOIDS LEFT FROM OTHER REMOVALS, SUCH AS TREES AND STRUCTURES, SHALL ALSO BE FILLED AND COMPACTED AS RECOMMENDED BY, AND UNDER THE OBSERVATION AND TESTING OF, THE GEOTECHNICAL ENGINEER.

   IF ABANDONED SEPTIC TANKS OR FUEL TANKS OR OTHER POTENTIAL SOURCES OF CONTAMINATION OR HAZARDOUS WASTE ARE ENCOUNTERED OR IF SOIL WHICH APPEARS TO BE CONTAMINATED IS ENCOUNTERED, CONTRACTOR SHALL IMMEDIATELY NOTIFY OWNER AND COUNTY HAZARDOUS MATERIALS OFFICE.

   ABANDONED PIPELINES AND CONDUITS SHALL BE REMOVED UNLESS OTHERWISE ALLOWED BY THE ENGINEER AND THE GEOTECHNICAL ENGINEER. PIPELINES OR CONDUITS ALLOWED TO BE ABANDONED-IN-PLACE SHALL BE CRUSHED OR SHALL HAVE ALL EXPOSED OPENINGS PLUGGED WITH STIFF CONCRETE RODDED TO REMOVE VOIDS WITHIN THE PIPELINE/CONDUIT TO A MINIMUM OF 5 LINEAL FEET BEYOND THE OPENING, UNDER THE OBSERVATION OF THE GEOTECHNICAL ENGINEER.

6. BEFORE BEGINNING WORK REQUIRING EXPORTING OR IMPORTING OF MATERIALS, THE CONTRACTOR SHALL OBTAIN APPROVAL FROM PUBLIC WORKS (TRANSPORTATION DIVISION) FOR HAUL ROUTES USED AND METHODS PROVIDED TO MINIMIZE THE DEPOSIT OF SOILS ON COUNTY ROADS. GRADING/ROAD INSPECTORS SHALL MONITOR THIS REQUIREMENT WITH THE CONTRACTOR.

7. UNDOCUMENTED FILL AND/OR UNSTABLE SOILS ENCOUNTERED DURING GRADING SHALL BE EXCAVATED TO FIRM NATIVE SOILS UNDER THE OBSERVATION AND TESTING OF THE GEOTECHNICAL ENGINEER.

   OVERWET AND/OR PUMPING AREAS ENCOUNTERED DURING GRADING SHALL BE REVIEWED FOR CORRECTIVE MEASURES BY THE GEOTECHNICAL ENGINEER.

8. ALL UNSUITABLE SOIL MATERIALS AND RUBBISH AND DEBRIS RESULTING FROM DEMOLITION AND GRADING OPERATIONS SHALL BE REMOVED FROM THE JOB SITE, BE TRANSPORTED TO A SUITABLE LOCATION, AND BE DISPOSED OF IN A PROPER AND LEGAL MANNER.

9. AREAS TO RECEIVE FILL MATERIAL AND AREAS TO RECEIVE BUILDINGS, EXTERIOR SLABS, WALKWAYS, WALLS, PAVEMENT AND OTHER STRUCTURAL IMPROVEMENTS SHALL BE PREPARED AS RECOMMENDED BY, AND UNDER THE OBSERVATION AND TESTING OF, THE GEOTECHNICAL ENGINEER. RECOMMENDATIONS FOR OVEREXCAVATION, ADDITIONAL SCARIFICATION, BACKFILL AND RECOMPACTION ARE CONTAINED IN THE GEOTECHNICAL REPORT REFERENCED IN THE GENERAL NOTES ON THESE PLANS.

10. A KEYWAY SHALL BE PLACED AT THE TOE OF ALL FILL SLOPES AND SHALL EXTEND THROUGH THE LOOSE SURFACE SOILS. THE KEYWAY SHALL BE A MINIMUM OF 10 FEET WIDE AND EXTEND A MINIMUM OF 5 FEET BEYOND THE TOE OF THE SLOPE. THE KEYWAY SHALL BE AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER [AND THE ENGINEERING GEOLOGIST].

11. AREAS WITH EXISTING SLOPES WHICH ARE TO RECEIVE FILL MATERIAL SHALL BE KEYED AND BENCHED AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.

12. PRIOR TO PLACEMENT OF FILL AND BACKFILL MATERIAL, THE PREPARED AREA SHALL BE INSPECTED AND APPROVED BY THE COUNTY INSPECTOR AND THE GEOTECHNICAL ENGINEER. ALLOW A MINIMUM 48-HOUR NOTICE. FILL AND BACKFILL PLACED ON THE PREPARED AREA WITHOUT THE REQUIRED OBSERVATION SHALL BE REMOVED.

13. ALL FILL MATERIAL, WHETHER EXCAVATED ON-SITE OR IMPORTED FROM OFF-SITE, SHALL BE TESTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT.

    IMPORTED FILL MATERIAL SHALL BE EQUAL TO OR BETTER IN QUALITY THAN THE ON-SITE SOILS AND SHALL CONFORM TO THE RECOMMENDATION OF THE GEOTECHNICAL ENGINEER. THE GEOTECHNICAL ENGINEER SHALL TEST AND APPROVE THE SOIL PROPOSED FOR IMPORT FOR STRUCTURAL FILL PRIOR TO IMPORTATION TO THE SITE.

    THE LANDSCAPE ARCHITECT AND THE GEOTECHNICAL ENGINEER SHALL TEST AND APPROVE THE SOIL PROPOSED FOR IMPORT FOR LANDSCAPE AREA SURFACE MATERIAL PRIOR TO IMPORTATION TO THE SITE.

14. FILL MATERIAL SHALL BE SPREAD IN LIFTS NOT EXCEEDING ____-INCHES IN LOOSE THICKNESS, BE MOISTENED OR DRIED AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER, AND BE COMPACTED TO THE MINIMUM RELATIVE COMPACTION RECOMMENDED BY THE GEOTECHNICAL ENGINEER. THINNER LIFTS MAY BE NECESSARY TO ACHIEVE THE REQUIRED MINIMUM COMPACTION.

15. FILL AND BACKFILL MATERIAL SHALL BE COMPACTED AT LEAST TO THE SPECIFIED RELATIVE COMPACTION BUT IN NO CASE TO LESS THAN 90% OF MAXIMUM DENSITY, DETERMINED IN CONFORMANCE WITH A.S.T.M. STANDARD D-1557 OR ASTM D-6938, LATEST REVISION. SOME AREAS REQUIRE COMPACTION TO GREATER DENSITY AS CALLED FOR ON THESE PLANS OR BY THE GEOTECHNICAL ENGINEER.

    COMPACTION TESTING SHALL BE CONDUCTED AS DETERMINED BY THE GEOTECHNICAL ENGINEER.

16. FINISH CUT SLOPES, FILL SLOPES AND COMBINATION CUT AND FILL SLOPES SHALL NOT EXCEED A GRADE OF 2 HORIZONTAL TO 1 VERTICAL UNLESS SPECIFICALLY CALLED FOR ON THESE PLANS AND CONSTRUCTED AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER [AND THE ENGINEERING GEOLOGIST].

17. ALL GRADED AREAS SHALL BE PLANTED IN CONFORMANCE WITH THE APPROVED LANDSCAPING PLAN, IF APPLICABLE AND SHALL OTHERWISE BE PLANTED WITH PERENNIAL VEGETATION APPROVED BY THE COUNTY PLANNING AND DEVELOPMENT DEPARTMENT AND SHALL BE DENSE AND GROWING PRIOR TO FINAL INSPECTION BY THE COUNTY.

18. CONTRACTOR SHALL REFER TO THE ARCHITECT'S PLANS FOR ADDITIONAL GRADING REQUIREMENTS IN BUILDING AREAS.

    CONTRACTOR SHALL REFER TO LANDSCAPE ARCHITECT'S PLANS FOR TREE PRESERVATION REQUIREMENTS AND FOR SUBGRADE ALLOWANCES IN LANDSCAPE AREAS.

    CONTRACTOR SHALL REFER TO STREET IMPROVEMENT PLANS FOR INTERFACING WITH PUBLIC GRADING, PAVING AND STORM DRAINAGE IMPROVEMENTS.

19. IF NOT DIMENSIONED, LOCATION OF FINISH GRADE ELEVATIONS AND FEATURES SUCH AS SWALES, RIDGE LINES, ETC. SHALL BE DETERMINED BY SCALE FROM KNOWN POINTS SHOWN ON THE PLANS. UNIFORM GRADIENTS OR VERTICAL CURVES, AS APPROPRIATE, SHALL BE ASSUMED BETWEEN CONTROL ELEVATIONS SHOWN ON THE PLANS.

20. SURFACE DRAINAGE GRADIENT ON SOIL OR LANDSCAPED AREAS SHALL NOT BE AT LESS THAN 2% (¼" PER FOOT). [EXCEPT FOR YARD DRAINAGE SWALES IDENTIFIED ON THE PLANS.]

    UNLESS INDICATED OTHERWISE ON PLANS, POSITIVE DRAINAGE SHALL BE MAINTAINED:

A. A MINIMUM OF 5% FOR 10 FEET FROM ALL STRUCTURE FOUNDATION ON SOIL OR IN LANDSCAPE AREAS.

B. A MINIMUM OF 2% WITHIN 10 FEET OF STRUCTURE FOUNDATION FOR IMPERVIOUS SURFACE.

C. AWAY FROM ALL SLOPES.

21. WHERE PLANTER AREAS ARE SHOWN ON THE PLANS ADJACENT TO BUILDINGS AND ARE CONTAINED BY WALKS / FLATWORK LESS THAN 8" BELOW BOTTOM OF SILL PLATE OR WHERE ADJACENT FINISH GRADE OUTSIDE A BUILDING IS SHOWN TO BE LESS THAN 8" BELOW BOTTOM OF SILL PLATE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT BUILDING PLANS CALL FOR APPROPRIATE DAMPPROOF OR WATERPROOF CONSTRUCTION AND THAT SAME IS CONSTRUCTED IN ACCORDANCE WITH ALL UNIFORM BUILDING CODE REQUIREMENTS.

22. PLAN ELEVATIONS SHOWN ON SOIL AND LANDSCAPED AREAS ARE FINISH GRADE (FINISH SURFACE) ELEVATIONS INTENDED TO ESTABLISH SURFACE DRAINAGE CONTROL FOR THESE AREAS. DURING GRADING OPERATIONS, THICKNESSES (SUBGRADE ALLOWANCES) SPECIFIED BY LANDSCAPE ARCHITECT FOR TURF, WOOD CHIPS, MULCH, ETC. SHALL BE SUBTRACTED FROM THESE ELEVATIONS TO ESTABLISH FINISH SUBGRADE.

23. PLAN ELEVATIONS SHOWN ON WALKWAYS, RAMPS, STEPS AND OTHER HARDSCAPE ARE INTENDED TO ESTABLISH GRADING AND SURFACE DRAINAGE CONTROL FOR THESE IMPROVEMENTS. [THESE CONTROL ELEVATIONS SHALL BE ADHERED TO UNLESS OTHERWISE NECESSARY FOR CONSTRUCTION OF THESE IMPROVEMENTS IN CONFORMANCE WITH BUILDING CODE AND A.D.A. REQUIREMENTS.] IT SHALL BE CONTRACTOR'S RESPONSIBILITY TO PERFORM DETAILED LAYOUT FOR AND TO CONSTRUCT WALKWAYS, RAMPS, STEPS, AND OTHER HARDSCAPE IN CONFORMANCE WITH ALL BUILDING CODE AND ACCESSIBILITY REQUIREMENTS INCLUDING THOSE FOR DIMENSIONING, SLOPE, CROSS-SLOPE, SURFACE TEXTURE, WARNING CURBS, AND HAND-RAILS.

24. [DROP-OFF FROM TOP OF WALK OR FLATWORK EDGE TO ADJACENT FINISH GRADE SHALL NOT EXCEED 3 INCHES UNLESS A 6-INCH HIGH WARNING CURB IS CONSTRUCTED ALONG THE EDGE AND THE EDGE IS THICKENED (DEEPENED) TO 6-INCHES MINIMUM BELOW ADJACENT FINISH GRADE.]

25. SITE FINISH GRADING SHALL BE COMPLETED AND CONFIRMED BY [SURVEY] [THE ENGINEER] [THE GENERAL CONTRACTOR] TO CONFORM TO APPROVED PLANS AND SPECIFICATIONS BEFORE LANDSCAPING AND IRRIGATION CONSTRUCTION CAN BEGIN.

    LANDSCAPE CONTRACTOR SHALL REMOVE FROM THE SITE AND PROPERLY DISPOSE OF ALL EARTH SPOIL FROM PLANT HOLES AND PIPE TRENCHES; EXCESS SOIL AND/OR MULCH SHALL NOT BE PLACED OR SPREAD AT THE SITE.

26. PAVEMENT STRUCTURAL SECTIONS SHOWN ON THESE PLANS ARE PRELIMINARY ESTIMATES. ACTUAL THICKNESS OF PAVEMENT SURFACING AND BASE COURSES SHALL BE AS DETERMINED BY THE GEOTECHNICAL ENGINEER AFTER COMPLETION OF ROUGH GRADING, BASED ON "R"-VALUE TESTS OF COMPLETED SUBGRADE MATERIAL AND THE TRAFFIC INDEXES (T.I.'S) SHOWN ON THE PLAN DETAILS, SUBJECT TO APPROVAL BY THE COUNTY PUBLIC WORKS DEPARTMENT. ADDITIONAL GRADING MAY BE NECESSARY TO ADJUST SUBGRADE ELEVATIONS TO ACCOMMODATE THE FINAL STRUCTURAL THICKNESS.

27. THE UPPER 12 INCHES OF FILL OR NATIVE SOIL BELOW THE BOTTOM OF AGGREGATE BASE OR SUBBASE COURSE (BELOW SUBGRADE) IN PAVEMENT AREAS, AND THE UPPER 6 INCHES OF FILL OR NATIVE SOIL BELOW THE CONCRETE OR SAND COURSE IN WALKWAY AREAS SHALL BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DENSITY.

28. BEFORE PLACEMENT OF AGGREGATE BASE OR SUBBASE MATERIAL IN PAVEMENT AREAS, THE SUBGRADE SOIL SHALL BE REVIEWED AND TESTED BY THE GEOTECHNICAL ENGINEER.

    DURING PAVING OPERATIONS, STRUCTURAL SECTION COMPACTION SHALL BE OBSERVED AND TESTED BY THE GEOTECHNICAL ENGINEER.

29. BEFORE BEGINNING WORK, CONTRACTOR SHALL OBTAIN APPROVAL FROM COUNTY DEPARTMENTS OF PUBLIC WORKS (TRANSPORTATION DIVISION) FOR IMPORT/EXPORT HAUL ROUTES AND TIMES.

30. SURFACE SOILS CONTAINING ORGANIC MATERIAL MAY BE STOCKPILED FOR FUTURE USE BY THE LANDSCAPE CONTRACTOR; HOWEVER, THIS OPERATION SHALL BE COORDINATED SO THAT UPON COMPLETION OF THE PROJECT, ALL EXCESS MATERIAL IS REMOVED FROM THE JOB SITE AND FINISH GRADES ARE AS CALLED FOR ON THE PLANS.

31. ANY EXPANSIVE CLAYS AND OTHER UNSUITABLE SOILS WHICH MAY BE ENCOUNTERED IN THE AREA TO BE GRADED SHALL BE USED AS FILL MATERIAL ONLY IN NON-CRITICAL AREAS AS DETERMINED BY THE GEOTECHNICAL ENGINEER.

32. [QUALITY REVIEW AND REPORTING REQUIREMENTS]

A. AT CONCLUSION OF ROUGH GRADING, A LICENSED LAND SURVEYOR RETAINED BY OWNER SHALL SPOT CHECK AND PROVIDE TO OWNER AND ENGINEER WRITTEN CERTIFICATION THAT BUILDING PAD GRADE AND PAVEMENT SUBGRADE ELEVATIONS ARE IN CONFORMANCE WITH APPROVED GRADING PLAN. CERTIFICATION SHALL INCLUDE A DRAWING SHOWING LOCATION OF SPOT ELEVATION READINGS.

B. UPON COMPLETION OF FINISH GRADING AND AFTER INSTALLATION OF LANDSCAPE PLANTINGS AND IRRIGATION BUT BEFORE PLACEMENT OF ANY MULCH OR WOOD CHIPS, A LICENSED LAND SURVEYOR RETAINED BY THE OWNER SHALL DETERMINE CONSTRUCTION RECORD ELEVATIONS AT LOCATIONS REQUIRED BY THE ENGINEER, GENERALLY DESCRIBED AS FOLLOWS:

1. BUILDING FINISH FLOOR

2. FINISH GRADE ALONG BUILDING PERIMETER

3. WALKWAY / RAMP SLOPES AND CROSS-SLOPES

4. TOP OF CURB, TOP OF PAVEMENT AND GUTTER FLOWLINE WITHIN PAVED AREAS

5. FINISH SUBGRADE AT HIGH POINTS, GRADE BREAKS, FLOWLINES AND ADJACENT TO CATCH BASINS WITHIN DIRT AREAS TO BE COVERED WITH MULCH OR WOOD CHIPS.

   ELEVATIONS SHALL BE RECORDED ON A SCREENED REPRODUCIBLE OF THE GRADING, DRAINAGE AND PAVING PLAN PROVIDED BY THE ENGINEER.

C. GRADING AND IMPROVEMENTS FOUND NOT IN CONFORMANCE WITH APPROVED PLANS AND DESIGN INTENT SHALL BE CORRECTED BY CONTRACTOR AT CONTRACTOR'S EXPENSE. ADDITIONAL SURVEYING TO CONFIRM ELEVATIONS AFTER CORRECTIVE MEASURES SHALL ALSO BE AT CONTRACTOR'S EXPENSE.

   REQUIREMENTS FOR VARIOUS SURFACING CONDITIONS ARE AS FOLLOWS:

   DIRT: NOT LESS THAN 2% (1/4 INCH PER FOOT) SLOPE IN DIRECTION OF SURFACE DRAINAGE AND 0.10 FOOT MAXIMUM DEVIATION FROM DESIGN ELEVATION AT ANY LOCATION

   A.C. PAVEMENT: NOT LESS THAN 1% (1/8 INCH PER FOOT) SLOPE IN DIRECTION OF SURFACE DRAINAGE AND 0.04 FOOT MAXIMUM DEVIATION FROM DESIGN ELEVATION AT ANY LOCATION

   CONCRETE: NOT LESS THAN 0.5% (1/16 INCH PER FOOT) SLOPE IN DIRECTION OF SURFACE DRAINAGE AND 0.02 FOOT MAXIMUM DEVIATION FROM DESIGN ELEVATION AT ANY LOCATION

D. FOLLOW-UP REVIEW BY ENGINEER OF MULCHED AREAS SHALL NOT RELIEVE CONTRACTOR OF RESPONSIBILITY FOR ENSURING THAT UNIFORM LAYER OF CORRECT THICKNESS OF MULCH OR CHIPS IS LAID DOWN AND THAT SUCH LAYER DOES NOT OBSTRUCT SURFACE DRAINAGE.

33. BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES: ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ONSITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOWS, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSE, OR WIND. STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER. FUELS, OILS, SOLVENTS, AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MAY NOT BE WASHED INTO THE DRAINAGE SYSTEM. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS MUST BE MADE TO RETAIN CONCRETE WASTES ONSITE UNTIL THEY CAN BE DISPOSED AS A SOLID WASTE. TRASH AND CONSTRUCTION RELATED SOLID WASTE MUST BE DEPOSITED INTO A COVERED WASTE RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND. SEDIMENTS AND OTHER MATERIAL MAY NOT BE TRACKED FROM THE SITE BY VEHICLE TRAFFIC. THE CONSTRUCTION ENTRANCE ROADWAYS MUST BE STABILIZED SO AS TO INHIBIT SEDIMENTS FROM BEING DEPOSITED INTO THE PUBLIC WAY. ACCIDENTAL DEPOSITION MUST BE SWEPT UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR OTHER MEANS. ANY SLOPES WITH DISTURBED SOILS OR DENUDED OF VEGETATION MUST BE STABILIZED SO AS TO MINIMIZE EROSION BY WIND AND WATER.

TRENCHING AND BACKFILL NOTES:

1. ALL TRENCHING, BEDDING AND BACKFILL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE PLANS AND REFERENCED STANDARD SPECIFICATIONS.

   FOR ANY CONFLICT BETWEEN THESE PLANS AND THE REQUIREMENTS OF THE COUNTY PUBLIC WORKS DEPARTMENT, THE MORE STRINGENT PROVISIONS SHALL GOVERN.

2. TRENCH OR STRUCTURE EXCAVATION SUBGRADE SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF BEDDING MATERIAL OR FORMS.

   WET OR UNSTABLE SOIL ENCOUNTERED IN THE BOTTOM OF THE EXCAVATION AND DEEMED BY THE GEOTECHNICAL ENGINEER TO BE INCAPABLE OF PROPERLY SUPPORTING THE PIPE OR STRUCTURE BEING CONSTRUCTED, SHALL BE REMOVED TO THE DEPTH RECOMMENDED BY THE GEOTECHNICAL ENGINEER AND THE EXCAVATION BACKFILLED TO THE BOTTOM OF THE PIPE OR STRUCTURE GRADE WITH SUITABLE MATERIAL RECOMMENDED BY THE GEOTECHNICAL ENGINEER.

3. WATER ENCOUNTERED IN TRENCH OR STRUCTURE EXCAVATION SHALL BE REMOVED BY THE CONTRACTOR TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER TO PROVIDE DRY CONDITIONS DURING CONSTRUCTION OF PIPE OR STRUCTURE.

4. BEDDING AND BACKFILL MATERIAL AND THEIR COMPACTED DENSITY SHALL BE TESTED FOR COMPLIANCE WITH APPLICABLE REQUIREMENTS BY THE [GEOTECHNICAL ENGINEER] [MATERIALS ENGINEER, COUNTY DEPARTMENT OF PUBLIC WORKS, TRANSPORTATION DIVISION].

5. BEDDING AND PIPE ZONE BACKFILL MATERIAL SHALL BE COMPACTED TO NOT LESS THAN 95% OF MAXIMUM DENSITY.

   TRENCH BACKFILL SHALL BE COMPACTED TO NOT LESS THAN [90%] [95%] OF MAXIMUM DENSITY; THE UPPER 12" BELOW THE BASE OR SUB-BASE COURSE IN PAVED AND OTHER TRAFFIC AREAS AND BELOW THE CONCRETE OR SAND COURSE IN WALKWAY AREAS SHALL BE COMPACTED TO NOT LESS THAN 95% OF MAXIMUM DENSITY.

   BACKFILL COMPACTION SHALL BE TESTED FOR COMPLIANCE WITH THESE REQUIREMENTS IN ACCORDANCE WITH A.S.T.M. STANDARD D-1557 OR ASTM STANDARD D-6938, LATEST REVISION, AND REPORTED BY THE GEOTECHNICAL ENGINEER.

6. CLASS I OR CLASS II (TRENCH) BACKFILL SHALL NOT BE PLACED UNTIL BEDDING AND INITIAL (PIPE ZONE) BACKFILL HAVE BEEN OBSERVED, TESTED AND APPROVED.

7. COUNTY OF VENTURA REQUIRES TRENCH BACKFILL WITHIN PUBLIC ROAD RIGHT-OF-WAY TO BE 1-SACK CEMENT SLURRY **BEGINNING 6 INCHES ABOVE TOP OF PIPE**. [THIS MAY CONFLICT WITH PIPE ZONE DIMENSION REQUIRED BY OWNER OF PIPELINE; CONTRACTOR SHALL CONFIRM LIMITS OF PIPE ZONE AND TRENCH ZONE AND RESOLVE ANY CONFLICTS IN ADVANCE OF CONSTRUCTION.]

8. COMPACTION BY FLOODING OR JETTING IS NOT PERMITTED UNLESS SPECIFICALLY APPROVED BY THE GEOTECHNICAL ENGINEER AND THE COUNTY INSPECTOR AND THE OWNER OF THE PIPE OR CONDUIT.

9. ALL WORK INVOLVING EXCAVATION INCLUDING THAT FOR WATER, SEWER, STORM DRAIN AND UTILITY CONDUITS AND ALL SERVICE CONNECTIONS AND METER BOXES (NOT PERMITTED IN DRIVEWAYS) SHALL BE COMPLETED AND OBSERVED AND APPROVED BY THE AGENCY HAVING JURISDICTION AND THE STRUCTURAL BACKFILL OBSERVED AND TESTED FOR COMPACTION AND APPROVED BY THE GEOTECHNICAL ENGINEER BEFORE AGGREGATE BASE, PAVING AND OTHER PERMANENT SURFACE CONSTRUCTION MAY COMMENCE.

10. ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH APPLICABLE HEALTH AND SAFETY LAWS, ORDINANCES, REGULATIONS, RULES, AND STANDARDS INCLUDING ALL REQUIREMENTS OF THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY AND OF CAL-OSHA.

11. CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN SUCH SHEETING, SHORING, BRACING, AND/OR OTHER PROTECTION AS IS NECESSARY TO PREVENT FAILURE OF TEMPORARY EXCAVATIONS AND EMBANKMENTS AND TO PREVENT DAMAGE TO EXISTING IMPROVEMENTS, TEMPORARY IMPROVEMENTS, AND PARTIALLY COMPLETED PORTIONS OF THE WORK. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE SUFFICIENCY OF SUCH SUPPORTS AND/OR OTHER PROTECTION.

12. GEOTECHNICAL REPORTS INDICATE THAT GROUNDWATER MAY BE ENCOUNTERED NEAR THE GROUND SURFACE. CONTRACTOR SHALL INSTALL DEWATERING SYSTEMS AS REQUIRED AND AS APPROVED BY THE GEOTECHNICAL ENGINEER TO LOWER THE WATER LEVEL TO A MINIMUM OF 1.5 FEET BELOW THE BOTTOM OF EXCAVATIONS FOR ALL IMPROVEMENTS CONSTRUCTED FOR THIS PROJECT.

    ANY ADJUSTMENTS OR REVISIONS TO THESE PLANS DEEMED NECESSARY BECAUSE OF THE LOCATION AND/OR DEPTH OF EXISTING STRUCTURES OR CONDUITS SHALL BE APPROVED IN WRITING BY THE ENGINEER AND THE RELATED GOVERNMENT ENTITY OR UTILITY COMPANY PRIOR TO PROCEEDING WITH CONSTRUCTION.

13. BEFORE BEGINNING WORK, CONTRACTOR SHALL DETERMINE OR VERIFY THE LOCATION AND FLOWLINE ELEVATION OF ALL EXISTING WATER, SEWER, AND DRAINAGE STRUCTURES AND/OR CONDUITS TO BE JOINED BY NEW CONSTRUCTION.

    BEFORE BEGINNING WORK, CONTRACTOR SHALL DETERMINE OR VERIFY THE LOCATION AND DEPTH OF ALL EXISTING STRUCTURES AND/OR CONDUITS WHICH CROSS OR OTHERWISE MAY CONFLICT WITH NEW CONSTRUCTION.

14. CONTRACTOR SHALL REVIEW THE GEOTECHNICAL REPORT(S) AND THE PROJECT WORK AREA AND VICINITY AND SHALL FAMILIARIZE HIMSELF WITH THE WORK AREA CONDITIONS.

    CONTRACTOR SHALL MAKE HIS OWN DEDUCTIONS AND CONCLUSIONS AS TO HOW EXISTING SURFACE AND SUB-SURFACE CONDITIONS WILL AFFECT OR BE AFFECTED BY HIS CONSTRUCTION OPERATIONS, INCLUDING THE NATURE OF MATERIALS TO BE EXCAVATED, THE DEGREE OF DIFFICULTY ASSOCIATED WITH MAKING AND MAINTAINING THE REQUIRED EXCAVATIONS, AND THE DEGREE OF DIFFICULTY WHICH MAY ARISE FROM SUBSURFACE CONDITIONS INCLUDING GROUNDWATER, AND SHALL ACCEPT FULL RESPONSIBILITY THEREFOR.

15. IT IS CONTRACTOR'S RESPONSIBILITY TO PROTECT THE INTEGRITY OF EXISTING PAVEMENT ALONG AND BEHIND THE TRENCH SAWCUT LINES DURING CONSTRUCTION; IF THIS PAVEMENT IS BROKEN-OFF OR OTHERWISE DAMAGED BEFORE NEW PAVEMENT IS PLACED, CONTRACTOR SHALL SAWCUT A NEW CONFORM LINE PARALLEL WITH, FULL LENGTH OF, AND SUFFICIENT DISTANCE (1-FOOT MINIMUM) BEHIND ORIGINAL SAWCUT SO AS TO REMOVE DAMAGED PAVEMENT AND / OR IRREGULARITY ALONG THE CONFORM LINE.

STORM DRAIN NOTES:

1. ALL PUBLIC [AND PRIVATE] STORM DRAIN MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE PLANS AND REFERENCED STANDARD SPECIFICATIONS [INCLUDING THE PIPE TRENCH DETAIL] [AND WITH THE PROJECT-SPECIFIC AND STANDARD REQUIREMENTS OF THE COUNTY PUBLIC WORKS DEPARTMENT, INCLUDING TRANSPORTATION DIVISION STANDARD DETAILS, LATEST UPDATE, WHICH INCLUDE BY REFERENCE THE CURRENT VERSIONS OF STANDARD SPECIFICATIONS AND STANDARD PLANS OF THE CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS); AND STANDARD PLANS AND STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION ("GREENBOOK," LATEST EDITION).

2. CONCRETE FOR ALL DRAINAGE FACILITIES SHALL BE CLASS 560-C-3250.

3. CONTRACTOR(S) SHALL SCHEDULE STORM DRAIN WORK [AFTER GRAVITY SEWER CONSTRUCTION AND] AHEAD OF OTHER UNDERGROUND CONDUIT CONSTRUCTION.

4. GRAVITY STORM DRAIN WORK SHALL BEGIN AT THE LOWEST POINT OF DISCHARGE AND PROCEED UPSTREAM.

5. REINFORCED CONCRETE PIPE (RCP) MATERIALS AND INSTALLATION SHALL COMPLY WITH THE REFERENCED [STANDARD] [CALTRANS] SPECIFICATIONS. RCP STRENGTH CLASS SHALL BE AS CALLED FOR ON THE PLANS AND SHALL BE A.S.T.M. STANDARD C-76 CLASS III MINIMUM.

   [JOINTS SHALL BE TONGUE AND GROOVE, WITH COMPRESSION TYPE RUBBER GASKET CONFORMING TO A.S.T.M. STANDARD C-443. AFTER PIPE ASSEMBLY, JOINT SPACE ON EXTERIOR SIDE OF GASKET SHALL BE FILLED WITH CEMENT MORTAR.]

   [JOINTS SHALL BE TONGUE AND GROOVE, FULLY GROUTED INSIDE AND OUTSIDE DURING INSTALLATION.]

   RCP SHALL BE INSTALLED TO THE LINES AND GRADES CALLED FOR ON THE PLANS. JOINTS SHALL NOT BE PULLED, DEFLECTED OR LEFT PARTIALLY OPEN. CURVES SHALL BE CONSTRUCTED OF PIPE SECTIONS FACTORY-MANUFACTURED WITH ONE OR BOTH ENDS BEVELED 5 DEGREES IN ACCORDANCE WITH THE FOLLOWING TABLE:

CURVE RADIUS (FEET)	PIPE SECTION LENGTH (FEET)	ENDS BEVELED 5°
22.5	4	BOTH
45.0	4	ONE
90.0	8	BOTH
180.0	8	ONE

6. CORRUGATED METAL PIPE (CMP) SHALL BE CONTECH (ARMCO) HEL-COR ALUMINIZED STEEL TYPE 2 PIPE WITH 2-2/3" X 1/2" HELICAL CORRUGATIONS. EACH PIPE END SHALL BE REFORMED TO PROVIDE AT LEAST TWO (2) ANNULAR CORRUGATIONS FOR HUGGER JOINT ASSEMBLY WITH O-RING GASKETS. WALL THICKNESS SHALL BE AS CALLED FOR ON THE PLANS AND SHALL BE 14 GAUGE (0.079") MINIMUM.

   CMP SHALL BE SUPPLIED WITH ASPHALT PAVED INVERT.

   CMP INSTALLATION SHALL COMPLY WITH THE REFERENCED [STANDARD] [CALTRANS] SPECIFICATIONS AND WITH THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDED PROCEDURES.

7. POLYVINYL CHLORIDE (PVC) PIPE FOR 4" THROUGH 15" SIZE SHALL COMPLY WITH THE MOST RECENT ISSUE OF A.S.T.M. STANDARD D-3034 (SDR 35).

   PVC PIPE FOR 18" THROUGH 27" SIZE SHALL COMPLY WITH THE MOST RECENT ISSUE OF A.S.T.M. STANDARD F-679 FOR WALL THICKNESS T-1.

   PVC PIPE SHALL HAVE AN INTEGRALLY MOLDED BELL OR SOCKET END FOR GASKETED JOINT ASSEMBLY. JOINTS AND GASKETS SHALL COMPLY WITH THE MOST RECENT ISSUE OF A.S.T.M. STANDARD D-3212 AND F-477, RESPECTIVELY.

   PVC PIPE INSTALLATION SHALL COMPLY WITH UNI-BELL PLASTIC PIPE ASSOCIATION STANDARD UNI-B-5, LATEST REVISION.

   PVC PIPE CONNECTIONS TO MANHOLES, CATCH BASINS AND OTHER CONCRETE STRUCTURES SHALL BE CONSTRUCTED WITH WATERSTOP AT MIDPOINT OF STRUCTURE WALL PENETRATION. WATERSTOP SHALL BE PVC CONCRETE MANHOLE ADAPTER (4" THROUGH 12" PIPE) OR LARGE DIAMETER WATERSTOP AS MANUFACTURED BY FERNCO, OR EQUIVALENT APPROVED BY THE ENGINEER.

8. DUCTILE IRON PIPE (DIP) MATERIALS AND INSTALLATION SHALL COMPLY WITH SECTION 207-9 AND SECTION 306 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION. STRENGTH CLASS SHALL BE AS CALLED FOR ON THE PLANS AND SHALL BE PRESSURE CLASS 350 MINIMUM. DIP SHALL HAVE INTEGRAL SOCKET END FOR GASKETED PUSH-ON JOINT ASSEMBLY.

9. HIGH DENSITY POLYETHYLENE (HDPE) PIPE AND FITTINGS FOR 4" THROUGH 48" SIZE SHALL BE N-12 PROLINK WT (WATERTIGHT) SERIES AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC. (ADS).

   LATERAL CONNECTIONS TO MAINLINES SHALL BE MADE USING MANUFACTURER'S WATERTIGHT REDUCING FITTINGS.

   PIPE AND FITTING INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDED PROCEDURES; CONNECTIONS TO CONCRETE STRUCTURES SHALL BE CONSTRUCTED WATERTIGHT USING MANUFACTURER'S RECOMMENDED MATERIALS AND METHODS.

10. GRATED CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLAN DETAIL SHOWN HEREON. ALL GRATES AND FRAMES SHALL BE TRAFFIC-WEIGHT FURNISHED WITH LOCK SCREWS TO PREVENT VANDALISM. GRATES SHALL BE OF BICYCLE-PROOF DESIGN.

11. BICYCLE-PROOF GRATED COVER SHALL BE SUBSTITUTED FOR SOLID COVER AT MANHOLES WHERE CALLED FOR ON THESE PLANS. FRAME AND COVER SHALL BE TRAFFIC-WEIGHTFURNISHED WITH LOCK SCREWS TO PREVENT VANDALISM.

CONCRETE NOTES:

1. ALL PRIVATE ASPHALT PAVEMENT AND APPURTENANT CONCRETE MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE PLANS AND REFERENCED SPECIFICATIONS AND WITH THE PROJECT-SPECIFIC AND STANDARD REQUIREMENTS OF THE COUNTY PUBLIC WORKS DEPARTMENT, INCLUDING TRANSPORTATION DIVISION STANDARD DETAILS, LATEST UPDATE, WHICH INCLUDE BY REFERENCE CURRENT VERSIONS OF THE STANDARD SPECIFICATIONS AND STANDARD PLANS OF THE CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS); AND STANDARD PLANS AND STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION ("GREENBOOK," LATEST EDITION).

2. ASPHALT CONCRETE SHALL BE IN CONFORMANCE WITH SECTION 203-6.

   IF TOTAL ASPHALT CONCRETE THICKNESS IS GREATER THAN 0.20-FOOT (2½ INCHES), IT SHALL BE SPREAD AND COMPACTED IN AT LEAST TWO (2) LAYERS WITH THE TOP LAYER (FINISH COURSE) NOT EXCEEDING 0.20-FOOT IN COMPACTED THICKNESS AS FOLLOWS:

FINISH COURSE:	C2-PG 64-10
BASE COURSE: (IF MORE THAN 1 LAYER)	B-PG 64-10
OVERLAY:	C2-PG 64-10
LEVELING COURSE AND SKIN PATCHING:	D2-PG 64-10

   PAVING ASPHALT SHALL BE GRADE PG 64-10 IN CONFORMANCE WITH SECTION 203-1 OF THE STANDARD SPECIFICATIONS. THE PAVING ASPHALT MIXTURE SHALL CONTAIN A MAXIMUM OF 10% RECLAIMED ASPHALT PAVEMENT (RAP).

3. BEFORE PAVING A PAINT BINDER (TACK COAT) OF ASPHALTIC EMULSION SHALL BE APPLIED TO ALL EXISTING VERTICAL SURFACES AGAINST WHICH PAVING IS TO BE PLACED AND BETWEEN PAVEMENT COURSES CONSTRUCTED MORE THAN 24 HOURS APART.

4. THE COMPOSITION OF ALL CUTBACK AND EMULSIFIED ASPHALT USED IN THE MANUFACTURE, PLACEMENT OR MAINTENANCE OF ASPHALT CONCRETE PAVEMENT SHALL CONFORM WITH COUNTY OF VENTURA AIR POLLUTION CONTROL DISTRICT. CONTRACTOR SHALL MAINTAIN RECORDS AVAILABLE FOR INSPECTION FOR A PERIOD OF 2 YEARS WHICH DOCUMENT THE TYPES AND AMOUNTS OF ASPHALTS USED.

5. BASE MATERIAL SHALL BE CRUSHED AGGREGATE BASE IN CONFORMANCE WITH 200-2.2 OF THE STANDARD SPECIFICATIONS.

6. GEOGRID REINFORCEMENT SHALL BE TENSAR BX1200 INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

7. THE PRELIMINARY ESTIMATED ASPHALT PAVEMENT STRUCTURAL SECTION IS AS SHOWN ON THE PLAN DETAILS.

   THE PRELIMINARY ESTIMATED CONCRETE PAVEMENT STRUCTURAL SECTION IS AS SHOWN ON THE PLAN DETAILS.

   ACTUAL THICKNESS OF PAVEMENT SURFACING AND BASE COURSES SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AFTER COMPLETION OF ROUGH GRADING BASED ON "R"-VALUE TESTS OF COMPLETED SUBGRADE MATERIAL AND THE TRAFFIC INDEXES (T.I.'s) SHOWN ON THE PLAN DETAILS, SUBJECT TO APPROVAL BY THE COUNTY PUBLIC WORKS DEPARTMENT.

   PREPARATION OF AREAS TO RECEIVE PAVEMENT AND APPURTENANT CONCRETE IMPROVEMENTS, INCLUDING REMOVAL AND RECOMPACTION OF EXISTING SOIL AND PLACEMENT OF FILL SOIL, SHALL BE AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.

8. COMPACTION OF FILL, SUBGRADE AND BASE COURSES AS WELL AS ALL TRENCH BEDDING AND BACKFILL SHALL BE OBSERVED AND TESTED FOR COMPLIANCE WITH APPLICABLE REQUIREMENTS BY THE GEOTECHNICAL ENGINEER.

9. ALL WORK INVOLVING EXCAVATION INCLUDING THAT FOR WATER, SEWER, STORM DRAIN AND UTILITY CONDUITS AND ALL SERVICE CONNECTIONS AND METER BOXES (NOT PERMITTED IN DRIVEWAYS) SHALL BE COMPLETED AND OBSERVED AND APPROVED BY THE AGENCY HAVING JURISDICTION AND THE STRUCTURAL BACKFILL OBSERVED AND TESTED FOR COMPACTION AND APPROVED BEFORE AGGREGATE BASE, PAVING AND OTHER PERMANENT SURFACE CONSTRUCTION MAY COMMENCE.

10. CONCRETE FOR CURBS, GUTTERS, DRIVEWAYS, AND SIDEWALKS SHALL BE CLASS 520-C-2500. CONCRETE FOR DRAINAGE STRUCTURES SHALL BE CLASS 560-C-3250. CONCRETE PAVEMENT SHALL BE CLASS 520-A-2500.

11. WHERE GUTTER GRADIENT IS LESS THAN 1.0%, FORM ELEVATIONS SHALL BE CONFIRMED BY LICENSED LAND SURVEYOR PRIOR TO POURING CONCRETE.

12. REINFORCING STEEL SHALL BE GRADE 60 BILLET STEEL CONFORMING TO ASTM A 615. STEEL BENDING PROCESS SHALL CONFORM TO THE REQUIREMENTS OF MANUAL OF STANDARD PRACTICE OF THE CONCRETE REINFORCING STEEL INSTITUTE. BENDING OR STRAIGHTENING SHALL BE ACCOMPLISHED SO THAT THE STEEL WILL NOT BE DAMAGED. KINKED BARS SHALL NOT BE USED.

13. JOINTS IN CONCRETE PAVEMENT

    A. **WEAKENED PLANE CRACK CONTROL (CONTRACTION) JOINTS** SHALL BE CONSTRUCTED AT REGULAR INTERVALS NOT EXCEEDING 10-FEET EACH WAY (LONGITUDINAL AND TRANSVERSE) AND AT ADDITIONAL LOCATIONS AS MAY BE CALLED FOR ON THE PLANS. JOINTS SHALL BE CONSTRUCTED PER SUBSECTION 303-5.4.2 OF THE SSPWC AS MODIFIED BY THE PLAN DETAILS AND THESE NOTES. REINFORCEMENT SHALL BE CONTINUOUS THROUGH JOINTS.

       DEPTH OF JOINTS SHALL BE ¼ SLAB THICKNESS + ½-INCH (I.E., 2-INCHES FOR 6-INCH SLAB).

       JOINTS SHALL BE CONSTRUCTED BY SAWCUTTING GROOVES AS SOON AS CONCRETE HAS HARDENED SUFFICIENTLY TO PERMIT SAWING WITHOUT RAVELING (USUALLY 4 TO 24 HOURS AFTER PLACEMENT). JOINTS SHALL BE FILLED WITH JOINT SEALANT (SIKAFLEX-2cNS OR EQUIVALENT, COLOR LIMESTONE GRAY) AS SOON AFTER COMPLETION OF THE CURING PERIOD AS IS FEASIBLE AND BEFORE PAVEMENT IS OPENED TO TRAFFIC. JOINTS SHALL BE CLEANED OF ALL FOREIGN MATERIAL, INCLUDING MEMBRANE CURING COMPOUNDS, AND SHALL BE SURFACE-DRY WHEN SEALANT IS INSTALLED.

       JOINT LOCATIONS SHALL BE ADJUSTED AS NECESSARY TO ALIGN WITH THOSE ALREADY CONSTRUCTED IN EXISTING ADJACENT (CONTIGUOUS) FEATURES SUCH AS CURBS AND GUTTERS. ALONG CURVES, TRANSVERSE JOINTS SHALL BE RADIAL.

    B. **EXPANSION JOINTS** SHALL BE CONSTRUCTED AT LOCATIONS CALLED FOR ON THE PLANS AND AT RANDOM INTERVALS NOT EXCEEDING 100 FEET. JOINTS SHALL BE CONSTRUCTED PER SUBSECTION 303-5.4.2 AS MODIFIED BY THE PLAN DETAILS AND THESE NOTES.

       JOINTS SHALL BE CONSTRUCTED ½-INCH WIDE USING ONE PIECE OF PREFORMED JOINT FILLER INSTALLED FROM BOTTOM OF SLAB TO WITHIN 1" OF CONCRETE SURFACE. THE RESULTING RESERVOIR SHALL BE FILLED WITH JOINT SEALANT TO WITHIN ¼" OF CONCRETE SURFACE AS SOON AFTER COMPLETION OF THE CURING PERIOD AS IS FEASIBLE AND BEFORE PAVEMENT IS OPENED TO TRAFFIC. JOINTS SHALL BE CLEANED OF ALL FOREIGN MATERIAL, INCLUDING MEMBRANE CURING COMPOUND, AND SHALL BE SURFACE-DRY WHEN SEALANT IS INSTALLED.

       REINFORCING BARS SHALL BE INTERRUPTED 3 INCHES CLEAR OF EXPANSION JOINTS AND MINIMUM 14-INCH LONG SMOOTH DOWELS INSTALLED ACROSS, AND CENTERED ON, THE JOINT. DOWEL DIAMETER SHALL BE 1/8 SLAB THICKNESS (I.E., 1" FOR 8" SLAB, ¾" FOR 6" SLAB). ONE-HALF (ONE END) OF THE DOWEL SHALL BE INSTALLED WITHIN A "SPEED DOWEL" TUBE WITH A 1-INCH GAP BETWEEN THE END OF THE DOWEL AND THE SEALED END OF THE TUBE. DOWELS SHALL BE INSTALLED AT 12 INCHES ON CENTER HORIZONTALLY, CENTERED IN THE SLAB VERTICALLY, AND A MINIMUM OF 3 INCHES CLEAR OF ANY REBAR.

       JOINT LOCATIONS SHALL BE ADJUSTED AS NECESSARY TO ALIGN WITH THOSE ALREADY CONSTRUCTED IN EXISTING ADJACENT (CONTIGUOUS) FEATURES SUCH AS CURBS AND GUTTERS. ALONG CURVES, TRANSVERSE JOINTS SHALL BE RADIAL.

14. JOINTS IN CURBS, GUTTERS AND WALKS

    A. **TRANSVERSE WEAKENED PLANE CRACK CONTROL JOINTS** SHALL BE CONSTRUCTED AT REGULAR INTERVALS NOT EXCEEDING 10-FEET, DIRECTLY ABOVE DRAIN PIPES THAT OUTLET THROUGH CURB AND AT ADDITIONAL LOCATIONS AS MAY BE CALLED FOR ON THE PLANS. JOINTS SHALL BE CONSTRUCTED PER SUBSECTION 303-5.4.3 PARAGRAPH B OF THE SSPWC AS MODIFIED BY THE PLAN DETAILS AND THESE NOTES. REINFORCEMENT SHALL BE CONTINUOUS THROUGH JOINTS.

       JOINT LOCATIONS SHALL BE ADJUSTED AS NECESSARY TO ALIGN WITH THOSE ALREADY CONSTRUCTED IN EXISTING ADJACENT (CONTIGUOUS) FEATURES. ALONG CURVES AND WALK RETURNS, JOINTS SHALL BE RADIAL.

    B. **TRANSVERSE EXPANSION JOINTS** SHALL BE CONSTRUCTED AT BCR, ECR, AND AT REGULAR INTERVALS NOT EXCEEDING 30-FEET; ALONG EDGES OF DRIVEWAYS, WHEELCHAIR RAMPS, AND FIXED OBJECTS AND STRUCTURES (FIRE HYDRANT, LIGHT STANDARD, UTILITY POLE, DRAIN INLET, MANHOLE OR VALVE COVER, SCREEN/RETAINING WALL, BUILDING WALL, ETC.); AT ADDITIONAL LOCATIONS AS MAY BE CALLED FOR ON THE PLANS. EXPANSION JOINTS SHALL NOT BE CONSTRUCTED IN CROSS OR VALLEY GUTTER WHICH IS SEPARATE FROM CURB. JOINTS SHALL BE CONSTRUCTED PER SUBSECTION 303-5.4.2 OF THE SSPWC AS MODIFIED BY THE PLAN DETAILS AND THESE NOTES.

       JOINTS SHALL BE CONSTRUCTED ½-INCH WIDE USING ONE PIECE OF PREFORMED JOINT FILLER INSTALLED FROM BOTTOM OF SLAB TO WITHIN 1-INCH OF CONCRETE SURFACE. THE RESULTING RESERVOIR SHALL BE FILLED WITH JOINT SEALANT TO WITHIN ¼-INCH OF CONCRETE SURFACE AS SOON AFTER COMPLETION OF THE CURING PERIOD AS IS POSSIBLE. JOINTS SHALL BE CLEANED OF ALL FOREIGN MATERIAL, INCLUDING MEMBRANE CURING COMPOUNDS, AND SHALL BE SURFACE-DRY WHEN SEALANT IS INSTALLED.

       LONGITUDINAL REINFORCING BARS SHALL BE INTERRUPTED 3 INCHES CLEAR OF EXPANSION JOINTS AND MINIMUM 14-INCH LONG #5 SMOOTH DOWELS INSTALLED ACROSS, AND CENTERED ON, THE JOINT. ONE-HALF (ONE END) OF THE DOWEL SHALL BE INSTALLED WITHIN A "SPEED DOWEL" TUBE WITH A 1-INCH GAP BETWEEN THE END OF THE DOWEL AND THE SEALED END OF THE TUBE. DOWELS SHALL BE CENTERED VERTICALLY IN THE CONCRETE AND A MINIMUM OF 3 INCHES CLEAR HORIZONTALLY OF ANY REBAR.

       JOINT LOCATIONS SHALL BE ADJUSTED AS NECESSARY TO ALIGN WITH THOSE ALREADY CONSTRUCTED IN EXISTING ADJACENT (CONTIGUOUS) FEATURES. ALONG CURVES AND THROUGH WALK RETURNS, JOINTS SHALL BE RADIAL.

15. ALL A.C. PAVEMENT EDGES NOT PLACED AGAINST CONCRETE SHALL TERMINATE WITH 2 X 4 REDWOOD HEADER ANCHORED WITH 18"-LONG 2 X 3 STAKES AT 4' INTERVALS.

16. ALL EXISTING AND PROPOSED VALVE AND UTILITY BOXES AND MANHOLE FRAMES AND COVERS SHALL BE ADJUSTED TO FINISH GRADE.

17. AFTER CONSTRUCTION OF A.C. PAVEMENT AND APPURTENANT CONCRETE FEATURES BUT BEFORE SEAL COATING AND PAINTING STRIPING AND MARKINGS, A FLOOD TEST SHALL BE CONDUCTED TO REVIEW SURFACE DRAINAGE, AS FOLLOWS:

    A. WATER SHALL BE SUPPLIED AND DISCHARGED IN SUFFICIENT QUANTITY TO COMPLETELY WET AND COVER ALL A.C. PAVEMENT AND CONCRETE GUTTER AREAS; THE OUTLINE LIMITS OF RESIDUAL STANDING/PONDED WATER SHALL THEN BE MARKED.

    B. A.C. PAVEMENT AND CONCRETE GUTTER IMPROVEMENTS SHALL BE REMOVED AND REPLACED, AT NO ADDITIONAL COST TO THE OWNER, AS NECESSARY TO PROVIDE POSITIVE SURFACE DRAINAGE AND TO PREVENT PONDING OF WATER ON PAVEMENT SURFACES AND IN GUTTERS.

    C. ADDITIONAL FLOOD TESTING SHALL BE CONDUCTED TO CONFIRM SUCCESS OF CORRECTIVE MEASURES.

18. WHERE SAWCUT LINE IS CONSTRUCTED ALONG CONFORM LINE WITH EXISTING A.C. PAVEMENT, IT IS CONTRACTOR'S RESPONSIBILITY TO PROTECT THE INTEGRITY OF THE PAVEMENT ALONG AND BEHIND THE SAWCUT LINE DURING CONSTRUCTION; IF THIS PAVEMENT IS BROKEN-OFF OR OTHERWISE DAMAGED BEFORE NEW PAVEMENT IS PLACED, CONTRACTOR SHALL SAWCUT A NEW CONFORM LINE PARALLEL WITH, FULL LENGTH OF, AND SUFFICIENT DISTANCE BEHIND ORIGINAL SAWCUT SO AS TO REMOVE DAMAGED PAVEMENT AND / OR IRREGULARITY ALONG THE CONFORM LINE.

19. SITE DEVELOPMENT FINISH SURFACE GRADING CRITERIA

    IT IS THE DESIGN ENGINEER'S INTENT THAT THE FOLLOWING MINIMUM AND MAXIMUM SLOPES (GRADIENTS) BE MAINTAINED ON CONSTRUCTED FINISH SURFACES. IT SHALL BE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THESE MINIMUM AND MAXIMUM SLOPES ARE ADHERED TO AND MAINTAINED DURING CONSTRUCTION.

SURFACE TYPE	MINIMUM SLOPE	MAXIMUM SLOPE
CONCRETE WALK, CROSS-SLOPE	0.5%(200:1)	2.0%(50:1)
CONCRETE WALK, LONGITUDINAL SLOPE	0.5%(200:1)*	5.0%(20:1)
CONCRETE PAVEMENT	0.5%(200:1)*	5.0%(20:1)
ASPHALT PAVEMENT	1.0%(100:1)*	5.0%(20:1)
GRADED LANDSCAPE SWALES	1.5%(67:1)	16%(6:1)
GRADED LANDSCAPE AREAS	2.0%(50:1)	50%(2:1)

    *ACCESSIBLE RAMPS MAY EXCEED THESE MAXIMUMS BUT MUST COMPLY WITH ADA REQUIREMENTS.

20. CONCRETE COLOR AND FINISH CRITERIA

    A. ALL EXPOSED CONCRETE CONSTRUCTED OR PRE-CAST AND SUPPLIED AS A PART OF THIS WORK FOR WALLS, CURBS, GUTTERS, AND DRAIN INLETS TO BE COLORED WITH [BY DAVIS] (OR APPROVED EQUAL) IN ACCORDANCE WITH PRODUCT MANUFACTURER'S RECOMMENDATIONS.

    B. SAMPLE POURS OF EACH CONCRETE MIX AND EACH SURFACE FINISH AS SPECIFIED FOR THIS PROJECT ARE TO BE POURED ON A 3' X 3' MINIMUM TRAY, CURED AND INSPECTED AND APPROVED BY THE OWNER AND THE PROJECT ENGINEER.

    C. A COLOR SEALER CURING COMPOUND OF MATCHING COLOR IS TO BE APPLIED TO ALL EXPOSED SURFACES.

PLEASANT VALLEY SCHOOL DISTRICT

600 TEMPLE AVENUE, CAMARILLO, CA 93010

ENGINEER

ENGINEER'S STAMP

CONSULTANT

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REGISTERED PROFESSIONAL ENGINEER ROBERT A. SCHMIDT No. 71335 CIVIL STATE OF CALIFORNIA

PROJECT TITLE AND ADDRESS

SITE PIPING REPLACEMENT, PHII & QUAD RENOVATION PROJECT

SANTA ROSA TECHNOLOGY MAGNET SCHOOL
13282 SANTA ROSA RD, CAMARILLO, CA 93012

REVISIONS

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SHEET TITLE

GENERAL NOTES (SPECIFICATIONS)

DATE
SCALE
PROJECT NO.
DRAWN BY
CHECKED BY

SHEET NUMBER

G-2

GENERAL CONSTRUCTION NOTES THIS SHEET:

A. REFER TO LEGEND AND OTHER PLAN USE INFORMATION ON SHEET G-1.

B. SEE LANDSCAPE ARCHITECT'S PLANS FOR ALL LANDSCAPING AND TREE PROTECTIONS / REMOVALS.

C. PROTECT EXISTING UTILITIES WITHIN WORK AREA; NOTIFY ***UNDERGROUND SERVICE ALERT*** AT LEAST 2 WORKING DAYS IN ADVANCE OF BEGINNING EXCAVATION AT 1-800-422-4133.

D. EXISTING BURIED CONDUITS / PIPES / STRUCTURES KNOWN TO THE ENGINEER ARE SHOWN ON THE DRAWINGS, BASED ON RECORD INFORMATION OR INPUT FROM OTHERS. THE LOCATIONS OF THOSE SHOWN ARE APPROXIMATE (SCHEMATIC) ONLY AND, MOST LIKELY, OTHERS EXIST WHICH HAVE NOT BEEN SHOWN. INVESTIGATE, LOCATE AND MARK ALL EXISTING BURIED CONDUITS, PIPES AND STRUCTURES PRIOR TO START OF GRADING OR TRENCHING. PROTECT AND MAINTAIN IN SERVICE ALL SUCH FACILITIES UNTIL OTHERWISE APPROVED IN WRITING BY DISTRICT.

E. HORIZONTAL LOCATIONS OF EXISTING BURIED CONDUITS / PIPES / STRUCTURES AS SHOWN ON THE DRAWINGS OR AS MARKED IN THE FIELD ARE APPROXIMATE ONLY; VERTICAL LOCATIONS ARE NOT KNOWN. BEFORE BEGINNING TRENCHING OR GRADING, LOCATE AND EXPOSE ALL BURIED CONDUITS / PIPES / STRUCTURES WHICH CROSS OR OTHERWISE MAY CONFLICT WITH NEW IMPROVEMENTS OR WHICH ARE TO BE JOINED BY NEW CONSTRUCTION AND HAVE HORIZONTAL AND VERTICAL LOCATIONS DETERMINED BY SURVEY. PROVIDE RESULTS OF THIS INVESTIGATION AND SURVEY TO ENGINEER FOR REVIEW BEFORE WORK IS COMMENCED. ALLOW FIVE (5) WORKING DAYS FOR REVIEW; MORE TIME MAY BE MAY BE REQUIRED DEPENDING ON COMPLETENESS OF INFORMATION PROVIDED AND ON EXTENT OF CONFLICTS, IF ANY.

F. DEMOLISH AND REMOVE EXISTING OBJECTIONABLE MATERIAL FROM THE WORK AREA AND DISPOSE OF AS NECESSARY TO COMPLETE THE WORK, WHETHER OR NOT SPECIFICALLY CALLED FOR ON THE DRAWINGS.

G. WHETHER OR NOT SPECIFICALLY CALLED FOR ON THE DRAWINGS, PROTECT FROM DAMAGE ALL EXISTING FEATURES WITHIN AND IN THE VICINITY OF THE WORK AREA WHICH ARE NOT TO BE ALTERED BY PROPOSED WORK:

1. DOCUMENT THE EXISTING CONDITION AND PROVIDE SUCH DOCUMENTATION TO DISTRICT'S REPRESENTATIVE PRIOR TO BEGINNING WORK.
2. PROTECT DURING CONSTRUCTION FROM PHYSICAL AND AESTHETIC DAMAGE INCLUDING CRACKING, SCRAPING, DEFORMING, SOILING, AND SPLATTER FROM PAINT, CONCRETE OR ASPHALT EMULSION.
3. RESTORE TO PRE-CONSTRUCTION CONDITION AND APPEARANCE TO SATISFACTION OF DISTRICT AT NO ADDITIONAL COST TO DISTRICT.

H. SEE PLUMBING PLANS FOR ALL UTILITY REMOVALS.

DEMOLITION NOTES THIS SHEET:

(NUMBERED ITEM BELOW CORRESPONDS TO NUMBER WITHIN HEXAGON ON DRAWING)

PROTECTIONS:

1 PROTECT EXISTING BUILDING AND SITE WALLS INCLUDING SURFACE AND PAINT. IF NEW FLATWORK SURFACE ADJACENT TO WALL IS LOWER THAN THAT WHICH WAS REPLACED, PREPARE WALL SURFACE AND PAINT TO MATCH EXISTING.

2 PROTECT EXISTING PAVEMENT TO REMAIN.

3 PROTECT EXISTING RAMP AND HANDRAIL TO REMAIN.

4 PROTECT EXISTING CONCRETE CURB TO REMAIN.

5 PROTECT EXISTING CONCRETE MOW STRIP TO REMAIN.

6 PROTECT EXISTING LANDSCAPED AREA.

7 PROTECT EXISTING UTILITY AND / OR VAULT. ADJUST LIDS TO PROPOSED FINISHED SURFACE AS NECESSARY.

8 PROTECT EXISTING CATCH BASIN TO REMAIN.

9 PROTECT EXISTING DRINKING FOUNTAIN TO REMAIN.

10 PROTECT EXISTING TREE TO REMAIN.

11 PROTECT EXISTING BUILDING GRATE TO REMAIN.

12 PROTECT EXISTING FENCE AND / OR GATE TO REMAIN.

13 PROTECT EXISTING SHALLOW ELECTRICAL LINE IN PLACE.

14 PROTECT EXISTING STORM DRAIN LINE TO REMAIN.

15-19 NOT USED.

REMOVALS:

20 PROPOSED SAWCUT LINE. PROTECT EXISTING EDGE OF A.C. OR CONCRETE IMPROVEMENT TO REMAIN UNTIL CONSTRUCTION OF CONFORMING IMPROVEMENTS (TYPICAL). SEE SHEETS C-1 AND C-2.

21 EXISTING CONCRETE PAVEMENT TO BE REMOVED.

22 EXISTING ASPHALT PAVEMENT TO BE REMOVED.

23 EXISTING CURB AND / OR GUTTER TO BE REMOVED.

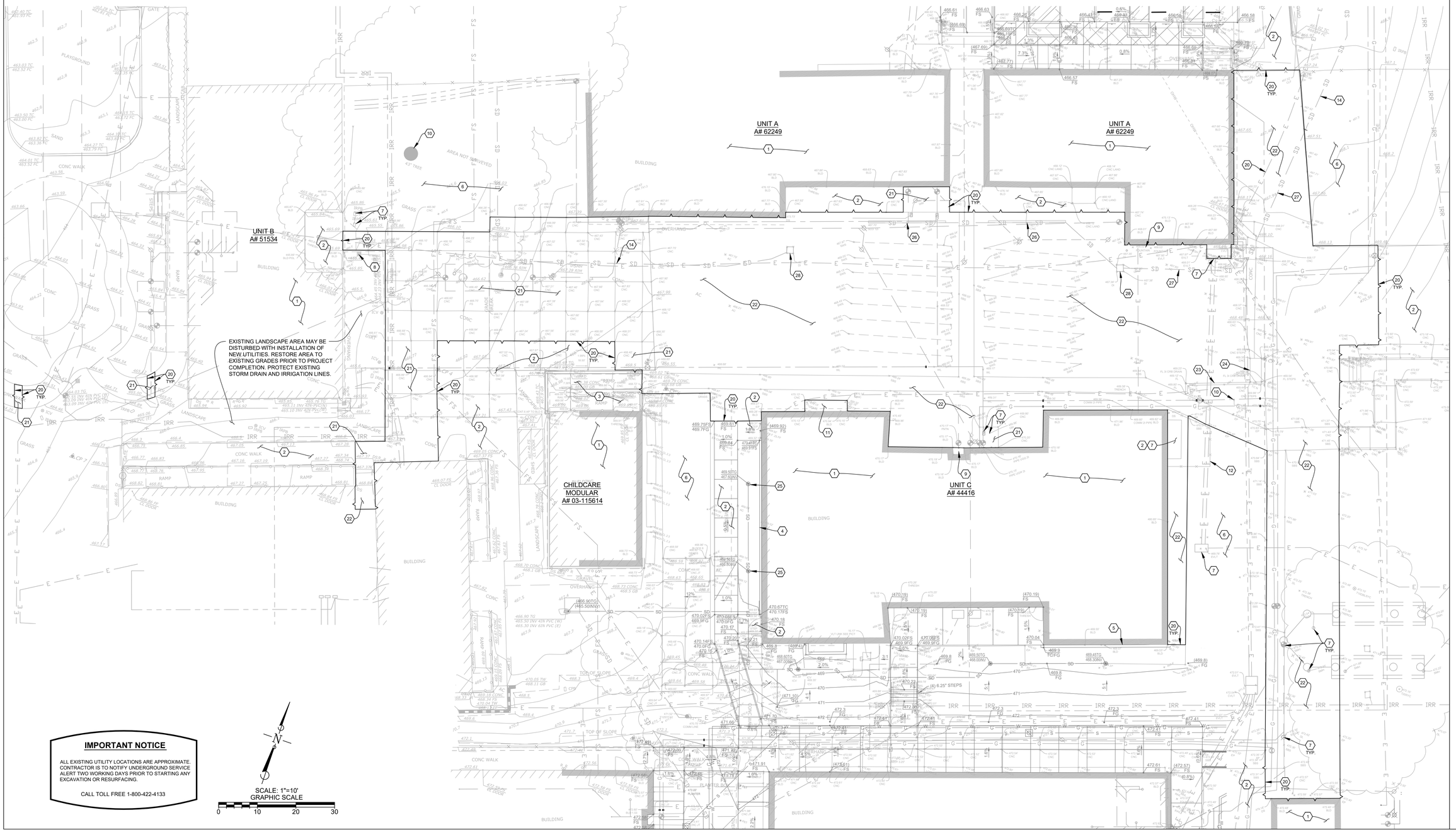
24 EXISTING CONCRETE STAIRS AND HANDRAILS TO BE REMOVED.

25 EXISTING AREA DRAINS TO BE REMOVED. CAP STORM DRAIN PIPE AS NECESSARY.

26 EXISTING TRENCH DRAINS TO BE REMOVED.

27 DEMOLISH AND REMOVE EXISTING STORM DRAIN LINE TO LIMITS SHOWN ON PLAN.

28 DEMOLISH AND REMOVE EXISTING STORM DRAIN CATCH BASIN. PROTECT STORM DRAIN LINES FOR RECONNECTION.



IMPORTANT NOTICE

ALL EXISTING UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR IS TO NOTIFY UNDERGROUND SERVICE ALERT TWO WORKING DAYS PRIOR TO STARTING ANY EXCAVATION OR RESURFACING.

CALL TOLL FREE 1-800-422-4133

SCALE: 1"=10'
GRAPHIC SCALE
0 10 20 30

PLEASANT VALLEY SCHOOL DISTRICT

600 TEMPLE AVENUE, CAMARILLO, CA 93010

ENGINEER

ENGINEER'S STAMP

CONSULTANT

F&A
FLOWERS & ASSOCIATES, INC.
CIVIL ENGINEERING • PLANNING
CONSTRUCTION ENGINEERING
115 W. CANON PERDIDO STREET
SANTA BARBARA, CA 93101
PHONE: 805.966.2224

CONSULTANT'S STAMP

REGISTERED PROFESSIONAL ENGINEER
ROBERT A. SCHAFER
No. 71335
CIVIL
STATE OF CALIFORNIA

PROJECT TITLE AND ADDRESS

SITE PIPING REPLACEMENT, PHII & QUAD RENOVATION PROJECT

SANTA ROSA TECHNOLOGY MAGNET SCHOOL
13282 SANTA ROSA RD, CAMARILLO, CA 93012

REVISIONS

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SHEET TITLE

DEMOLITION PLAN

DATE
SCALE
PROJECT NO.
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SHEET NUMBER

D-1

GENERAL CONSTRUCTION NOTES THIS SHEET:

A. REFER TO LEGEND, LIST OF SYMBOLS AND OTHER PLAN USE INFORMATION ON SHEET G-1.

B. REFER TO SHEET G-2 FOR SPECIFICATIONS AND ADDITIONAL CONSTRUCTION INFORMATION AND REQUIREMENTS.

C. PROTECT ALL EXISTING UTILITIES WITHIN WORK AREA WHETHER SHOWN ON PLAN OR NOT; NOTIFY UNDERGROUND SERVICE ALERT AT LEAST 2 WORKING DAYS IN ADVANCE OF BEGINNING EXCAVATION AT 1-500-422-4133.

D. PROTECT EXISTING SCHOOL INFRASTRUCTURE WITHIN WORK AREA; INVESTIGATE WITH DISTRICT AND SCHOOL STAFF THE LOCATIONS OF EXISTING BURIED CONDUITS, PIPELINES AND STRUCTURES WITHIN WORK AREA.

E. RETAIN A LICENSED LAND SURVEYOR TO STAKE HORIZONTAL AND VERTICAL CONTROL FOR LAYOUT OF THE WORK, FOR SURVEYING LOCATIONS OF EXISTING BURIED PIPELINES, CONDUITS AND STRUCTURES, AND FOR GRADE CONFIRMATION WHERE REQUIRED DURING CONSTRUCTION.

CONFIRM CONTROL DATA WITH TOPOGRAPHIC MAPPING SURVEYOR (SIMPSON LAND SURVEYING) PRIOR TO STAKING WORK. IN ADDITION, CHECK STAKING AT KEY LOCATIONS BY SCALING DISTANCES AND TAPING FROM EXISTING FEATURES SHOWN ON PLAN.

F. WHETHER OR NOT SPECIFICALLY CALLED FOR ON THE DRAWINGS, PROTECT FROM DAMAGE ALL EXISTING FEATURES WITHIN AND IN THE VICINITY OF THE WORK AREA WHICH ARE NOT TO BE ALTERED BY PROPOSED WORK:

1. DOCUMENT THE EXISTING CONDITION AND PROVIDE SUCH DOCUMENTATION TO OWNER'S CONSTRUCTION REPRESENTATIVE PRIOR TO BEGINNING WORK.
2. PROTECT DURING CONSTRUCTION FROM PHYSICAL AND ESTHETIC DAMAGE INCLUDING CRACKING, SCRAPING, DEFORMING, SOILING, AND SPATTER FROM PAINT, CONCRETE OR ASPHALT EMULSION.
3. RESTORE TO PRE-CONSTRUCTION CONDITION AND APPEARANCE TO SATISFACTION OF DISTRICT AT NO ADDITIONAL COST TO DISTRICT.

G. FOR CONCRETE PAVEMENTS, WALKWAYS, CURBS, GUTTERS AND WALLS, LAYOUT EXPANSION AND CONTROL JOINTS PER PLAN AND MARK JOINT LOCATIONS ON FORMS FOR REVIEW BY OWNER'S REPRESENTATIVE PRIOR TO ORDERING CONCRETE.

H. SEE PLUMBING PLANS FOR ALL UTILITY IMPROVEMENTS.

SPECIFIC CONSTRUCTION NOTES THIS SHEET:

(NUMBERED ITEM BELOW CORRESPONDS TO NUMBER WITHIN HEXAGON ON DRAWING)

PROTECTIONS/REMOVALS:

1 PROTECT EXISTING BUILDING AND SITE WALLS INCLUDING SURFACE AND PAINT. IF NEW FLATWORK SURFACE ADJACENT TO WALL IS LOWER THAN THAT WHICH WAS REPLACED, PREPARE WALL SURFACE AND PAINT TO MATCH EXISTING.

2 PROTECT EXISTING PAVEMENT TO REMAIN.

3 PROTECT EXISTING LANDSCAPED AREA TO REMAIN.

4 PROTECT EXISTING UTILITY AND/OR VAULT. ADJUST LIDS TO PROPOSED FINISHED SURFACE AS NECESSARY.

5 EXISTING TREE TO BE REMOVED.

6 PROTECT EXISTING DRINKING FOUNTAIN TO REMAIN.

7 PROTECT EXISTING TREE TO REMAIN.

8 PROTECT EXISTING BUILDING GRATE TO REMAIN.

9 PROTECT EXISTING CONCRETE CURB TO REMAIN.

10 PROTECT EXISTING CONCRETE MOW STRIP TO REMAIN.

11 PROTECT EXISTING GATE AND/OR FENCE TO REMAIN.

12-19 NOT USED.

SITE IMPROVEMENTS:

20 CONSTRUCT SAWCUT LINE AS SHOWN ON PLAN AND REMOVE EXISTING PAVEMENT RUBBLE. PROTECT EDGE OF SAWCUT UNTIL CONSTRUCTION OF CONFORMING IMPROVEMENTS.

21 CONSTRUCT CONCRETE WITH THICKENED EDGE PER DETAILS 1 & 2 / CD-1.

22 CONSTRUCT CONCRETE JOINTS PER DETAIL 3 / CD-1, WHERE SHOWN ON PLAN. ALL JOINTS SHOWN ARE CRACK CONTROL JOINTS OR CONSTRUCTION JOINTS UNLESS DESIGNATED "EJ" (EXPANSION JOINT).

23 GRADE UNPAVED AREA WITHIN LIMITS OF DISTURBANCE TO FINISH GRADES PER PLAN AND TO PROVIDE SMOOTH TRANSITION BETWEEN NEW AND EXISTING IMPROVEMENTS. RE-VEGETATE ALL DISTURBED GRASS AREAS. SEE LANDSCAPE ARCHITECT'S PLANS FOR ADDITIONAL INFORMATION.

24 CONSTRUCT AC PAVEMENT STRUCTURAL SECTION TO MATCH EXISTING STRUCTURAL SECTION (MINIMUM SECTION OF 3-INCH ASPHALT OVER 6-INCH CLASS 2 BASE) AND PER THE GEOTECHNICAL RECOMMENDATIONS. ADJUST SAWCUT LIMITS AS NEEDED TO ENSURE MINIMUM SLOPE OF 1.0%.

25 CONSTRUCT CONCRETE CURB TO ELEVATIONS SHOWN ON PLAN AND PER DETAIL 4 / CD-1.

26 CONSTRUCT 6" WIDE CONCRETE BAND TO ELEVATIONS SHOWN ON PLAN AND PER LANDSCAPE ARCHITECT'S PLANS AND SPECIFICATIONS.

27 CONSTRUCT 8" CONCRETE MOW STRIP PER DETAIL 5 / CD-1.

28 CONSTRUCT CONCRETE PAVERS TO ELEVATIONS SHOWN ON PLAN AND PER LANDSCAPE ARCHITECT'S PLANS AND SPECIFICATIONS.

29 CONSTRUCT CONCRETE STAIRS WITH HANDRAILS PER DETAIL 6 / CD-1.

30 CONSTRUCT CONCRETE RAMP WITH HANDRAILS TO ELEVATIONS SHOWN ON PLAN AND PER DETAILS 1 & 8 / CD-1.

31 CONSTRUCT CONCRETE SEAT WALL TO ELEVATIONS SHOWN ON PLAN AND PER LANDSCAPE ARCHITECT'S PLANS AND SPECIFICATIONS.

32 CONSTRUCT CONCRETE WALKWAY EDGE WITH STEMWALL AND GUARDRAIL PER DETAIL 7 / CD-1.

33 CONSTRUCT 18" X 18" CAST-IN-PLACE CATCH BASIN AND GRATE PER DETAIL 11 / CD-1.

34 CONSTRUCT CONNECTION TO EXISTING STORM DRAIN WITH FITTINGS AS NECESSARY. POTHOLE TO VERIFY EXISTING INVERTS AT CONNECTION AND NOTIFY ENGINEER OF ANY CONFLICTS.

35 CONSTRUCT 6" TO 0" CURB HEIGHT TRANSITION ACROSS TWO LINEAR FEET AS SHOWN ON PLAN.

36 REMOVE AND REPLACE EXISTING STORM DRAIN LINE AS NECESSARY TO MAINTAIN 12" MINIMUM COVER AT 0.5% MINIMUM SLOPE IN TRENCH PER DETAIL 12 / CD-2. VERIFY EXISTING INVERTS AND PIPE SIZE PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY CONFLICTS.

37 CONSTRUCT 12" X 12" CAST-IN-PLACE CATCH BASIN AND GRATE PER DETAIL 11 / CD-1.

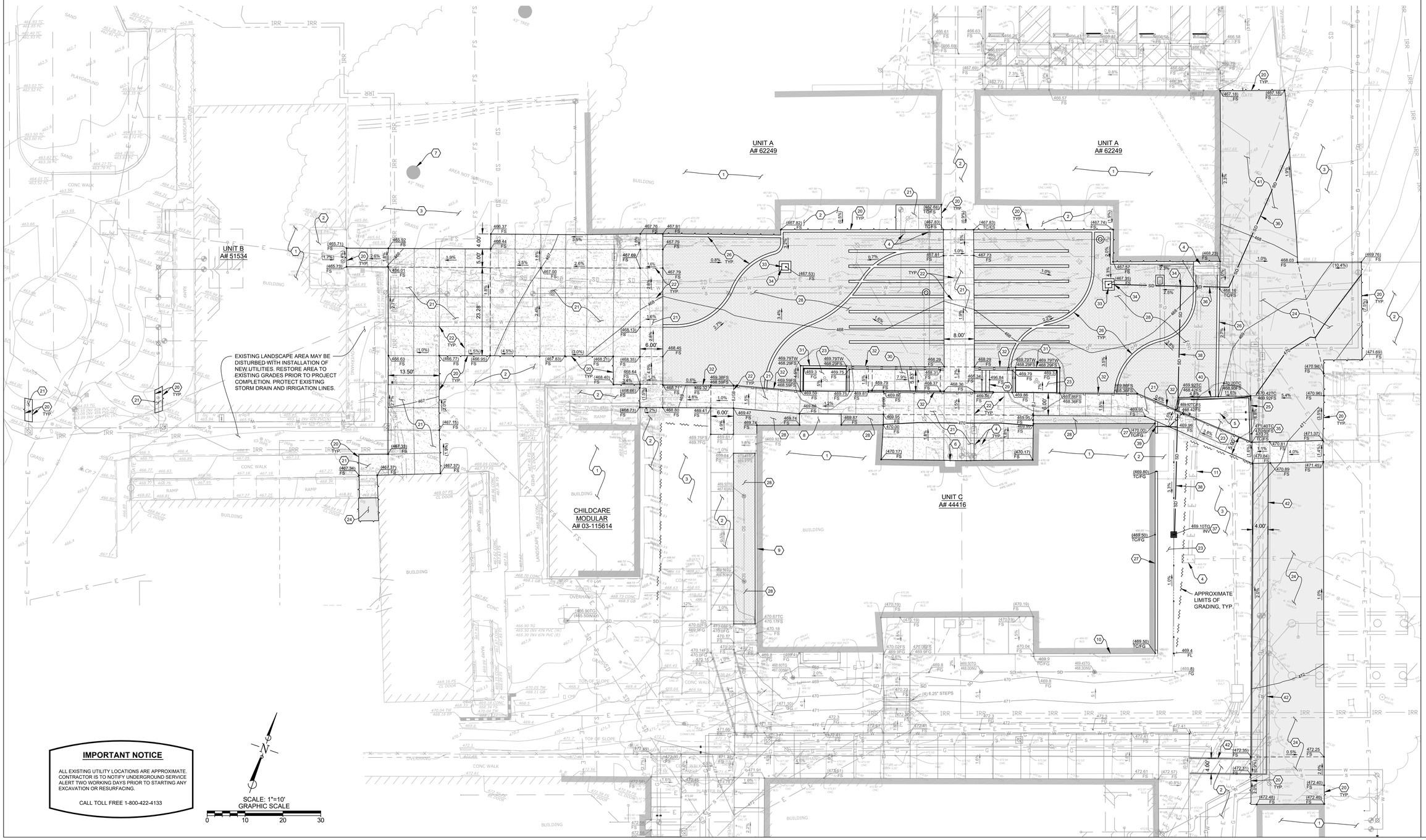
38 CONSTRUCT 4" HDPE STORM DRAIN LINE WITH 0.5% MINIMUM SLOPE IN TRENCH PER DETAIL 12 / CD-2.

39 CONSTRUCT ROOF DRAIN CONNECTION TO STORM DRAIN PER DETAIL 13 / CD-2.

40 CONSTRUCT CONCRETE RETAINING CURB TO ELEVATIONS SHOWN ON PLAN AND PER DETAIL 14 / CD-2.

41 CONSTRUCT AC PAVEMENT STRUCTURAL SECTION (MINIMUM SECTION OF 4-INCH ASPHALT OVER 8-INCH CLASS 2 BASE OVER MIRAFI 600X OVER 12-INCH SUBGRADE COMPACTED TO MIN. 95% OF MAX. DRY DENSITY) AND PER THE GEOTECHNICAL RECOMMENDATIONS.

42 CONSTRUCT 4" BLUE ACCESSIBLE PATH PAVEMENT STRIPING AS SHOWN ON PLAN.



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SHEET TITLE

SITE IMPROVEMENT PLAN

DATE

SCALE

PROJECT NO.

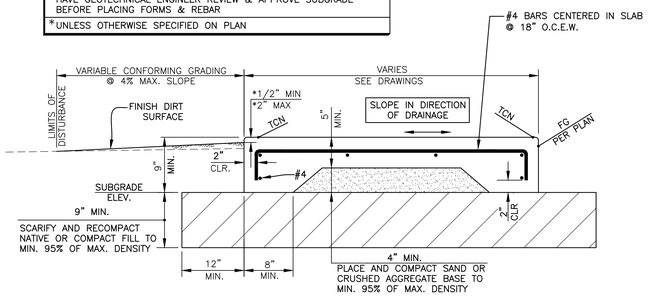
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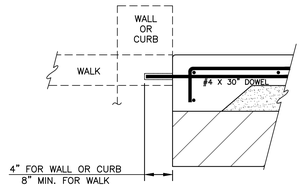
C-1

CONSTRUCT CONCRETE PER SPECIFICATIONS
THICKENED EDGE IS ON ALL SIDES UNLESS OTHERWISE NOTED
CONSTRUCT ⅜" RADIUS ROUNDING ON ALL EXPOSED CORNERS
FORM ALL SIDES
CONSTRUCT JOINTS PER SPECIFICATIONS AND AS SHOWN ON PLANS
CONSTRUCT BROOM FINISH TRANSVERSE TO PATH OF TRAVEL: MEDIUM BROOM WHERE WALK SLOPE IS 5% OR LESS, HEAVY BROOM WHERE SLOPE IS GREATER THAN 5%.
HAVE GEOTECHNICAL ENGINEER REVIEW & APPROVE SUBGRADE BEFORE PLACING FORMS & REBAR
*UNLESS OTHERWISE SPECIFIED ON PLAN

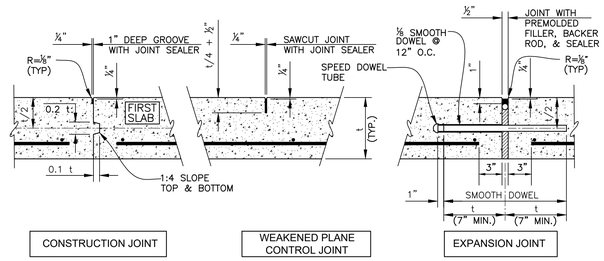


1 TYPICAL WALKWAY WITH THICKENED EDGE DETAIL
NOT TO SCALE

IF JOINING EXISTING WALKWAY OR IF ADJACENT TO EXISTING OR PROPOSED STRUCTURE OR CURB, DRILL & EPOXY GROUT #4 DOWEL INTO ⅝" DIA HOLE AT 18" O.C. IN WALK, OR 36" O.C. IN STRUCTURE, OR CURB.
WHERE CALLED FOR ON DRAWINGS, CONSTRUCT EXPANSION JOINT BETWEEN WALKWAY AND EXISTING OR PROPOSED STRUCTURE PER 3/CD-1 WITH FIXED END OF DOWEL INTO WALKWAY OR STRUCTURE

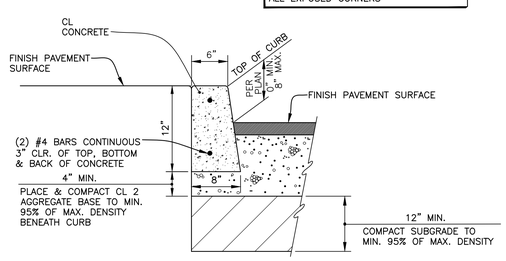


2 WALKWAY ADJACENT TO STRUCTURE / EXIST. WALK
NOT TO SCALE



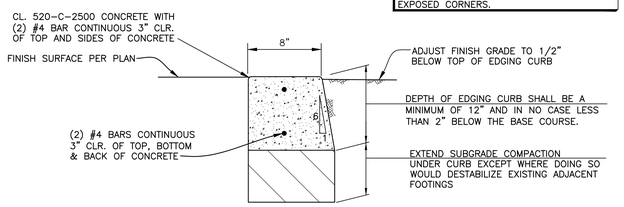
3 TYPICAL REINFORCED CONCRETE PAVEMENT JOINTS DETAIL
NOT TO SCALE

CONSTRUCT JOINTS PER SPECIFICATIONS AND AS SHOWN ON PLANS.
CONSTRUCT ½" RADIUS ROUNDING ON ALL EXPOSED CORNERS

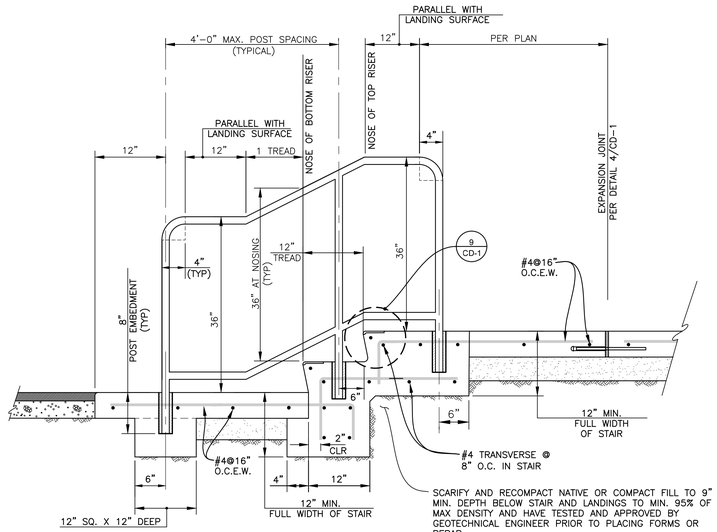


4 VARIABLE HEIGHT CURB DETAIL
NOT TO SCALE

CONSTRUCT WEAKENED PLANE JOINTS AT EACH FENCE POST AND @ 10' MAX O.C. CONSTRUCT 1/2" RADIUS ROUNDING ON ALL EXPOSED CORNERS.



5 MOW STRIP CURB DETAIL
NOT TO SCALE

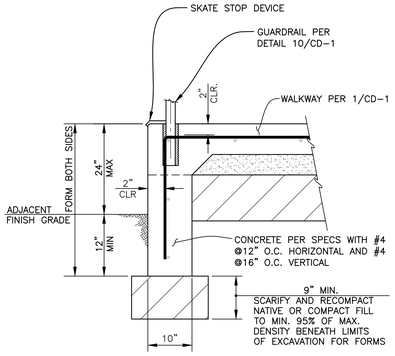


FOR HANDRAIL POST ANCHORAGE, CAST-IN-PLACE A 2½" NOMINAL (2.875" O.D.) BY 8"-LONG SCH 40 STEEL SLEEVE, CENTERED 6" FROM STAIR EDGE; FILL ANNULAR SPACE WITH NON-SHRINK GROUT TO MATCH STAIR COLOR AND TEXTURE.
DRILL & EPOXY GROUT ALL TRANSVERSE REBAR (EXCEPT #3 BARS AT NOSINGS) INTO SIDEWALL.

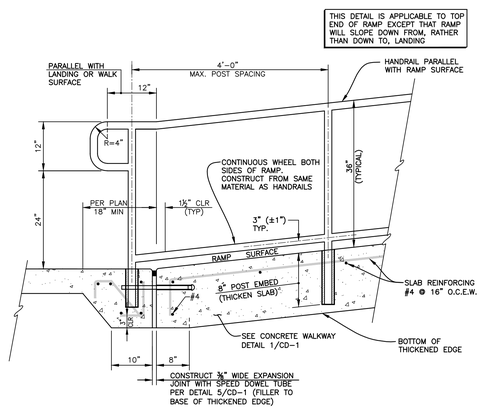
HANDRAIL NOTES:
1. SHOP DRAWINGS REQUIRED.
2. MATERIAL FOR POSTS & RAILS SHALL BE 1¼" NOMINAL (1.66" O.D) EXTRA STRONG WALL STEEL PIPE.
3. ALL JOINTS SHALL BE SHOP WELDED (CONTINUOUS 3/16" MIN. FILLET WELD) AND GROUND SMOOTH PRIOR TO GALVANIZING.
4. ALL STEEL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.

6 CONCRETE STAIR DETAIL
NOT TO SCALE

CONSTRUCT WALKWAY PER 1/CD-1, MODIFIED FOR EDGE CURB AND STEMWALL AS SHOWN HEREON
CONSTRUCT ¾" CHAMFER ON ALL EXPOSED CORNERS
CONSTRUCT JOINTS IN TOP & FACES OF CURB TO ALIGN WITH THOSE IN WALK
FOR CURB ONLY, CONSTRUCT SKATE STOP DEVICE 18" FROM END OF OR BEND IN CURB AND AT 36" MAX. SPACING FULL LENGTH OF CURB. FOR CURB WITH HANDRAIL, CONSTRUCT SKATE STOP DEVICES CENTERED BETWEEN EACH PAIR OF POSTS (48" MAX SPACING).
FOR RAILING POST ANCHORAGE, DRILL HOLE WITH I.D. 1" LARGER THAN POST O.D. CENTERED IN CURB. FILL ANNULAR SPACE WITH NON-SHRINK GROUT TO MATCH CURB COLOR & TEXTURE.



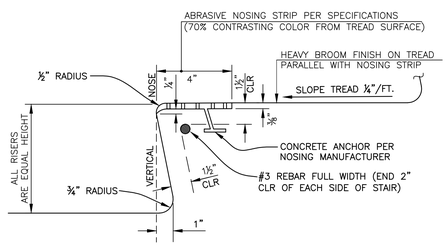
7 WALKWAY EDGE WITH STEMWALL DETAIL
NOT TO SCALE



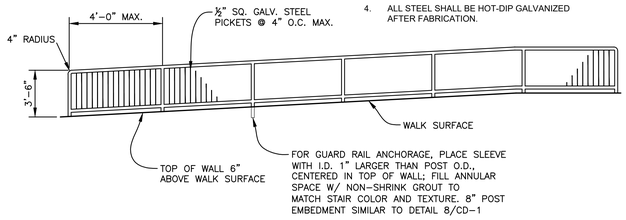
RAMP NOTES:
1. CONSTRUCT ½" RADIUS ON ALL EXPOSED CORNERS ON CURBS.
2. CONSTRUCT TRANSVERSE CONTROL JOINTS PER SPECIFICATIONS AND AS SHOWN ON PLANS IN RAMP AND TOP & FACES OF CURBS.
3. HAVE CONSTRUCTION PHASE GEOTECHNICAL ENGINEER REVIEW & APPROVE SUBGRADE BEFORE PLACING FORMS & REBAR.
4. CONSTRUCT HEAVY BROOM FINISH TRANSVERSE TO PATH OF TRAVEL.
5. PROVIDE & INSTALL SKATE STOP DEVICES CENTERED BETWEEN EACH PAIR OF HANDRAIL POSTS (48" MAX. SPACING) ON INSIDE EDGE OF BOTH WALLS / CURBS, FULL LENGTH OF RAMP.
6. WHERE ADJACENT TO EXISTING OR PROPOSED STRUCTURE, DRILL & GROUT DOWELED CONNECTION PER 2 / CD-1.

HANDRAIL NOTES:
1. SHOP DRAWINGS REQUIRED.
2. MATERIAL FOR POSTS & RAILS SHALL BE 1¼" NOMINAL (1.66" O.D) EXTRA STRONG WALL STEEL PIPE.
3. ALL JOINTS SHALL BE SHOP WELDED (CONTINUOUS 3/16" MIN. FILLET WELD) AND GROUND SMOOTH PRIOR TO GALVANIZING.
4. ALL STEEL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION

8 RAMP HANDRAIL DETAIL
NOT TO SCALE



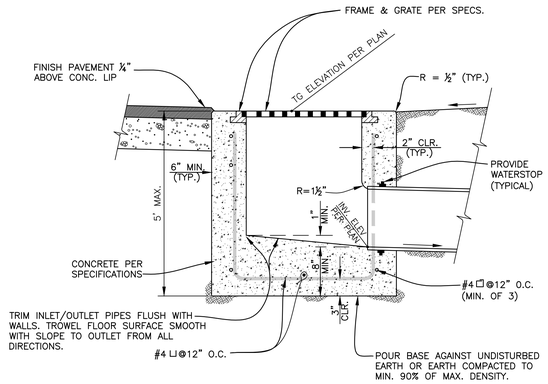
9 CONCRETE STAIR NOSING DIAGRAM
NOT TO SCALE



GUARDRAIL NOTES:

1. SHOP DRAWINGS REQUIRED.
2. MATERIAL FOR POSTS & RAILS SHALL BE 1½" NOMINAL (1.66" O.D) EXTRA STRONG WALL STEEL PIPE.
3. ALL JOINTS SHALL BE SHOP WELDED (CONTINUOUS 3/16" MIN. FILLET WELD) AND GROUND SMOOTH PRIOR TO GALVANIZING.
4. ALL STEEL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.

10 GUARD RAIL DETAIL
NOT TO SCALE



11 CAST-IN-PLACE CATCH BASIN DETAIL
NOT TO SCALE

PLEASANT VALLEY SCHOOL DISTRICT

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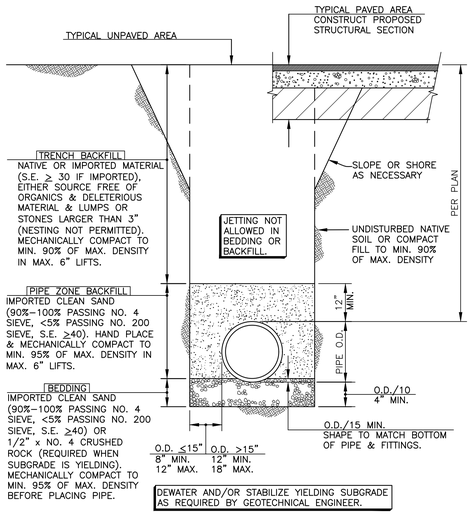
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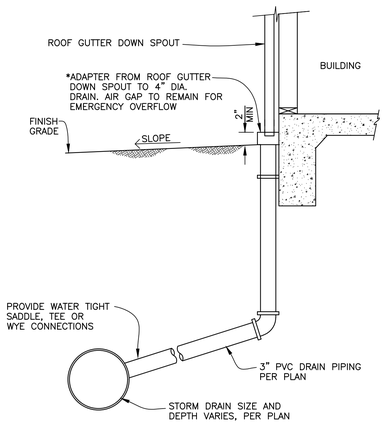
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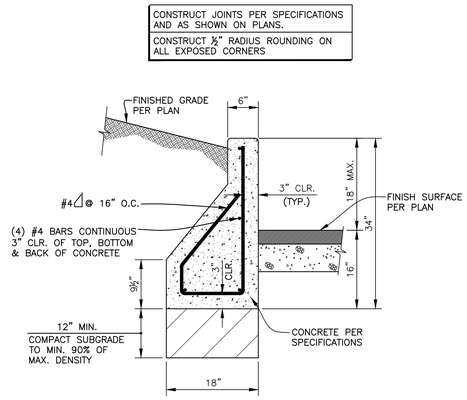
CD-1



12 PIPE TRENCH FOR NEW CONSTRUCTION
NOT TO SCALE



13 ROOF DRAIN DOWNSPOUT TO STORM DRAIN COLLECTOR DETAIL
NOT TO SCALE



14 VARIABLE HEIGHT RETAINING CURB DETAIL
NOT TO SCALE

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CD-2

LANDSCAPE SCOPE OF WORK

IN GENERAL THE LANDSCAPE SCOPE OF WORK INCLUDES THE REMOVAL OF THE EXISTING ASPHALT QUAD AREA AND ASPHALT SIDEWALK, REPLACING THE ASPHALT WITH NEW CONCRETE PAVERS AND CONCRETE BANDS, INSTALLING IRRIGATION INTO NEW PLANTERS CREATED BY QUAD DESIGN, AND PLANTING TREES AND SHRUBS.

APPLICABLE CODES & STANDARDS

PART 1 - 2026 CALIFORNIA BUILDING STANDARD ADMINISTRATIVE CODE. TITLE 24 C.C.R.

PART 2 - 2026 CALIFORNIA BUILDING CODE - TITLE 24 C.C.R.

DEVELOPMENT CONSTRUCTION PROGRAM:

THE CONTRACTOR SHALL IMPLEMENT A CONSTRUCTION PROGRAM THAT PREVENTS ILLICIT CONSTRUCTION RELATED DISCHARGES OF POLLUTANTS INTO THE MS4, IMPLEMENTS AND MAINTAINS STRUCTURAL AND NON-STRUCTURAL BMPS TO REDUCE POLLUTANTS IN STORM WATER RUNOFF FROM THE CONSTRUCTION SITE, REDUCE CONSTRUCTION SITE DISCHARGES OF POLLUTANTS FROM THE MS4 TO THE MAXIMUM EXTENT PRACTICAL (MEP) AND PREVENTS CONSTRUCTION SITE DISCHARGES FROM THE MS4 FROM CAUSING OR CONTRIBUTING TO A VIOLATION OF WATER QUALITY STANDARDS.

ABBREVIATIONS

AC	ASPHALT
BLDG.	BUILDING
BTM.	BOTTOM
CONSTR.	CONSTRUCTION
CONC.	CONCRETE
C.A.B	CRUSHED AGGREGATE BASE
C/C	CENTER TO CENTER
CONT.	CONTINUOUS
C.L.	CHAIN LINK
CLR	CLEAR
C.O.	CLEAN OUT
DEG	DEGREE
D.G.	DECOMPOSED GRANITE
DIA.	DIAMETER
(E)	EXISTING
E.G.	EXISTING GRADE
E.J.	EXPANSION JOINT
EQ	EQUAL
F'C =	CONCRETE STRENGTH AS NOTED
F.O.	FACE OF
FIN.	FINISH
FIN. FLR.	FINISH FLOOR
FG	FINISH GRADE
FS	FINISH SURFACE
FTG.	FOOTING
GRD.	GRADE
H.P.	HIGH POINT
INV	INVERT ELEVATION
IRR	IRRIGATION
MAX	MAXIMUM
MID. PT.	MIDDLE POINT
MIN	MINIMUM
M.P.R.	MULTI PURPOSE ROOM
(N)	NEW
NTE	NOT TO EXCEED
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
PSI	POUNDS PER SQUARE INCH
R.	RADIUS
STL.	STEEL
TC	TOP OF CURB
TG	TOP OF GRATE
TW	TREE WELL
T&B	TOP AND BOTTOM
VERTS	VERTICAL

SYMBOLS

DETAIL CALL-OUT

3 / L3.1 — 3 = DETAIL NUMBER; L3.1 = SHEET NUMBER

1 — KEY NOTES W/ DESCRIPTION OF WORK AND DETAIL REFERENCE

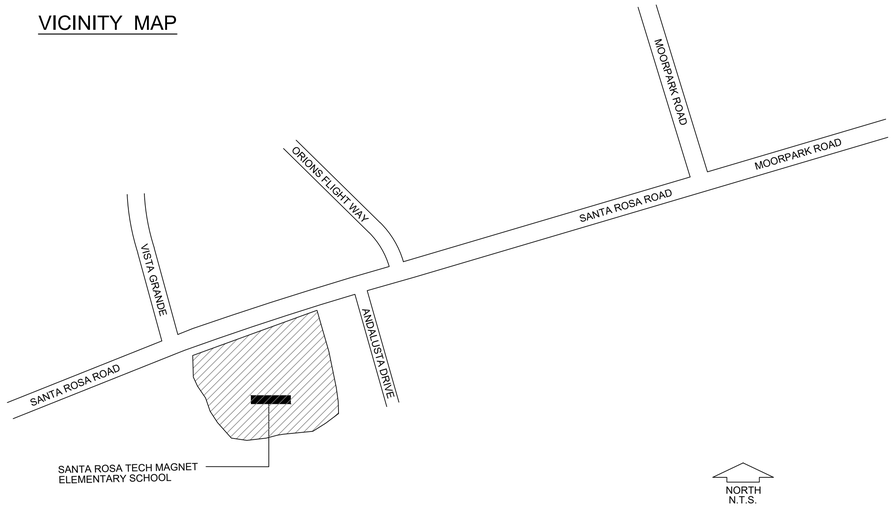
PLEASANT VALLEY SCHOOL DISTRICT

600 TEMPLE AVENUE
CAMARILLO, CA 93010

SANTA ROSA TECH MAGNET ELEMENTARY SCHOOL

FB-26-01 - SITE PIPING REPLACEMENT, PHASE 2 & QUAD RENOVATION PROJECT
13282 SANTA ROSA ROAD
CAMARILLO, CA 93012

VICINITY MAP



SCHEDULE OF DRAWINGS

SHEET NO.	SHEET REFERENCE	SHEET TITLE
1	L1.1	COVER SHEET
2	L2.1	STAKING PLAN
3	L3.1	CONSTRUCTION DETAILS
4	L4.1	IRRIGATION PLAN
5	L4.2	IRRIGATION LEGEND AND NOTES
6	L5.1	PLANTING PLAN
7	L6.1	LANDSCAPE DETAILS

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REVISIONS

NO.	DATE	BY	DESCRIPTION

REGISTERED LANDSCAPE ARCHITECT
JOHN JAMES BAIN III
No. 5937
SIGNATURE
04-28
RENEWAL DATE
01-30-26
DATE
STATE OF CALIFORNIA

CLIENT
PLEASANT VALLEY
SCHOOL DISTRICT
600 Temple Avenue
Camarillo, CA. 93010

SHEET TITLE
COVER SHEET

PROJECT
Santa Rosa Tech Magnet
Elementary School
FB-26-01
Site Piping Replacement, Phase 2 &
Quad Renovation Project
13282 Santa Rosa Rd
Camarillo, CA 93012

DRAWN:	JB		
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PRINTED FOR:		BID:	01-30-26
DISTRICT REVIEW:	01-30-26	CONSTRUCTION:	01-30-26

DRAWING
L1.1

SHEET 1 OF 7
PROJECT No. 25.43

NOTE:
CONTRACTOR SHALL REVIEW THE MECHANICAL, ELECTRICAL, AND CIVIL ENGINEER'S PLANS TO DETERMINE IF ANY VALVE BOXES OR VAULTS WILL BE INSTALLED IN THE NEW QUAD PAVER AREA. INCLUDE INSTALLING A 8" WIDE CONCRETE BAND AROUND THE PERIMETER OF THE BOX OR VAULT TO MATCH THE BORDER AROUND DRAIN BOXES.

ADMINISTRATION BUILDING

(14) 8" WIDE X 25' LONG CONCRETE BANDS FOR STUDENT ASSEMBLY USE. (5 L3.1)

8" WIDE CONCRETE BORDER POURED ALONG AGAINST EXISTING SIDEWALK. (TYPICAL)

SQUARE CONCRETE DRAIN BOX AND GRATE WITH 8" WIDE CONCRETE BORDER. SEE CIVIL ENGINEER'S PLANS FOR DRAIN BOX EXACT LOCATION AND SIZE. (TYPICAL)

8" WIDE CONCRETE BORDER POURED ALONG BASE OF BUILDING AND AGAINST EXISTING SIDEWALK. (TYPICAL) (4 L3.1)

NEW CONCRETE SIDEWALK AS PER CIVIL ENGINEER'S PLANS. (TYPICAL)

BUILDING WALL

(E) CONCRETE

CONCRETE PAVERS: GRAY AND CHARCOAL MIX

CONCRETE PAVERS: CHARCOAL

8" WIDE CONCRETE BORDER POURED ALONG BASE OF BUILDING. (TYPICAL) (4 L3.1)

SQUARE CONCRETE DRAIN BOX AND GRATE WITH 8" WIDE CONCRETE BORDER. SEE WITH 8" WIDE CONCRETE BORDER. SEE

ASPHALT

(E) ELECTRICAL CABINET ON CONCRETE SLAB

8" WIDE CONCRETE BAND BETWEEN CONCRETE PAVERS. (TYPICAL)

CONCRETE PAVERS: GRAY & CHARCOAL MIX

8" WIDE CONCRETE BAND BETWEEN CONCRETE PAVERS AND (N) ASPHALT. (9 L3.1)

(N) ASPHALT SEE CIVIL PLANS

CONCRETE CURB PER CIVIL ENGINEER

(E) CHAIN LINK FENCE SECURITY ENCLOSURE

(E) TURF

NEW CONCRETE SIDEWALK AS PER CIVIL ENGINEER'S PLANS. (TYPICAL)

CONCRETE PAVERS: GRAY AND CHARCOAL MIX

8" WIDE CONCRETE BAND BETWEEN CONCRETE PAVERS. (TYPICAL)

CONCRETE PAVERS: CHARCOAL

NEW CONCRETE SIDEWALK AS PER CIVIL ENGINEER'S PLANS. (TYPICAL)

CONCRETE PAVERS: GRAY AND CHARCOAL MIX

(E) CONCRETE SIDEWALK

(E) TURF

(E) CONCRETE SIDEWALK

(E) CONCRETE SIDEWALK

RAMP

NEW PLANTER

BUILDING WALL

INSTALL DARK CHARCOAL PAVERS TO INFILL PLANTER AREAS BETWEEN SIDEWALK AND BUILDING. SLOPE TO DRAIN.

INSTALL CHARCOAL CONCRETE PAVERS TO INFILL PLANTER AREAS BETWEEN SIDEWALK AND BUILDING. SLOPE PAVER SURFACE TO SLOPE AWAY FROM BUILDING WALLS.

NEW CONCRETE SIDEWALK AND PAVING AS PER CIVIL ENGINEER'S PLANS. (TYPICAL)

REMOVE (E) ROUND PLASTIC DRAIN BOX AND GRATE. CAP OFF ATRIUM DRAIN PIPE. PITCH NEW PAVER SURFACE TO SLOPE AWAY FROM BUILDING WALL.

(E) ELECTRICAL CABINET ON A CONCRETE SLAB

BUILDING WALL

(E) ASPHALT SIDEWALK SEGMENT TO BE REMOVED. SEE CIVIL ENGINEER'S PLANS FOR ADDITIONAL INFORMATION.

CLASSROOMS

REMOVE (E) DECOMPOSED GRANITE. INSTALL NEW CONCRETE CHARCOAL PAVERS.

REMOVE (E) ROUND PLASTIC DRAIN BOX AND GRATE. CAP OFF ATRIUM DRAIN PIPE. PITCH NEW PAVER SURFACE TO SLOPE AWAY FROM BUILDING WALL.

(E) CONCRETE SIDEWALK

(E) DRAIN

(E) TURF

(E) CONCRETE SIDEWALK

(E) TURF

GRAPHIC SCALE

0 4 8 16 24

SCALE: 1"=8'

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REVISIONS

NO.	DATE	BY	DESCRIPTION

REGISTERED LANDSCAPE ARCHITECT
JOHN JAMES BAIN III 2593
04-28 RENEWAL DATE
01-30-26 DATE
STATE OF CALIFORNIA

Pleasant Valley School District

CLIENT
PLEASANT VALLEY
SCHOOL DISTRICT
600 Temple Avenue
Camarillo, CA. 93010

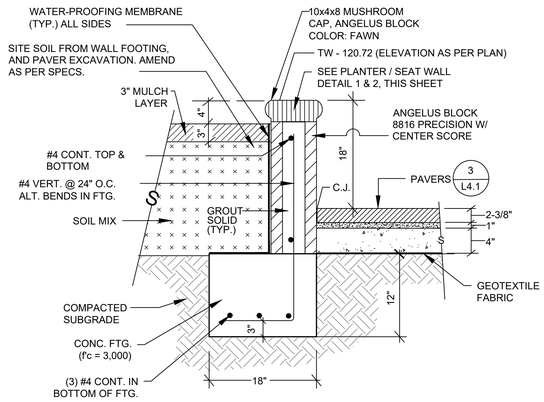
SHEET TITLE
STAKING PLAN

PROJECT
Santa Rosa Tech Magnet
Elementary School
FB-26-01
Site Piping Replacement, Phase 2 &
Quad Renovation Project
13282 Santa Rosa Rd
Camarillo, CA 93012

DRAWN:	JB	
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DRAWING
L2.1

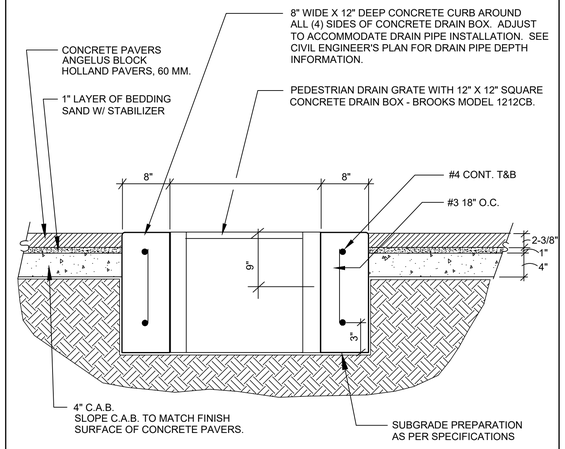
SHEET 2 OF 7
PROJECT No. 25.43



NOTE:
PROVIDE 1/2" EXPANSION JOINT (EJ) @ 40'-0" O.C. IN CONCRETE BAND WITH SCORE LINES (SL) @ 20'-0" O.C.

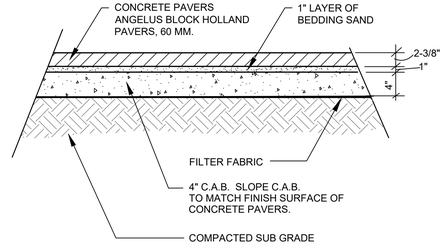
SCALE 1"=1'-0"

1 RAISED PLANTER SEAT WALL ADJACENT TO CONCRETE PAVERS



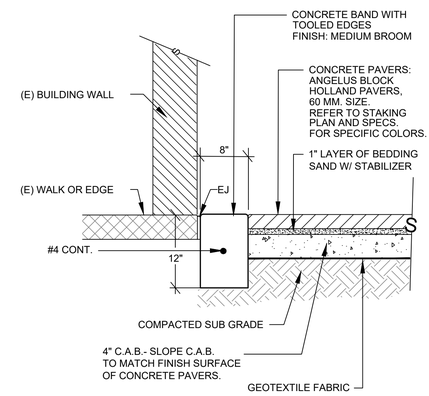
SCALE: N.T.S.

2 CONCRETE CURB AROUND CONCRETE DRAIN BOX



SCALE 1" = 1'-0"

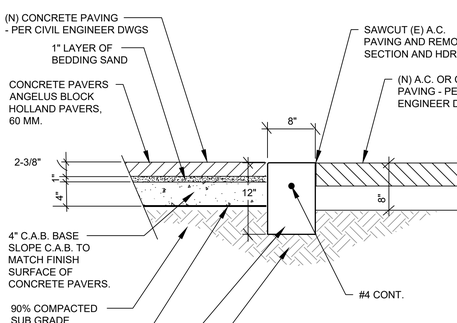
3 CONCRETE PAVERS



NOTE:
PROVIDE 1/2" EXPANSION JOINT (EJ) @ 40'-0" O.C. IN CONCRETE BAND WITH SCORE LINES (SL) @ 20'-0" O.C.

SCALE 1"=1'-0"

4 8" CONCRETE PERIMETER BAND



SCALE 1"=1'-0"

5 8" CONCRETE BAND SEPARATING PAVERS

SCALE 1"=1'-0"

6 CONCRETE PAVERS ADJACENT TO NEW CONCRETE

SCALE 1"=1'-0"

7 CONCRETE PAVERS USED TO INFILL PLANTERS

NOTE:
PROVIDE 1/2" EXPANSION JOINT (EJ) @ 40'-0" O.C. IN CONCRETE BAND WITH SCORE LINES (SL) @ 20'-0" O.C.

SCALE 1"=1'-0"

8 CONCRETE BAND AT CONCRETE PAVERS AND (E) SIDEWALK

SCALE 1"=1'-0"

9 CONCRETE BAND AT (EX) PAVING

10 NOT USED

11 NOT USED

12 NOT USED

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REVISIONS

NO.	DATE	BY	DESCRIPTION

REGISTERED LANDSCAPE ARCHITECT
JOHN JAMES BAIN III 2572
SIGNATURE
04-28
RENEWAL DATE
01-30-26
DATE
STATE OF CALIFORNIA

Pleasant Valley School District

CLIENT
PLEASANT VALLEY
SCHOOL DISTRICT
600 Temple Avenue
Camarillo, CA. 93010

SHEET TITLE
CONSTRUCTION DETAILS

PROJECT
Santa Rosa Tech Magnet
Elementary School
FB-26-01
Site Piping Replacement, Phase 2 &
Quad Renovation Project
13282 Santa Rosa Rd
Camarillo, CA 93012

DRAWN:	JB	
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BID:		01-30-26
CONSTRUCTION:		01-30-26

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L3.1

SHEET 3 OF 7
PROJECT No. 25.43

ADMINISTRATION BUILDING

BUILDING WALL

BUILDING WALL

(E) CONCRETE

ASPHALT

(E) ELECTRICAL CABINET ON CONCRETE SLAB

(N) ASPHALT SEE CIVIL PLANS

DUE TO SITE DESIGN, SCH. 40 PVC LATERALS WILL NOT BE ABLE TO BE SLEEVED. PVC LATERALS SHALL BE TRENCHED UNDER PAVING TO A DEPTH OF 24" BELOW GRADE AND BACKFILLED WITH PLASTER SAND TO PROTECT PIPING FROM ABRASIVE SOIL CONDITIONS. REFER TO DETAIL SHEET FOR ADDITIONAL INFORMATION. (TYPICAL)

NEW CONCRETE SIDEWALK AS PER CIVIL ENGINEER'S PLANS. (TYPICAL)

4.4 SPRAY L-38 1" A

IRRIGATION POINT OF CONNECTION `A': CAPPED 1-1/2" SCH. 40 PVC MAINLINE WITH SPARE WIRES IN VALVE BOX

(E) 1" QUICK COUPLER IN A VALVE BOX

1 - 36" BOX CERCIS `FOREST PANSY' STANDARD TRUNK

BUILDING WALL

(E) ELECTRICAL CABINET ON CONCRETE SLAB

(E) CHAIN LINK FENCE SECURITY ENCLOSURE

CLASSROOMS

INSTALL (N) 1"x4" BEND-A-BOARD PLASTIC HEADER BOARD BETWEEN EXISTING GRASS AND NEW PLANTER.

(E) CONCRETE SIDEWALK

(E) TURF

(E) BURIED IRRIGATION MAINLINE

(E) CONCRETE SIDEWALK

(E) CONCRETE SIDEWALK

BUILDING WALL

(N) 1'-0" WIDE CONCRETE BAND ALONG EAST SIDE OF BUILDING WALL. SEE CIVIL ENGINEER'S PLANS FOR DETAILS AND EXACT LAYOUT.

(E) TURF PROTECT IN PLACE.

(E) ASPHALT TO BE REMOVED. SEE CIVIL ENGINEER'S PLANS FOR DEMO OF EXISTING ASPHALT. ROTO-TILL AND ADD SOIL AMENDMENTS AS PER SPECIFICATIONS. COMPLETED WORK TO READY FOR SHRUB PLANTING.

END (N) ¾" SCH. 40 PVC DRIP LATERAL HERE. INSTALL SCH. 40 PVC BALL VALVE AS PER DETAIL. USE ¾" SCH. 40 PVC BALL VALVE AS A WATER SOURCE FOR NEW ½" DRIP TUBING AND DRIP EMITTERS TO IRRIGATE NEW SHRUB PLANTING - SHRUB LAYOUT AS DETERMINED BY PVSD REPRESENTATIVE.

EXISTING 48 STATION AUTO CONTROLLER `L' HOUSED IN A STAINLESS STEEL ENCLOSURE WITHIN A CHAIN LINK FENCED SECURITY ENCLOSURE. PROTECT IN PLACE.

(E) CONCRETE SIDEWALK

POINT OF CONNECTION `B': EXISTING ¾" SCH. 40 PVC DRIP LATERAL CAPPED AT THE END OF THE EXISTING PLANTER.

BUILDING WALL

(N) BEND-A-BOARD

(E) DRAIN

(E) BEND-A-BOARD 1"x4" PLASTIC HEADER (P.I.P.)

(E) CONCRETE SIDEWALK

(E) TURF

(E) CONCRETE SIDEWALK

(E) TURF

NOTE:
SEE SHEET L4.2 FOR IRRIGATION LEGEND AND NOTES.

GRAPHIC SCALE

0 4 8 16 24

SCALE: 1"=8'

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REVISIONS

NO.	DATE	BY	DESCRIPTION

REGISTERED LANDSCAPE ARCHITECT JOHN JAMES BAIN III 2393 SIGNATURE 04-28 RENEWAL DATE 01-30-26 DATE STATE OF CALIFORNIA

Pleasant Valley School District PVSD

CLIENT
PLEASANT VALLEY SCHOOL DISTRICT
600 Temple Avenue
Camarillo, CA. 93010

SHEET TITLE
PLANTING PLAN

PROJECT
Santa Rosa Tech Magnet Elementary School
FB-26-01
Site Piping Replacement, Phase 2 & Quad Renovation Project
13282 Santa Rosa Rd
Camarillo, CA 93012

		PRINTED FOR:	
DRAWN:	JB	DISTRICT REVIEW:	01-30-26
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		BID:	01-30-26
		CONSTRUCTION:	01-30-26

DRAWING

L4.1

SHEET 4 OF 7

PROJECT No. 25.43

IRRIGATION PROJECT NOTES

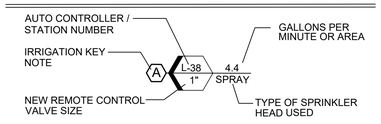
1. PRIOR TO BEGINNING ANY WORK, THE CONTRACTOR AND THE PLEASANT VALLEY SCHOOL DISTRICT (P.V.S.D.) REPRESENTATIVE SHALL PARTICIPATE IN A THOROUGH IRRIGATION SYSTEM REVIEW OF THE PROJECT SITE. ALL REMOTE CONTROL VALVES SHALL BE TURNED ON AND OBSERVED IN OPERATION BY BOTH THE CONTRACTOR AND P.V.S.D. REPRESENTATIVE. ANY EXISTING DEFECTS WILL BE LISTED IN DETAIL IDENTIFYING THE SPECIFIC VALVE STATION NUMBER AND DESCRIBING THE EXACT BROKEN OR NON FUNCTIONING IRRIGATION COMPONENT NOTED DURING THE SITE REVIEW. AT THE CONCLUSION OF THE IRRIGATION REVIEW, THE CONTRACTOR SHALL GENERATE A SUMMARY OF THE ITEMS IDENTIFIED BY BOTH PARTIES LISTING ALL REMOTE CONTROL VALVES OPERATED, IDENTIFYING IF THE VALVE PERFORMED WITHOUT ANY DEFECTS OR SPECIFICALLY IDENTIFYING ANY OBSERVED DEFECTS OR NON FUNCTIONING COMPONENTS, SUCH AS BROKEN HEADS, CLOGGED NOZZLES, NON OPERATING VALVE SOLENOID, BROKEN PIPING, OR OTHER NOTED DEFECT. THE COMPLETED SUMMARY OF ITEMS NOTED SHALL BE LISTED ON A DOCUMENT CALLED 'EXISTING IRRIGATION SYSTEM OBSERVATIONS'. THIS DOCUMENT SHALL BE SIGNED BY THE CONTRACTOR AND SUBMITTED TO THE P.V.S.D. REPRESENTATIVE FOR A CONFIRMING SIGNATURE. THE MUTUALLY SIGNED 'EXISTING IRRIGATION SYSTEM OBSERVATIONS DOCUMENT' SHALL BE SENT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT FOR INSPECTION PURPOSES AT THE CONCLUSION OF THE CONSTRUCTION WORK. IF REQUESTED BY THE P.V.S.D. REPRESENTATIVE, THE CONTRACTOR SHALL PROVIDE A LIST OF THE EXISTING DEFECTIVE IRRIGATION COMPONENTS NOTED WITH A DETAILED WRITTEN PROPOSAL TO REPAIR EACH ITEM IDENTIFIED ON THE LIST. A COPY OF THIS PROPOSAL WILL BE SENT TO THE LANDSCAPE ARCHITECT. THIS ADDITIONAL WORK PROPOSAL MUST BE REVIEWED AND APPROVED IN WRITING BY THE P.V.S.D. STAFF AND FORMALLY PRESENTED TO THE GENERAL CONTRACTOR BEFORE THE LANDSCAPE SUB-CONTRACTOR CAN BEGIN ANY ADDITIONAL REPAIR WORK. THE MUTUALLY SIGNED 'EXISTING IRRIGATION SYSTEM OBSERVATION DOCUMENT' SHALL BE USED AS A GUIDE TO IDENTIFY ANY COLLATERAL DAMAGE CAUSED TO THE EXISTING IRRIGATION SYSTEM AS A RESULT OF NEW CONSTRUCTION PERFORMED ON SITE BY THE CONTRACTORS. ANY DAMAGE CAUSED TO THE EXISTING IRRIGATION SYSTEM NOT SPECIFICALLY IDENTIFIED ON THE 'EXISTING IRRIGATION SYSTEM OBSERVATION DOCUMENT' SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE. IN THE EVENT THAT THE CONTRACTOR DOES NOT PARTICIPATE OR PERFORM THE EXISTING IRRIGATION SITE REVIEW, ANY EXISTING IRRIGATION EQUIPMENT OR COMPONENTS DAMAGED ON THE PROJECT SITE NOTED BY THE LANDSCAPE ARCHITECT DURING THE FINAL IRRIGATION SYSTEM REVIEW SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT THEIR EXPENSE AND TO THE SATISFACTION OF THE P.V.S.D. REPRESENTATIVE.
2. FIELD VERIFY EXISTING STATIC WATER PRESSURE AND NOTIFY THE LANDSCAPE ARCHITECT PRIOR TO BEGINNING ANY WORK.
3. CONTACT DIG ALERT AT 1-800-227-2600 TO IDENTIFY AND LOCATE ALL ON-SITE UTILITIES PRIOR TO BEGINNING WORK. THE CONTRACTOR SHALL COORDINATE WITH THE PLEASANT VALLEY SCHOOL DISTRICT (P.V.S.D.) REPRESENTATIVE AND REVIEW THE EXISTING SITE PRIOR TO BEGINNING WORK TO AVOID CONFLICTS WITH FUTURE CONSTRUCTION PROJECTS SCHEDULED ON SITE.
4. PROTECT IN PLACE AND KEEP IN WORKING CONDITION ALL EXISTING IRRIGATION SYSTEMS NOT A PART OF THIS WORK. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY EXISTING MAINLINE SEGMENT, LATERAL, IRRIGATION CONTROL WIRE, HYDRAULIC TUBING, REMOTE CONTROL VALVE, VALVE BOX, QUICK COUPLER, OR ANY OTHER IRRIGATION SYSTEM COMPONENT DAMAGED DURING THE RENOVATION PROCESS. ADJACENT FUNCTIONING IRRIGATION SYSTEM COMPONENTS MUST BE KEPT IN WORKING CONDITION TO MAINTAIN THE HEALTH AND VIGOR OF THE EXISTING TURF AND LANDSCAPE PLANTINGS. PROLONGED LACK OF WATER TO THESE PLANTERS AS A RESULT OF NEW CONSTRUCTION WORK THAT RESULTS IN THE LOSS OF TURF OR PLANTS SHALL BE REPLACED BY THE CONTRACTOR AT THEIR COST AND TO THE SATISFACTION OF THE P.V.S.D.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY TRENCH SETTLING OR IRRIGATION HEAD SETTLING. ALL TRENCHES WILL BE BACK FILLED WITH CLEAN SOIL, COMPACTED AND PLANTED WITH APPROVED SEED OR PLANT MATERIAL AS PER PLAN. ALL HEADS THAT SETTLE WILL BE RAISED TO 1/2" ABOVE FINISH GRADE OR AS DIRECTED BY EITHER THE LANDSCAPE ARCHITECT OR P.V.S.D. REPRESENTATIVE. PROVIDE ADDITIONAL SOIL AS NECESSARY AND HAND TAMP AROUND HEAD TO PREVENT FUTURE SETTLING.
6. SLEEVE ALL PVC IRRIGATION PIPES AND WIRES INSTALLED UNDER PAVING. WIRES SHALL BE ENCLOSED IN SCH. 40 PVC ELECTRICAL CONDUIT SIZED BY THE CONTRACTOR, NO LESS THAN 2" IN SIZE. MAINLINE SLEEVES SHALL BE SIZED AS PER LEGEND ON PLAN. SEE SPECIFICATIONS AND IRRIGATION SLEEVING SCHEDULE FOR ADDITIONAL INFORMATION.
7. THE IRRIGATION SYSTEM IS SHOWN DIAGRAMMATICALLY. INSTALL ALL IRRIGATION EQUIPMENT WITHIN LANDSCAPE PLANTERS WHENEVER POSSIBLE.
8. ALL SPRINKLER HEADS SPECIFIED ON THIS PROJECT ARE EQUIPPED WITH FACTORY INSTALLED CHECK VALVES IN THE SPRINKLER BODY. IN THE EVENT THAT LOW HEAD DRAINAGE STILL OCCURS, THE CONTRACTOR SHALL INSTALL INLINE SWING CHECK OR SPRING LOADED CHECK VALVES ON THE PVC LATERALS TO PREVENT LOW HEAD DRAINAGE. ANY INLINE CHECK VALVE INSTALLED ON PVC LATERALS MUST BE FURNISHED WITH A 10" ROUND PLASTIC VALVE BOX WITH A LOCKING GREEN PLASTIC LID.
9. ALL VALVE BOXES INSTALLED IN CONCRETE OR ASPHALT PAVING SHALL BE TRAFFIC RATED CONCRETE BOXES (13-1/4"W X 24-1/4"L X 12"D) WITH CONCRETE LIDS. BOXES SHALL BE MANUFACTURED BY OLDCASTLE PRE-CAST, BOX MODEL N30BOX, LID MODEL B30D, CONCRETE BOX EXTENSION MODEL B30X12, OR CHRISTY CONCRETE BOX EQUIVALENT. ALL RECTANGULAR PLASTIC VALVE BOXES SHALL HAVE THE MINIMUM DIMENSIONS OF (14-1/2"W X 19-1/2"L X 12-1/4"H) AND SHALL HAVE GREEN LOCKING PLASTIC LIDS. THE CONTRACTOR SHALL INCLUDE WITH THE COST OF THE PROJECT ANY PLASTIC VALVE BOX EXTENSION THAT MIGHT BE REQUIRED TO COMPLETE THE VALVE INSTALLATION AS PART OF THE BASE BID. PLASTIC BOX MANUFACTURER'S AND MODEL NUMBERS SHALL BE CARSON MODEL 1419-12 WITH 1419-4B 'T-STYLE GREEN LID', APPLIED ENGINEERING PRODUCTS MODEL 1015T-1G2G, OR NDS MANUFACTURING APPROVED EQUAL.
10. USE ONLY SCH. 80 PVC NIPPLES WHEN INSTALLING VALVES REQUIRING THREADED FITTINGS. SCH. 40 PVC MALE ADAPTERS SHALL NOT BE USED ON ANY VALVE ASSEMBLY CONNECTED TO A PRESSURIZED MAINLINE.
11. MAKE ALL REQUIRED ADJUSTMENTS TO BOTH EXISTING AND NEW SPRINKLER HEADS TO PREVENT ANY IRRIGATION WATER FROM OVER SPRAYING ON TO ADJACENT PAVEMENT OR CLASSROOM BUILDINGS. MAKE ANY NOZZLE REPLACEMENTS AS REQUESTED BY EITHER THE LANDSCAPE ARCHITECT OR P.V.S.D. REPRESENTATIVE TO IMPROVE IRRIGATION COVERAGE OR TO BALANCE PRECIPITATION RATE TO LANDSCAPE PLANTER AS PART OF BASE BID.
12. HEAT STAMP OR 'BRAND' INTO THE PLASTIC REMOTE CONTROL VALVE BOX LIDS THE NEW VALVE STATION NUMBER AND RELATED NEW AUTO CONTROLLER LETTER. PROVIDE CHRISTY STANDARD SIZE I.D. TAGS CONNECTED TO ALL NEW REMOTE CONTROL VALVE SOLENOIDS WITH STATION NUMBER AND RELATED EXISTING AUTO CONTROLLER IDENTIFICATION LETTER.
13. ALL WATER TIGHT CONNECTORS USED TO SPLICE 14 GAUGE WIRES TO REMOTE CONTROL VALVE SOLENOIDS OR TO REPAIR BROKEN EXISTING REMOTE CONTROL VALVE WIRES ON THIS PROJECT SHALL BE MANUFACTURED BY 3M COMPANY, MODEL DBR-Y6 SERIES, SPEARS MODEL DS-400 WITH SPEARS DS-300 SEALANT, OR P.V.S.D. APPROVED EQUAL.
14. INSTALL ALL IRRIGATION REMOTE CONTROL VALVES, BALL VALVES, AND QUICK COUPLING VALVES A MINIMUM DISTANCE OF 10'-0" FROM ALL TREE TRUNK LOCATIONS ILLUSTRATED ON PLANTING PLAN. CONFIRM LAYOUT OF EXISTING OR NEW TREE LOCATIONS PRIOR TO INSTALLING ANY VALVE.
15. EXISTING IMPROVEMENTS WITHIN THE WORK AREAS SHALL REMAIN AND BE PROTECTED IN PLACE UNLESS OTHERWISE NOTED. DAMAGE TO EXISTING IMPROVEMENTS SHALL BE REPLACED IN KIND TO A CONDITION EQUAL TO OR BETTER THAN THAT WHICH EXISTED PRIOR TO CONSTRUCTION.
16. UTILITIES MAY HAVE BEEN OMITTED ON THE IRRIGATION SHEETS. REVIEW ALL AVAILABLE P.V.S.D. 'AS-BUILT' RECORD DRAWINGS AND EXERCISE CARE IN EXCAVATION WHILE PROTECTING EXISTING UTILITIES IN PLACE.
17. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING ALL DAMAGED IRRIGATION PIPING, SPRINKLER HEADS, WIRES, QUICK COUPLERS, OR ANY (E) IRRIGATION COMPONENT DAMAGED AS A RESULT OF THE NEW CONSTRUCTION WORK AS PART OF THE BASE BID WORK.

IRRIGATION SLEEVING SCHEDULE

ALL SLEEVES TO BE INSTALLED 24" BELOW GRADE

MAINLINE OR / LATERAL PIPE SIZE	SLEEVE SIZE REQUIRED
1/2" SCH. 40 PVC	1-1/2" SCH. 40 PVC
3/4" SCH. 40 PVC	1-1/2" SCH. 40 PVC
1" SCH. 40 PVC	2" SCH. 40 PVC
1-1/4" SCH. 40 PVC	2-1/2" SCH. 40 PVC
1-1/2" SCH. 40 PVC	3" CLASS 200 PVC
2" CLASS 315 / SCH. 40 PVC	4" CLASS 200 PVC
2-1/2" CLASS 315 / SCH. 40 PVC	4" CLASS 200 PVC
3" CLASS 315 / SCH. 40 PVC	6" CLASS 200 PVC
4" CLASS 315 / SCH.40 PVC	6" CLASS 200 PVC

NEW REMOTE CONTROL VALVE



IRRIGATION LEGEND

SYMBOL	DESCRIPTION	MANUFACTURER	MODEL	REMARKS	DETAIL
	(E) IRRIGATION LATERAL	UNKNOWN	CL. 200 / SCH. 40 SOLVENT WELD PVC	12" BELOW GRADE - PROTECT IN PLACE UNLESS OTHERWISE NOTED ON IRRIGATION PLAN	N/A
	(E) IRRIGATION MAINLINE	UNKNOWN	SCH. 40 PVC SOLVENT WELD	SOLVENT WELD - 18" BELOW GRADE - (IF NEEDED DURING VALVE REPLACEMENT WORK)	N/A
	(N) IRRIGATION LATERAL	PACIFIC / P.W. EAGLE	SCH. 40 PVC SOLVENT WELD	SOLVENT WELD - 24" BELOW GRADE DIRECT BURY UNDER PAVEMENT - SAND EMBEDMENT	1 / L6.1
	(N) POLYETHYLENE TUBING	RAIN BIRD / EQUAL	XBS700G100 / EQUAL	1/2" SIZE - OUTSIDE DIA. .7" / WALL THICKNESS .05" - PIN TO GRADE @ 5'-0" O.C.	8, 9 / L6.1
L	(E) AUTO CONTROLLER	WEATHERMATIC	SMART LINE SERIES	48 STATIONS - IN STAINLESS STEEL PEDESTAL - PROTECT IN PLACE	N/A
	REMOTE CONTROL VALVE	WEATHERMATIC	MAX-DW-XPR SERIES	GLASS-NYLON VALVE BODY- 225 PSI RATING - IN A VALVE BOX	2 / L6.1
	(E) QUICK COUPLER	BUCKNER	QB44RC-10	1" SIZE, RUBBER COVER, BRASS, INSTALLED IN A 10" ROUND GREEN VALVE BOX	N/A
	SCH. 40 PVC BALL VALVE	SPEARS / EQUAL	8722 SERIES	SCH. 40 PVC - 3/4" SIZE - INSTALLED IN A 6" ROUND VALVE BOX - ISOLATE DRIP TUBING IN LANDSCAPE PLANTER	8 / L6.1

Q	T	H	F			PSI	RAD	GPM Q	GPM T	GPM H	GPM F	
				POP UP SHRUB SPRAY HEAD	HUNTER	30	6	0.30				3 / L6.1
				POP UP SHRUB SPRAY HEAD	HUNTER	30	6	0.96		0.50		3 / L6.1
NO SYMBOL				BARBED DRIP EMITTER	RAIN BIRD	2 GALLON PER HOUR - PRESSURE COMPENSATION - BARBED DRIP EMITTER - RAIN BIRD MODEL XB-20-PC INSTALL (2) DRIP EMITTERS FOR EACH SHRUB PLANTED.					0.03	9 / L6.1

PROJECT KEY NOTES

SYMBOL	DESCRIPTION
A	IRRIGATION POINT OF CONNECTION 'A' - INSTALL NEW 1" WEATHERMATIC REMOTE CONTROL VALVE 'L-38' TO IRRIGATE NEW SHRUB PLANTERS CONSTRUCTED IN RENOVATED QUAD AREA: FIELD VERIFY THE EXACT LOCATION OF AN EXISTING 6" ROUND GREEN VALVE BOX LOCATED AT THE EDGE OF THE EXISTING LAWN AREA. BELOW THE EXISTING 6" ROUND VALVE BOX IS A CAPPED 1-1/2" SCH. 40 PVC ACTIVE MAINLINE PIPE SEGMENT WITH (1) WHITE COLORED 14-GAUGE COMMON WIRE AND (2) SPARE CONTROL WIRES. EXCAVATE AND EXPOSE THE EXISTING 1-1/2" CAPPED MAINLINE, COMMON WIRE, AND (2) SPARE WIRES. CUT MAINLINE AND INSTALL NEW 1" WEATHERMATIC REMOTE CONTROL VALVE AS PER REMOTE CONTROL VALVE DETAIL. SELECT (1) SPARE WIRE AND WHITE COMMON WIRE. SPLICE WIRES ONTO NEW REMOTE CONTROL VALVE SOLENOID USING 3M MODEL DBR-Y6 WEATHERPROOF WIRE SPLICE CONNECTORS. IDENTIFY SPARE WIRES IN EXISTING 40 STATION WEATHERMATIC AUTO CONTROLLER ENCLOSURE. CONNECT CONTROL WIRE TO OPEN TERMINAL '38'. IF NEEDED, CONNECT COMMON WIRE TO COMMON TERMINAL STRIP. DUE TO EXISTING CONDITIONS, THE NEW LATERAL PIPE CAN NOT BE SLEEVED DUE TO MULTIPLE DIRECTIONAL CHANGES UNDER THE PAVEMENT. THE LATERAL PIPE WILL HAVE TO BE DIRECT BURIED UNDER THE VARIOUS PAVED SURFACES. TO COMPENSATE THIS, TRENCH AND INSTALL NEW 1" AND ¾" SCH. 40 PVC LATERAL PIPING 24" BELOW GRADE. BACKFILL THE LATERAL PIPING WITH COMPACTED PLASTER SAND. ENSURE THE LATERAL PIPING IS COMPLETELY ENCASED IN THE PLASTER SAND SO THAT THE PIPE HAS A MINIMUM OF A 3" THICK LAYER OF SAND FROM THE EXTERIOR CIRCUMFERENCE OF THE PIPE. TRENCH AND INSTALL THE NEW LATERAL PIPE AND EXTEND PIPING INTO BOTH NEW RAISED PLANTERS. INSTALL (6) 6" POP UP SPRAY HEAD BODIES IN EACH PLANTER AS PER IRRIGATION PLAN. ADJUST RADIUS OF SPRINKLER HEADS TO ENSURE THE WATER IS CONTAINED ENTIRELY WITHIN THE RAISED PLANTER.
B	IRRIGATION POINT OF CONNECTION 'B' - EXISTING BURIED ¾" SCH. 40 PVC DRIP LATERAL PIPE CAPPED NEAR END OF EXISTING PLANTING AREA: FIELD VERIFY THE EXACT LOCATION OF AN EXISTING ¾" CAPPED SCH. 40 PVC CAPPED LATERAL LINE ORIGINATION FROM EXISTING DRIP REMOTE CONTROL VALVE 'L-36'. EXCAVATE AND EXPOSE THE EXISTING CAPPED ¾" SCH. 40 PVC LATERAL PIPE. CUT PIPE AND REMOVE CAP. TRENCH FROM CAPPED PIPE LOCATION TO LOCATION ON EAST SIDE OF THE BUILDING LOCATED ON THE PLAN. INSTALL A ¾" SCH. 40 PVC BALL VALVE IN A 6" ROUND VALVE BOX. INSTALL ½" POLYETHYLENE DRIP TUBING ON GRADE SECURED ON GRADE WITH GPH IRRIGATION 'TOUGH AS NAILS' DRIP STAKES SPACED 5'-0" O.C. OR AS NOTED ON IRRIGATION DETAILS. INSTALL (2) 2 GALLON PER HOUR BARBED PRESSURE COMPENSATING DRIP EMITTERS ON OPPOSITE SIDE OF EACH SHRUB ROOT BALL TO PROVIDE EVEN WATERING FOR NEW SHRUB ROOT BALL.

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JOHN JAMES BAIN III 2379
SIGNATURE
04-28
RENEWAL DATE
01-30-26
DATE
STATE OF CALIFORNIA

Pleasant Valley School District PSD

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SCHOOL DISTRICT
600 Temple Avenue
Camarillo, CA. 93010

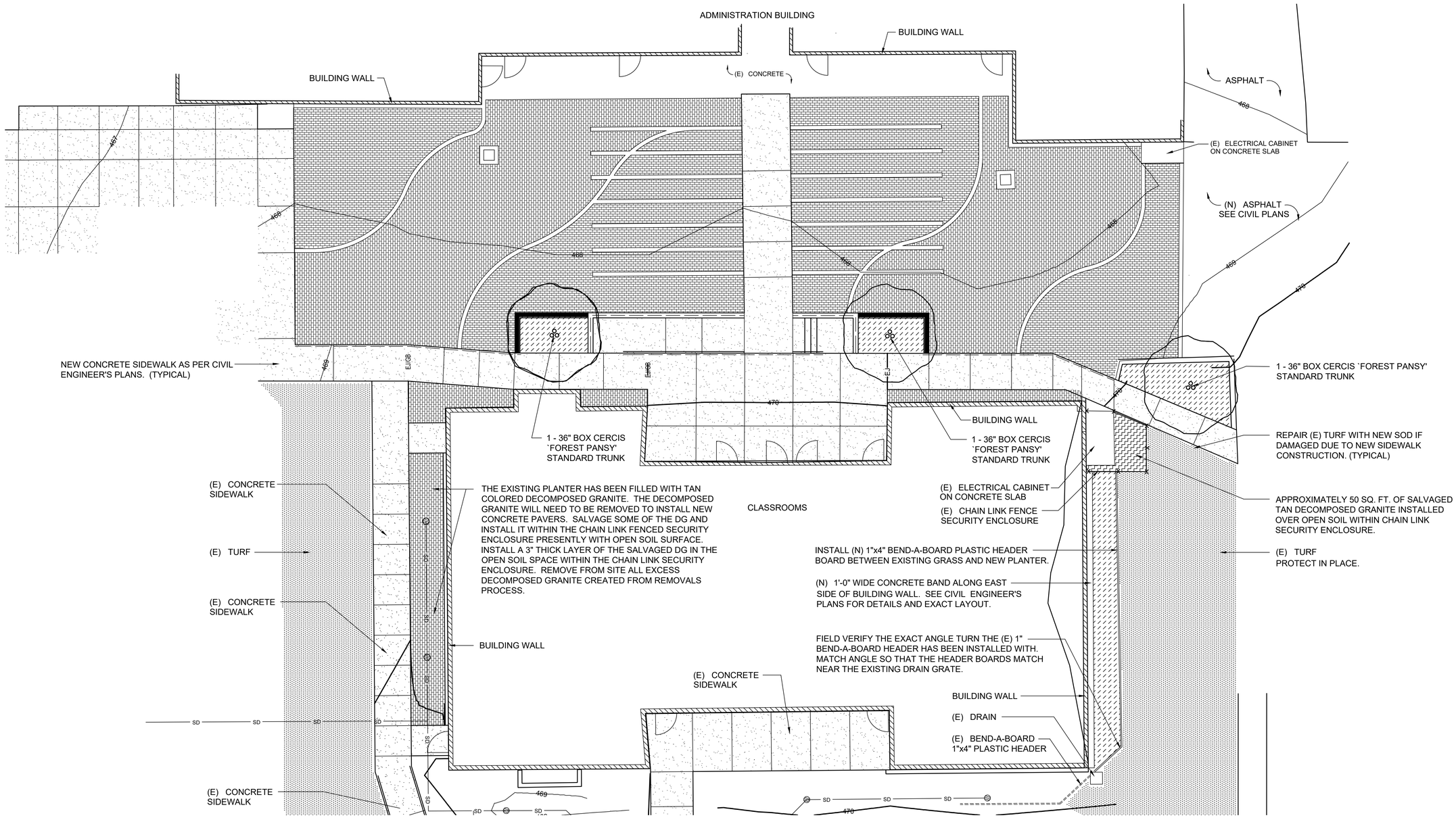
SHEET TITLE
PLANTING PLAN

PROJECT
Santa Rosa Tech Magnet
Elementary School
FB-26-01
Site Piping Replacement, Phase 2 &
Quad Renovation Project
13282 Santa Rosa Rd
Camarillo, CA 93012

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SHEET 5 OF 7
PROJECT No. 25.43



PLANTING LEGEND AND NOTES

SYMBOL	DESCRIPTION
	NEW PLANTING AREAS: INCORPORATE SITE TOP SOIL WITH AMENDMENTS PER SPECS. INSTALL AGROMIN `GARDEN MULCH' WOOD MULCH COVER PER SPECS. FINE GRADE AREA TO BE READY FOR FUTURE SHRUB PLANTING.
	(E) TURF - PROTECT IN PLACE DURING CONSTRUCTION
	SALVAGE A PORTION OF THE EXISTING TAN DECOMPOSED GRANITE INSTALLED ALONG WEST SIDE OF BUILDING AND INSTALL WITHIN THE EXISTING CHAIN LINK FENCED SECURITY ENCLOSURE PRESENTLY WITH ONLY EXPOSED SOIL AS A SURFACE. INSTALL A 3" THICK LAYER ON TAN DECOMPOSED GRANITE WITHIN THE ENCLOSURE AND COMPACT INTO PLACE. DISPOSE OF ALL EXCESS TAN DECOMPOSED GRANITE REMOVED FROM WEST SIDE OF BUILDING IN ORDER TO INSTALL NEW CONCRETE PAVERS. APPROXIMATE AREA REQUIRING A DECOMPOSED GRANITE IS APPROXIMATELY 50 SQ. FT. CONTRACTOR SHALL FIELD VERIFY THE EXCT AREAS REQUIRING DECOMPOSED GRANITE COVER WITHIN THE EXISTING ENCLOSURE.
	EPIC PLASTICS 1"x4" HDPE PLASTIC HEADER BOARD, BROWN IN COLOR, INSTALLED IN BETWEEN EXISTING TURF AND NEW SHRUB PLANTER. APPROXIMATELY 60 LINEAR FEET REQUIRED. CONTRACTOR SHALL FIELD VERIFY THE EXACT QUANTITY REQUIRED.

PROJECT NOTES

1. SHRUB PLANTING AREAS:
CLEAN AND GRUB ANY EXISTING REMAINING VEGETATION OR RESIDUAL PAVING MATERIALS. FINE GRADE EXPOSED SOIL TO A SMOOTH UNIFORM SURFACE WITH POSITIVE DRAINAGE AS PER CIVIL ENGINEER'S PLANS. PVSD SHALL SELECT & PURCHASE A TOTAL OF (45) 5-GALLON SHRUBS TO BE DELIVERED TO SITE. CONTRACTOR SHALL POSITION AND SPOT DELIVERED SHRUBS IN THE NEW PLANTERS WITH THE PVSD REPRESENTATIVE. ONCE THE PLANTS HAVE BEEN POSITIONED IN THE PLANTERS AND APPROVED BY THE PVSD REPRESENTATIVE, CONTRACTOR SHALL PLANT THE SHRUBS AS PER PROJECT SPECIFICATIONS. SHRUB PLANTING AREAS SHALL BE TREATED WITH AN APPROVED PRE-EMERGENT HERBICIDE AND COVERED WITH A 3" THICK LAYER OF AGROMIN `GARDEN MULCH' WOOD MULCH.

2. SOD LAWN REPLACEMENT FOR EXISTING TURF AREAS DAMAGED AS A RESULT OF NEW CONSTRUCTION WORK:
IT WILL BE PART OF THE BASE BID RESPONSIBILITY OF THE CONTRACTOR TO REPLACE ALL (E) TURF AREAS DAMAGED OR DESTROYED DURING THIS PROJECT SCOPE AS PART OF THE SUBMITTED PRICE TO THE SCHOOL DISTRICT. CONTRACTOR SHALL REVIEW THE MECHANICAL ENGINEER'S PLANS, ELECTRICAL ENGINEER'S PLANS, AND CIVIL ENGINEER'S PLANS TO DETERMINE THE AMOUNT OF NEW UTILITY TRENCHING THAT WILL OCCUR THROUGH THE EXISTING TURF AREAS. THESE AREAS WILL BE REPLACED WITH NEW SOD LAWN. THE CONTRACTOR WILL BE RESPONSIBLE TO FINE GRADE DISTURBED TURF AREAS TO BLEND EVENLY BACK TO SURROUNDING (E) GRADES TO CREATE A SMOOTH, UNIFORM SURFACE SUITABLE FOR PEDESTRIAN USE AND ROTARY LAWN MOWER OPERATION. SOD SHALL BE PLACED IN DISTURBED AREAS SO AS TO MATCH (E) FINISH GRADES. REPAIR ALL EXISTING IRRIGATION PIPING OR SPRINKLERS DAMAGED AS A RESULT OF NEW WORK. SOD SHALL BE SOUTHLAND SOD `MARATHON II'. ROTO-TILL SOD AMENDMENTS INTO SOIL AS PER SPECIFICATIONS, FINE GRADE, AND INSTALL SOD AS PER GROWER'S SPECIFICATIONS.

GRAPHIC SCALE
0 4 8 16 24
SCALE: 1"=8'

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Pleasant Valley School District PVSD

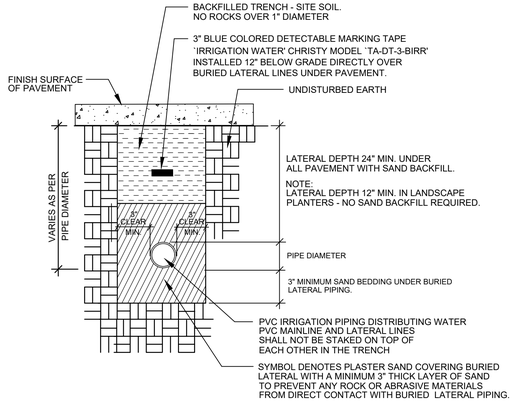
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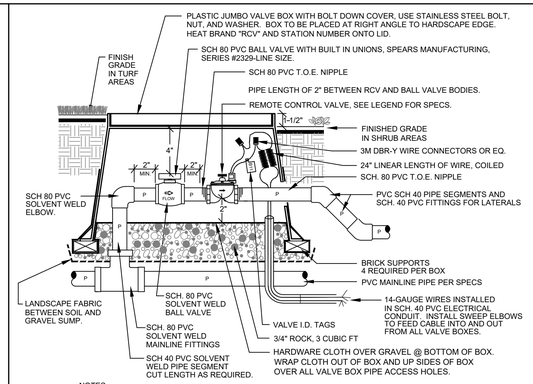
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SHEET 6 OF 7
PROJECT No. 25.43



NOT TO SCALE

1 IRRIGATION PIPING TRENCH SECTION

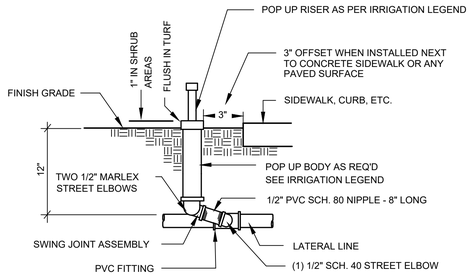


NOTES:

1. INSTALL CONTROL VALVES A MINIMUM OF 36" APART WHEN ARRANGED IN MANIFOLDS UNLESS OTHERWISE NOTED.
2. EQUIPMENT SHALL BE INSTALLED SUCH THAT THERE IS NO LEVERAGE OR STRESS ON THE VALVE ASSEMBLY. PIPE SHALL NOT COME INTO CONTACT WITH VALVE BOX.
3. USE A NON-HARDENING TEFLON PIPE SEALANT ON ALL THREADED CONNECTIONS.
4. INSTALL LANDSCAPE FABRIC (WEED BARRIER) BETWEEN SOIL AND GRAVEL SUMP.
5. HARDWARE CLOTH: GALVANIZED WELDED STEEL, MESH SHAPE SQUARE 1/4" x 1/4" IN SIZE, GAUGE 23 (MINIMUM THICKNESS SIZE).
6. USE RAINBOW TECHNOLOGY 'DUCT SEAL PUTTY' TO PLUG OPEN CONDUIT/WIRES WITHIN VALVE BOX TO PREVENT WATER FROM ENTERING CONDUIT OPENING.

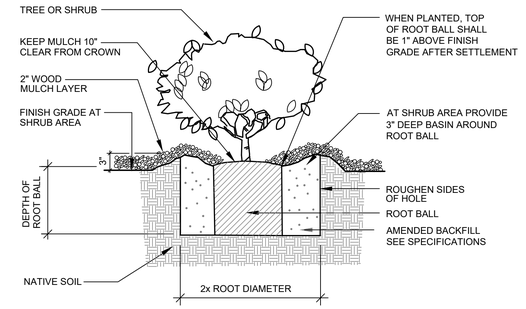
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2 REMOTE CONTROL VALVE DETAIL



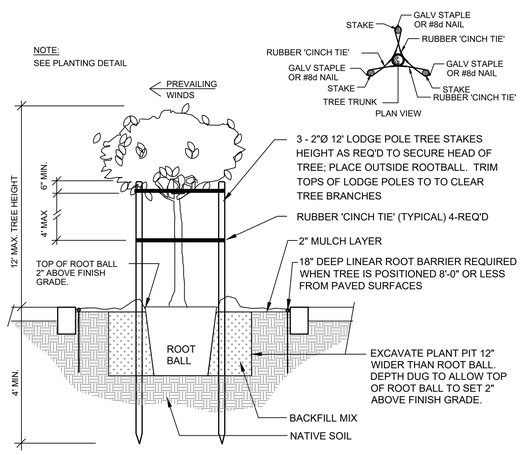
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3 POP UP SPRAY HEAD

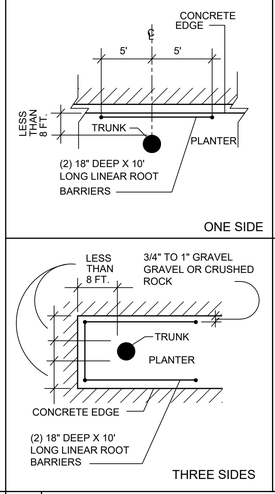


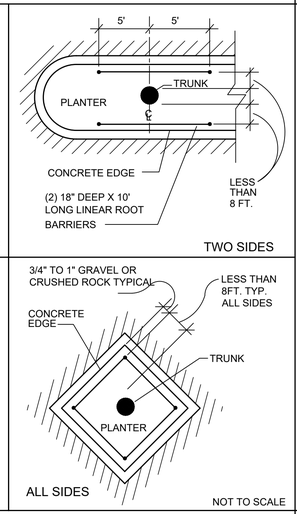
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4 PLANTING DETAIL



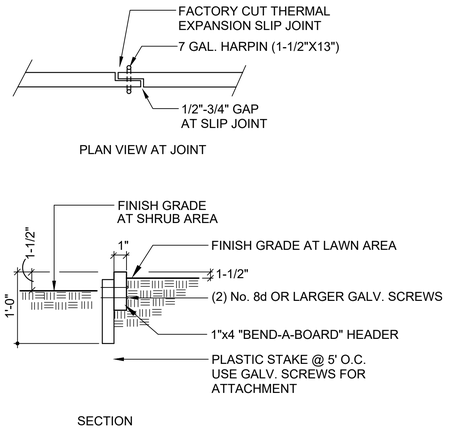
5 36" BOX TREE - TRIPLE STAKED WITH ROOT BARRIERS





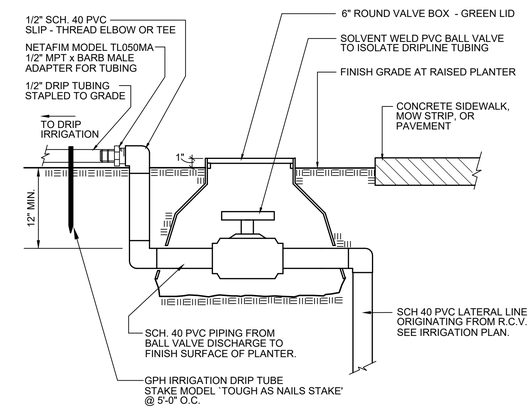
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6 ROOT BARRIER PLAN VIEW - FOUR CONFIGURATIONS



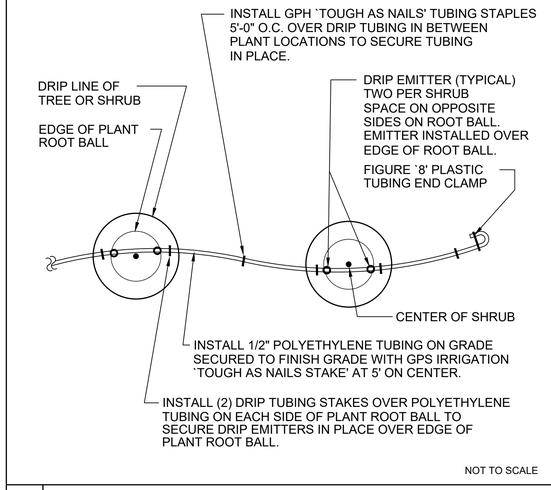
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7 1" X 4" BEND-A-BOARD BROWN PLASTIC HEADER BOARD



NOT TO SCALE

8 SCH. 40 PVC DRIP TUBE ISOLATION VALVE



NOT TO SCALE

9 BARBED DRIP EMITTER ON POLYETHYLENE TUBING

10 NOT USED

11 NOT USED

12 NOT USED

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SHEET 7 OF 7
PROJECT No. 25.43

PLUMBING NOTES

1. SCOPE OF WORK: FURNISH AND INSTALL ALL PIPING SHOWN ON THE PLUMBING DRAWINGS AND DESCRIBED IN THESE NOTES AND THE BOOK SPECIFICATIONS. UNLESS OTHERWISE DIRECTED BY BUILDING OWNER, CONTRACTOR SHALL ARRANGE FOR AND PAY ALL FEES FOR CONNECTIONS TO UTILITIES. IN CONNECTION WITH THIS WORK, CONTRACTOR SHALL ALSO FURNISH AND INSTALL ALL NECESSARY LABOR, DEVICES, HARDWARE AND SYSTEMS REQUIRED TO MAKE SAID SYSTEMS PROPERLY AND SAFELY OPERABLE, INCLUDING, BUT NOT LIMITED TO, DRILLING, CONCRETE & ASPHALT SAW CUTTING, TRENCHING AND BACKFILL, MOUNTING AND SUPPORT HARDWARE, FRAMING, PIPING, ASPHALT, CONCRETE, VALVES, PATCHING & PAINTING.

2. EXAMINATION OF SITE AND CONTRACT DOCUMENTS. EACH BIDDER SHALL, AT ITS SOLE COST AND EXPENSE, INSPECT THE SITE OF THE PROPOSED WORK TO BECOME FULLY ACQUAINTED WITH CONDITIONS RELATING TO THE WORK AND TO FULLY UNDERSTAND THE FACILITIES, DIFFICULTIES AND RESTRICTIONS ATTENDING THE EXECUTION OF THE WORK UNDER THE CONTRACT DOCUMENTS AND COST THEREOF. BIDDERS SHALL THOROUGHLY REVIEW AND BE FAMILIAR WITH THE CONTRACT DOCUMENTS, INCLUDING WITHOUT LIMITATION, THE SPECIFICATIONS AND THE DRAWINGS. THE FAILURE OR OMISSION OF ANY BIDDER TO RECEIVE OR EXAMINE ANY OF THE CONTRACT DOCUMENTS, FORMS, INSTRUMENTS, ADDENDA, OR OTHER DOCUMENTS OR TO INSPECT THE SITE SHALL NOT RELIEVE SUCH BIDDER FROM ANY OBLIGATIONS WITH RESPECT TO THE BID PROPOSAL, THE CONTRACT OR THE WORK REQUIRED UNDER THE CONTRACT DOCUMENTS. THE OWNER ASSUMES NO RESPONSIBILITY OR LIABILITY TO ANY BIDDER FOR, NOR SHALL THE OWNER BE BOUND BY, ANY UNDERSTANDINGS, REPRESENTATIONS OR AGREEMENTS OF THE OWNER'S AGENTS, EMPLOYEES OR OFFICERS CONCERNING THE CONTRACT DOCUMENTS OR THE WORK MADE PRIOR TO EXECUTION OF THE CONTRACT. THE SUBMISSION OF A BID PROPOSAL SHALL BE DEEMED PRIMA FACIE EVIDENCE OF THE BIDDER'S FULL COMPLIANCE WITH THE REQUIREMENTS OF THIS SECTION.

3. INTERPRETATION OF DRAWINGS, SPECIFICATIONS OR CONTRACT DOCUMENTS. IF ANY BIDDER IS IN DOUBT AS TO THE TRUE MEANING OF ANY PART OF THE DRAWINGS, THE SPECIFICATIONS OR OTHER PORTIONS OF THE CONTRACT DOCUMENTS; FINDS DISCREPANCIES, ERRORS OR OMISSIONS THEREIN; OR FINDS VARIANCES IN ANY OF THE CONTRACT DOCUMENTS WITH APPLICABLE RULES, REGULATIONS, ORDINANCES AND/OR LAWS, A WRITTEN REQUEST FOR AN INTERPRETATION OR CORRECTION THEREOF MAY BE SUBMITTED TO THE ENGINEER. IT IS THE SOLE AND EXCLUSIVE RESPONSIBILITY OF THE BIDDER TO SUBMIT SUCH REQUEST IN SUFFICIENT TIME FOR THE PREPARATION OF A RESPONSE THERETO AND DELIVERY OF SUCH RESPONSE TO ALL BIDDERS PRIOR TO THE SCHEDULED CLOSING FOR RECEIPT OF BID PROPOSALS. ANY REQUEST OF ANY BIDDER, PURSUANT TO THE FOREGOING SENTENCE THAT IS MADE LESS THAN SEVEN DAYS PRIOR TO THE SCHEDULED CLOSING DATE FOR THE RECEIPT OF BID PROPOSALS SHALL BE DEEMED UNTIMELY. ANY INTERPRETATION OR CORRECTION OF THE CONTRACT DOCUMENTS WILL BE MADE ONLY BY WRITTEN ADDENDUM DULY ISSUED BY THE OWNER OR THE ENGINEER. A COPY OF ANY SUCH ADDENDUM WILL BE MAILED OR OTHERWISE DELIVERED TO EACH BIDDER RECEIVING A SET OF THE CONTRACT DOCUMENTS. NO PERSON IS AUTHORIZED TO RENDER AN ORAL INTERPRETATION OR CORRECTION OF ANY PORTION OF THE CONTRACT DOCUMENTS TO ANY BIDDER, AND NO BIDDER IS AUTHORIZED TO RELY ON ANY SUCH ORAL INTERPRETATION OR CORRECTION. FAILURE TO REQUEST INTERPRETATION OR CLARIFICATION OF THE DRAWINGS, THE SPECIFICATIONS OR OTHER PORTIONS OF THE CONTRACT DOCUMENTS PURSUANT TO THE FOREGOING SHALL BE DEEMED TO BE A WAIVER OF ANY DISCREPANCY, DEFECT, OR CONFLICT THEREIN.

4. VERIFICATION OF EXISTING UTILITIES. EXISTING BURIED PIPELINES, CONDUITS AND STRUCTURES KNOWN TO THE PREPARER OF THE DRAWINGS ARE SHOWN ON THE DRAWINGS. HOWEVER, ALL SUCH PIPELINES AND STRUCTURES MAY NOT BE SHOWN AND THE LOCATIONS OF THOSE SHOWN ARE APPROXIMATE ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE PREPARER OF THE DRAWINGS. CONTRACTOR SHALL INDEPENDENTLY VERIFY OR DETERMINE THE PRESENCE OF EXISTING BURIED PIPELINES, CONDUITS, AND STRUCTURES WITHIN THE WORK AREA WITH THE UTILITY COMPANIES, THE WATER AND SANITARY AGENCIES, AND THE PROPERTY OWNER. BEFORE COMMENCING WORK, CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS INCLUDING DEPTHS OF ALL EXISTING UNDERGROUND PIPELINES, CONDUITS AND STRUCTURES, INCLUDING SERVICE CONNECTIONS, WHICH MAY AFFECT OR BE AFFECTED BY HIS OPERATIONS AND SHALL MARK THESE LOCATIONS WITH PAINT OR FLAGS. CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND PIPELINES, CONDUITS AND STRUCTURES. UPON BECOMING AWARE OF EXISTING BURIED PIPELINES , CONDUITS OR STRUCTURES NOT SHOWN OR LOCATED DIFFERENTLY THAN SHOWN ON THE DRAWINGS, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE AND THE OWNER OF THE PIPELINE, CONDUIT OR STRUCTURE BY TELEPHONE AND IN WRITING. IF SUCH PIPELINE, CONDUIT OR STRUCTURE AFFECTS OR IS AFFECTED BY THE WORK, CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION AND DIRECTION BEFORE PROCEEDING WITH THE WORK, EXCEPTING THAT IN AN EMERGENCY AFFECTING SAFETY OF LIFE, WORK OR ADJACENT PROPERTY, CONTRACTOR SHALL ACT AT ONCE WITHOUT INSTRUCTIONS TO PREVENT INJURY OR LOSS. SEE ARCHITECTURAL, ELECTRICAL, AND CIVIL PLANS FOR OTHER SITE UTILITIES.

5. DAMAGE / DEMOLITION REPAIR: IN THE EVENT THAT EXISTING UTILITIES OF ANY TYPE ARE DAMAGED BY CONTRACTOR, CONTRACTOR SHALL IMMEDIATELY REPAIR DAMAGE AND RESTORE SERVICES. IF REPAIRS ARE NOT ABLE TO BE MADE IMMEDIATELY, CONTRACTOR SHALL INSTALL TEMPORARY UTILITIES AS REQUIRED TO MAINTAIN UTILITY SERVICES TO ALL BUILDINGS AND FACILITIES. ALL CONCRETE CURB AND GUTTER, FLATWORK, AND LANDSCAPING REMOVED OR DAMAGED BY CONTRACTOR SHALL BE REPLACED IN-KIND BY CONTRACTOR. IT IS THE INTENT OF THIS SECTION THAT THE CONTRACTOR BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THESE NOTES.

6. DIMENSIONS. ALL DIMENSIONS SHALL HAVE PREFERENCE OVER SCALE. ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD. ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN ARCHITECTURAL AND ENGINEERING DRAWINGS BEFORE PROCEEDING WITH WORK. IN NO CASE SHALL WORKING DIMENSIONS BE SCALED FROM PLANS, SECTIONS, OR DETAILS ON WORKING DRAWINGS. ALL SIZES OF EQUIPMENT AND MATERIALS SHALL BE VERIFIED WITH EQUIPMENT MANUFACTURER. ALL PLUMBING FIXTURES SHALL BE INSTALLED PER THE DIMENSIONS ON THE ARCHITECTURAL DRAWINGS.

7. CODES AND STANDARDS: ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE 2025 CALIFORNIA PLUMBING CODE, THE 2025 CALIFORNIA MECHANICAL CODE, THE 2025 CALIFORNIA BUILDING CODE, THE STATE OF CALIFORNIA, THE LOCAL JURISDICTION, AND STANDARD CONSTRUCTION PRACTICES. ALL PLUMBING FIXTURES SHALL BE IN STRICT ACCORDANCE WITH THE FIXTURE SCHEDULE, AND SHALL BE NEW AND FREE FROM DEFECTS. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND FEES, AND SHALL OBTAIN APPROVED INSPECTIONS FOR ALL WORK AS REQUIRED BY OWNER, AND LOCAL JURISDICTION. CONTRACTOR SHALL MAINTAIN IN EFFECT ALL INSURANCE REQUIRED BY STATE LAWS, LOCAL JURISDICTION, AND GENERAL CONTRACTOR / OWNER. WHERE CONFLICT OR VARIATION EXISTS AMONGST CODES, STANDARDS SPECIFICATIONS, OR DRAWINGS, THE MOST STRINGENT SHALL GOVERN.

8. SUBMITTALS REQUIRED: PRIOR TO ORDERING FIXTURES AND MATERIALS, CONTRACTOR SHALL FURNISH SUBMITTALS OF ALL FIXTURES AND MATERIALS PROPOSED FOR USE IN THIS PROJECT. ALL FIXTURES AND MATERIALS SHALL BE INSTITUTIONAL GRADE HEAVY DUTY QUALITY. ORDERING OF FIXTURES AND MATERIALS SHALL ONLY PROCEED AFTER SATISFACTORY REVIEW OF ALL SUBMITTALS BY ENGINEER / OWNER. COPIES OF ALL OWNER'S MANUALS, WARRANTIES, AND OTHER WRITTEN INFORMATION REGARDING SYSTEMS SHALL BE SUBMITTED TO OWNER.

9. CONSTRUCTION OBSERVATION: IN ADDITION TO THE REQUIREMENT FOR OBTAINING INSPECTIONS BY THE LOCAL JURISDICTION, CONTRACTOR SHALL NOTIFY ENGINEER AT APPROPRIATE TIMES DURING THE CONSTRUCTION PROCESS SO THAT ENGINEER CAN VISIT SITE TO BECOME GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF CONTRACTOR'S WORK AND TO DETERMINE IF THE WORK IS PROCEEDING IN GENERAL ACCORDANCE WITH THE CONTRACT DOCUMENTS.

10. UNDERGROUND ALERT: CALL 811 BEFORE YOU DIG OR VISIT CALIFORNIA811.ORG TO REQUEST A TICKET ONLINE."

DO NOT START ANY EXCAVATION JOB WITHOUT FIRST OBTAINING A POSITIVE RESPONSE FROM SOCALGAS THAT YOUR LOCATION AND MARK REQUEST HAS BEEN ADDRESSED.

BEFORE LAYING OUT PIPING AND PERFORMING TRENCHING, CONTRACTOR SHALL DETERMINE LOCATIONS OF EXISTING UNDERGROUND UTILITIES. CONTACT "DIG ALERT / UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA" - 811 OR CALIFORNIA811.ORG. CONTRACTOR SHALL ALSO CONTACT OWNER'S REPRESENTATIVE TO ASCERTAIN LOCATIONS OF UNDERGROUND PIPING AND OTHER CONDITIONS AFFECTING TRENCHING, AND SHALL PERFORM TESTING AND SUBSURFACE EXPLORATION AS NECESSARY TO LOCATE UTILITIES.

11. TRENCHING: MATERIAL SHALL BE EXCAVATED FROM TRENCHES AND PILED ADJACENT TO THE TRENCH. MATERIAL SHALL BE PILED IN SUCH A MANNER THAT WILL CAUSE A MINIMUM OF INCONVENIENCE TO PUBLIC TRAVEL. STRIP GRASS/ ROOT MAT BEFORE EXCAVATING AND SEPARATE FROM EXCAVATION SPOILS STOCKPILE. ALL ROCK, BOULDERS, AND STONES SHALL BE REMOVED TO PROVIDE A MINIMUM CLEARANCE OF SIX (6) INCHES UNDER AND AROUND PIPES. EXCAVATIONS SHALL BE KEPT FREE OF WATER. TRENCHES SHALL BE DUG TO TRUE AND SMOOTH BOTTOM GRADES AND IN ACCORDANCE WITH THE LINES INDICATED ON DRAWINGS AND AS DIRECTED. TRENCH WIDTHS SHALL NOT EXCEED 30 INCHES OR 1.5 TIMES OUTSIDE DIAMETER OF THE PIPE PLUS 18 INCHES WHICHEVER IS GREATER. MINIMUM TRENCH WIDTH SHALL BE WIDE ENOUGH TO ENSURE CLEAN-OUT OF DISTURBED SOILS AND ACCOMMODATE MECHANICAL COMPACTING EQUIPMENT (APPLIES TO BOTH TRENCHES AND VAULT/ BOX EXCAVATIONS).

DEPTH OF TRENCHING FOR WATER AND GAS PIPING SHALL BE SUCH AS TO GIVE A MINIMUM COVER OF 18 INCHES OVER THE TOP OF THE PIPE. DEEPER EXCAVATION MAY BE REQUIRED DUE TO LOCALIZED BREAKS IN GRADE, OR TO INSTALL THE NEW PIPING UNDER EXISTING CULVERTS OR OTHER UTILITIES WHERE NECESSARY.

TRENCHING FOR SEWERS AND DRAINS SHALL BE OF SUFFICIENT WIDTH TO PERMIT PROPER JOINTING OF THE PIPE AND BACKFILLING OF MATERIAL ALONG THE SIDES OF THE PIPE. TRENCH WIDTH AT THE SURFACE OF THE GROUND SHALL BE KEPT TO THE MINIMUM AMOUNT NECESSARY TO INSTALL THE PIPE IN A SAFE MANNER. TRENCHES SHALL BE EXCAVATED BELOW THE BARREL OF THE PIPE A SUFFICIENT DISTANCE TO PROVIDE FOR BEDDING MATERIAL.

WHERE THE TRENCH BOTTOM IS IN A MATERIAL WHICH IS UNSUITABLE FOR FOUNDATION OR WHICH WILL MAKE IT DIFFICULT TO OBTAIN UNIFORM BEARING FOR THE PIPE, SUCH MATERIAL SHALL BE REMOVED AND A STABLE FOUNDATION PROVIDED. THIS SHALL INCLUDE THE PREPARATION OF THE NATIVE TRENCH BOTTOM AND/OR THE TOP OF THE FOUNDATION MATERIAL TO A UNIFORM GRADE SO THAT THE ENTIRE LENGTH OF PIPE RESTS FIRMLY ON A SUITABLE PROPERLY COMPACTED MATERIAL. CLEAN AGGREGATE BASE TO BE USED FOR FOUNDATION PURPOSES SHALL BE OF A TYPE AND GRADATION TO PROVIDE A SOLID COMPACT BEDDING IN THE TRENCH.

12. BACKFILL: CONTRACTOR SHALL COMPLETE 4" SAND (COMPACTED TO 95%) BEDDING AND THEN BACKFILL TO 6 INCHES OVER THE TOP OF THE PIPE WITH SAND BEFORE STARTING BACKFILLING OPERATIONS. UNSTABLE AND/ OR WET EXCAVATION BOTTOMS SHALL REQUIRE PLACEMENT OF AT LEAST 6" (COMPACTED THICKNESS) OF CLEAN AGGREGATE BASE UNDER PIPE IN LIEU OF BEDDING SAND. TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE PIPE FROM DAMAGE, MOVEMENT AND SHIFTING. COMPACTION EQUIPMENT USED ABOVE THE PIPE ZONE SHALL BE OF A TYPE THAT DOES NOT INJURE THE PIPE. WHERE ORIGINAL EXCAVATED MATERIAL IS UNSUITABLE FOR TRENCH BACKFILL, AGGREGATE BASE SHALL BE PLACED. UNSUITABLE MATERIAL SHALL BE REMOVED TO A DISPOSAL AREA. WHEREVER A TRENCH IS EXCAVATED IN A PAVED ROADWAY, SIDEWALK OR OTHER AREA WHERE MINOR SETTLEMENTS WOULD BE DETRIMENTAL AND WHERE NATIVE EXCAVATED MATERIAL IS NOT SUITABLE FOR COMPACTION AS BACKFILL, TRENCH SHALL BE BACKFILLED WITH AGGREGATE BASE. WARNING TAPE MARKERS AND TRACER WIRES SHALL BE INSTALLED DURING BACKFILL OPERATIONS.

THE METHOD OF COMPACTION SHALL BE AT CONTRACTOR'S OPTION, UNLESS EXCAVATION PERMIT REQUIRES A SPECIFIC TYPE. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE THE PROPER SIZE AND TYPE OF COMPACTION EQUIPMENT AND SELECT THE PROPER METHOD OF UTILIZING SAID EQUIPMENT TO ATTAIN THE REQUIRED COMPACTION DENSITY. COMPACTION BY WATER JETTING WILL NOT BE PERMITTED.

WHERE BACKFILL IS REQUIRED TO BE COMPACTED TO A SPECIFIED DENSITY, TESTS FOR COMPLIANCE SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE GOVERNING AUTHORITY. ALLOW TESTING SERVICE TO INSPECT AND APPROVE EACH SUBGRADE AND FILL LAYER BEFORE FURTHER FILL, BACKFILL OR CONSTRUCTION WORK IS PERFORMED.

13. PIPING LOCATIONS: PIPING LOCATIONS SHOWN ARE DIAGRAMMATIC ONLY. CONTRACTOR SHALL VERIFY DEPTHS AND LOCATIONS OF ALL LATERAL STUBS, OFFSETS, OBSTRUCTIONS, ETC REQUIRED IN THE FIELD. THE ACTUAL LOCATIONS OF LINES, CLEANOUTS AND CONNECTIONS MAY VARY PROVIDED THAT COMPLETE SYSTEMS ARE SIZED AND INSTALLED IN COMPLIANCE WITH CODES. ANY SIGNIFICANT DEVIATIONS FROM THE PLANS SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER PRIOR TO INSTALLATION. VERIFY CONNECTIONS LOCATIONS AND RELOCATABLES. CUT & PATCH FINISHED SURFACES AS NEEDED FOR PIPE INSTALLATION. PATCH SHALL MATCH ADJACENT SURFACES. MINIMUM CONCRETE PATCH 5 FT. IN WALKWAYS.

14. NATURAL GAS PIPING: ALL ABOVE GROUND NATURAL GAS PIPING 2-1/2" AND SMALLER SHALL BE US MANUFACTURED BLACK (INTERIOR) OR GALVANIZED (EXTERIOR) SCH. 40 STEEL PIPE WITH 150 POUND BLACK OR GALVANIZED (EXTERIOR) THREADED FITTINGS. ALL ABOVE GROUND NATURAL GAS PIPING 3" AND LARGER SHALL BE US MANUFACTURED BLACK (INTERIOR) OR GALVANIZED (EXTERIOR) SCH. 40 STEEL PIPE WITH WELDED CONNECTIONS. PER AWS D10.12M/D10.12:2000. CONNECTIONS TO VALVES AND PRESSURE REGULATORS SHALL BE FLANGED FOR SIZES 2" & LARGER. ALL UNDERGROUND NATURAL GAS PIPING SHALL BE US MANUFACTURED (SDR 11.5) POLYETHYLENE PLASTIC APPROVED FOR NATURAL GAS SERVICE. INSTALL TRACER WIRES FOR UNDERGROUND PLASTIC PIPE. TRANSITIONS FROM PLASTIC TO STEEL PIPE SHALL BE MADE WITH PRE-BENT ANODELESS LISTED STEEL TRANSITION FITTING. PROVIDE A CAPPED DIRT LEG IN EACH PIPE SERVING GAS BURNING EQUIPMENT. PROVIDE A NEW FLEXIBLE GAS SUPPLY & MCDONALD SERIES 10710 VALVE AT EACH APPLIANCE. FOR INDIVIDUAL GAS SHUTOFF VALVES AT BUILDINGS, McDONALD 10604 FOR 1-1/2" AND SMALLER & ROCKWELL SUPER NORDSTROM 200 CWP FLANGED FOR 2" AND LARGER.

15. WATER PIPING: ALL UNDERGROUND SITE PIPING SHALL BE US MANUFACTURED SCHEDULE 80 PVC WITH SOLVENT WELD JOINTS. EXCEPT SECTIONS UNDER CONCRETE PAVING, WHICH SHALL BE U.S. MANUFACTURED TYPE "K" COPPER WITH PE SLEEVE. DEPTH OF COVER 30" IN PAVED AREAS / 18" IN LANDSCAPING. UNDERGROUND JOINTS SHALL BE BRAZED. INSTALL TRACER WIRE FOR PVC PIPE. TRANSITIONS FROM UNDERGROUND PVC TO ABOVE GROUND COPPER SHALL BE MADE WITH U.S. MANUFACTURED TYPE "K" SOFT COPPER. COPPER SHALL BE SLEEVED WITH POLYETHYLENE. TRANSITIONS FROM PVC TO TYPE "K" COPPER SHALL BE MADE WITH MALE PVC TO FEMALE COPPER ADAPTERS. ALL ABOVEGROUND COPPER SHALL BE U.S. MANUFACTURED TYPE "L" HARD COPPER WITH (NON-LEAD) SOLDER SWEAT JOINTS. UNDERGROUND SHUTOFF VALVES SHALL BE NIBCO - S-595-Y-LF THREE PIECE BRONZE BALL VALVES WITH UNION IN CONCRETE YARD BOX WITH COVER AND THE WORD "WATER" MARKED ON COVER. WHERE PIPES PIERCE FINISHED SURFACES, CHROME PLATED CAST BRASS ESCUTCHEONS WITH SET SCREW (BRASSCRAFT CB SERIES OR EQUAL) SHALL BE INSTALLED OR STUCCO PATCH AND PAINT TO MATCH ADJACENT SURFACE. SINK STOPS SHALL BE LEAD-FREE HEAVY PATTERN, ANGLE, 1/2" FIP INLET, 1/2" COMP. OUTLET, WITH LOOSE KEY, CHROME PLATED BRASSCRAFT HSR87X C OR EQUAL. CONNECT STOPS WITH CHROME PLATED BRASS NIPPLES INTO FIP ADAPTERS BEHIND ESCUTCHEONS. SUPPLY TUBES SHALL BE BRAIDED STAINLESS STEEL WITH 1/2" FIP X COMP., FLUIDMASTER NO-BURST OR EQUAL. FINAL CONNECTION TO EXISTING STEEL PIPING SHALL BE MADE WITH SMITH BLAIR 400S REPAIR COUPLING. FINAL CONNECTION TO (E) UNDERGROUND COPPER SHALL BE BRAZED TYPE .

16. SEWER PIPING: SEWER SHALL BE U.S. MANUFACTURED SCHEDULE 40 PVC PLASTIC GRAVITY SEWER PIPE MEETING THE REQUIREMENTS OF ASTM D-2665.& D-1785& NSF LISTED. EXTENSIONS TO SERVE CLEANOUTS AT GRADE SHALL BE NO-HUB CAST IRON WITH STAINLESS STEEL BAND CLAMPS. ALL LINES SHALL BE SLOPED @ 1/4"/FT MIN OR IN COMPLIANCE WITH CODE. WHERE DRAINS PENETRATE WALLS, CHROME PLATED CAST BRASS ESCUTCHEONS WITH SET SCREWS. ALL UNDERGROUND CAST IRON SHALL BE WRAPPED WITH 10 MIL POLYETHYLENE PER THE DUCTILE IRON PIPE RESEARCH COUNCIL RECOMMENDATIONS.

17. CLEANOUTS: FLOOR CLEANOUTS SHALL BE CAST IRON BODY WITH BRONZE PLUG AND SQUARE ADJUSTABLE NON-SKID NICKEL-BRONZE TOP WITH VANDAL PROOF TOP FOR FINISHED FLOOR, J.R. SMITH 4043S-PB, ZURN ZN-1400-TVP, OR EQUAL. CLEANOUTS TO GRADE SHALL BE J.R. SMITH 4283S OR EQUAL WITH BRONZE PLUG. NON-TRAFFIC OR NON-SURFACED AREAS SHALL BE INSTALLED WITH CAST IRON CLEANOUT RISERS TERMINATING WITH BRONZE PLUG WITHIN CHRIST YARD BOX F08 WITH V01-71C LID AND THE WORDS "BUILDING SEWER CLEANOUT" MARKED ON COVER.

18. PIPING SUPPORT: ALL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2025 CALIFORNIA PLUMBING CODE. HORIZONTAL WATER PIPES AND CONDENSATE DRAINS SHALL BE HUNG WITH SUPERSTRUT C-727-F ADJUSTABLE FELT-LINED PIPE HANGERS, THREADED ROD, AND BEAM ATTACHMENT BRACKETS, LOCATED AT SIX FOOT MAXIMUM INTERVALS. VERTICAL WATER PIPES AND CONDENSATE DRAINS SHALL BE SUPPORTED AT THEIR BASES AND AT EACH STORY OR AT TEN FOOT MAXIMUM INTERVALS. TO PREVENT SWAYING, PROVIDE LATERAL BRACING AT SIX FOOT INTERVALS ANCHORED TO OVERHEAD FRAMING. HORIZONTAL NATURAL GAS PIPING SHALL BE SUSPENDED WITH THE SAME HARDWARE AS FOR WATER PIPING, EXCEPT WITHOUT FELT LINER, LOCATED EVERY TEN FEET FOR PIPES 3/4" AND SMALLER, AND TWELVE FEET MAXIMUM FOR PIPES 1" AND LARGER. VERTICAL NATURAL GAS PIPING SHALL BE SUPPORTED AT EACH STORY HEIGHT. TO PREVENT SWAYING, PROVIDE LATERAL BRACING AT TEN FOOT INTERVALS ANCHORED TO OVERHEAD FRAMING.

HORIZONTAL CAST IRON PIPING SHALL BE HUNG WITH SUPERSTRUT C-710 ADJUSTABLE CLEVIS HANGERS, THREADED ROD, AND BEAM ATTACHMENT BRACKETS, LOCATED AT FIVE FOOT MAXIMUM INTERVALS. TO PREVENT SWAYING, PROVIDE LATERAL BRACING AT FIVE FOOT INTERVALS ANCHORED TO OVERHEAD FRAMING. VERTICAL PIPING SHALL BE SUPPORTED AT EACH FLOOR WITH SUPERSTRUT C-720 RISER CLAMPS AND AT MIDSPAN WITH C-708 CLAMPS INTO SUPERSTRUT CHANNEL.

19. CAP UNDERGROUND GAS AND SEWER PIPING THAT WAS CUT AND NOT REMOVED. GAS PIPING THAT IS TO BE ABANDONED SERVING BUILDINGS, SHALL BE CAPPED WHEREVER GAS PIPE HAS BEEN CUT.

20. TESTING: ALL PIPING AND FIXTURES INSTALLED SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2025 CALIFORNIA PLUMBING CODE, THE LOCAL JURISDICTION, AND THE SCHOOL DISTRICT STANDARDS. UPON COMPLETION OF THE ENTIRE WATER SUPPLY SYSTEM, ADEQUATE TIME SHALL BE GIVEN FOR SOLVENT WELDED FITTINGS TO CURE PER MANUFACTURER'S RECOMMENDATIONS, AND THE SYSTEM SHALL BE TESTED WITH WATER. THE WATER TEST PRESSURE SHALL BE GREATER THAN OR EQUAL TO THE WORKING PRESSURE UNDER WHICH THE SYSTEM IS TO BE USED. THE PIPING SYSTEM SHALL WITHSTAND THE TEST PRESSURE WITHOUT SHOWING EVIDENCE OF LEAKAGE FOR A PERIOD OF NOT LESS THAN 2 HOURS. (PLASTIC PIPE SHALL NOT BE TESTED WITH AIR).

21. CORRECTION OF WORK: THE CONTRACTOR SHALL PROMPTLY CORRECT ALL WORK THE SCHOOL DISTRICT FINDS DEFECTIVE OR FAILING TO CONFORM TO THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BEAR ALL COSTS REQUIRED BY THE CONTRACT DOCUMENTS. IF ANY OF THE WORK IS FOUND TO BE DEFECTIVE OR NOT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL CORRECT IT PROMPTLY AFTER RECEIPT OF A WRITTEN NOTICE FROM THE SCHOOL DISTRICT TO DO SO.

22. WARRANTY: THE CONTRACTOR SHALL WARRANT THAT ALL SYSTEMS, SUBSYSTEMS, AND COMPONENT PARTS ARE FULLY FREE FROM DEFECTIVE DESIGN, MATERIALS, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE SCHOOL DISTRICT.

23. AS-BUILT DRAWINGS SHALL BE GIVEN TO THE SCHOOL DISTRICT PRIOR TO ACCEPTANCE OF THE PROJECT. AS-BUILT DRAWINGS SHALL HAVE DIMENSIONS, DEPTHS, & INVERT FROM ADJACENT BUILDINGS AND INCLUDE ACTUAL LOCATIONS OF CLEAN-OUTS, VALVES, AND POINT OF CONNECTION TO EXISTING.

24. CLEANUP: CONTRACTOR SHALL THOROUGHLY CLEAN ENTIRE JOBSITE EVERY DAY OF ALL DEBRIS ASSOCIATED WITH PLUMBING INSTALLATION.

25. COORDINATION: CONTRACTOR SHALL COORDINATE WITH THE SCHOOL DISTRICT'S PROJECT MANAGER AND ALL RELATED TRADES.

26. CUTTING AND PATCHING. WORK INCLUDES CUTTING AND PATCHING (TO MATCH EXISTING) ALL SURFACES AND SYSTEMS DISTURBED BY THE PLUMBING WORK.

27. EXPOSED WATER & GAS PIPING IS TO BE CLEANED AND PRIMED WITH A RUST INHIBITIVE PRIMER, AND PAINTED. WATER SHALL BE BLUE AND GAS SHALL BE YELLOW (VERIFY COLORS WITH SCHOOL DISTRICT).

28. LANDSCAPE RESTORATION. CONTRACTOR SHALL REPAIR ANY BROKEN SPRINKLER LINES OR WIRING AND RESTORE TO WORKING ORDER. ALL LANDSCAPES AND PLANTS SHALL BE RESTORED TO MATCH ADJACENT SURFACES. INSTALL NEW SOD WHERE TRENCHES CROSS EXISTING LAWN AREAS, AND WATER UNTIL ESTABLISHED.

29. CONTACT GAS COMPANY TO RESTORE SERVICE, ONCE THE GAS SERVICE HAS BEEN RESTORED, PRESSURE TEST, PURGE LINES AT EACH APPLIANCE, THROUGHOUT CAMPUS. RE-LIGHT ANY PILOT LIGHTS.

30. DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

A. PRIOR TO STARTING WORK. VERIFY SYSTEM IS COMPLETE, FLUSHED AND CLEAN.

B. ENSURE PH OF WATER TO BE TREATED IS BETWEEN 7.4 AND 7.6 BY ADDING ALKALI (CAUSTIC SODA OR SODA ASH) OR ACID (HYDROCHLORIC).

C. INJECT DISINFECTANT, FREE CHLORINE IN LIQUID, POWDER, TABLET OR GAS FORM, THROUGHOUT SYSTEM TO OBTAIN 50 TO 80 mg/L RESIDUAL.

D. BLEED WATER FROM OUTLETS TO ENSURE DISTRIBUTION AND TEST FOR DISINFECTANT RESIDUAL AT MINIMUM 15 PERCENT OF OUTLETS.

E. MAINTAIN DISINFECTANT IN SYSTEM FOR 24 HOURS.

F. IF FINAL DISINFECTANT RESIDUAL TESTS LESS THAN 25 mg/L, REPEAT TREATMENT.

G. FLUSH DISINFECTANT FROM SYSTEM UNTIL RESIDUAL EQUAL TO THAT OF INCOMING WATER OR 1.0 mg/L.

H. TAKE SAMPLES NO SOONER THAN 24 HOURS AFTER FLUSHING AND ANALYZE AT ACCREDITED LAB IN ACCORDANCE WITH AWWA C651. SAMPLES SHALL BE TAKEN AT EACH DRINKING FOUNTAIN AND THREE SINK/LAVATORIES PICKED BY ENGINEER. ALSO PROVIDE TEST INCOMING WATER.

I. SEND TEST RESULTS PROMPTLY TO PROJECT MANAGER FOR REVIEW. TEST RESULTS SHALL CONFIRM THERE IS NO HARMFUL BACTERIA DETECTED AT ANY LOCATION. IF RESIDUAL CHLORINE IS LESS THAN .5 PPM PROVIDE TEST FOR HETEROTROPHIC PLATE COUNT (HPC). IF HARMFUL BACTERIA IS DETECTED OR HPC EXCEEDS 500 PPM SYSTEM SHALL BE RE-CHLORINATED AND RETESTED UNTIL SYSTEM PASSES. OBTAIN APPROVAL FROM PROJECT MANAGER PRIOR TO PLACING SYSTEM INTO SERVICE FOR HUMAN CONSUMPTION.

31. CONTRACTOR SHALL PREPARE AS-BUILT DRAWINGS DAILY AS WORK PROGRESSES. INCLUDE DIMENSIONS FROM PERMANENT STRUCTURES. PROVIDE SEWER INVERTS AT POINT OF CONNECTION AND CLEANOUTS. AT EACH PAY REQUEST PROVIDE PROGRESS SET TO PROJECT MANAGER.

32. AFTER SEWER PIPE INSTALLATION & SOIL COMPACTION ALL MAINS SHALL BE VIDEO SURVEYED WITH 1 GPM FLOWING. VIDEO SHALL DEMONSTRATE THAT THERE ARE NO DEFECTS, SAGS, OR BELLIES IN THE SEWER MAIN. PROVIDE VIDEO TO PROJECT MANAGER FOR REVIEW. IF DEFECTS, SAGS, OR BELLIES ARE FOUND CONTRACTOR SHALL RE-INSTALL AFFECTED SECTION AND VIDEO AGAIN.

Revisions

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PLEASANT VALLEY SCHOOL DISTRICT

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SITE PIPING REPLACEMENT, PHASE 2 AND QUAD RENOVATION PROJECT
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Sheet Content

PLUMBING NOTES

Date: 1/30/26

Drawn: TP

Sheet Number

P1.0

of Sheets

PLUMBING EQUIPMENT SCHEDULE

SYMBOL	WASTE	VENT	CW	HW	DESCRIPTION
HB 1			3/4"		HYDRANT, WITH ANTI-SIPHON, VACUUM BREAKER, LOOSE TEE KEY AND HOSE CONNECTION. WOODFORD Y24, OR EQUAL.
SOV 1					WATER SHUT OFF VALVE: THREE PIECE BALL VALVE: NIBCO S-595-Y-LF, W/ CHRISTY B03 PRE-CAST CONCRETE BOX W/ CAST IRON LID AT UNPAVED AREAS & ASPHALT AND CONCRETE LID AT SIDEWALKS. LABEL THE COVER "WATER". FOR SIZES THROUGH 2".
SOV 2					WATER SHUT OFF VALVE: TWO PIECE BALL VALVE: NIBCO S-FP-600A-LF, W/ CHRISTY B12 PRE-CAST CONCRETE BOX W/ CAST IRON LID AT UNPAVED AREAS & ASPHALT AND CONCRETE LID AT SIDEWALKS. LABEL THE COVER "WATER". FOR SIZES 2-1/2" & 3".
GSOV 1					GAS SHUT OFF VALVE, FLANGED: ROCKWELL, SUPER NORDSTROM 200 CWP, CARBON STEEL BODY, FLANGED. INSTALL PER MANUFACTURERS RECOMMENDATIONS. FOR 2" & LARGER.
EQV 1					SEISMIC SAFETY GAS VALVE: PACIFIC SEISMIC PRODUCTS MODEL VB-314F, 2" (FLANGED) VERTICAL - BOTTOM IN FLOW . PROVIDE MODEL SUITABLE FOR ORIENTATION OF INSTALLED UNIT.
EQV 2					SEISMIC SAFETY GAS VALVE: PACIFIC SEISMIC PRODUCTS MODEL VB-315F, 3" (FLANGED) VERTICAL - BOTTOM IN FLOW . PROVIDE MODEL SUITABLE FOR ORIENTATION OF INSTALLED UNIT.

BRANCH LINES
SANTA ROSA NEW GAS PIPING PER CPC - CHAP. 12 TABLE 1215.2(1)

ITEM	TOTAL CFH	T.D.L.	PIPE SIZE	MAX. CFH AT 550'
BUILDING A	560	300'	2"	459
BUILDING C	340	330'	2"	459
BUILDING D	574	450'	3"	1290
BUILDING E	354	535'	2"	459

BUILDING A
NEW GAS PIPING PER CPC - CHAP. 12 TABLE 1215.2(1)

ITEM	BTUH	QTY	BTUH
RTU	100,000	2	200,000
RTU	360,000	1	360,000
TOTAL			560,000
CFH @ 1,000 BTUH/CF			560
DISTANCE TO FURTHEST APPLIANCE (300')			300'

SIZE	3/4"	1"	1-1/4"	1-1/2"	2"
CFH	57	108	221	331	638

BUILDING C
NEW GAS PIPING PER CPC - CHAP. 12 TABLE 1215.2(1)

ITEM	BTUH	QTY	BTUH
RTU	80,000	4	320,000
WALL FURNACE	20,000	1	20,000
TOTAL			340,000
CFH @ 1,000 BTUH/CF			340
DISTANCE TO FURTHEST APPLIANCE (330')			350'

SIZE	3/4"	1"	1-1/4"	1-1/2"	2"	3"
CFH	53	99	203	305	587	1650

BUILDING D
NEW GAS PIPING PER CPC - CHAP. 12 TABLE 1215.2(1)

ITEM	BTUH	QTY	BTUH
RTU	90,000	6	540,000
WATER HEATER	34,000	1	34,000
TOTAL			574,000
CFH @ 1,000 BTUH/CF			574
DISTANCE TO FURTHEST APPLIANCE (450')			450'

SIZE	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"
CFH	46	86	177	266	512	816	1440

BUILDING E
NEW GAS PIPING PER CPC - CHAP. 12 TABLE 1215.2(1)

ITEM	BTUH	QTY	BTUH
RTU	80,000	4	320,000
WATER HEATER	34,000	1	34,000
TOTAL			354,000
CFH @ 1,000 BTUH/CF			354
DISTANCE TO FURTHEST APPLIANCE (535')			550'

SIZE	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
CFH	41	78	159	239	459	732	1290	2640

SANTA ROSA TECH. MAGNET SCHOOL NEW WATER PIPING PER CPC - APPENDIX A - BUILDING A

ITEM	QTY	CW FU	DFU		WATER TOTAL	DFU TOTAL	
WATER CLOSETS	22	5.0	4.0		110	88	
URINAL	8	4.0	2.0		32	16	
LAVATORIES	14	1.0	1.0		14	14	
SINKS	24	2.0	2.0		48	48	
MOP SINK	2	3.0	3.0		6	6	
DRINKING FOUNTAIN	8	0.5	0.5		4	4	
FLOOR DRAIN	8	-	2.0		-	16	
HOSE BIBB #1	1	2.5	-		2.5	-	
HOSE BIBB +1	8	0.5	-		4	-	
FUTURE FIXTURES							
WATER CLOSETS	6	5.0	4.0		30	24	
URINAL	2	4.0	2.0		8	4	
LAVATORIES	6	1.0	1.0		6	6	
FLOOR DRAIN	2	-	2.0		-	4	
TOTAL FIXTURE UNITS					264.5	230	

PRESSURE AT SCHOOL		80	PSI
DEMAND LOAD FROM CHART A-2.1		100	GPM
MAXIMUM DISTANCE TO FURTHEST FIXTURE		470	FT
PLUS 50% FOR FITTINGS		235	FT
TOTAL		705	FT
PRESSURE DROPS			
HEIGHT PRESSURE DROP	11 FT. X 0.43=	4.7	PSI
MIN PRESSURE AT FIXTURE		25	PSI
PRESSURE AVAILABLE FOR FRICTION	80 PSI - 29.7 PSI = 50.3 PSI	50.3	PSI
PRESSURE AVAILABLE PER HUNDRED FEET OF COPPER	(50.3 PSI /705 FT) X 100 = 7.1 PSI/100 FT		

PIPE SIZE	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"
CW (MAX GPM @ 7 FPS)	2.75 GPM	7.5 GPM	16 GPM	26 GPM	35 GPM	65 GPM	100 GPM	160 GPM
TANK TYPE FIXTURE UNITS	1	9	23	44	66	200	380	692
F.V. FIXTURE UNITS	-	-	-	9	20	91	245	631

ABBREVIATIONS

ABBR.	ABBREVIATIONS
ABV.	ABOVE
APPROX.	APPROXIMATELY
AFF	ABOVE FINISHED FLOOR
BLDG	BUILDING
BLW.	BELOW
BOT	BOTTOM
CB	CATCH BASIN
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CL	CENTERLINE
CLG	CEILING
COND	CONDENSATE
CONT	CONTINUED
CW	COLD WATER
DIA	DIAMETER
DWN	DOWN
DS	DOWN SPOUT
DWG	DRAWING
(E)	EXISTING
EA.	EACH
ELEV	ELEVATION
ELEC.	ELECTRIC
EQ	EQUIPMENT
EQUIP	EQUIPMENT
FL	FIRE LINE
FIN	FINISHED
FLR	FLOOR
FRM	FROM
G	GAS
GA	GALVANIZED
GPM	GALLONS PER MINUTE
HD	HOT DIPPED
HDG	HOT DIPPED GALVANIZED
IRR	IRRIGATION
MIN.	MINIMUM
MAX.	MAXIMUM
(N)	NEW
OC	ON CENTER
PE	POLYETHYLENE
P.I.P	PROTECT-IN-PLACE
P.O.C	POINT OF CONNECTION
P.O.D	POINT OF DISCONNECTION
PVC	POLYVINYL CHLORIDE
RD	ROOF DRAIN
RO	ROOF OVERFLOW
S	SEWER
SHT	SHEET
SOV	SHUT-OFF VALVE
ST	SEPTIC TANK
TYP	TYPICAL
UGND	UNDERGROUND
UNDR	UNDER
VTR	VENT TO ROOF
W	WASTE
WCO	WALL CLEAN-OUT
YB	YARD BOX

SYMBOL LEGEND

⌀	CLEAN-OUT TO GRADE IN CONCRETE YARD BOX
P.O.C.	POINT OF CONNECTION
P.O.D.	POINT OF DISCONNECTION

IMPORTANT NOTICE

ALL UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR IS TO NOTIFY UNDERGROUND SERVICE ALERT TWO WORKING DAYS PRIOR TO STARTING ANY EXCAVATION OR RESURFACING.

CALL TOLL FREE 1-800-422-4133

DIGALERT

CONTACT 811

AT LEAST TWO DAYS BEFORE YOU DIG

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

MATERIAL SCHEDULE, ALL U.S. MANUFACTURED

DOMESTIC WATER PIPING, UNDER CONCRETE PAVING:	SOFT COPPER TUBE:TYPE 'K' WATER TUBE, W/ PE SLEEVE
DOMESTIC WATER PIPING, UNDER CONCRETE PAVING:	HARD COPPER TUBE:TYPE 'K' WATER TUBE, W/ PE SLEEVE
DOMESTIC WATER PIPING, UNDERGROUND:	SCHEDULE 80 PVC WITH SOLVENT WELDED FITTINGS
DOMESTIC WATER PIPING, ABOVE GROUND:	HARD COPPER TUBE:TYPE 'L' WATER TUBE
NATURAL GAS PIPING, UNDERGROUND:	POLYETHYLENE PIPE, SDR 11.5
NATURAL GAS PIPING, ABOVE GROUND (INTERIOR):	STEEL PIPE: BLACK STEEL, SCHEDULE 40
NATURAL GAS PIPING, ABOVE GROUND (EXTERIOR):	STEEL PIPE: GALVANIZED STEEL, SCHEDULE 40
SANITARY WASTE AND VENT PIPING (< 5 FT. OF BLDG.):	"NO-HUB" CAST-IRON PIPE, W/ POLYETHYLENE ENCASEMENT
SANITARY WASTE AND VENT PIPING (> 5 FT. OF BLDG.):	SCHEDULE 40 PVC WITH DWV SOLVENT WELDED FITTINGS

Revisions

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REGISTERED PROFESSIONAL ENGINEER HUGH RAVENSCROFT MASNDT PE 24966 MECHANICAL STATE OF CALIFORNIA

PLEASANT VALLEY SCHOOL DISTRICT

BID FB-26-01, SANTA ROSA TECH. MAGNET SCHOOL

SITE PIPING REPLACEMENT, PHASE 2 AND QUAD RENOVATION PROJECT

13282 SANTA ROSA RD. CAMARILLO, CA. 93012

Sheet Content

PLUMBING SCHEDULES & CALCULATIONS

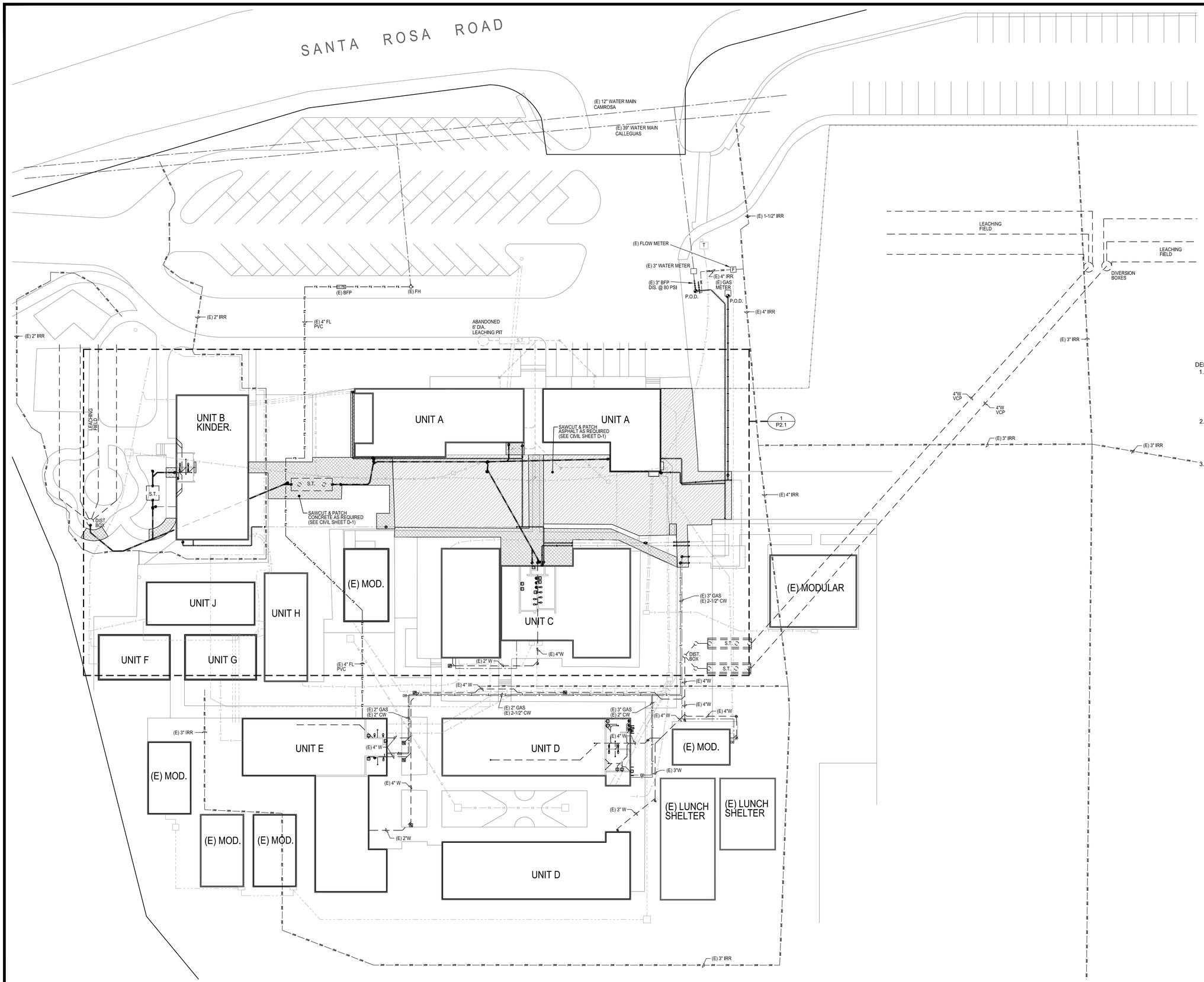
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1 P2.0 PLUMBING DEMOLITION SITE PLAN
SCALE 1"=20'

LINE LEGEND

- (E) WATER TO REMAIN
- (E) WATER DEMO (REMOVE)
- (E) WATER (ABANDON)
- (E) GAS TO REMAIN
- (E) GAS DEMO (REMOVE)
- (E) GAS (ABANDON)
- (E) SEWER TO REMAIN
- (E) SEWER DEMO (REMOVE)
- (E) SEWER (ABANDON)
- (E) MAINLINE IRRIGATION TO REMAIN
- (E) MAINLINE IRRIGATION DEMO (REMOVE)
- (E) MAINLINE IRRIGATION (ABANDON)
- (E) FIRE SPRINKLER TO REMAIN
- (E) UGND ELEC./ COMM. CONDUIT TO REMAIN
- (E) CONDUIT TO REMAIN
- POINT OF DISCONNECTION — P.O.D.
- SAWCUT & PATCH AT ASPHALT
- SAWCUT & PATCH AT CONCRETE

DEMO NOTES:

1. EXISTING UNDERGROUND PIPING AS SHOWN ON THE DRAWINGS PROVIDED BY THE DISTRICT IS INDICATED ON THIS PLAN. HOWEVER THE PIPING LOCATIONS AND DEPTHS HAVE NOT BEEN INDEPENDENTLY VERIFIED AND MAY NOT BE COMPLETE.
2. CONTRACTOR IS RESPONSIBLE FOR VERIFYING DEPTH AND COMPLETE FUNCTIONING SYSTEM, DETERMINING ACTUAL LOCATIONS WILL REQUIRE INVESTIGATION, POT HOLING, AND SURVEYING.
3. DEMOLISH & REMOVE (DEMO) EXISTING GAS, WATER, AND SEWER PIPE THAT IS INDICATED TO BE REMOVED, TO THE GREATEST EXTENT PRACTICAL & CAP. LEAVE IN PLACE (ABANDON) REMAINING PIPES THAT ARE NOT IDENTIFIED TO BE REMOVED. IDENTIFY ALL PIPES ON AS-BUILT DRAWINGS.

Revisions

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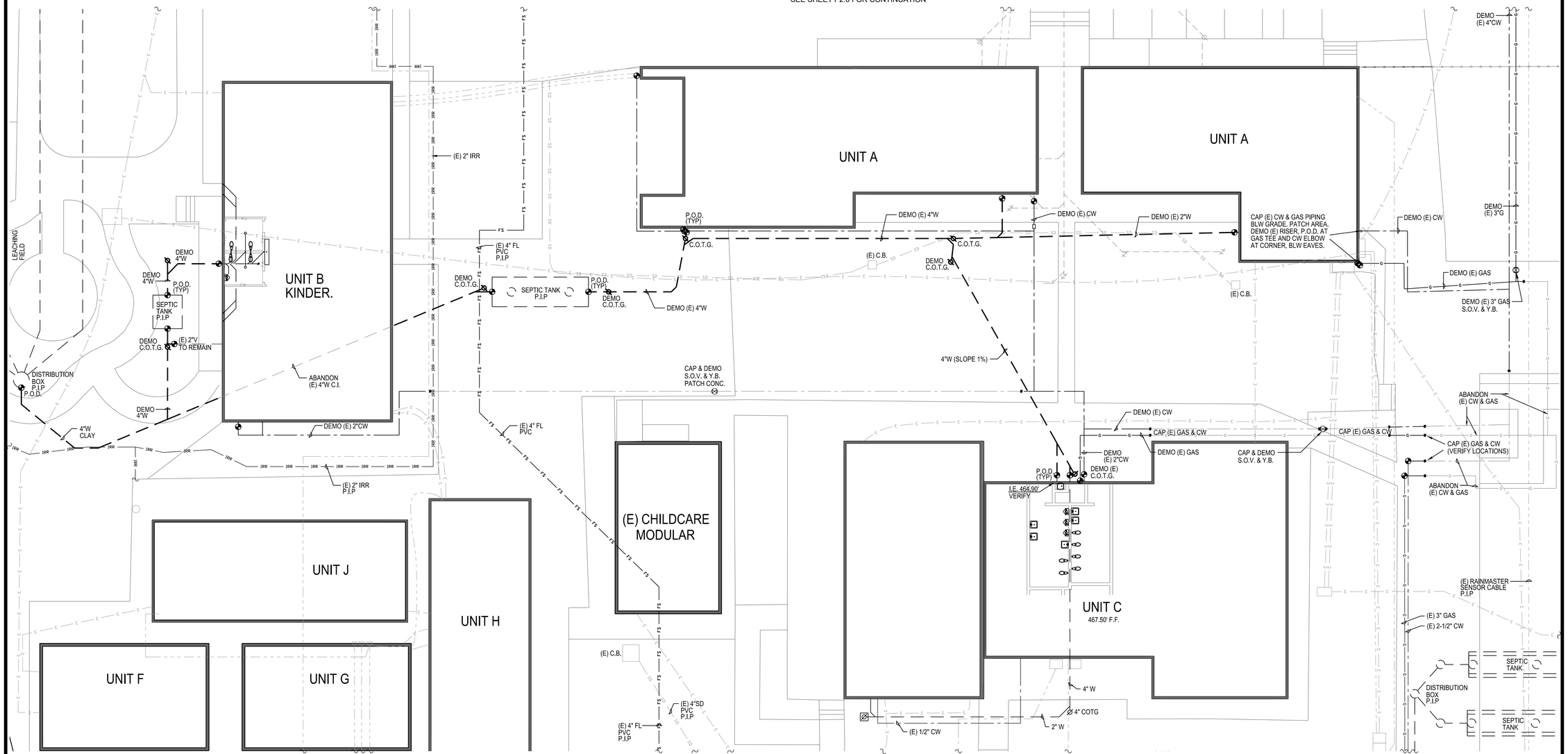
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LINE LEGEND

(E) WATER TO REMAIN
(E) WATER DEMO (REMOVE)
(E) WATER (ABANDON)
(E) GAS TO REMAIN
(E) GAS DEMO (REMOVE)
(E) GAS (ABANDON)
(E) SEWER TO REMAIN
(E) SEWER DEMO (REMOVE)
(E) SEWER (ABANDON)
(E) MAINLINE IRRIGATION TO REMAIN
(E) MAINLINE IRRIGATION DEMO (REMOVE)
(E) MAINLINE IRRIGATION (ABANDON)
(E) FIRE SPRINKLER TO REMAIN
(E) UNDR GRND ELECT. CONDUIT TO REMAIN
(E) CONDUIT TO REMAIN
POINT OF DISCONNECTION — P.O.D.

SEE SHEET P2.0 FOR CONTINUATION



SEE SHEET P2.0 FOR CONTINUATION

1 / P2.1 PLUMBING DEMOLITION PARTIAL SITE PLAN
SCALE 1" = 10'

Revisions

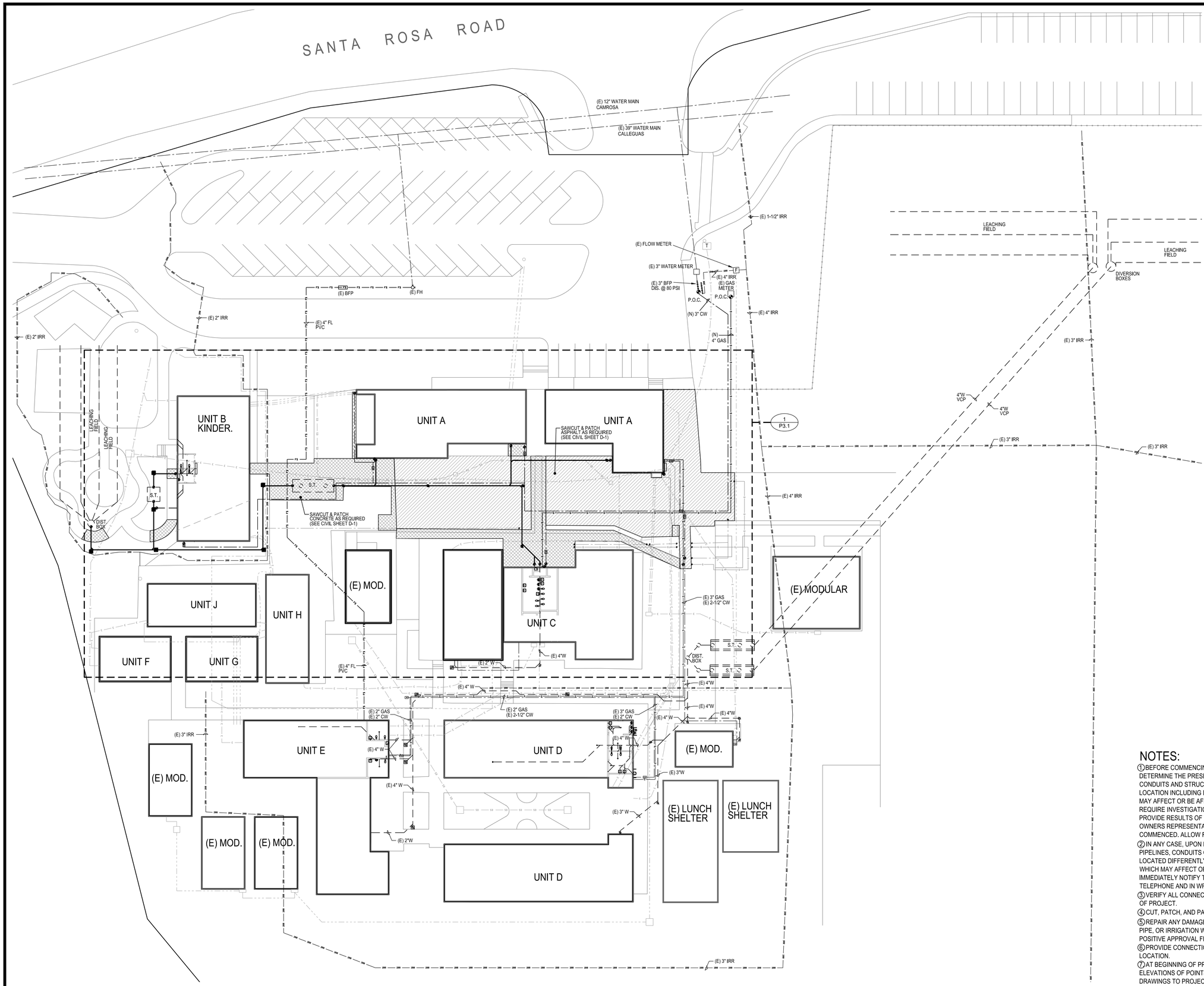
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Sheet Content
PLUMBING DEMOLITION PARTIAL SITE PLAN

Date: 1/30/26
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of Sheets



1 P3.0 PLUMBING SITE PLAN
SCALE 1"=20'

LINE LEGEND

- (E) WATER
- (N) WATER
- (E) WATER (ABANDON)
- (E) GAS
- (N) GAS
- (E) GAS (ABANDON)
- (E) SEWER
- (N) SEWER
- (E) SEWER (ABANDON)
- (E) MAINLINE IRRIGATION
- (E) UNDR GRND ELECT. CONDUIT
- POINT OF CONNECTION — P.O.C.
- CLEAN-OUT TO GRADE — COTG
- SAWCUT & PATCH AT ASPHALT
- SAWCUT & PATCH AT CONCRETE

NOTES:

1. BEFORE COMMENCING WORK, INDEPENDENTLY VERIFY OR DETERMINE THE PRESENCE OF EXISTING BURIED PIPELINES, CONDUITS AND STRUCTURES AND DETERMINE THE EXACT LOCATION INCLUDING DEPTHS OF ALL SUCH FACILITIES WHICH MAY AFFECT OR BE AFFECTED BY CONSTRUCTION. THIS WILL REQUIRE INVESTIGATION, POT HOLING AND SURVEYING. PROVIDE RESULTS OF THIS INVESTIGATION AND SURVEY TO OWNERS REPRESENTATIVE FOR REVIEW BEFORE WORK IS COMMENCED. ALLOW FIVE (5) WORKING DAYS FOR REVIEW.
2. IN ANY CASE, UPON BECOMING AWARE OF EXISTING BURIED PIPELINES, CONDUITS OR STRUCTURES NOT SHOWN OR LOCATED DIFFERENTLY THAN SHOWN ON THE DRAWING AND WHICH MAY AFFECT OR BE AFFECTED BY CONSTRUCTION, IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE BY TELEPHONE AND IN WRITING.
3. VERIFY ALL CONNECTION SIZES & LOCATIONS AT BEGINNING OF PROJECT.
4. CUT, PATCH, AND PAINT FINISHED SURFACES AS REQUIRED.
5. REPAIR ANY DAMAGED (E) PIPING, CONDUIT, IRRIGATION PIPE, OR IRRIGATION WIRING. DO NOT COVER UNTIL RECEIVING POSITIVE APPROVAL FROM INSPECTOR.
6. PROVIDE CONNECTION TO RESTROOM PIPING. VERIFY LOCATION.
7. AT BEGINNING OF PROJECT POT HOLE & SURVEY FOR ELEVATIONS OF POINTS OF CONNECTIONS. PROVIDE SHOP DRAWINGS TO PROJECT MANAGER WITH PROPOSED PIPE SLOPE TO ACCOMMODATE EXISTING CONNECTION POINTS AT BUILDINGS & SEWER MAIN.
8. CLEANOUTS SHALL BE LOCATED A MAXIMUM OF 100 FT. APART & AT CHANGES OF DIRECTIONS GREATER THAN 135 DEGREES.
9. CONTRACTOR IS RESPONSIBLE FOR A COMPLETE AND FUNCTIONING SYSTEM.

Revisions

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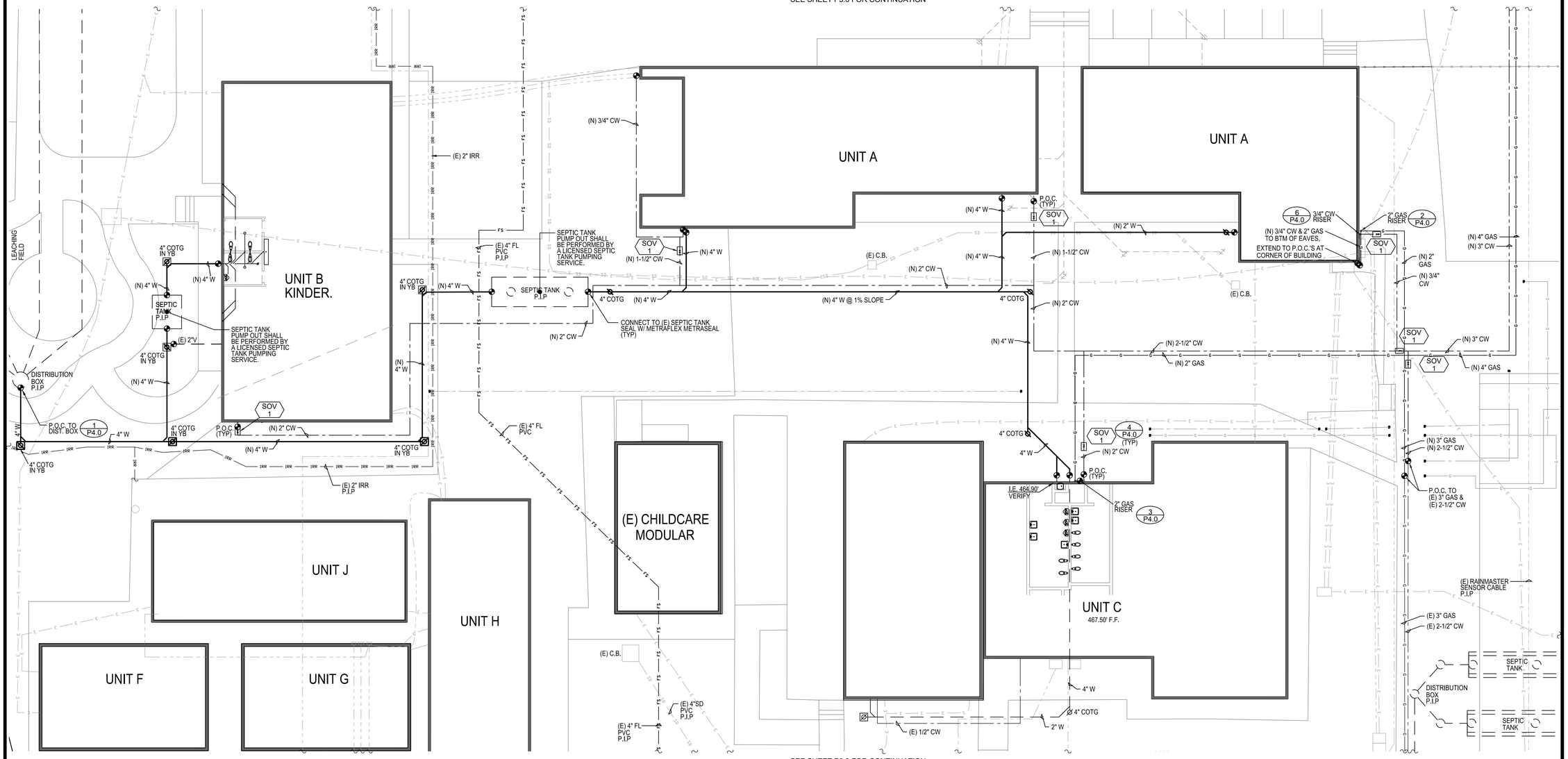
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LINE LEGEND

(E) WATER	
(N) WATER	
(E) WATER (ABANDON)	
(E) GAS	
(N) GAS	
(E) GAS (ABANDON)	
(E) SEWER	
(N) SEWER	
(E) SEWER (ABANDON)	
(E) MAINLINE IRRIGATION	
(E) UNDR GRND ELECT. CONDUIT	
POINT OF CONNECTION	P.O.C.
CLEAN-OUT TO GRADE	COTG

SEE SHEET P3.0 FOR CONTINUATION



SEE SHEET P3.0 FOR CONTINUATION

1 / P3.1 PLUMBING PARTIAL SITE PLAN
SCALE 1" = 10'

Revisions

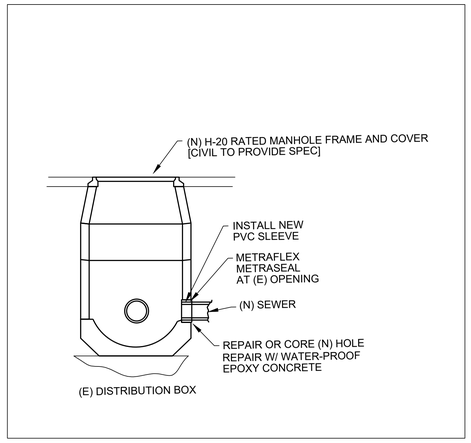
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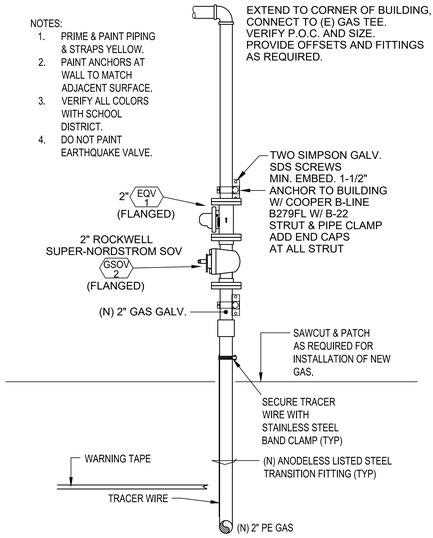
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PLUMBING PARTIAL SITE PLAN

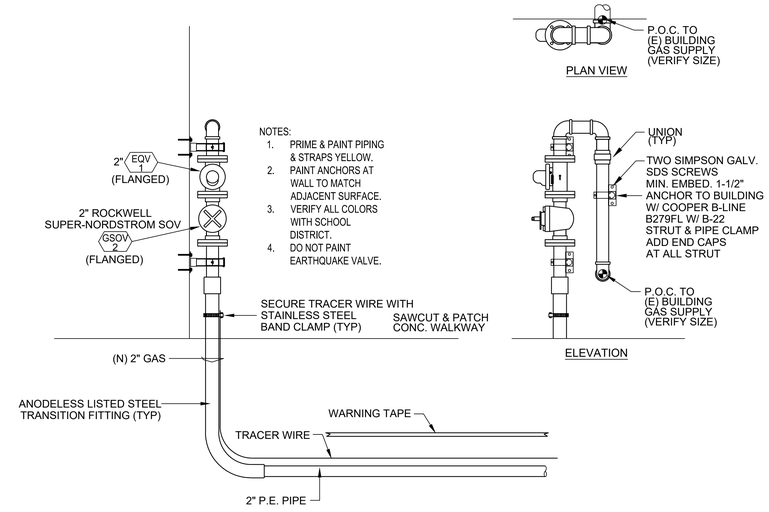
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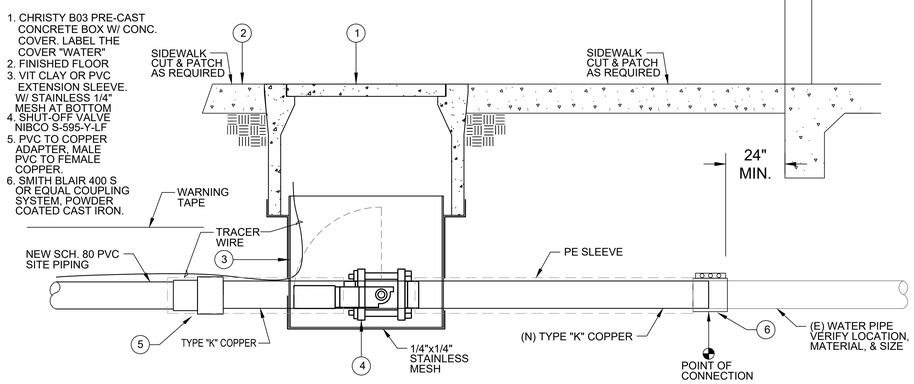
1 CONNECTION TO EXISTING DISTRIBUTION BOX
SCALE: 1/2" = 1'-0"



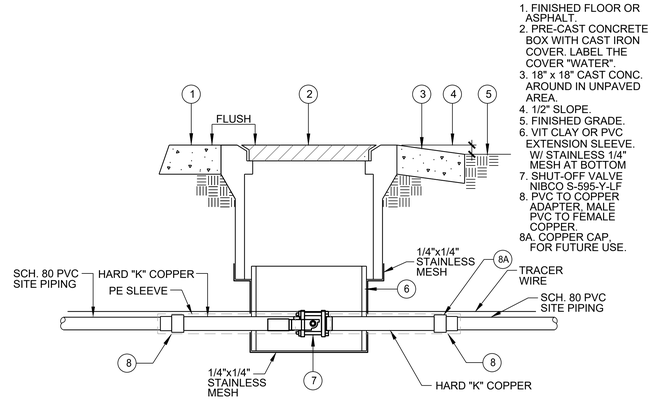
2 BUILDING "A" GAS SUPPLY
SCALE : NO SCALE



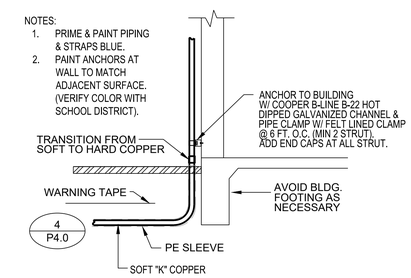
3 BUILDING "C" GAS SUPPLY
SCALE : NO SCALE



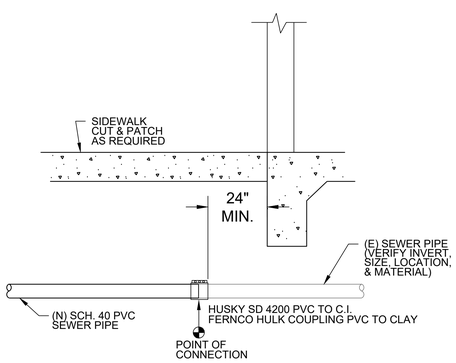
4 WATER SHUTOFF VALVE TYPICAL CONNECTION
SCALE: N.T.S.



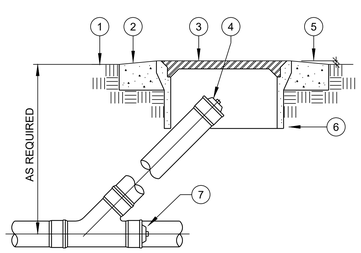
5 WATER SHUTOFF (ISOLATION) VALVE DETAIL
SCALE: N.T.S.



6 BLDG. "A" WATER SUPPLY
SCALE: N.T.S.

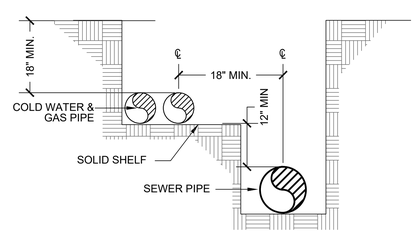


7 SEWER AT (E) BLDG. CONNECTIONS
SCALE: N.T.S.



1. FINISHED GRADE
2. 4" DEEP CONCRETE PAD IN UNPAVED AREA. EXTEND 6" MIN ALL AROUND BOX.
3. LABEL COVER "SEWER"
4. BRONZE CLEANOUT PLUG.
5. 1/2" SLOPE
6. PRE-CAST CONCRETE BOX WITH CAST IRON COVER (CHRISTY #B3 W/ C.I. LID)
7. PLUGGED WYE AT END OF RUNS

8 SURFACE CLEANOUT TO GRADE IN YARD BOX (COTG IN YB)
SCALE: N.T.S.



9 TYPICAL TRENCH & INSTALLATION OF PIPING WHERE LINES RUN PARALLEL
SCALE: N.T.S.

Revisions

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Mechanical Engineers
838 East Front Street
Ventura, California 93001
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PLEASANT VALLEY SCHOOL DISTRICT

BID FB-26-01, SANTA ROSA TECH. MAGNET SCHOOL
SITE PIPING REPLACEMENT, PHASE 2 AND QUAD RENOVATION PROJECT
13282 SANTA ROSA RD. CAMARILLO, CA. 93012

Sheet Content
PLUMBING DETAILS

Date: 1/30/26
Drawn: TP
Sheet Number
P4.0
of Sheets

GENERAL NOTES

A. GENERAL

1. SCOPE
THE DRAWINGS AND THESE GENERAL NOTES DESCRIBE THE SCOPE OF WORK AND SYSTEMS. THE MATERIAL REQUIRED FOR THE WORK SHALL BE CONTRACTOR FURNISHED AND CONTRACTOR INSTALLED, UNLESS SPECIFICALLY NOTED OTHERWISE. THE WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING PRINCIPAL SYSTEMS AND EQUIPMENT. ALL ITEMS NOTED ON THE PLAN WHICH ARE NOT EXPLICITLY STATED AS EXISTING SHALL BE NEW.

2. PERMITS AND CHARGES
OBTAIN AND PAY FOR ALL NECESSARY CONSTRUCTION PERMITS, INSPECTION FEES, AND OTHER CHARGES BY AGENCIES HAVING JURISDICTION.

3. REGULATIONS AND CODES
PROVIDE AND INSTALL ALL MATERIALS IN CONFORMANCE WITH THE 2025 C.E.C., CALIFORNIA ADMINISTRATIVE CODE TITLE 8, AND OTHER CODES AND REGULATIONS HAVING JURISDICTION. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE REQUIREMENTS OF THE INSPECTING AUTHORITY AND THE MANUFACTURERS RECOMMENDATIONS.

4. VERIFYING EXISTING CONDITIONS
BEFORE SUBMITTING BID, BECOME THOROUGHLY FAMILIAR WITH ACTUAL EXISTING CONDITIONS AT THE BUILDING. THE INTENT OF THE WORK IS SHOWN ON THE DRAWINGS AND DESCRIBED HEREINAFTER. BY THE ACT OF SUBMITTING A BID PROPOSAL FOR THE WORK, THE CONTRACTOR SHALL BE DEEMED TO HAVE MADE SUCH STUDY AND EXAMINATION AND TO ACCEPT ALL CONDITIONS PRESENT AT THE SITE. NO REQUEST FOR ADDITIONAL PAYMENT WILL BE CONSIDERED AS VALID, DUE TO FAILURE TO ALLOW FOR CONDITIONS WHICH MAY EXIST.

5. COORDINATION
COORDINATE ALL WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTION REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT. ELECTRICAL EQUIPMENT LOCATIONS INDICATED ARE SHOWN DIAGRAMMATICALLY, EXACT LOCATION SHALL BE VERIFIED. SCALING OFF OF DRAWINGS SHALL BE DONE AT CONTRACTORS RISK. DO NOT SCALE DEVICES, LIGHTING FIXTURES OR ANY EQUIPMENT FROM PLANS. LIGHTING FIXTURE QUANTITIES AND LENGTHS SHALL BE CONTRACTORS RESPONSIBILITY. FIXTURES ARE SHOWN FOR CIRCUITING ONLY. CONTRACTOR TO VERIFY SIZES & QUANTITIES PRIOR TO BID.

6. SERVICE CONTINUITY
UNINTERRUPTED EXISTING ELECTRICAL POWER SHALL BE MAINTAINED TO OTHER TRADES FOR TEMPORARY POWER AREAS OF THE SITE DURING CONSTRUCTION. PROVIDE ANY TEMPORARY SERVICES AS MAY BE REQUIRED. IDENTIFY AT BID TIME, ALL WORK TO BE DONE ON PREMIUM TIME AND THE TOTAL OVERTIME MAN-HOURS REQUIRED FOR COMPLETION.

7. AS BUILT
PROVIDE RECORD DRAWINGS IN ACAD TO THE OWNER WITH ALL CHANGES NOTED THEREON AT THE COMPLETION OF THE PROJECT. RECORD DRAWINGS SHALL BE SIGNED AND DATED BY CONTRACTOR PRIOR TO RELEASE OF FINAL RETENTION OF ALL MONIES. ALL CONDUIT SYSTEMS & PULL BOXES SHALL BE ACCURATE, SHOWN, & DIMENSION ORTHOGONALLY (X,Y,Z) WITH DEPTH FROM PERMANENT PHYSICAL STRUCTURE.

8. GUARANTEE
CONTRACTOR SHALL UNCONDITIONALLY GUARANTEE ALL LABOR AND MATERIALS ON ALL WORK AGAINST DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR.

9. SHOP DRAWINGS
SUBMIT SHOP DRAWINGS AND MATERIAL LIST FOR REVIEW PRIOR TO COMMENCING ANY WORK. ALL EQUIPMENT TO BEAR U.L. LABEL OR THAT OF ANOTHER ACCEPTABLE TESTING LABORATORY. SHOP DRAWINGS MUST BE STAMPED BY THE CONTRACTOR FOR CONFORMANCE PRIOR TO SUBMITTAL. SUBMIT THREE HARD COPY SETS OF SHOP DRAWINGS FOR REVIEW PRIOR TO PURCHASING ALL BREAKER MOUNTING HARDWARE, DISCONNECT SWITCHES, FUSES, CONTROLLERS, LIGHTING FIXTURES, LIGHT SWITCHES, RECEPTACLES, ETC.

10. CONTRACTOR BID
CONTRACTOR'S BID SHALL BE BASED ON ALL WORK SHOWN ON THE PLANS AND AS SPECIFIED. IF CONTRACTOR PROPOSES TO SUBSTITUTE FOR EQUIPMENT SPECIFIED, HE SHALL SUBMIT HIS REQUEST FOR CONSIDERATION OF THE OWNER AND ENGINEER PRIOR TO BID IN WRITING. ALL SUBSTITUTIONS MUST BE REVIEWED BY THE ENGINEER IN WRITING. SUCH REVIEW SHALL NOT RELIEVE THE CONTRACTOR COMPLYING WITH THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS, AND THE CONTRACTOR SHALL BE RESPONSIBLE AT HIS OWN EXPENSE FOR ANY CHARGES RESULTING FROM HIS PROPOSED SUBSTITUTIONS WHICH AFFECT OTHER PARTS OF HIS OWN WORK, THE OWNER, ENGINEER OF RECORD OR THE WORK OF OTHER CONTRACTORS.

B. MATERIAL AND INSTALLATION
ALL WORK AND MATERIAL SHALL CONFORM TO THE LATEST RULES OF THE GOVERNING ELECTRICAL CODE AND INSTALLATION SHALL BE OF THE LATEST INDUSTRY STANDARDS OF WORKMANSHIP.

ALL INSTALLED MATERIALS AND EQUIPMENT SHALL BE LISTED U.L., NRTL OR LISTED AND APPROVED BY AN APPROVED TESTING LABORATORY.

1. CONDUITS
CONDUIT SHALL BE SCHEDULE 40 OR 80 PVC, AS NOTED ON PLANS, PVC, IMC, RIGID OR FLEXIBLE STEEL TYPE. BELL ENDS SHALL BE INSTALLED AT EACH PULL BOX ENTRY & EXIT POINT FLUSH WITH INSIDE OF PULL BOX. PROVIDE 3/16" METERED NYLON PULL STRING IN ALL CONDUITS.

D. EXECUTION
1. CAREFULLY PROTECT ALL WALLS, TRIM, FLOORS, EQUIPMENT UTILITY LINES AND MATERIALS. WHEN WORKING ON FINISHED SURFACES, LIMIT DAMAGE TO THE CONFINES AS MUCH AS POSSIBLE AND RESTORE TO THE ORIGINAL CONDITION ALL SURFACES WHICH ARE DAMAGED BECAUSE OF THE INSTALLATION OF THIS WORK.

2. EQUIPMENT, MATERIALS AND SUPPLIES REMOVED FOR PROTECTION SHALL BE REPLACED IN ORIGINAL LOCATIONS. ANY MATERIALS DAMAGED SHALL BE REPLACED WITH NEW MATERIALS OF LIKE KIND AND QUALITY.

3. DO ALL DRILLING, CUTTING, CHANNELING AND PATCHING REQUIRED TO INSTALL ELECTRICAL WORK AS INDICATED OR HEREIN SPECIFIED. ALL HOLES, CURBS, ETC., IN FLOORS, CEILINGS AND WALLS SHALL BE PATCHED, UNLESS INDICATED OTHERWISE. PAINT ALL NEW ELECTRICAL RACEWAYS, CABINETS, ENCLOSURES AND FITTINGS PENETRATING INTO FIRE RATED ENVELOPES, SPACES, ETC.

4. ALL CONDUIT RUNS SHALL BE CONCEALED, UNLESS SHOWN OTHERWISE.

5. EXISTING CONDITION SHOWN IS FROM AVAILABLE RECORD DRAWINGS AND VISUAL FIELD SURVEY AND SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ACTUAL EXISTING CONDITION AT SITE.

6. ALL WORK SHOWN IS NEW UNLESS SPECIALLY INDICATED AS EXISTING (X). ALL ELECTRICAL EQUIPMENT MOUNTING AND ANCHORAGE MUST CONFORM WITH LOCAL AND STATE SEISMIC CODES.

G. INSTALLATION
1. IT IS THE INTENT OF THESE PLANS AND SPECIFICATIONS THAT A COMPLETE AND WORKABLE ELECTRICAL INSTALLATION BE PROVIDED FOR ALL THE EQUIPMENT DESCRIBED OR SHOWN AS BEING IN THIS CONTRACT. TOWARD THIS END FURNISH ALL LABOR AND TOOLS NECESSARY AND FURNISH AND INSTALL ALL APPARATUS, MATERIALS AND EQUIPMENT IN A FASHION COMPLYING WITH ALL APPLICABLE CODES, INCLUDING ITEMS REQUIRED BUT NOT NORMALLY SHOWN, SUCH AS LAMPS, COUPLINGS, HANGERS, BRACKETS, CLAMPS, BOXES, CONNECTORS AND HARDWARE. REFER ALSO TO WRITTEN SPECIFICATIONS FOR GENERAL, MECHANICAL AND ELECTRICAL SECTIONS.

2. PROCURE ALL PERMITS FROM LEGALLY CONSTITUTED AUTHORITIES, ARRANGE FOR ALL INSPECTIONS AND PAY ALL COSTS FOR FEES AND TESTS IN CONNECTION THEREWITH. COMPLY WITH CODES: NOTHING IN THESE PLANS AUTHORIZES DEVIATION FROM APPLICABLE CODES.

3. DETERMINE EXACT ROUTING OF CONCEALED FEEDERS AND BRANCH HOMERUNS IN COOPERATION WITH OTHER TRADES TO SIMPLIFY INSTALLATION WHEREVER POSSIBLE BUT SUBJECT TO APPROVAL OF ARCHITECT FOR VISUAL AND STRUCTURAL REASONS.

4. DO NOT RUN ANY CONDUIT IN SLAB IF ITS OUTSIDE DIAMETER EXCEEDS 1/3 THE THICKNESS OF THE SLAB. LOCATE CONDUITS WITHIN THE MIDDLE OF THE SLAB. WHERE CONDUITS ARE GROUPED IN PARALLEL RUNS, SPACE THEM 3" OR MORE APART. WHERE CONDUITS CROSS EACH OTHER, THICKEN SLAB PROPORTIONATELY OVER A HORIZONTAL AREA EQUAL TO TEN TIMES THE DIAMETER OF THE LARGEST CONDUIT. REFER ALSO TO DETAILS SHOWN..

5. ALL ELECTRICAL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING, MAINTAINING AND REPAIRING. ALL CONDUIT SHALL BE CONCEALED WHERE POSSIBLE. EXPOSED CONDUIT SHALL BE IN STRAIGHT LINES PARALLEL WITH, OR AT RIGHT ANGLES TO, COLUMN LINES OR BEAMS AND SEPARATED BY AT LEAST THREE (3) INCHES FROM WATER LINES WHENEVER THEY RUN LONG SIDE OR ACROSS SUCH LINES.

H. ADDITIONAL NOTES
1. MARKING - UNDERGROUND SYSTEM SHALL BE LEGIBLY MARKED "UNDERGROUND SYSTEM" AT THE SOURCE OR FIRST DISCONNECTING MEANS OF THE SYSTEM. THE MARKING SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED. (250.21)(C)

SYMBOLS

– – P – – POWER (U.G.)	– – FA – – FIRE ALARM (U.G.)	– – COM – – COM (U.G.)
P PULLBOX (2' x 3")	P PULLBOX (2' x 3")	P PULLBOX (2' x 3")
STUB UP & CAP ADJACENT TO BUILDING	STUB UP & CAP ADJACENT TO BUILDING	STUB UP & CAP ADJACENT TO BUILDING
STUB OUT & CAP	STUB OUT & CAP	STUB OUT & CAP

LIST OF APPLICABLE CODES

LIST OF CALIFORNIA CODE OF REGULATIONS

LIST OF CALIFORNIA CODE OF REGULATIONS
APPLICABLE CODES AS OF JAN. 1ST, 2020
ALL WORK SHALL CONFORM TO 2022 EDITION TITLE 24, CALIFORNIA CODE OF REGULATIONS

2025 BUILDING STANDARDS ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR

2025 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR

2025 CALIFORNIA ELECTRIC CODE (CEC), PART 3, TITLE 24 CCR

2025 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR

2025 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR

2025 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 CCR

2025 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR

2025 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR

2025 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 CCR

2025 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 CCR

TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

PARTIAL LIST OF APPLICABLE NFPA STANDARDS

NFPA 90A STANDARD FOR THE INSTALLATION OF AIR CONDITIONING SYSTEMS 2024 EDITION

APPLICABLE STANDARDS

FOR A LIST OF APPLICABLE STANDARDS, INCLUDING CALIFORNIA AMENDMENTS TO THE NFPA STANDARDS, REFER TO CBC CHAPTER 35 AND CFC CHAPTER 80.

LIST OF DRAWINGS

SHEET #	SHEET DESCRIPTION	SHEET #	SHEET DESCRIPTION
E100	GENERAL NOTES, ABBREVIATIONS, SYMBOLS & DRAWING LIST		
E140	EXISTING SITE UTILITIES PLAN - MASTER PLAN		
E145	SITE UTILITIES PLAN - NEW WORK		
E600	ELECTRICAL DETAILS		

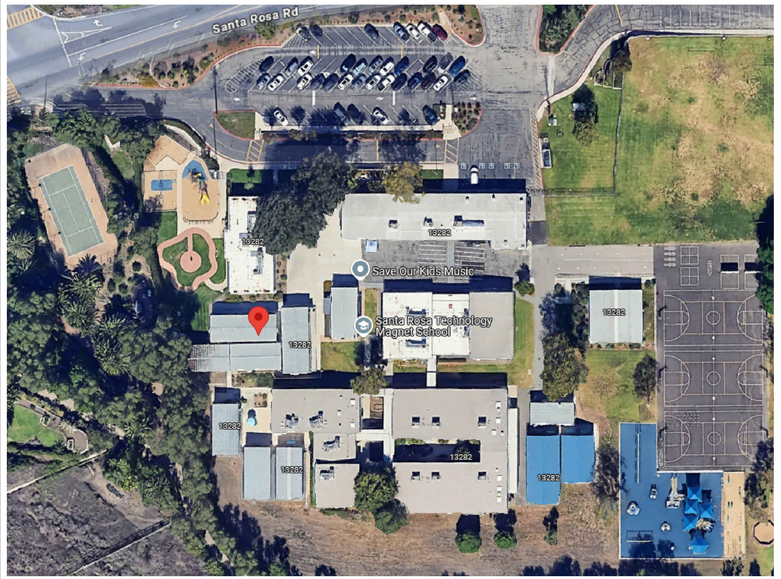
SCOPE OF WORK

PROVIDE UNDERGROUND CONDUIT SYSTEMS & PULLBOXES FOR POWER, COM, & FIRE ALARM (FA).

ABBREVIATIONS

A	AMPERES		STATION	NO	NORMALLY OPEN
AF	AMP FRAME/AMP FUSE	(F)	FRONT	NC	NORMALLY CLOSED
AFC	AVAILABLE FAULT CURRENT	FA	FIRE ALARM	OH	OVERHEAD
AFF	ABOVE FINISHED FLOOR	FS	SHALLOW FLOOR BOX	P	POWER OR POLE
AIC	AMP INTERRUPTING CURRENT	FT	FEET	PBO	PROVIDED BY OTHERS
ARCH	ARCHITECT	GC	GENERAL CONTRACTOR	PNL	PANEL
AS	AMP SWITCH	GFI	GROUND FAULT INTERRUPTER	PV	PHOTO VOLTAIC
ASTM	AMERICAN SOCIETY OF TESTING MATERIAL(S)	GND	GROUND	(R)	REMOVED
		HP	HORSEPOWER	RGS	RIGID GALVANIZED STEEL CONDUIT
AT	AMP TRIP	ID	IDENTIFICATION	RM	ROOM
ATS	AUTOMATIC TRANSFER SWITCH	IDF	INTERMEDIATE DISTRIBUTION FRAME	SN	SYSTEM NEUTRAL
AWG	AMERICAN WIRE GAGE	IG	ISOLATED GROUND	SPD	SURGE PROTECTION DEVICE
BKBD	BACKBOARD	JB	JUNCTION BOX	TC	TIME CLOCKS
BW	BOTH WAYS	K	KILO	TTB	TELEPHONE TERMINAL BOARD
C	CONDUIT OR CEILING	kVA	KILO VOLT AMPS=1000VA	TTC	TELEPHONE TERMINAL CABINET
CB	CIRCUIT BREAKER	LC	LIGHTING CONTACTOR	TR	TRANSFORMER
CONT	CONTINUATION	LCL	LONG CONTINUOUS LOAD	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
CKT	CIRCUIT	LV	LOW VOLTAGE	TYP	TYPICAL
CLG	CEILING	M	METER	UG	UNDERGROUND
CO	CONDUIT ONLY	MC	METAL CLAD	UL	UNDERWRITERS LABORATORY
COM	COMMUNICATIONS	MDF	MAIN DISTRIBUTION FRAME	UON	UNLESS OTHERWISE NOTED
CTV	CABLE TELEVISION	MIN.	MINIMUM	UNSW	UNSWITCHED
(CU)	COPPER	MTD	MOUNTED	V	VOLTS/VOLTAGE
CW	COLD WATER PIPE	MTB	MAIN TELEPHONE BACKBOARD	VA	VOLT AMPS
DIS	DISCONNECT	MTG	MOUNTING	VD	VOLTAGE DROP
DS	DISCONNECT SWITCH	MV	MEDIUM VOLTAGE	W	WATTS/WATTAGE OR WIRE
DWG	DRAWING	MH	MAN HOLE	WP	WEATHERPROOF
ECD	ELECTRICAL CONTRACTOR	MFG	MANUFACTURER	W/	WITH
EM	EMERGENCY LIGHT/FEEDER	NEC	NATIONAL ELECTRICAL CODE	(X)	EXISTING
EMT	ELECTRICAL METAL TUBING	(N)	NEW	Φ	PHASE
EOR	ENGINEER OF RECORD	NIC	NOT IN CONTRACT		
EPR	ETHYLENE PROPYLENE RUBBER	NL	NIGHT LIGHT		
EVCS	ELECTRIC VEHICLE CHARGING				

SITE/AREA MAP



REV	DATE	REVISIONS
1		

LUCCI & ASSOCIATES INC.
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STAMP

REGISTERED PROFESSIONAL ENGINEER – KENNETH W. LUCCI – No. E 8940 – Exp. 09/30/2026 – ELECTRICAL – STATE OF CALIFORNIA

SHEET TITLE: GENERAL NOTES, ABBREVIATIONS, SYMBOLS & DRAWING LIST

PROJECT: BID FB-26-01
SANTA ROSA TECHNOLOGY MAGNET ELEMENTARY SCHOOL, SITE PIPING REPLACEMENT, PHASE 2 AND QUAD RENOVATION PROJECT
13282 SANTA ROSA ROAD
CAMARILLO, CA 93012

DRAWN: LK/DS/IT	
CHECKED: K. LUCCI	
DATE: 01-30-2026	
SCALE: AS NOTED	
JOB NO. 26-302	
SHEET:	

E100

OF: SHEETS:

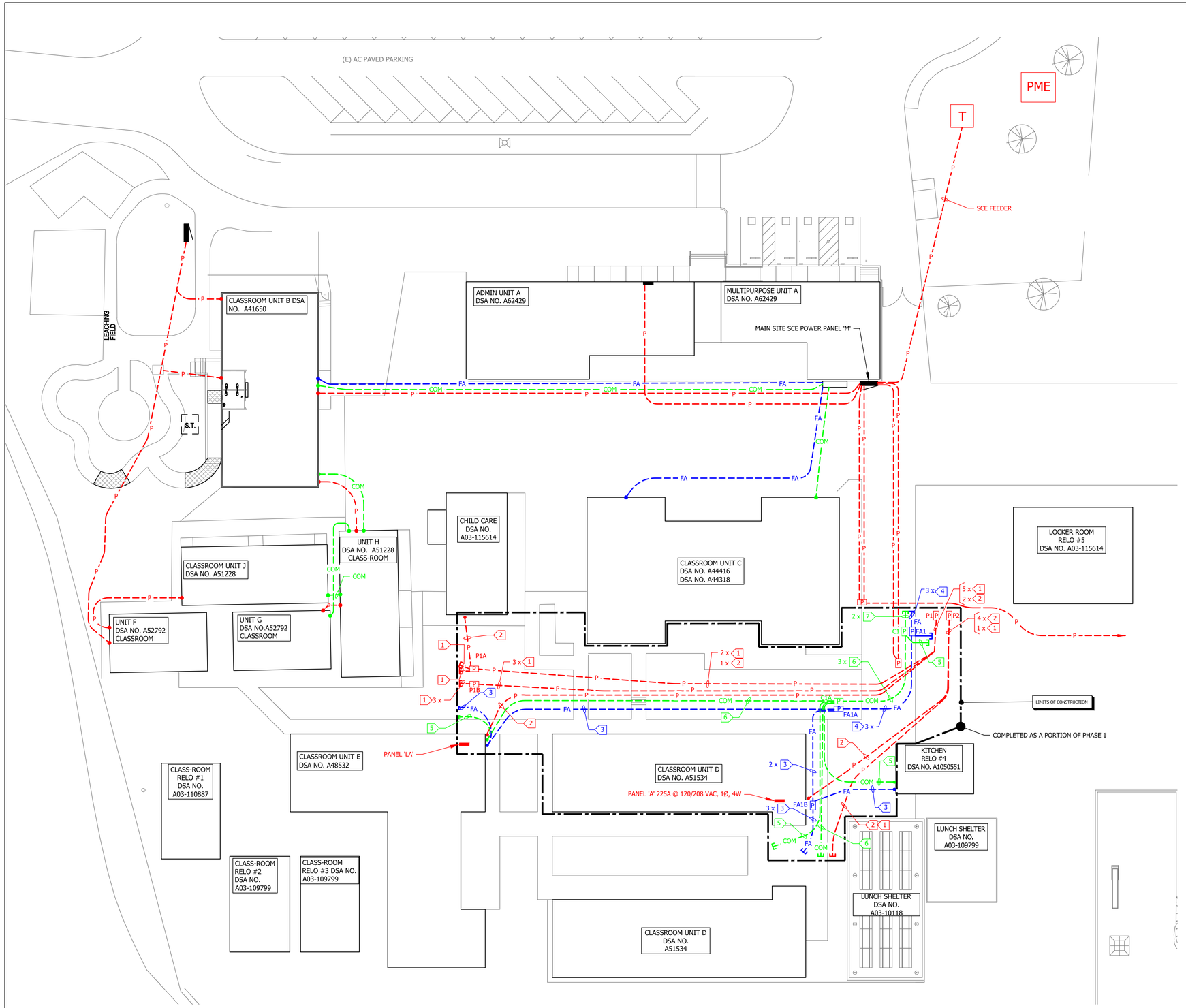
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L.A.I.# 26-302 PAPER SIZE 36"x24"

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DATE: 30 January 2026 TIME: 4:36 pm
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XREF: G:\26\302\EL\xrefs\SET PLAN.dwg

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EXISTING SITE UTILITIES PLAN - MASTER PLAN

SCALE: 1"=20'-0"

1 - E140

N

SHEET NOTES:

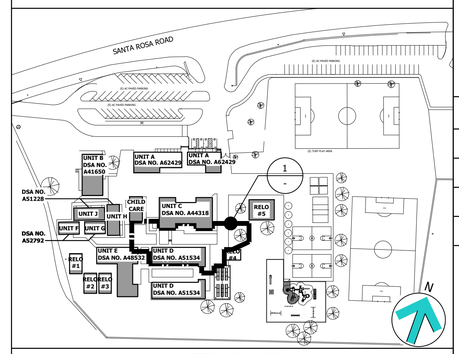
1. FIELD VERIFY LOCATIONS OF ALL DEVICES AND EQUIPMENT.

KEY NOTES:

1. 2"C (POWER).
2. 3"C (POWER).
3. 2"C (FA).
4. 3"C (FA).
5. 2"C (COM).
6. (2) 2"C (COM).
7. (3) 2"C (COM).

LEGEND

- P — POWER (U.G.)
- P — PULLBOX (2' x 3")
- STUB UP & CAP ADJACENT TO BUILDING
- STUB OUT & CAP
- F — FIRE ALARM (U.G.)
- P — PULLBOX (2' x 3")
- STUB UP & CAP ADJACENT TO BUILDING
- STUB OUT & CAP
- COM — COM (U.G.)
- P — PULLBOX (2' x 3")
- STUB UP & CAP ADJACENT TO BUILDING
- STUB OUT & CAP



KEY MAP

REV	DATE	REVISIONS
1		

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REGISTERED PROFESSIONAL ENGINEER — KEVIN M. LUCCI — No. E 8940 — Exp. 09/30/2026 — ELECTRICAL — STATE OF CALIFORNIA

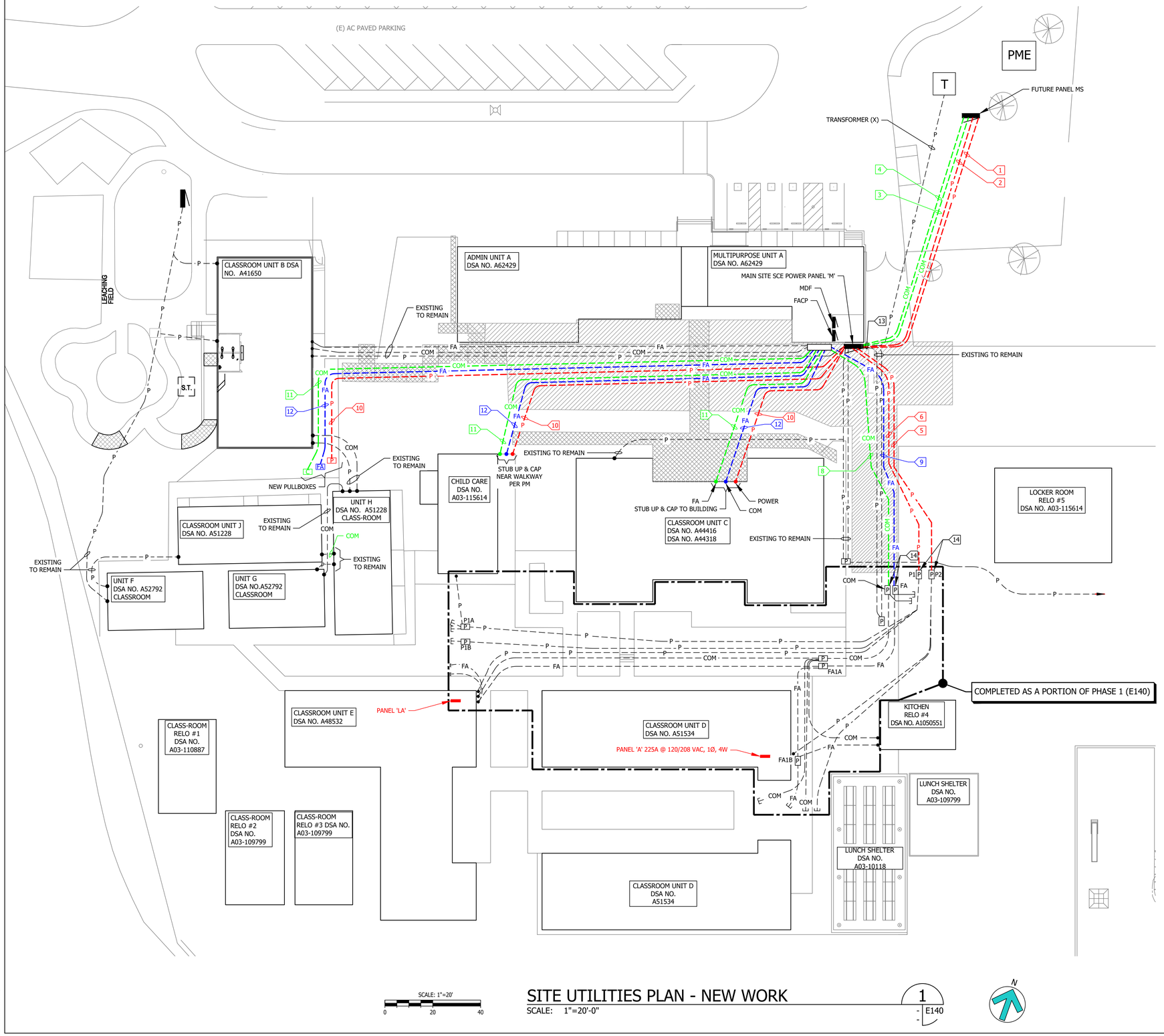
SHEET TITLE: EXISTING ELECTRICAL SITE UTILITIES PLAN - MASTER PLAN

PROJECT: BID FB-26-01
SANTA ROSA TECHNOLOGY MAGNET ELEMENTARY SCHOOL, SITE PIPING REPLACEMENT, PHASE 2 AND QUAD RENOVATION PROJECT
13282 SANTA ROSA ROAD
CAMARILLO, CA 93012

DRAWN:	LK/DS/IT
CHECKED:	K. LUCCI
DATE:	01-30-2026
SCALE:	AS NOTED
JOB NO.	26-302
SHEET:	E140
OF:	SHEETS:

Copyright Lucci and Associates Consulting Electrical Engineers. Deviations from this drawing will not be made without their expressed written permission. L.A.I.# 26-302 PAPER SIZE 36"x24"

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SITE UTILITIES PLAN - NEW WORK

SCALE: 1"=20'-0"

1 - E140

N

SHEET NOTES:

1. FIELD VERIFY LOCATIONS OF ALL DEVICES AND EQUIPMENT.

KEY NOTES: (ALL NEW UNLESS NOTED AS EXISTING)

1. 3 x 4"C - POWER PANEL M TO NEW GENSET PANEL MS.
2. 2 x 4"C PV INTERCEPT POWER TO PANEL MS @ GENSET.
3. 1 x 2"C (COM).
4. 2 x 2"C (COM).
5. 4 x 3"C (POWER). 1 x 2"C (POWER).
6. 2 x 3"C (POWER).
7. 5 x 2"C (POWER).
8. 6 x 2"C (COM).
9. 3 x 3"C (FA).
10. 1x 4"C (P).
11. 1 x 2"C (COM).
12. 1 x 2"C (FA).
13. ROUTE TO EDGE OF PANEL M & CAP BELOW GRADE.
14. EXTEND CONDUIT INTO EXISTING PULLBOX.

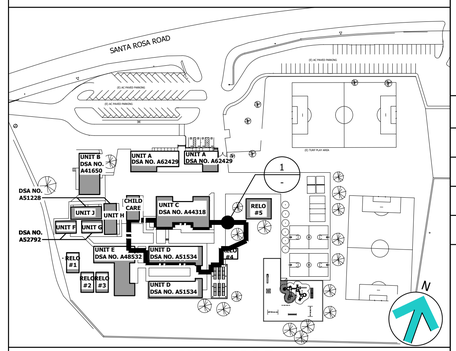
LEGEND

- POWER (U.G.)
- P — PULLBOX (2' x 2")
- STUB UP & CAP ADJACENT TO BUILDING
- STUB OUT & CAP
- FA — FIRE ALARM (U.G.)
- P — PULLBOX (2' x 2")
- STUB UP & CAP ADJACENT TO BUILDING
- STUB OUT & CAP
- COM — COM (U.G.)
- P — PULLBOX (2' x 2")
- STUB UP & CAP ADJACENT TO BUILDING
- STUB OUT & CAP

ALL PULL BOXES FOR FIRE ALARM, SHALL BE PERMANENTLY LABELED 'FA' WITH NUMBER AS NOTED ON THIS SHEET. PROVIDE SAME TYPE LABELING ON 'P' FOR POWER & 'C' FOR COM.

ALL CONDUITS ARE SCHEDULE 40 PC WITH 24" OF CLEAN 90% COMPACTED COVER OR 1 SACK SAND SLURRY & WARNING/TRACER TAPE ABOVE. ALL NEW RISERS SHALL BE SCHEDULE 80 PVC WITH CAPS AT 12" AFG & LABELED AS TO SOURCE.

CONTRACTOR TO PROVIDE ACCURATE DIMENSIONED AS BUILTS FOR ALL UNDERGROUND CONDUIT SYSTEMS. CONTRACTOR TO PROVIDE METERED (3/16" MINIMUM) PULL STRING IN EVERY CONDUIT SYSTEM & LABEL ALL ENDS UNIQUELY, E.G. FA-1, FA-2, ETC ON AS BUILT DOCUMENTS.



KEY MAP

REV	DATE	REVISIONS
1		

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STAMP

REGISTERED PROFESSIONAL ENGINEER — KENNETH W. LUCCI — No. E 8940 — Exp. 09/30/2026 — ELECTRICAL — STATE OF CALIFORNIA

SHEET TITLE: SITE UTILITIES PLAN - NEW WORK

PROJECT: BID FB-26-01
SANTA ROSA TECHNOLOGY MAGNET ELEMENTARY SCHOOL, SITE PIPING REPLACEMENT, PHASE 2 AND QUAD RENOVATION PROJECT
13282 SANTA ROSA ROAD
CAMARILLO, CA 93012

DRAWN: LK/DS/IT	
CHECKED: K. LUCCI	
DATE: 01-30-2026	
SCALE: AS NOTED	
JOB NO. 26-302	
SHEET:	

E145

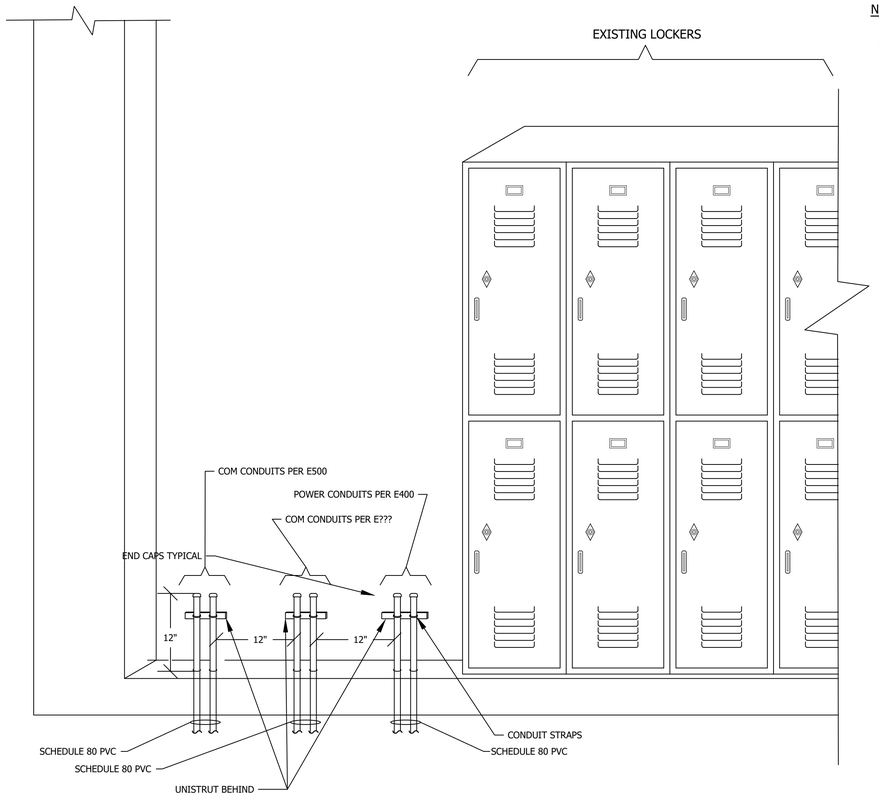
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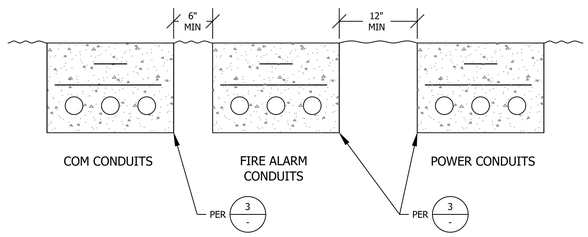


NOTES:

1. PROVIDE LABELED PULLSTRING IN ALL CONDUITS.
2. NO CONDUCTORS IN CONDUITS EXCEPT TO PANEL DPA.

STUB UP IN FOOTING - BY LOCKERS 4

SCALE: NONE ELEVATION - E600

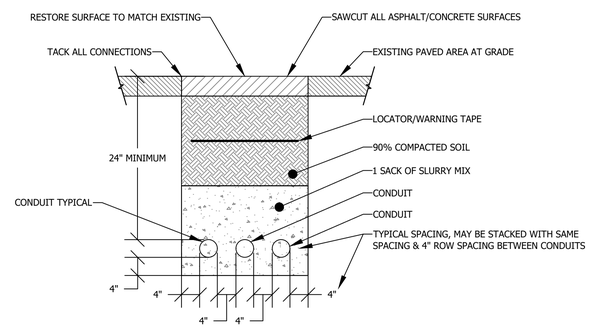


SECTION VIEW - ELECTRICAL DUTBANK 5

SCALE: NONE - E600

DETAIL NOTES:

1. ALL EMPTY CONDUITS TO BE PROVIDED WITH METERED PULLWIRES THEIR ENTIRE LENGTH.
2. ALL CONDUITS BENDS SHALL BE FACTORY BENDS WITH MINIMUM 12 TIMES DIAMETER FOR BEND RADIUS.



DUCTBANK DETAIL - TYPICAL FOR SYSTEM 3

SCALE: NONE EACH SYSTEM (FA, POWER, COM) - E600
SHALL BE INSTALLED IN SEPERATE DUCTBANKS, SEE DETAIL 5 -

Quazite®

Box, Polymer Concrete, 24"x24"x24"

By QUAZITE
Catalog # PG2424BA24

Quazite ANSI/SCTE 77 certified enclosure boxes, feature a high quality polymer concrete construction in a multitude of sizes and depths allowing customization for any application.



*Representative Image

Features

- Stronger and lighter weight than regular concrete
- Cost effective
- Durable and long lasting
- Fire and chemical resistant
- Standard sizes are UL certified
- ANSI/SCTE77 certified
- Multiple styles and sizes available

General

EU RoHS Indicator	No
Insulated?	No
Load Rating (ANSI Tier)	T22
Material	Polymer Concrete
Type	Below Ground Boxes
UPC	662037129989

Dimensions

Dimensions	24 in x 24 in x 24 in
Height	24 in
Length	24 in
Weight	173.25 lb
Width	24 in

Product Assets

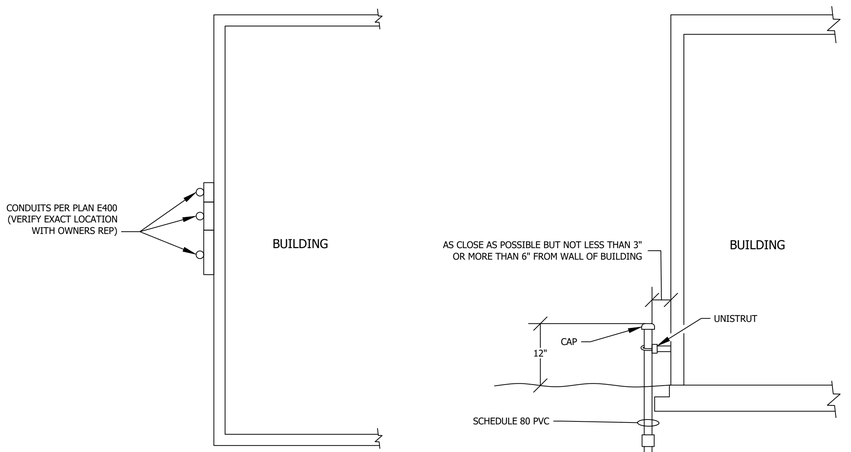
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Sales Drawings - Quazite Box (PG2424BA24)
Video - PenCell® How It's Made (VI07068E0617)
Video - PenCell® Enclosures (VI07062E0617)
Video - Hubbell Power Systems How to Install Small Enclosures (VI0750E)

24"x24"x24" POLYMER CONCRETE BOX 2

SCALE: NONE - E600

NOTES:

1. PROVIDE LABELED PULLSTRING IN ALL CONDUITS.
2. NO CONDUCTORS IN CONDUITS EXCEPT TO PANEL DPA.



PLAN VIEW
NO SCALE

ELEVATION VIEW
NO SCALE

TYPICAL CONDUIT STUB UP ADJACENT TO BUILDING 1

SCALE: NONE - E600

REV	DATE	REVISIONS
1		

LUCCI & ASSOCIATES INC.
CONSULTING ELECTRICAL ENGINEERS
3251 CORTE MALPASO, #511
CAMARILLO, CA 93012-8094
(805) 389-6520 FAX (805) 389-6519

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STAMP



SHEET TITLE: GENERAL NOTES, ABBREVIATIONS, SYMBOLS & DRAWING LIST

PROJECT: BID FB-26-01
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DRAWN: LK/DS/IT	
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GEOTECHNIQUES
1645 Donlon Street, Ste. 107
Ventura, California 93003
(805) 456-9585, (805) 658-8952

January 30, 2026
Project No. 1025.004.03

Pleasant Valley School District
600 Temple Avenue
Camarillo, California 93021

Attention: Ms. Sandra Lovaas, Measure C Bond Manager

Subject: Geotechnical Recommendations for Utility Improvements, Replacement of Asphalt Concrete and Construction of Courtyard Paver Area at Santa Rosa School, in the Pleasant Valley School District, 13282 Santa Rosa Road, Camarillo, California

Dear Ms. Lovaas:

This geotechnical letter report provides recommendations for the preparation of subgrade in replacement and new pavement or courtyard paver areas and construction of structural asphalt concrete pavement sections at Santa Rosa School, in Camarillo, California. Additionally, recommendations for the excavation and backfilling of underground utility trenches or below-grade structures or improvements are also provided. Our understanding of the proposed projects is based on discussions with Pleasant Valley School District ("PVSD") personnel and Consultants, site observations, and laboratory testing on subgrade soil samples collected in conjunction with recent construction activity at the campus.

PROJECT SCOPE

Site improvements at the subject campus will consist predominantly of underground utility construction, on-grade concrete or pavers primarily for pedestrian use, and replacement asphalt concrete pavement. Minor grading will be performed as needed to improve local gradients to achieve ADA compliance or enhance positive drainage in improvement areas.

SITE CONDITIONS

Surface conditions in areas of proposed improvements at Santa Rosa School consist of asphalt concrete (typically between about 3 and 4 inches in thickness), concrete sidewalks, and adjacent unpaved landscape planter and grass areas.

Subgrade soil below existing asphalt-concrete pavement consists of clayey silt with sand (ML). Subgrade soils are anticipated to be very moist, especially in unpaved areas, with moisture contents several percentage points above optimum. Note that the moisture content of near-surface subgrade materials may vary with seasonal conditions including rainfall and irrigation intensity, or from other circumstances.

SITE SUBGRADE PREPARATION RECOMMENDATIONS

Areas to receive new asphalt concrete, on-grade concrete or pavers, or footings for short site walls or retaining curbs shall be underlain by a minimum of 12 inches of subgrade compacted to a minimum of 95 percent of the maximum dry density determined according to

ASTM D1557, measured from the lowest point of the thickened edge or below the base course.

Preliminary Site Preparation

Site irrigation shall be discontinued as far in advance as practicable prior to clearing, demolition, and excavation operations in construction areas. Root mass from trees and shrubs and the root mat in lawn areas should be completely removed, stripped, and wasted offsite prior to utility trench or underground structure excavation, or earthmoving operations. Contractor should rip and cross-rip subgrade soil upon removal of asphalt concrete, concrete, or root mat in landscape areas to maximize aeration potential of subgrade soils. Excavations and depressions, either existing or from removal of root-balls, below grade structures or improvements, or footings, or from rutting from demolition and construction equipment trafficking shall not be filled in or smoothed over outside the presence of the Geotechnical representative.

Contractor shall avoid over-trafficking during demolition and subsequently in terms of applied pressure to subgrade (e.g., equipment type and weight) and repeated passes over ingress/egress and hauling lanes to prevent elevating subgrade moisture conditions and rutting. Contractor shall mitigate or repair any rutting and elevated moisture conditions from demolition or earthmoving equipment.

Subgrade Preparation

Asphalt Concrete and On-Grade Concrete and Paver Areas. Subgrade for asphalt concrete or on-grade concrete or pavers shall be excavated to a level corresponding to lowest level of asphalt concrete pavement or on-grade concrete or paver section (including base course). The excavation shall be deepened, as necessary to remove organics, topsoil, and deleterious material and extend a horizontal distance of an additional 1 foot beyond the asphalt concrete or new concrete in unimproved areas. The exposed surface shall be observed by the Geotechnical representative prior to scarification of the exposed excavation bottom. Depending on the moisture content of the soils exposed in the excavation bottom, the upper 1 foot of subgrade shall be moisture-conditioned, likely aerated, to between 0 and 2 percent above optimum moisture content and processed by reducing scarified materials to pea-size or finer consistency. Excavation bottoms in silty and clayey subgrade areas likely shall require extended aeration periods (after scarification effecting pulverization) prior to compacting. Once the targeted moisture condition is achieved, processed materials shall then be compacted to a minimum of 95 percent of the maximum dry density determined by ASTM D1557, latest edition.

Areas to Receive Fill. The upper 1 foot in areas to receive fill shall be similarly scarified and compacted, as above, prior to fill placement.

Footing Areas. Footing areas to a distance of 2 feet beyond perimeter shall be overexcavated to a depth of 1 foot below bottom of footing. The bottom of the overexcavation shall be observed by the Geotechnical representative prior to placing fill. Fill shall be reduced to pea-sized or finer consistency, moisture conditioned or aerated, as needed, and compacted to a minimum of 95 percent of the maximum dry density determined by ASTM D1557, latest edition.

Alternatives to Subgrade Aeration and Subgrade Stabilization

An alternative to aeration consists of the treatment of onsite wet clayey materials with cement to reduce elevated in-place moisture content and to effect "bridging" over potentially yielding, unstable underlying subgrade materials. For silty and clayey subgrade treatment, 2 to

3 percent "quicklime" or 3 to 4 percent cement (by weight), shall be thoroughly mixed into the upper 1 foot of the excavation bottom in accordance with Sections 301-3.2.5 of the "Greenbook." The soil-cement mixture shall be moisture-conditioned and compacted to a minimum of 95 percent of the maximum dry density within 90 minutes of adding moisture to cement-treated soil and according to Section 301-3.2.7. The compacted soil-cement mixture shall be cured according to Section 301-3.2.10. At least 2 days of curing time shall be allowed prior to placement of general, select, or treated fill materials. This cement content is appropriate for low-contact pressure, lightweight equipment operation; heavier equipment and rubber tired equipment imposing higher contact pressures shall require higher cement concentrations—approaching 10 percent by weight (for a pavement recycler, for example)—and/or thicker treated zones in order to support heavier equipment loads during construction.

An alternative to cement treatment of subgrade consists of removal and replacement of the upper 1 foot of subgrade with aggregate base over Mirafi 600X, placed in accordance with the manufacturer's instructions, with the full thickness of aggregate base placed before trafficking with lightweight spreading and compacting equipment so that "bridging" is achieved and maintained over underlying very moist to saturated soil.

Cement-treatment and replacement with aggregate base alternatives both require that the Contractor employ appropriate minimal equipment loading (i.e., lightweight equipment and appropriate for materials affected) and trafficking reduction measures to maintain integrity of the compacted subgrade and overlying base courses through completion of concrete placement.

Contractor Awareness and Operations Considerations

The likelihood of encountering very moist subgrade soils should be factored into all aspects of demolition and construction to avoid exacerbating subgrade moisture conditions and inducing 'pumping' of subgrade materials.

Equipment loads during demolition and subgrade preparation in pavement and concrete improvement areas shall be minimized, as needed, to avoid increasing moisture content of exposed or underlying subgrade materials and in excavations and subsequently placed fill materials during fill placement and compaction. Examples of such excavating, spreading, processing and compacting equipment include low ground pressure track dozers or, to a greater extent, excavators or backhoes staged outside the excavation. Similar low or no-load means of compacting fill shall be used, as needed, including non-tired sheepsfoot compactors for fine-grained subgrade materials. Care shall be exercised to avoid repeated passes over ingress or egress areas, and to avoid overworking or overloading any area such that pumping conditions and elevated moisture contents and/or rutting are induced by demolition and/or construction operations.

Aeration of subgrade soils should be initiated at earliest well-forecasted and practicable opportunity along with subsequent episodes of turning and/or cross ripping to maximize exposure to drying effects.

Lightweight equipment shall be used for placing and compacting subsequent lifts and courses, as needed, until "bridging" over potentially unstable pumping subgrade soil is accomplished and risk of aggravating moisture conditions with other equipment is low (i.e., the "bridging" effect is not destroyed by subsequent heavy or repeated loadings).

Contractor shall proof-roll both compacted subgrade and aggregate base course with fully-loaded water truck with no deflections in presence of geotechnical representative prior to placing base and asphalt concrete, respectively.

Fill Placement and Compaction

Onsite soils are anticipated to be used as general fill once cleared of organic material, demolition or other debris, and any oversized rock. Earth materials placed as fill or within the upper 12 inches of subgrade in asphalt concrete and on-grade concrete areas shall consist of onsite excavated general fill or imported non-expansive materials with an Expansion Index less than 40. Unless noted otherwise herein, the upper 1 foot of subgrade materials shall be compacted to a minimum of 95 percent of the maximum dry density determined from ASTM D1557.

Subgrade and onsite soils used as fill and imported fill materials shall be placed and compacted at a moisture content of between 0 and 2 percent over optimum moisture content. Each layer shall be spread evenly in loose lifts no thicker than 8 inches and shall be thoroughly blade-mixed during the spreading to reduce soil consistency to pea-size or finer and to provide relative uniformity of material within each layer. Fill and backfill materials may need to be placed in thinner lifts to achieve the recommended compaction with the equipment being used. Soft or yielding materials shall be removed and be replaced with properly compacted fill material, prior to placing the next layer.

Rock, gravel and other oversized material greater than 3 inches in diameter, shall be removed from the subgrade and fill material being placed. Rock less than 3 inches in diameter shall not be nested and voids caused by inclusion of rock in the fill shall be filled with sand or other approved material. All roots larger than ½-inch diameter shall be removed and discarded.

All subgrade and fill materials, including scarified materials, shall be thoroughly processed to pea-sized or finer consistency prior to aeration and applying compactive effort. Blading or turning wet soils shall be necessary to effect uniform aeration throughout the targeted layer of soil. When the moisture content of the fill material is below that sufficient to achieve the recommended compaction, water shall be added to the fill during processing. While water is being added, the soil shall be bladed and mixed to provide relatively uniform moisture content throughout the material. .

Surfaces shall be finished to uniform grades and slopes in accordance with contract documents and in such a manner to drain properly, convey runoff to existing and new drainage improvements, and be free from depressions that may cause areas of standing water or concentrates runoff on finished surface.

FILL MATERIALS

Fill shall be free of organics, oversize material (e.g., greater than 3 inches in diameter), trash and debris, and other deleterious material. The expansion index of imported materials or onsite materials used as general fill shall be tested, as necessary, during earthmoving operations to verify that the expansion index of the material is suitable for its use as general or select fill.

Onsite Soils. Onsite soils are generally anticipated to consist predominantly of clayey silt with fine sand that meets the requirements for general fill.

General Fill. General fill materials shall have an expansion index less than or equal to 40. If necessary, general fill may be blended with sand or dry cement just prior to compaction to reduce the expansion index.

There is a potential that silty and clayey onsite general fill materials, where encountered, could be sensitive to changes in moisture content. Control of moisture content, compaction layer thickness, and efficiency and appropriateness of equipment to soil type will likely be necessary to achieve and maintain the recommended compaction.

Imported Fill. Imported fill to be used as general fill shall meet the requirements of general fill material and shall be non-expansive. Imported fill materials shall be observed, tested as necessary, and accepted by Geotechniques prior to being brought to the site.

Aggregate Base. Aggregate base materials shall consist of imported material conforming to Caltrans Standard Specifications for Class 2 aggregate base, Section 26-1.02B [Caltrans, 2024] or Section 200-2.4 of the "Greenbook" (Public Works Standards, Inc., latest edition) for Crushed Miscellaneous Base (CMB).

The aggregate base course beneath the concrete section shall be moisture conditioned to optimum moisture content before placing and spreading and shall be compacted to a minimum of 95 percent of the maximum dry density. Aggregate base materials shall be laterally confined during compaction to achieve the minimum compaction requirements adjacent to the thickened concrete edge.

Aggregate base materials used beneath on-grade concrete and as bedding or backfill in utility trenches or excavations *in areas other than previously or currently paved in asphalt concrete* shall not contain recycled asphalt.

Bedding Sand in Utility Trenches. Sand used as bedding and pipe zone sand in utility trenches shall conform to Caltrans Standard Specifications for sand bedding, Section 19-3.02F(2) (2024) and have a minimum Sand Equivalent (SE) of 30. The sand shall have a gradation that allows the material to maintain a compacted surface condition during construction operations until concrete placement or until pipe and/or subsequent lift placement (i.e., as bedding or pipe zone sand in utility trench).

ASPHALT CONCRETE AND ON-GRADE CONCRETE SECTION THICKNESS

Subgrade for asphalt concrete and on-grade concrete to receive rare fire truck traffic should be prepared as recommended previously (see "**SITE SUBGRADE PREPARATION RECOMMENDATIONS**"). Subgrade and aggregate base courses shall be firm and unyielding and proof-rolled with a full water truck or equivalent in the presence of the Geotechnical representative prior to placement of the successive structural section course (i.e., aggregate base or asphalt concrete or concrete).

Surfaces shall be finished to uniform grades and slopes in accordance with contract documents and in such a manner to drain properly, convey runoff to existing and new drainage improvements, and be free from depressions that may cause areas of standing water or concentrates runoff on finished surface.

Asphalt Concrete Pavement. Asphalt concrete pavement sections for replacement and for areas to receive potential truck access or only auto access (such as parking stalls between planter islands, for example), at a minimum, shall consist of the following:

Pavement Area	Asphalt Concrete Thickness (inches)	Aggregate Base Thickness (inches)
Ingress/Egress Truck/Bus Lanes	4	8
Auto Only Areas	3	6

Aggregate base should be compacted to a minimum of 95 percent of the maximum dry density. The base course should be firm and unyielding when proof-rolled with a full water truck in the presence of the Geotechnical representative prior to asphalt concrete laydown.

Asphalt concrete using coarse aggregate (such as ¾-inch) with low loss from abrasion is preferred over coarse C2 in the mix design for drive lanes to receive truck/bus traffic. Geotextile such as Mirafi 800x is recommended to be placed in accordance with manufacturer's instructions immediately below the aggregate base course. In areas to receive at least 8 inches of base. Asphalt concrete should be compacted to a minimum of 95 percent of the maximum density.

UTILITY TRENCHES AND EXCAVATION

Utility trenches shall be braced or sloped in accordance with the requirements of (Cal) OSHA. Utility trench backfill shall be governed by the provisions of this report relating to minimum compaction recommendations.

Prior to excavation, the grass and root mat shall be stripped and wasted (or set aside for reuse at surface upon completion of backfilling trench) along the trench alignment and in excavation stockpile areas. Stockpiles of excavated materials shall be spread and reduced or pulverized, as necessary, to aerate to required moisture content for use as backfill.

Excavations and trenches shall be sufficiently wide to accommodate equipment size needed for proper compaction of bedding, pipe zone and backfill materials. Trench and excavation bottoms shall be excavated to a firm uniform bottom free of loose, disturbed material and observed by the Geotechnical representative prior to placement of bedding. Aggregate base materials may be used as bedding, as required, to mitigate soft, yielding excavation bottoms, where encountered. Bedding sand shall be compacted to a minimum of 95 percent of the maximum dry density.

Trench backfill shall be moisture conditioned between 0 and 2 percent over optimum moisture content prior to placing in trench. Backfill shall be compacted to a minimum of 90 percent relative compaction as determined from ASTM D1557, and 95 percent within the upper 1 foot of subgrade in pavement or on-grade concrete areas, or within a 1h:1v influence zone of footings[1].

Rock larger than 3 inches in maximum dimension shall be excluded from backfill. Jetting of trench backfill materials shall not be permitted.

Trench backfill materials shall consist of bedding and pipe zone sand placed a minimum thickness of 4 inches below the pipe invert and to a height of 12 inches above the top of the

[1] Where this is not feasible because of access constraints or for expediency, a 1½-sack cement and sand slurry may be used.

pipe. Bedding and pipe zone sand shall consist of fine to medium or coarse sand with a minimum Sand Equivalent (SE) of 30. General fill or pipe zone sand shall be placed as backfill above the pipe zone in 8-inch loose lifts and compacted to the minimum relative compaction summarized above. General backfill materials shall meet the preceding recommendations of this report, “Fill Placement and Compaction” and “Fill Materials.”

CLOSURE

The recommendations in this letter are specific to the scope of the proposed on-grade concrete, replacement asphalt concrete, underground utility and site improvements summarized herein. The presence of hazardous and/or toxic materials is not within the scope of services provided for this study.

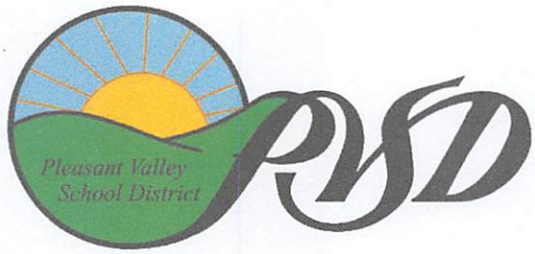
We appreciate the opportunity to be of service to Pleasant Valley School District. Please call if you have any questions concerning this letter report.

Sincerely,

Geotechniques



Carole Wockner, P.E.
Principal Engineer
R.C. E. No. 74407, exp 09/30/27



SPECIFICATIONS

FOR

BID FB-26-01
SITE PIPING REPLACEMENT, PHASE 2
AND QUAD RENOVATION PROJECT

AT

SANTA ROSA TECHNOLOGY MAGNET SCHOOL
13282 SANTA ROSA ROAD
CAMARILLO, CALIFORNIA 93012

FOR:

PLEASANT VALLEY SCHOOL DISTRICT
600 TEMPLE AVENUE
CAMARILLO, CA 93010

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SANTA ROSA TECHNOLOGY MAGNET SCHOOL

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SECTION 01 10 20
FENCING AND PROTECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

This section includes requirements for temporary fencing and protection of the work area.

1.02 SUBMITTALS

Submit for approval, all catalog cuts and or specification sheet for all fencing products.

1.03 QUALITY ASSURANCE

Fencing shall be installed by a qualified fence company with experience in the installation of temporary fencing.

PART 2 PRODUCTS

2.01 TEMPORARY FENCING

Temporary fencing shall be 6 feet high chain link fence fabric attached to post and frames in a secure manner. Barb wire and or razor wire is not allowed. Fencing shall be kept in place during the construction period and maintenance period. Fencing shall be removed only when written authorization is provided by the District.

PART 3 EXECUTION

3.01 FENCE LAYOUT

Contractor shall submit to the District for approval, a schematic fence layout showing the location of fence panels and method of attachment of panels and post. This plan must be approved by the District prior to start of the work.

3.02 FENCE INSTALLATION

A. Install fencing and post so that no damage occurs to the existing underground conduits or paving. Immediately repair all damage to the existing conditions that may occur as a result of the fence installation.

B. If fencing panels have post with a horizontal support frame, make sure they are visually apparent to prevent any trip hazard.

3.03 FENCE REPAIR

Immediately repair any damage to the fencing that may occur.

END OF SECTION 01 10 20

SECTION 02 41 10
MISCELLANEOUS REMOVALS

PART 1 GENERAL

1.01 SECTION INCLUDES

This section includes specifications for the removal of the existing concrete paving, asphalt paving, landscaping, and miscellaneous items.

1.02 REFERENCE STANDARDS

The "Greenbook" Standards and Specifications for Public Works Construction as referenced in the Specifications.

1.03 IMPORT SOIL

The source of any required Imported soil shall be tested and approved by the District prior to any delivery.

1.04 DISPOSAL OF MATERIALS

Remove items such as landscape materials, concrete paving, asphalt paving, and all other miscellaneous items scheduled to be removed shall be properly disposed of as they accumulate. Do not store or permit debris to accumulate on the site.

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

3.01 INSPECTION

A. Prior to starting, inspect the site with the District Inspector to verify all removals required to complete the work.

B. Examine surfaces for conditions that will adversely affect execution, permanence, and quality of work of this Section.

C. Do not proceed with work until unsatisfactory conditions have been corrected.

D. Locate existing active utility lines and provide for their protection.

3.02 CLARIFICATION

Drawings do not indicate all objects existing on site. Before commencing work, verify with the District any existing items that may affect the work.

3.03 PROTECTION OF UTILITIES

A. Preserve and maintain, in working condition, all active utilities traversing the site. Re-route or remove and cap those which interfere with work of this Project. Coordinate extent of this work with the District.

B. Expeditiously repair damaged utilities at no cost to the District.

3.04 PROTECTION OF EXISTING PLANTS

Protect existing trees, not otherwise indicated to be removed, against unnecessary cutting, or breaking, skinning, and bruising of bark. Avoid smothering of trees with stockpile building materials or excavated materials within drip line.

3.05 DISPOSAL

A. All debris resulting from demolition and removals shall become the property of the Contractor to dispose of or salvage. Debris shall not be allowed to accumulate on site unless the District specifies a site location and security requirement. The Contractor shall be responsible for its prompt removal from the site and disposal in a legal manner.

B. Prevent debris from migrating outside of construction areas.

C. Maintain safe pedestrian access, at all times, on all walkways adjacent to the fence removals.

END OF SECTION 02 41 10

SECTION 04 22 20
MASONRY PLANTER

PART 1 GENERAL

1.01 SECTION INCLUDES

This section includes general requirements for the masonry planter.

1.02 SUBMITTALS

A. Submit Manufacturer's cut sheets and specifications for all products required to complete the work.

B. Submit three (3) each block and cap samples for approval.

1.03 DELIVERY AND STORAGE

Store all materials in a site location that has been approved by the District. Keep all materials clean, safe and protect from any damage.

1.04 QUALITY ASSURANCE

Masonry work shall be constructed by a Licensed Masonry Contractor with a valid California C-29 License.

1.05 INSPECTIONS

Each phase of the work must be inspected and approved by the District Inspector prior to the start of the next phase.

PART 2 PRODUCTS

2.01 CONCRETE BLOCKS

Masonry units shall be Angelus Precision Block 8816, Fawn color.

2.02 CAP

Angelus block, 1048 mushroom cap, Fawn color to match block.

2.03 REINFORCING STEEL

Reinforcing steel for masonry work shall be deformed and shall conform to ASTM A-615, Grade 60, with #3 ties, 40 grade, and free of loose rust and materials that reduce bond. All reinforcing steel shall be positioned as indicated on Drawings.

2.04 MORTAR

A. Mortar proportions shall conform to CBC Table 2103A.2, Type "S."

B. Mortar color shall be type S, EZYMIX- Medium Tan.

2.05 GROUT

Grout shall conform to CBC Table 2103A.3 and ASTM C-476, Table 1, and shall have a minimum compressive strength at 28 days of 2,000 PSI.

2.06 WATERPROOFING

Waterproofing shall be an acrylic water base coating which forms an elastomeric waterproofing membrane that bonds to the masonry surface such as Multicoat BG 2000 or equal.

PART 3 EXECUTION

3.01 MASONRY

A. Masonry work shall conform to Chapter 21A of the California Building Code.

B. Cut units with masonry saws.

C. Reserve unobstructed vertical continuity of cells.

D. Grout all cells solid.

E. Fractional parts of masonry units are prohibited where whole units can be used.

3.02 REINFORCING STEEL

Lap splices of reinforcing steel in masonry shall be 48 bar diameters with a minimum of 24 inches, whichever is greater.

3.03 GROUT

Grout shall be properly consolidated by "puddling" or mechanical vibrators. All reinforcing steel and embedded items shall be properly secured in position prior to grouting. Grout all cells. Five (5) feet is maximum grout lift.

3.04 DOWELS

Provide vertical dowels with standard hooks at bottom for all vertical reinforcing, unless otherwise noted on Drawings.

3.05 HORIZONTAL STEEL

Horizontal steel shall be in lintel or channel blocks.

3.06 JOINTS

Joints shall be tooled concave.

3.07 WATERPROOFING

Masonry surface must be dry and clean and free from any dirt, oil, or other foreign materials that may interfere with proper bonding. Apply waterproof coating to the inside masonry surface and the top of the concrete footing. Apply as per the Manufacturer's specifications.

3.08 SOIL BACKFILL

Backfill planter with clean topsoil.

3.09 CLEAN-UP

A. At completion of the work in this Section, make a thorough inspection of installed masonry and verify that units have been installed in accordance with the provisions of this Section.

B. Make necessary adjustments.

C. Clean up and disposal of all Work-related materials shall be the responsibility of the Contractor.

D. Restore adjacent areas to original condition and remove excess dirt and any unused materials from the site.

END OF SECTION 04 22 20

FINDP SECTION 22 05 00
COMMON WORK RESULTS FOR PLUMBING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Basic Mechanical Requirements specifically applicable to Division 22 Sections, in addition to the general requirements.

B. Plumbing work includes the following: furnish and install all plumbing piping and valves shown on the plumbing drawings described in these specifications. In connection with this work, contractor shall also furnish and install all necessary work, devices, hardware and systems required to make said systems properly and safely operable, including, but not limited to, support hardware, valves, flashing, cleanouts, painting, cutting and patching.

1.02 WORK SEQUENCE

A. Install work in phases to accommodate Owner's construction requirements. Refer to Plumbing Drawings for the construction details and coordinate the work of this division with that of other divisions. Order the work of this division so that progress will harmonize with that of other divisions and all work will proceed expeditiously. During the construction period, coordinate plumbing schedule and operations with General Contractor and any other related subcontractor.

B. Coordinate related work and modify surrounding work as required.

1.03 SUBMITTALS

A. Submit on the following:
   1. All pipe, fittings, valves, insulation, hangers and supports, labels, fixtures, adhesives sealants, backfill materials, and equipment that is planned to be installed on this project.

B. Proposed Products List: Include Products specified in the following Sections:
   1. Division 22 - Plumbing.
   2. Project Drawings.

C. Submit product data grouped to include complete submittals of related systems, products, and accessories in a comprehensive PDF submittal. Submittals shall clearly identify electrical characteristics, options provided, color, model number and equipment tag as indicated on the drawings.

D. Equipment and materials shall be ordered only after satisfactory review by Engineer.

E. The following statement applies to all items reviewed: "Checking is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Any action

shown is subject to the requirements of the plans and specifications. Contractor is responsible for dimensions which shall be confirmed at the job site; fabrication processes and techniques of construction; coordination of his work with that of other trades; and the satisfactory performance of his work."

F. Maintain a complete set of the most current reviewed submittal and shop drawings on site during construction.

G. The first submittal shall be comprehensive and complete. Partial submittals will be returned without review.

1.04 REGULATORY REQUIREMENTS

A. Conform to 2025 California Building Code.

B. Fire Protection: Conform to 2025 California Fire Code, and California State Fire Marshall Regulations, Title 19, Public Safety.

C. Plumbing: Conform to 2025 California Plumbing Code.

D. Mechanical: Conform to 2025 California Mechanical Code.

E. Electrical: Conform to 2025 California Electrical Code.

F. Obtain approved inspections from authority having jurisdiction.

G. Conflicts: Where conflict or variation exists amongst Codes, the most stringent shall govern.

1.05 PROJECT / SITE CONDITIONS

A. Install work in locations shown on drawings, unless prevented by project conditions.

B. Prepare drawings showing proposed rearrangement of work to meet project conditions, including changes to work specified in other Sections. Obtain permission of Owner before proceeding.

C. Piping Locations: Piping locations shown are diagrammatic only. Contractor shall verify locations of all lateral stubs, offsets, etc. required in the field. The actual locations of lines, cleanouts and connections may vary provided that complete systems are installed in compliance with codes.

D. Construction Observation: In addition to the requirement for obtaining inspections by the local jurisdiction, Contractor shall notify Engineer and commissioning agent at appropriate times during the construction process so that they can visit site to become generally familiar with the progress and quality of Contractor's work and to determine if the work is proceeding in general accordance with the contract documents.

E. Scaling of Drawings: In no case shall working dimensions be scaled from plans, sections, or details from the working drawings. If no dimension is shown on the plumbing drawings, the prime Contractor shall request in writing that the Engineer provide clarification or the specific dimension.

F. Existing Conditions: The contractor shall, at its sole cost and expense, inspect the site of the proposed work to become fully acquainted with conditions relating to the work and to fully understand the facilities, difficulties, and restrictions attending the execution of the work under the contract documents and cost therof.

G. Beginning of the Project: Pothole and survey for elevation of points of connections. Provide shop drawings to project of manager with proposed pipe slope to accommodate existing connection points at buildings and sewer main.

1.06 QUALITY ASSURANCE

A. Qualification of Manufacturer: Products used in work shall be produced by manufacturers regularly engaged in the manufacture of similar items.

B. Qualification of Installer: Use adequate number of skilled workmen, thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements contained in the plans and specifications.

C. Applicable equipment and materials to be listed by Underwriters' Laboratories and manufactured in accordance with ASME, AWWA, or ANSI standards. Power-using equipment shall meet the California energy efficiency standards as defined in the current Title 24 requirements.

D. Welding procedures and testing shall comply with ANSI Standard B31.1.0 standard code for pressure piping and the American Welding Society – Welding Handbook. Welding shall also comply with Division of the State Architect and structural plan requirements for materials, procedures, qualifications, and inspections.

1.07 DRAWINGS AND SPECIFICATIONS

A. Drawings and specifications are intended to complement each other. Where a conflict exists between the requirements of the drawings and/or specifications, the contractor shall immediately and before commencing work, request clarification from Engineer.

B. The Engineer shall interpret the drawings and the specifications, and the Engineer's decision as to the true intent and meaning thereof and the quality, quantity, and the sufficiency of the materials and workmanship furnished there under shall be accepted as final and conclusive.

C. In case of conflicts not clarified prior to bidding deadline, use the most costly alternative (better quality, greater quantity, or larger size) in preparing the Bid. A

clarification will be issued to the successful Bidder as soon as feasible after the Award, and if appropriate a deductive change order will be issued.

D. All provisions shall be deemed mandatory except as expressly indicated as optional by the word "may" or "option".

E. Examine and compare the contract drawings and specifications with the drawings and specifications of other trades. Report any discrepancies to the Engineer. Install and coordinate the work in cooperation with the other trades.

1.08 DEFINITIONS

A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe chases, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.

B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in chases.

E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

PART 2 PRODUCTS

2.01 PRODUCTS

A. Maintain the uniformity of manufacturers for equipment used in similar applications and sizes.

B. Provide products and materials that are new, clean, free from defects, damage, and corrosion.

C. Provide name/data plates on major components with manufacturer's name, model number, serial number, date of manufacturer, capacity data, and electrical characteristics permanently attached in a conspicuous location on the equipment.

D. Protect materials stored at site and installed from damage. Verify dimensions of equipment and fixtures prior to ordering. Install all equipment per the manufacturer's instructions for installing, connecting, and adjusting. A copy of the

instructions shall be kept at the equipment during installation and provided to the engineer at his/her request.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install all equipment per the manufacturer's instructions for installing, connecting, and adjusting. A copy of the instructions shall be kept at the equipment during installation and provided to the engineer at his/her request.

B. Adjust pipes to accommodate the work to prevent interferences.
1. Right-of-Way: Lines which pitch have the right-of-way over those which do not pitch. Lines whose elevations cannot change have right-of-way over lines whose elevations can be changed.
2. Provide offsets, transitions, and changes in directions of pipes as required to maintain proper head room and pitch on sloping lines. Provide traps, air vents, drains, etc., as required. It is the intent of this paragraph that all cost associated with compliance be borne by the contractor.
3. All equipment shall be firmly anchored to building structural elements.
4. Carefully check space requirements with other trades and existing conditions to insure material, fixtures or equipment can be installed in the spaces allotted.
5. Damage / demolition repair: In the event that existing utilities of any type are damaged by contractor, contractor shall immediately repair damage and restore services. If repairs are not able to be made immediately, contractor shall install temporary utilities as required to maintain utility services to all buildings and facilities. All concrete curb and gutter, flatwork, and landscaping removed or damaged by contractor shall be replaced in-kind by contractor. It is the intent of this section that the contractor be responsible for all costs associated with these notes. All surfaces affected by plumbing installation shall be painted to match adjacent surfaces. All exposed piping and supports shall be painted to match adjacent surfaces.
6. All existing piping, valves, hose bibbs, etc. which will not be part of the final installation shall be removed and piping capped below grade and behind walls, and openings closed, patched and painted.
7. At the beginning of the project pothole critical points of connections and hire a licensed surveyor to determine elevation for drainage. Provide to the project manager a shop drawing with pipe slopes to meet the existing conditions.

3.02 COORDINATION OF WORK

A. The contract documents establish scope, materials, and quality but are not detailed installation instructions. Drawings are diagrammatic.

B. The contract documents show the general arrangement of equipment, ductwork, piping, and accessories. Provide offsets, fittings, and accessories which may be

required but are not shown on the drawings. Investigate the site and review the other trades installation locations and requirements to determine conditions affecting the work and provide such work and accessories as may be required to accommodate such conditions.

C. Whenever work interconnects with the work of other trades, coordinate to insure that all parties concerned have the necessary information required for a proper installation.

3.03 RECORD DRAWINGS

A. Maintain on a daily basis at the project site a complete set of record drawings reflecting an accurate dimensional record of all deviations between work shown on the drawing and that actually installed. Include dimensions from permanent structures. Provide sewer inverts at points of connection and cleanouts.

B. Provide licensed survey of exterior sewer pipe with inverts at building connections and cleanouts.

C. Provide two reproducible copies of the record drawing to the owner.

3.04 FINAL REVIEW

A. Provide to the owner a certification that all fixtures and equipment are properly functioning and adjusted.

END OF SECTION 22 05 00

SECTION 22 05 05
TRENCHING AND BACKFILLING FOR PIPED UTILITIES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes the following:

1. Excavating and backfilling for utility trenches.
2. Excavating and backfilling trenches for buried mechanical and electrical utilities and pits for buried utility structures.

B. Related Sections include the following:

1. Divisions 22 and section for installing underground plumbing utilities.

1.03 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

F. Fill: Soil materials used to raise existing grades.

G. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

H. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

I. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.04 SUBMITTALS

A. Product Data: For the following:
   1. Each type of plastic warning tape.
   2. Backfill sand and soil.

B. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
   1. Classification according to ASTM D 2487 of each on-site and borrow soil material proposed for fill and backfill.
   2. Laboratory compaction curve according to ASTM D 698 or ASTM D 1557 for each on-site and borrow soil material proposed for backfill.

1.05 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Engineer and then only after arranging to provide temporary utility services according to requirements indicated.
   1. Notify Owner not less than two days in advance of proposed utility interruptions.
   2. Do not proceed with utility interruptions without Engineer's written permission.
   3. Contact utility-locator service for area where Project is located before excavating.
   4. Contractor shall make a plan and provide temporary utility services as required to maintain services to buildings operating during construction.

B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

C. Repair any damaged existing pipe, conduit, irrigation pipe, or irrigation wiring. Do not cover until receiving positive approval from inspector.

PART 2 PRODUCTS

2.01 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
B. Satisfactory Soils: As approved by the project Geotechnical consultant.

C. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

D. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch (25-mm) sieve and 0 to 5 percent passing a No. 4 (4.75-mm) sieve.

E. Sand: ASTM C 33; fine aggregate, natural, or manufactured sand.

2.02 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility; colored as follows:

B. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches (750 mm) deep; colored as follows:
   1. Red: Electric.
   2. Yellow: Gas, oil, steam, and dangerous materials.
   3. Orange: Telephone and other communications.
   4. Blue: Water systems.
   5. Green: Sewer systems.

PART 3 EXECUTION

3.01 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Prepare subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface.

C. Protect and maintain erosion and sedimentation controls.

3.02 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding. Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
2. Install a dewatering system, to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

3.03 EXCAVATION FOR UTILITY TRENCHES

A. Underground alert: Before laying out piping and performing trenching, contactor shall determine locations of existing underground utilities. Contact "Dig Alert / Underground Service Alert of Southern California" - 1-800-422-4133. Contractor shall also contact owner's representative to ascertain locations of underground piping and other conditions affecting trenching, and shall perform testing and subsurface exploration as necessary to locate utilities.

B. Trenching: Material shall be excavated from trenches and piled adjacent to the trench. Material shall be piled in such a manner that will cause a minimum of inconvenience to public travel. Strip grass/ root mat before excavating and separate from excavation spoils stockpile. All rock, boulders, and stones shall be removed to provide a minimum clearance of six (6) inches under and around pipes. Excavations shall be kept free of water. Trenches shall be dug to true and smooth bottom grades and in accordance with the lines indicated on drawings and as directed. Trench widths shall not exceed 30 inches or 1.5 times outside diameter of the pipe plus 18 inches, whichever is greater. Minimum trench width shall be wide enough to ensure clean-out of disturbed soils and accommodate mechanical compacting equipment (applies to both trenches and vault/ box excavations). Depth of trenching for water and gas piping shall be such as to give a minimum cover of 18 inches over the top of the pipe. Deeper excavation may be required due to localized breaks in grade, or to install the new piping under existing culverts or other utilities where necessary. Trenching for sewers and drains shall be of sufficient width to permit proper jointing of the pipe and back filling of material along the sides of the pipe. Trench width at the surface of the ground shall be kept to the minimum amount necessary to install the pipe in a safe manner. Trenches shall be excavated below the barrel of the pipe a sufficient distance to provide for bedding material where the trench bottom is in a material which is unsuitable for foundation or which will make it difficult to obtain uniform bearing for the pipe. Such material shall be removed and a stable foundation provided. This shall include the preparation of the native trench bottom and/or the top of the foundation material to a uniform grade so that the entire length of pipe rests firmly on a suitable properly compacted material (clean aggregate base required). Clean aggregate base to be used for foundation purposes shall be of a type and gradation to provide a solid compact bedding in the trench.
   1. For pipes and conduit less than 6 inches (150 mm) in nominal diameter and flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade with bedding course.
   2. For pipes and conduit 6 inches (150 mm) or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference. Fill depressions with tamped sand backfill.

3. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

C. Trench Bottoms: Excavate trenches 4 inches (100 mm) deeper than bottom of pipe elevation to allow for bedding course. Hand excavate for bell of pipe.

1. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

3.04 UTILITY TRENCH BACKFILL

A. Backfill: Contactor shall complete 4" sand (compacted 95%) bedding and then backfill to 6 inches over the top of the pipe with sand before starting backfilling operations. Unstable and/ or wet excavation bottoms shall require placement of at least 6" (compacted thickness) of clean aggregate base under pipe in lieu of bedding sand. Take all precautions necessary to protect the pipe from damage, movement and shifting. Compaction equipment used above the pipe zone shall be of a type that does not injure the pipe. Where original excavated material is unsuitable for trench backfill, aggregate base shall be placed. Unsuitable material shall be removed to the disposal area. Whenever a trench is excavated in a paved roadway, sidewalk or other area where minor settlements would be detrimental and where native excavated material is not suitable for compaction as backfill, trench shall be backfilled with backfill clean aggregate base. Warning tape markers and tracer wires shall be installed during backfill operations. When working in an existing traveled roadway, restoration and compaction shall be achieved as the trench is backfilled so as to maintain traffic. Provide temporary, traffic-bearing steel plates over excavations in public rights-of-way, if backfilling and re-paving cannot be accomplished before end of work period. Trench backfill under roadway shall be mechanically compacted to 95 percent of maximum density except for trenches over 8 feet in depth. In any trench in which 95 percent density cannot be achieved with existing backfill, the top 4 feet shall be replaced with aggregate base mechanically compacted to 95 percent. The method of compaction shall be at contractor's option, unless excavation permit requires a specific type. Contractor shall be responsible to provide the proper size and type of compaction equipment and select the proper method of utilizing said equipment to attain the required compaction density. Compaction by water jetting will not be permitted. Where backfill is required to be certified, compliance shall be performed in accordance with the requirements of the governing authority. Allow testing service to inspect and approve each subgrade and fill layer before further fill, backfill or construction work is performed.

B. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

C. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by the drawings; reshape and recompact.

D. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

END OF SECTION 22 05 05

SECTION 22 05 10
PLUMBING PIPING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, notes, and general provisions of the Contract, including General and Supplemental Conditions apply to this section.

1.02 SUMMARY

A. Section Includes:

1. Pipe and fittings for domestic water.
2. Pipe and fittings for sewer.
3. Pipe and fittings for natural gas.

1.03 REFERENCES

A. ANSI B31.9 - Building Service Piping.

B. ASME B16.3 - Malleable Iron Threaded Fittings.

C. ASME B16.22 - Wrought Copper and Bronze Solder-Joint Pressure Fittings.

D. ASTM A47 - Ferritic Malleable Iron Castings.

E. ASTM A53 - Pipe, Steel, Black and Hot-Dipped Zinc Coated, Welded and Seamless.

F. ASTM A74 - Cast Iron Soil Pipe and Fittings.

G. ASTM A120 - Pipe, Steel, Black and Hot-Dipped Zinc Coated (Galvanized), Welded and Seamless, for Ordinary Uses.

H. ASTM B32 - Solder Metal.

I. ASTM B88 - Seamless Copper Water Tube.

J. ASTM C564 - Rubber Gaskets for Cast Iron Soil Pipe and Fittings.

K. ASTM D1785 - Poly Vinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120.

L. ASTM D2241 - Poly Vinyl Chloride (PVC) Plastic Pipe (SDR-PR).

M. ASTM D2466 - Poly Vinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 40.

N. ASTM D2564 - Solvent Cements for Poly Vinyl Chloride (PVC) Plastic Pipe and Fittings.

O. ASTM D2855 - Making Solvent-Cemented Joints with Poly Vinyl Chloride (PVC) Pipe and Fittings.

P. ASTM D3034 - Poly Vinyl Chloride (PVC) Plastic Sewer Pipe SDR-35.

Q. CISPI 301 - Cast Iron Soil Pipe and Fittings for Hubless Cast Iron Sanitary Systems.

R. CISPI 310 - Joints for Hubless Cast Iron Sanitary Systems.

S. ASTM D2513 - SDR11.0 Polyethylene Gas Pipe.

T. ASTM D1784 – Low Extractable Polyvinyl Chloride for filtered water.

1.04 SUBMITTALS

A. Product Data: For the following products:

1. Piping and fittings.
2. Escutcheons.

B. Project Record Documents

1. Submit the following:
2. Record actual locations of valves and piping.

C. Operation and Maintenance Data

1. Submit the following:
2. Maintenance Data: Include installation instructions, spare parts lists, exploded assembly views.

1.05 REGULATORY REQUIREMENTS

A. Perform Work in accordance with 2025 California Plumbing Code.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of the general requirements.

B. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

C. Provide temporary protective coating on cast iron and steel valves.

D. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

E. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Do not install underground piping when bedding is wet or frozen.

PART 2 PRODUCTS

2.01 DOMESTIC WATER PIPING, ABOVE GROUND

A. Hard Copper Tube: ASTM B88, type L water tube, drawn temper. U.S. Manufactured.

1. Wrought-copper solder-joint fittings: U.S. Manufactured, ASME B16.22, wrought-copper pressure fittings, with lead-free solder.
2. Bronze Flanges: ASME B16.24, class 150, with solder-joint ends.
3. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces, and solder-joint or threaded ends.
4. All copper and fittings shall be made in the United States.

2.02 DOMESTIC WATER PIPING, BELOW GRADE

A. Soft Copper Tube: ASTM B88, Type K water tube, annealed temper. U.S. Manufactured.

1. Copper solder-joint fitting: U.S. Manufactured, ASME B16.22, wrought-copper pressure fittings. No joints under slabs.
2. Non lead bearing solder.
3. Copper Shall be sleeved with polyethylene.
4. Joints between site PVC and underground copper shall be made with male PVC/female copper adapters.
5. All copper and fittings shall be made in the United States.

2.03 DOMESTIC SITE WATER PIPING, BELOW GRADE

A. Schedule 80 PVC, ASTM D1785. U.S. Manufactured.

1. Fittings – ASTM D2466.
2. Solvent – cement joints, ASTM D2564/D2855.
3. Joints between site PVC and underground copper shall be made with male PVC/female copper adapters.
4. Install an unbroken number 14 tracer wire shall be installed with and attached to underground non-metallic pipe and shall terminate above grade at each end.
5. Install polyethylene plastic utility warning tape above buried piping.

6. Joints between underground Sch. 80 PVC and steel pipe shall be made with Smith Blair coupling system, 400 Series

2.04 SANITARY WASTE AND VENT PIPING

A. Within the building and out 5 feet

1. Hubless cast-iron pipe and fittings: ASTM A888 or CISPI 301 of US manufacture.
2. Standard shielded couplings, stainless steel: CISPI 310, NSF-certified.
3. Heavy-duty couplings, stainless steel: ASTM C564, NSF - certified. Use four-band clamps at all sanitary waste piping greater than 2".
4. All cast-iron pipe and fittings and couplings shall be manufactured in the U.S.
5. Minimum slope ¼" per foot to drain with no bellies in piping.

B. Buried past 5 feet from building

1. Schedule 40 PVC with waste fittings.
2. Minimum slope ¼" per foot to drain for piping 3" and smaller. Minimum slope for 4" and larger is 1/8" per foot with no bellies in piping.
3. All PVC waste piping shall be manufactured in the United States.
4. Detection tape shall be install above all piping.

2.05 CLEANOUTS

A. Cleanouts for waste piping.

1. Manufacturers: subject to compliance with requirements, provide products by one of the following:
   a. J.R. Smith
   b. Zurn.

2. Description: cast-iron with threaded bronze plug. 18 gage stainless cover with vandal-proof screws for wall cleanout. Polished brass non-slip cover for floor cleanout.

2.06 NATURAL GAS PIPING, ABOVE GRADE

A. Steel Pipe:

1. Interior locations - ASTM A53 or A120, Schedule 40 black. US manufactured.
2. Exterior Location - ASTM A53 or A120, Schedule 40 Hot Dipped Galvanized US manufactured.
3. Fittings: At Interior ASME B16.3, black malleable iron, or ASTM A234, forged steel welding type. At exterior ASME B16.3 hot dipped galvanized steel - US manufactured.
4. Joints: NFPA 54, threaded. Sizes 2-1/2" and smaller.
5. Joints: Welded. Sizes 3" and larger.

6 Valves: Provide at each piece of gas-burning equipment, with dirt leg.
7. Protection: Coat exterior gas pipe threads with three coats of cold galvanizing after removing threading oil.

B. Flex Connector:

1. Brasscraft Procoat (Yellow) Stainless Steel, or equal.

2.07 NATURAL GAS PIPING, BURIED

A. Polyethylene Pipe: ASTM D2513, SDR 11.0 with socket type fittings and fusion welded joints, US Manufactured.

1. Fittings – ASTM D2466, polyethylene.
2. Transitions from underground PE to above-ground steel shall be made with listed pre-bent transition fittings.
3. Install an unbroken number 14 tracer wire shall be installed with and attached to underground non-metallic pipe and shall terminate above grade at each end.
4. Install polyethylene plastic utility warning tape above buried gas piping.

B. Anodeless Riser – Pre-bent steel to PE pipe

1. Threaded end for piping 2" and less
2. Flanged end for piping 2-1/2: and larger
3. Central Plastics or equal

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that excavations are to required grade, dry, and not over-excavated.

3.02 PREPARATION

A. Ream pipe and tube ends. Remove burrs.

B. Remove scale and dirt, on inside and outside, before assembly.

C. Prepare piping connections to equipment with flanges or unions.

3.03 INSTALLATION

A. Install in accordance with Manufacturer's instructions.

B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

C. Route piping in orderly manner and maintain gradient.

D. Install piping to conserve building space and not interfere with use of space.

E. Group piping whenever practical at common elevations.

F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

G. Provide clearance for installation of insulation and access to valves and fittings.

H. Provide access where valves and fittings are not exposed. Coordinate size and location of access doors.

I. Establish elevations of buried piping outside the building to ensure not less than 30 inch of cover. Exception: Localized areas may be 18" deep to accommodate existing conditions.

I. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.

J. Provide support for utility meters in accordance with requirements of utility companies.

K. Prepare pipe, fittings, supports, and accessories not pre-finished, ready for finish painting.

L. Excavate in accordance with this Section for work of this Section.

M. Backfill in accordance with this Section for work of this Section.

N. Install bell and spigot pipe with bell end upstream.

O. Install valves with stems upright or horizontal, not inverted.

P. Seal all penetrations through exterior walls and fire rated walls with 3M Firestopping materials for fire rating capacity per UBC requirements.

Q. Underground Alert: Before laying out piping and performing trenching, contractor shall determine locations of existing underground utilities. Contact "Dig Alert / Underground Service Alert of Southern California" - 1-800-422-4133. Contractor shall also contact District's representative to ascertain locations of underground piping and other conditions affecting trenching, and shall perform testing and subsurface exploration as necessary to locate utilities. Do not perform trenching until all utilities have been located and marked.

R. Trenching: material shall be excavated from trenches and piled adjacent to the trench. Material shall be piled in such a manner that will cause a minimum of inconvenience to public travel. Strip grass/ root mat before excavating and separate from excavation spoils stockpile. All rock, boulders, and stones shall be removed to provide a minimum clearance of six (6) inches under and around pipes. Excavations shall be kept free of water. Trenches shall be dug to true and

smooth bottom grades and in accordance with the lines indicated on drawings and as directed. Trench widths shall not exceed 30 inches or 1.5 times outside diameter of the pipe plus 18 inches whichever is greater. Minimum trench width shall be wide enough to ensure clean-out of disturbed soils and accommodate mechanical compacting equipment (applies to both trenches and vault/ box excavations). Depth of trenching for water and gas piping shall be such as to give a minimum cover of 18 inches over the top of the pipe. Deeper excavation may be required due to localized breaks in grade, or to install the new piping under existing culverts or other utilities where necessary. Trenching for sewers and drains shall be of sufficient width to permit proper jointing of the pipe and backfilling of material along the sides of the pipe. Trench width at the surface of the ground shall be kept to the minimum amount necessary to install the pipe in a safe manner. Trenches shall be excavated below the barrel of the pipe a sufficient distance to provide for bedding material where the trench bottom is in a material which is unsuitable for foundation or which will make it difficult to obtain uniform bearing for the pipe. Such material shall be removed and a stable foundation provided. This shall include the preparation of the native trench bottom and/or the top of the foundation material to a uniform grade so that the entire length of pipe rests firmly on a suitable properly compacted material (clean aggregate base). Clean aggregate base to be used for foundation purposes shall be of a type and gradation to provide a solid compact bedding in the trench.

S. Backfill: Contractor shall complete 4" sand (compacted 95%) bedding and then backfill to 6 inches over the top of the pipe with sand before starting backfilling operations. Unstable and/ or wet excavation bottoms shall require placement of at least 6" (compacted thickness) of clean aggregate base under pipe in lieu of bedding sand. Take all precautions necessary to protect the pipe from damage, movement and shifting. Compaction equipment used above the pipe zone shall be of a type that does not injure the pipe. Where original excavated material is unsuitable for trench backfill, backfill gravel shall be placed. Unsuitable material shall be removed to a disposal area. Wherever a trench is excavated in a paved roadway, sidewalk or other area where minor settlements would be detrimental and where native excavated material is not suitable for compaction as backfill, trench shall be backfilled with backfill gravel. Warning tape markers and tracer wires shall be installed during backfill operations. When working in an existing traveled roadway, restoration and compaction shall be achieved as the trench is backfilled so as to maintain traffic. Provide temporary, traffic-bearing steel plates over excavations in public rights-of-way, if backfilling and re-paving cannot be accomplished before end of work period. Trench backfill under roadway shall be mechanically compacted to 95 percent of maximum density except for trenches over 8 feet in depth. In any trench in which 95 percent density cannot be achieved with existing backfill, the top 4 feet shall be replaced with backfill gravel mechanically compacted to 95%. The method of compaction shall be at contractor's option, unless excavation permit requires a specific type. Contractor shall be responsible to provide the proper size and type of compaction equipment and select the proper method of utilizing said equipment to attain the required compaction density. Compaction by water jetting will not be permitted. Where backfill is required to be certified, compliance shall be performed in accordance with the requirements of the governing authority. Allow testing service to inspect and approve each subgrade and fill layer before further fill, backfill or

construction work is performed.

T. Test all piping per 2025 California Plumbing Code Requirements and district standards. Upon completion of the entire water supply system, the system shall be tested with water. The water test pressure shall be greater than or equal to the working pressure under which the system is to be used. The piping system shall withstand the test pressure without showing evidence of leakage for a period of not less than 15 minutes. (Plastic pipe shall not be tested with air).

U. Patch and paint exposed piping and adjacent surfaces. Above ground exterior gas piping shall be painted yellow with Dunn Edwards or equal metal primer and paint. Above ground exterior water shall be painted blue. Verify colors with school district.

V. Disinfect all water piping per AWWA requirements

1. Acceptable Disinfectants

a. Sodium Hypochlorite

b. Calcium Hypochlorite.

2. Flush system prior to disinfection. Add solution to bring system to 25 PPM for 24 hours. Neutralize solution prior to dumping to sewer.

3. Testing Requirements for demonstration of compliance with the Maximum Containment Level (MCLs) of the Safe Drinking Water Act: Test at each building one outlet.

a. Total chlorine concentration of less than 1 mg/L (1 ppm).

b. The absence of any coliform bacteria.

c. Less than 200 non-coliform bacteria per 100 mL sample

4. Repeat disinfection if test results are not satisfactory.

W. As-built drawings shall be given to the school district prior to the acceptance of the project. As-built drawings to include "actual locations" of valves and piping for gas, domestic water, irrigation, and sewer. Provide invert elevations and dimensions. Locate both by depth and by accurate measurement from a permanently established landmark such as a building or structure. Accurately record changes in construction from that called for on the drawings.

3.04 APPLICATION

A. Install unions downstream of valves and at equipment or apparatus connections.

B. Install brass male adapters each side of valves in copper piped system. Sweat solder adapters to pipe.

C. Install gate valves for shut-off and to isolate equipment, part of systems, or vertical risers.

3.05 ERECTION TOLERANCES

A. Establish invert elevations, slopes for drainage to 1/4 inch per foot minimum. Maintain gradients.

B. Slope water piping and arrange to drain at low points.

END OF SECTION 22 05 10

SECTION 22 05 23
GENERAL-DUTY VALVES FOR PLUMBING PIPING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:
1. Natural gas seismic safety valve.
2. Natural gas shut off valve.
3. Natural gas plug valve.
4. Water shut off valve

B. Related Sections:

1. Division 22 plumbing piping Sections for specialty valves applicable to those Sections only.
2. Division 22 Section "Identification for Plumbing Piping and Equipment" for valve tags and schedules.
3. Division 22 Section " Supports and Anchors for Plumbing Pipes and Equipment" for pipe and valve anchorage to wall.

1.03 DEFINITIONS

A. CWP: Cold working pressure.

B. EPDM: Ethylene propylene copolymer rubber.

C. NBR: Acrylonitrile-butadiene, Buna-N, or nitrile rubber.

D. NRS: Nonrising stem.

E. RS: Rising stem.

F. SWP: Steam working pressure.

1.04 SUBMITTALS

A. Product Data: For each type of valve indicated.

1.05 QUALITY ASSURANCE

A. Source Limitations for Valves: Obtain each type of valve from single source from single manufacturer.

B. ASME Compliance:

1. ASME B16.10 and ASME B16.34 for ferrous valve dimensions and design criteria.
2. ASME B31.1 for power piping valves.
3. ASME B31.9 for building services piping valves.

C. NSF Compliance: NSF 61 for valve materials for potable-water service.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Prepare valves for shipping as follows:

1. Protect internal parts against rust and corrosion.
2. Protect threads, flange faces, grooves, and weld ends.
3. Set angle, gate, and globe valves closed to prevent rattling.
4. Set ball and plug valves open to minimize exposure of functional surfaces.

B. Use the following precautions during storage:

1. Maintain valve end protection.
2. Store valves indoors and maintain at higher than ambient dew point temperature. If outdoor storage is necessary, store valves off the ground in watertight enclosures.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS FOR VALVES

A. Refer to valve schedule articles for applications of valves.

B. Valve Pressure and Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.

C. Valve Sizes: Same as upstream piping unless otherwise indicated.

D. Valve-End Connections:

1. Flanged: With flanges according to ASME B16.1 for iron valves.
2. Grooved: With grooves according to AWWA C606.
3. Solder Joint: With sockets according to ASME B16.18.
4. Threaded: With threads according to ASME B1.20.1.

E. Lead Content: Comply with State of California laws SB1334.

2.02 NATURAL GAS SEISMIC SAFETY VALVE

A. Manufacturer:

1. Manufacturers: subject to compliance with requirements, provide products by the following:
   a. Pacific Seismic Products.
   b. Provide model suitable for orientation of installed unit.
   c. Sizes 2" & larger shall be flanged.

2.03 NATURAL GAS SHUTOFF VALVES

A. Manufacturer:

1. Manufacturers: subject to compliance with requirements, provide products by the following:
   a. A.Y. McDonald – Sizes through 1 ½".
   b. Rockwell Super Nordstrom – 2" and greater (Flanged).

2.04 NATURAL GAS PLUG VALVES

A. Manufacturer:

1. Manufacturers: subject to compliance with requirements, provide products by the following:
   a. A.Y. McDonald – Sizes through 2".
   b. Medium Pressure – rated to 25 PSI

2.05 WATER SHUT-OFF VALVES

A. Lead-Free, Three-Piece Bronze Ball Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. NIBCO INC. T/S-595-Y-LF – Sizes through 2".

2. Install water valves in concrete labeled yard box.
   a. Christy B03 Pre-Cast concrete box w/ cast iron lid at unpaved areas & asphalt and concrete lid at sidewalks. Label the cover "WATER".

B. Lead-Free, Two-Piece Brass Ball Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. NIBCO INC. S-FP-600A-LF – Sizes 2-1/2" & 3".

2. Install water valves in concrete labeled yard box.
   a. Christy B12 Pre-Cast concrete box w/ cast iron lid at unpaved areas & asphalt and concrete lid at sidewalks. Label the cover "WATER".

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine valve interior for cleanliness, freedom from foreign matter, and corrosion. Remove special packing materials, such as blocks, used to prevent disc movement during shipping and handling.

B. Operate valves in positions from fully open to fully closed. Examine guides and seats made accessible by such operations.

C. Examine threads on valve and mating pipe for form and cleanliness.

D. Examine mating flange faces for conditions that might cause leakage. Check bolting for proper size, length, and material. Verify that gasket is of proper size, that its material composition is suitable for service, and that it is free from defects and damage.

E. Do not attempt to repair defective valves; replace with new valves.

3.02 VALVE INSTALLATION

A. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.

B. Locate valves for easy access and provide separate support where necessary.

C. Install valves in horizontal piping with stem at or above center of pipe.

D. Install valves in position to allow full stem movement.

E. Locate valves to not interfere with access.

F. Anchor seismic valves to building per listing.

G. Install union downstream of threaded union.

3.03 ADJUSTING

A. Adjust or replace valve packing after piping systems have been tested and put into service but before final adjusting and balancing. Replace valves if persistent leaking occurs.

END OF SECTION 22 05 23

SECTION 22 05 53
IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:
   1. Equipment labels.
   2. Warning signs and labels.
   3. Pipe labels.
   4. Stencils.
   5. Valve tags.
   6. Warning tags.

1.03 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For color, letter style, and graphic representation required for each identification material and device.

C. Equipment Label Schedule: Include a listing of all equipment to be labeled with the proposed content for each label.

D. Valve numbering scheme.

E. Valve Schedules: For each piping system to include in maintenance manuals.

1.04 COORDINATION

A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

B. Coordinate installation of identifying devices with locations of access panels and doors.

C. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 PRODUCTS

2.01 EQUIPMENT LABELS

A. Metal Labels for Equipment:
   1. Material and Thickness: Brass, 0.032-inch minimum thickness, and having predrilled or stamped holes for attachment hardware.
   2. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
   3. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
   4. Fasteners: Stainless-steel.
   5. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

2.02 VALVE TAGS

A. Valve Tags: Stamped or engraved with 1/4-inch letters for piping system abbreviation and 1/2-inch numbers.
   1. Tag Material: Brass, 0.032-inch minimum thickness, and having predrilled or stamped holes for attachment hardware.
   2. Fasteners: Brass wire-link or beaded chain; or S-hook.

B. Valve Schedules: For each piping system, on 8-1/2-by-11-inch bond paper. Tabulate valve number, piping system, system abbreviation (as shown on valve tag), location of valve (room or space), normal-operating position (open, closed, or modulating), and variations for identification. Mark valves for emergency shutoff and similar special uses.
   1. Valve-tag schedule shall be included in operation and maintenance data.

PART 3 EXECUTION

3.01 PREPARATION

A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

3.02 PIPE LABEL INSTALLATION

A. Piping Color-Coding: Painting of piping is specified in Division 01 Section 01 7300 -Execution.
B. Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:
   1. Near each valve and control device.

2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
3. Near penetrations through walls, floors, ceilings, and inaccessible enclosures.
4. At access doors, manholes, and similar access points that permit view of concealed piping.
5. Near major equipment items and other points of origination and termination.
6. Spaced at maximum intervals of 25 feet along each run. Reduce intervals to 15 feet in areas of congested piping and equipment.
7. On piping above removable acoustical ceilings. Omit intermediately spaced labels.

C. Pipe Label Color Schedule:
   1. Domestic Water Piping:
      a. Background Color: White.
      b. Letter Color: Blue (Cold) Red (Hot).

   2. Natural Gas Piping:
      a. Background Color: Yellow.
      b. Letter Color: Black.

3.03 VALVE-TAG INSTALLATION

A. Install tags on valves and control devices in piping systems, except check valves; valves within factory-fabricated equipment units; shutoff valves; faucets; convenience and lawn-watering hose connections; and similar roughing-in connections of end-use fixtures and units. List tagged valves in a valve schedule.

B. Write required message on, and attach warning tags to, equipment and other items where required.

END OF SECTION 22 05 53

SECTION 22 10 00
SUPPORTS AND ANCHORS FOR PLUMBING PIPES AND EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Pipe and equipment hangers and supports.

B. Equipment bases and supports.

C. Sleeves and seals.

D. Flashing and sealing equipment and pipe stacks.

1.02 REFERENCES

A. ASME B31.9 - Building Services Piping.

B. ASTM F708 - Design and Installation of Rigid Pipe Hangers.

C. MSS SP58 - Pipe Hangers and Supports - Materials, Design and Manufacturers.

D. MSS SP69 - Pipe Hangers and Supports - Selection and Application.

E. MSS SP89 - Pipe Hangers and Supports - Fabrication and Installation Practices.

1.03 SUBMITTALS

A. Submit under provisions of the General Conditions.

B. Product Data: Provide Manufacturers catalog data including load capacity.

1.04 REGULATORY REQUIREMENTS

A. Conform to 2025 California Plumbing Code Chapter 3 for support of piping.

B. Brace piping & ducts to resist seismic induced motion per 2008 SMACNA Seismic Restraint Guidelines. Hazard level is A.

PART 2 PRODUCTS

2.01 PIPE HANGERS AND SUPPORTS

A. Manufacturers:
   1. B-Line
   2. Unistrut

B. Plumbing Piping – Natural Gas & Domestic Water:

1. Conform to ASTM F708.
2. Hangers for Pipe Sizes 1/2 to 1-1/2 Inch (13 to 38 mm): Carbon steel, adjustable swivel, split ring, copper plated for copper pipes.
3. Hangers for Cold Pipe Sizes 2 Inches (50 mm) and Over: Carbon steel, adjustable, clevis.
4. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
5. Wall Support for Pipe Sizes to 3 Inches (76 mm): Cast iron hook.
6. Vertical Support: Steel riser clamp.
7. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
8. Cold & Hot Copper Pipe Support: Carbon steel ring, adjustable, copper plated.
9. Copper clamps for water piping.

2.02 ACCESSORIES

A. Hanger Rods: Mild steel threaded both ends, threaded one end, or continuous threaded.

2.03 FLASHING

A. Provide flashings for all pipe roof penetrations. See roofing specifications for flashing requirements.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with Manufacturer's instructions.

B. All ducting, piping, and equipment shall be installed to resist seismic motion and shall comply with the requirements of the 2008 edition of the SMACNA Seismic Restraint Manual for seismic level "A".

3.02 PIPE HANGERS AND SUPPORTS

A. Support horizontal piping as scheduled.

B. Install hangers to provide minimum 1/2 inch (13 mm) space between finished covering and adjacent work.

C. Place hangers within 12 inches (300 mm) of each horizontal elbow.

D. Use hangers with 1-1/2 inch (38 mm) minimum vertical adjustment.

E. Support horizontal cast iron pipe adjacent to each hub, with 5 feet (1.5 m) maximum spacing between hangers.

F. Support vertical piping at every floor. Support vertical cast iron pipe at each floor

at hub.

G. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.

H. Support riser piping independently of connected horizontal piping.

I. Provide copper plated hangers and supports for copper piping.

J. Design hangers for pipe movement without disengagement of supported pipe.

K. Prime coat exposed steel hangers and supports. Refer to Division 01 – Execution. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

L. Install plastic pipe isolators for copper cold & hot piping at all wood penetrations.

M. See structural drawings for installation and testing requirements.

3.03 EQUIPMENT BASES AND SUPPORTS

A. Provide templates, anchor bolts, and accessories for mounting and anchoring equipment.

3.04 FLASHING

A. Provide flexible flashing and metal counterflashing where piping and ductwork penetrate weather or waterproofed walls, floors, and roofs.

3.05 SCHEDULES

MAXIMUM PIPE SIZE Inches (mm)	HANGER ROD HANGER SPACING Feet (m)	DIAMETER Inches (mm)
1/2 to 1-1/4 (12 to 32)	6.5 (2)	3/8 (9)
1-1/2 to 2 (38 to 50)	10 (3)	3/8 (9)
2-1/2 to 3 (62 to 75)	10 (3)	1/2 (13)

END OF SECTION 22 10 00

SECTION 260000 - GENERAL PROVISIONS

PART 1 - GENERAL

A. The general contract provisions apply to this section and take precedent over this section in case of conflict.

1.1 GENERAL PROVISIONS

A. This division supplements the applicable requirements of other divisions.

1.2 DEFINITIONS

A. For the purposes of Division 260000, the following definitions apply:

1. Provide: Furnish and install.
2. Indicated: As shown on the drawings or specified herein.
3. Circuit Designation: Panel designation and circuit number, i.e., LA-13.
4. Approved equal: Approved by the engineer of record as equal in his sole determination.

1.3 SCOPE OF WORK

A. The Specifications for Work of Division 260000 include, but are not limited to the following sections:

26 0000–General Provisions
26 0050–Basic Electrical Materials and Methods
26 0060–Minor Electrical Demolition for Remodeling
26 0111–Conduits
26 0130–Electrical Boxes
26 0190–Support Devices

B. Work Included: All labor, materials, appliances, tools, equipment, facilities, transportation and services necessary for and incidental to performing all operations in connection with furnishing, delivery and installation of the work of this division, complete, as shown on the drawings and/or specified herein. Work includes, but is not necessarily limited to the following:

1. Examine all divisions for related work required to be included as work under this division.
2. General provisions for electrical work.
3. Site observation including existing conditions.

E. Coordination

1. The following supplements are additional General Requirements pertaining to work of this Division. Provisions of Division 1 - General Requirements shall remain in effect.
   a. Coordinate work of this Division 26 with work of Divisions 2 through 25.

1.4 REFERENCE STANDARDS

A. American National Standards Institute (ANSI).

B. Association of Edison Illuminating Companies (AEIC).

C. Electrical Testing Laboratories (ETL).

D. Illuminating Engineering Society (IES).

E. Institute of Electrical and Electronic Engineers (IEEE).

F. Insulated Cable Engineers Association (ICEA).

G. National Electrical Manufacturers Association (NEMA).

H. National Fire Protection Association (NFPA).

I. Underwriters Laboratories, Inc. (UL).

J. California State Fire Marshal (CSFM).

K. California Energy Commission (CEC) Title 24.

1.5 QUALITY ASSURANCE

A. Regulations: All the electrical equipment and materials, including their installations, shall conform to the following applicable latest codes and standards:

1. California Electric Code, Latest Adopted Edition (NEC)
2. Local and State Fire Marshal.
3. Occupational Safety and Health Act (OSHA).
4. Requirements of the Serving Utility Company.
5. Local Codes and Ordinances.
6. Requirements of the Office of the California State Architect (OSA).
7. California Administrative Code, Title 8, Chapter 4, Industrial Safety Orders.
8. California Administrative Code, Title 24.

B. Variances: In instances where two or more codes are at variance, the most restrictive requirement shall apply. In instances where plans and specifications are at variance or conflict the most restrictive requirement shall apply. Contractor shall be responsible for all his associated work and materials and also the work and materials of related or affected trades.

C. Contractor's Expense: Obtain and pay for all required bonds, insurance, licenses, and pay for all taxes, fees and utility charges required for the electrical work.

1.6 SUBMITTALS

A. Procedure: In accord with the Submittal Section.

C. Product data: Detailed manufacturer's data for:

1. Pull boxes

2. Conduits

E. PROJECT RECORD DOCUMENTS - Prepare the following and submit to the engineer before final acceptance:

A. Mark Project Record Documents daily to indicate all changes made in the field.

1. In addition to general requirements of Project Record Drawings, indicate on drawings, changes of equipment locations and ratings, trip sizes, and settings on circuit breakers, alterations in raceway runs and sizes, changes in wire sizes, circuit designations, installation details, one-line diagrams, control diagrams and schedules.

B. Use green to indicate deletions and red to indicate additions.

1. Use the same symbols and follow the same drafting procedures used on the Contract Drawings.

C. Locate dimensionally off of contract drawings all underground conduit stubbed-out for future use, underground feeder conduits, and feeder pull box locations using building lines by indicating on the Project Record Drawings.

D. At the completion of underground conduit installation provide underground conduit record documents to owner's representative.

E. Two copies, in binder form, of all test results as required by these specifications

1.7 SERVICE INTERRUPTIONS AND UTILITY

A. Coordinate with the Owner the interruption of services necessary to accomplish the work.

B. Coordinate with the owner all work associated with power and communications distribution systems and service entrance equipment.

C. Electrical contractor shall supply temporary power for all trades.

1.8 MINIMUM SPECIFICATION REQUIREMENTS (ALL WORK OF DIVISION 260000)

A. As a minimum Specification requirement, all materials and methods shall comply with applicable governing codes.

1.9 PENETRATION SEALING

A. Seal penetration through exterior walls and fire rated walls, floors, ceilings, and roofs with 3M Firestopping materials of fire rating capacity rated per architectural plans and UBC or prevailing building code requirements.

A. Pick up Owner-furnished items and handle, deliver, install, and make all final connections.

1. Assume responsibility for the items when consigned at the storage facility or in the field in accord with requirements of the Contract Documents.

1.10 ELECTRIC ITEM LOCATION

A. Electrical drawings are generally diagrammatic. Verify equipment sizes with shop drawings and manufacturers' data and coordinate location layout with other trades. Notify owner and engineer of any changes of location requirements prior to installation and obtain engineer's written acceptance for all changes/revisions.

1.11 DEMOLITION

A. Scope: Provide and perform demolition, preparatory and miscellaneous work as indicated and specified, complete.

B. Principle Items of Work:

1. Demolition and removal of existing electrical conduit, wiring and equipment required to complete the project.

2. Preparation of the existing building to receive or connect the new work.

3. Miscellaneous demolition, cutting, alteration, and repair work in and around the existing building necessary for the completion of the entire project.

4. Disconnecting and reconnection of electrical equipment as required by the construction modifications.

C. Existing Conditions: Make a detailed survey of the existing conditions pertaining to the work. Check the locations of all existing structures, equipment and wiring (branch circuiting and controls). Provide at bid time any exclusions for existing conditions work.

D. Salvage and Disposal: All removed material other than items to be reused shall be returned to the owner or disposed of in accordance with instructions from the owner's representative. Disposal shall be done in accordance with EPA and governing body requirements and regulations. Contractor shall pay all fees and charges for disposal.

1.12 ELECTRICAL WORKMANSHIP REQUIREMENTS

A. It is required that all electrical construction of this Contract be performed by journeyman electricians. All journeyman electricians shall have a minimum of 4 years of apprenticeship training and hold a valid Certificate of Completion from an apprenticeship training course approved by the State of California Department of Industrial Relations, Division of Apprenticeship Standards. This is intended to mean that a person who does not hold a valid Certificate of Completion from an apprenticeship training course approved by the State of California Department of Industrial Relations, Division of Apprenticeship Standards will not be permitted to do electrical work of any kind that involves new construction, nor make repairs,

alterations, additions, or changes of any kind to any existing system of electrical wiring, apparatus, equipment, light, heat, or power.

B. Contractor may employ electrical helpers or apprentices on any job of electrical construction, new or existing, when the work of such helpers or apprentices is performed under direct and constant personal supervision of a journeyman electrician holding a valid Certificate of Completion from an apprenticeship training course approved by the State of California Department of Industrial Relations, Division of Apprenticeship Standards.

1. Each journeyman electrician will be permitted to be responsible for quality of workmanship for a maximum of eight helpers or apprentices during any same time period, provided the nature of work is such that good supervision can be maintained and quality of workmanship achieved is the best, as expected by Owner and as implied by the latest edition of the California Electrical Code (National Electrical Code with State of California amendments).

2. Before each journeyman electrician commences work, deliver to Owner at project site a photocopy of journeyman's valid Certificate of Completion from an apprenticeship training course approved by the State of California Department of Industrial Relations, Division of Apprenticeship Standards.

C. All electrical systems shall be installed in a neat and workmanlike manner per National Electrical Code requirements and ANSI approved NEIS National Electrical Installation Standards.

1.13 MATERIAL AND EQUIPMENT SUBSTITUTION

A. Where two or more trade names or manufacturers are mentioned, selection shall be made from the group listed for use in the base bid. The order in which names are listed is not intended to be any indication of preference.

B. Where a single manufacturer, product or trade name is stated, that manufacturer, product or trade name shall be used in the base bid. The use of other manufacturers, products or trade names will be considered by the engineer of record (unless that product is indicated for no substitution) only if submitted as alternate items at the time of bidding, with evidence of equality and a statement of net price difference as compared to the specified item. After approval by the engineer of record, the architect and owner reserve the right to review such submittals and to determine the acceptability for use.

C. Equipment other than that specified will be accepted only when written approval is given by the engineer of record and architect, in accordance with Division 1.

D. The contractor shall be held responsible for all physical changes in piping, equipment, etc. resulting from equipment substitution and likewise bear any increased cost of other trades in making said substitution. Approval by the architect of equipment other than that specified does not relieve this contractor of this responsibility.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used

END OF SECTION 260000

SECTION 260050 - BASIC ELECTRICAL MATERIALS & METHODS

PART 1 - GENERAL

1.1 DESCRIPTION: Division 1 applies to this Section. This Section contains general requirements for the Sections in Division 26.

A. Related Work Not in Division 26: Refer to individual Division 26 Sections.

1.2 QUALITY ASSURANCE:

A. Codes: Entire installation shall comply with requirements of authorities having jurisdiction.

B. Permits: Contractor shall pay for all permits required by work under this Division.

C. Inspections: Contractor shall arrange for all inspections and correct non-complying installations.

1.3 SUBMITTALS: Refer to Division 1 for procedures.

A. Material and Equipment: Prior to start of work, 6 copies of a list of all materials and equipment covered by Division 26 shall be submitted for approval. Contractor shall allow ample time for checking and processing and shall assume responsibility for delays incurred due to rejected items. No installation of material concerned shall be made until such written approval has been obtained. Approval of materials and equipment shall in no way obviate compliance with the Contract Documents. Each item proposed shall be referenced to the applicable Section, Page, and Paragraph of Division 26. For each item proposed, give name of manufacturer, trade name, catalog data, and performance data.

B. Equipment Layout Drawings: Submit "Equipment Layout Drawings" for each equipment room or area containing equipment items furnished under this Division. Layout Drawings shall consist of overall site plan with all utilities. Location of all conduits and pull boxes shall be indicated on this site plan.

C. Service Manuals: Not Applicable

D. Record Drawings: Prepare and submit in accordance with project requirements. Contractor shall make notations, neat and legible, daily as the work proceeds. Drawings shall be available for inspection at all times and kept at the job site. All buried or bored conduit and/or indicated future connections outside any building shall be located both by depth and by accurate measurement from a permanently established landmark such as a building or structure.

1.4 DRAWINGS:

A. Diagrammatic Drawings: For purposes of clarity and legibility, drawings are essentially diagrammatic although size and location of equipment is drawn to scale wherever possible,

Contractor shall make use of data in all the Contract Documents and verify information at building site.

B. Routing of Conduit and Piping: The drawings indicate required size and termination of conduits and raceways. It is not intent to indicate all necessary offsets and it shall be the responsibility under this Division to install conduit in such a manner as to conform to structure, avoid obstructions, preserve headroom, keep openings and passageways clear, and make all equipment requiring inspection, maintenance and repair accessible without extra cost to the Owner.

C. Coordination with Other Trades: Check with other Divisions of the Specifications so that no interference shall occur and in order that elevations may be established for the work. Installed work which interferes with the work of other trades shall be removed and rerouted at the discretion of the Architect.

1.5 DAMAGE AND REPAIRS:

A. Emergency Repairs: Owner reserves the right to make temporary repairs as necessary to keep equipment in operating condition without voiding Contractor's warranty or relieving Contractor of his responsibility during warranty period.

B. Responsibility for Damage: Contractor shall be responsible for damage to grounds, buildings, or equipment due to work furnished or installed under this Division 26.

1.6 PROTECTION, CARE, AND CLEANING:

A. Protection: Provide adequate protection for finished parts of materials and equipment against physical damage from any cause during progress of work and until final completion. Sensitive electrical equipment shall not be installed until major construction is completed.

B. Care: During entire construction, properly cap all lines and equipment to prevent entrance of sand and dirt. Protect equipment against moisture, plaster, cement, paint or work of other trades by covering with polyethylene sheets.

C. Cleaning: After installation is completed, clean all systems as follows in addition to requirements specified:

1. Field Painted Items: Clean exterior of conduits, raceways, piping and equipment exposed in completed structure; removing all rust, plaster, cement and dirt by wire brushing. Remove grease oil and similar materials by wiping with clean rags and suitable solvents.

2. Factory Finished Items: Remove grease and oil on all factory finished items such as cabinets and controllers, and leave surfaces clean and polished.

D. Connection: Prior to energizing, check all electrical connection hardware and torque where necessary.

PART 2 - PRODUCTS

2.1 PRODUCTS: Products and materials shall be as specified in the pertinent Sections of Division 26.

2.2 MATERIALS AND EQUIPMENT: Wherever possible, all materials and equipment used in installation of this work shall be of same manufacturer throughout for each class of material or equipment. Materials shall be new and bear UL label, wherever subject to such approval. Comply with ANSI, IEEE and NEMA standards, where applicable.

PART 3 - EXECUTION

3.1 SEISMIC REQUIREMENTS: Electrical equipment for emergency systems shall be braced to withstand the lateral forces that result from earthquakes. Under Work of Division 26, submit seismic calculations stamped and signed by a registered California structural engineer confirming size, number, and location of required anchoring hardware. Electrical equipment vendors shall furnish weights together with dimensions and the center of gravity location for all emergency electrical equipment for this purpose.

3.2 GENERAL LATERAL BRACING REQUIREMENTS: As shown on Drawings. Additional bracing requirements shall conform to specific requirements shown on Drawings or in other Sections of Division 26. Anchorages for equipment subject to thermal expansion and movement shall conform to manufacturer's recommendation and intent of general bracing requirements. When general and specific bracing requirements enumerated above are in conflict with referenced standards, the most stringent requirements shall govern.

3.3 EXCAVATION AND BACKFILL: Perform all excavation and back fill required to install Work of Division 26, both inside and outside. Perform all excavation and backfilling in accordance with Division 2.

A. Excavation: Bury conduits outside building to a depth of not less than 24" (or as required by Code) below finish grade, unless noted otherwise.

B. Backfilling: Do not backfill until after final inspection and approval of conduit installation by all legally constituted authorities and recording of the buried items on the Record Drawings.

3.4 CUTTING AND PATCHING:

A. Cutting of Existing Structural Work: Holes in existing slabs and concrete walls shall be cored to the minimum size required. The Contractor shall submit Drawings showing dimensioned sizes and locations for all such holes to Architect for approval before cutting. Where required for conduit installation, slabs on grade shall be saw-cut to minimum required width; submit cutting Drawings to the Architect for approval before cutting.

B. Patching: Holes or chases shall be patched to match adjacent surfaces.

3.5 CONCRETE WORK: Concrete construction required for the Work of Division 26 shall be provided under the Work of Division 26.

3.6 PAINTING: Finish painting of electrical equipment will be as specified in Division 9, unless equipment is herein specified to be furnished with factory applied finish coats. Equipment to be field painted shall be furnished with a factory applied prime coat.

A. Touch-Up: If factory finish on any equipment furnished under Division 26 is damaged in shipment or during construction of building, the equipment shall be refinished by Contractor to satisfaction of Architect.

B. Concealed Equipment: Uncoated cast-iron or steel that will be concealed, or will not be accessible when installations are completed, shall be given one heavy coat of black asphaltum before installation.

3.7 OPERATING INSTRUCTIONS: Contractor to provide services of an experienced Engineer to instruct Owner in operation of entire installation. Instructional period shall be during normal work day hours. This instruction period may be simultaneous with compliance tests.

3.8 COMPLIANCE TESTS: Conduct such tests of all portions of installation as may be necessary to ensure full compliance with the Drawings and Specifications. Tests shall be made in the presence of the Owner. Costs of test shall be borne by Contractor and Contractor shall provide all instruments, equipment, labor and materials to complete all the tests. Tests may be required on any item between installation of Work and the end of 1 year warranty period. Should these tests develop any defective materials, poor workmanship or variance with requirements of Specifications, Contractor shall make any changes necessary and remedy any defects at his expense.

A. All Feeders: Measure and record as follows:

1. 600 volt conductors shall be tested with 500 volt megger to ground on each phase. megger to be on test for one minute before any readings are taken. The minimum values on all feeders shall be 100,000 OHMS.

2. Copies of the certified test readings shall be transmitted to Owner.

3.9 SYSTEM ACCEPTANCE:

A. Final Review: The Contractor shall request a final review prior to system acceptance after:

1. Completion of installation of all systems required under the Contract Documents.
2. Submission and acceptance of operating and maintenance data.
3. Completion of identification program.

B. Acceptance: Is contingent on:

1. Completion of final review and correction of all deficiencies.

2. Satisfactory completion of acceptance tests demonstrating compliance with all performance and technical requirements of Contract Documents.
3. Satisfactory completion of training program and submission of manuals and Drawings required by Contract Documents.

3.10 PRELIMINARY OPERATION: The Owner reserves the right to operate portions of the electrical system on a preliminary basis without voiding the warranty or relieving the Contractor of his responsibilities.

3.11 CLEAN-UP: Conform to the Submittal Section. Upon completion and at other times during progress or Work, when required, remove all surplus materials, rubbish, and debris resulting from Work of Division 26.

END OF SECTION 260050

SECTION 260060 - MINOR ELECTRICAL DEMOLITION FOR REMODELING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Electrical demolition.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Materials and equipment for patching and extending work: As specified in individual Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify field measurements and circuiting arrangements are as shown on Drawings.

B. Verify that abandoned wiring and equipment serve only abandoned facilities.

C. Demolition Drawings are based on casual field observation and existing record documents. Report discrepancies to Owner and Architect/Engineer before disturbing existing installation.

D. Beginning of demolition means installer accepts existing conditions.

3.2 PREPARATION

A. Disconnect and make safe all electrical systems scheduled for removal.

B. Coordinate utility service outages with Owner's representative.

C. Provide temporary wiring and connections to maintain required existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.

D. Existing Electrical Service: Maintain existing system in service. Disable system only to make switchovers and connections. Obtain permission from Owner at least 72 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area when outage affects business operation.

E. Existing Fire Alarm System: Maintain existing system in service. Notify Owner and local fire service at least 72 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

F. Existing Com System: Maintain existing system in service. Disable system only to make switchovers and connections. Notify Owner and Telephone Utility Company at least 72 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

G. Existing Security System: Maintain existing system in service. Disable system only to make switchovers and connections. Obtain permission from the Owner and security company at least 72 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

3.3 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

A. Demolish and extend existing electrical work under provisions of this Section.

B. Remove, relocate, and extend existing installations to accommodate new construction.

C. Remove abandoned wiring to source of supply and re-label devices as spares.

D. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.

E. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets which are not removed.

F. Disconnect and remove abandoned panelboards and distribution equipment.

G. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.

H. Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessories.

I. Disconnect and remove abandoned conduit.

J. Repair adjacent construction and finishes damaged during demolition and extension work.

K. Maintain access to existing electrical installations which remain active. Modify installation or provide access panel as appropriate.

L. Extend existing installations using materials and methods compatible with existing electrical installations, and in compliance with new project specifications.

M. Modify existing as-built drawings to note changes.

3.4 CLEANING AND REPAIR

A. Clean and repair existing materials and equipment which remain or are to be reused.

3.5 INSTALLATION

A. Install relocated materials and as required by this section and Owner's representative.

END OF SECTION 260060

SECTION 260111 - CONDUITS

PART 1 - GENERAL

A. The general provisions apply to this section.

1.1 WORK INCLUDED

A. Conduits; including:

1. Rigid steel conduit.
2. Intermediate metal conduit (IMC).
3. Electrical metallic tubing (EMT).
5. Polyvinyl chloride conduit (PVC).

1.2 DEFINITION

A. Conduit: This term shall be construed to mean conduit and conduit fittings; and tubing and tubing fittings.

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. Support material: Section 260190.

PART 2 - PRODUCTS

2.1 MATERIAL AND FABRICATION - ALL MATERIALS SHALL BE MANUFACTURED IN THE USA.

A. Rigid Steel Conduit: Hot-dipped galvanized or sherardized including the threads, manufactured in accordance with ANSI C80.1 and UL6.

1. Threaded, hot-dipped galvanized or sherardized fittings manufactured in accordance with ANSI C80.4.

B. Intermediate Metal Conduit: Hot-dipped galvanized including the threads, manufactured in accordance with UL 1242.

C. Electrical Metallic Tubing: Manufactured in accordance with ANSI C80.3 and UL 797.

1. Provide compression fittings in walls, ceiling spaces or exposed construction areas.
2. Provide compression (water tight) fittings in damp areas or areas exposed to weather.

E. Polyvinyl Chloride Conduit: Schedule 40 and schedule 80, manufactured in accordance with ANSI C33.91, UL 651, and NEMA TC-2.

1. Cemented type fittings of the same manufacturer as the conduit.

3.1 USE

A. EMT for all exposed and concealed work except as indicated in Paragraphs B, C, D, E, F, and G.

B. Rigid steel, IMC, or rigid aluminum conduit in areas where exposed conduit could be subject to physical damage or where conduit is exposed and conductor phase to ground voltage exceeds 300 volts.

D. PVC Conduit:

1. Schedule 40 for runs below grade in direct contact with earth.
2. Schedule 40 in concrete floors, walls or roofs.

G. All risers shall be PVC coated RGS with bushings or schedule 80 PVC.

H. In concrete or below grade use conduit not smaller than 1 inch. Maximum size in concrete slab: 1 inch. Run larger sizes under slab.

I. Use long sweep elbows with minimum radius 10 times nominal conduit diameter for all fire alarm and communication runs.

3.2 INSTALLATION

A. Provide conduit support and bracing in accordance with the latest published SMACNA guidelines.

B. Perform excavating, trenching, backfilling, and compacting as specified in Division 2.

C. Minimum cover for runs below finished grade outside buildings: 24 inches except where noted or required by the serving utility. Minimum cover for conduit in concrete floors, walls or roof: 1/3 thickness of slab. Minimum cover under building slabs is 12-inches.

D. Minimum separation from uninsulated hot water pipes, steam pipes, heater flues or vents: 6 inches. Avoid running conduit directly under water lines.

E. Protect inside of conduit from dirt and rubbish during construction by capping all openings with plastic caps intended for the purpose.

F. Provide conduit bodies for exposed conduit runs at junctions, bends or offsets where required. Do not use elbows or bends around outside corners of beams, walls or equipment. Make conduit body covers accessible.

G. Make conduit field cuts square with saw and ream out to full size. Shoulder conduits in couplings.

I. Make conduit projections from covered areas to areas exposed to the weather watertight by proper flashing. Extend flashing a minimum of 6 inches in all directions from conduit.

J. Where conduit is to remain empty, install polypropylene or nylon pull-line 3/16" minimum diameter from end to end with tag at each end designating opposite terminations.

K. Run conduit parallel and at right angle to building lines, when visible in finished construction.

L. Cap conduits indicated to be stubbed-out underground using glued-on PVC caps intended for this purpose.

M. Install a threaded coupling flush with the floor on all conduits stubbed up through floors on grade.

N. Make no bends with a radius less than 12 times the diameter of the cable it contains nor more than 90 degrees. Make field bends with tools designed for conduit bending. Heating of metallic conduit to facilitate bending is not permitted.

O. Where conduit installed in concrete or masonry extends across building construction joints, provide expansion fittings as manufactured by O.Z.; Crouse-Hinds; Appleton; or equal, with approved ground straps and clamps.

P. Concrete Wall or Slab Penetrations: All core drilling, sleeves, blockouts or other penetrations must be approved by the Structural Engineer prior to installation.

1. Space sleeves and core drills to insure a minimum dimension of 3 times the nominal trade diameter of the largest adjacent conduit between sleeves or core drills.

2. Use blockouts for concentrations of conduits in a confined area.

Q. Do not penetrate walls with flexible conduit where subject to physical damage. Use recessed box with extension ring for transition from interior to exterior of wall.

R. All homeruns shown shall be run to the panel indicated independently of all other homeruns. Provide pull points so as not to exceed total bends of 360 degrees between them unless otherwise indicated.

T. Provide bushings on all conduit terminations sized 1" and larger.

U. Provide weatherproof boxes and connectors for all exposed parking structure raceways and boxes.

V. Provide bell ends on all conduits into pullboxes and manholes, seal all conduits after conductors are pulled. Provide plug seals on all conduits which remain without cables/conductors.

W. Cap all unused conduits with end cap. Do not tape.

X. Provide separation of conduits & feeders per Audio/Video plans & specifications.

Y. In inaccessible areas, provide conduits for all each system, conduit shall be sized per NEC and BICSI standards. AV, Low Voltage, Controls, low voltage lighting, lighting control, motor control, ATS control, etc systems shall all be in conduit in inaccessible areas.

Z. Provide tracer/warning tape a minimum of 12" above all conduit systems.

END OF SECTION 260111

SECTION 260130 - ELECTRICAL BOXES

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Boxes; including:

1. Outlet boxes.
2. Pull and junction boxes.
3. Cabinets.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Submittals: Section 260000.

B. Support Material: Section 260190.

PART 2 - PRODUCTS

2.1 MATERIAL AND FABRICATION

A. Pull Boxes:

1. Pre-Cast Concrete Pull Boxes: As manufactured by Jensen Pre-Cast or Utility Vault and shown on drawings.

PART 3 - EXECUTION

3.1 USE

A. Pull Boxes:

1. Use pre-cast concrete boxes for boxes flush in finish grade where requiring a nominal capacity greater than 144 cubic inches, where located in vehicular traffic areas, or where indicated. When located in traffic area, pull boxes shall be traffic rated – heavy duty.

3.2 INSTALLATION

A. Close unused open knockouts with knockout seals

B. Where boxes are concealed in exposed concrete unit masonry, use square cornered types or boxes fitted with rings of sufficient depth for the box to be recessed completely within cavity of block or

tile. Install box to insure that ring fits an opening sawed out of the masonry, so that no mortar is required to fill between ring and construction.

C. Provide a minimum of 12" base of compacted crushed rock under pre-cast concrete pull boxes.

D. Adjust all boxes so they are level with top of finished grade.

3.3 IDENTIFICATION

A. Pull Boxes: Use permanent minimum 4" high lettering on each cover plate indicate the power, com, or fire alarm box with P, C, & FA with number as noted on plans.

END OF SECTION 260130

SECTION 260190 - SUPPORT DEVICES

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Support devices for conduit, boxes, and equipment.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Hangers, Straps and Beam Clamps:

1. Efcor.
2. Raco, Inc.
3. Steel City.
4. O.Z./Gedney Co.
5. Caddy Fastening System by ERICO Products Inc.

B. Channels and Fittings:

1. Kindorf.
2. Unistrut Corp.

C. Anchors:

1. Acherman-Johnson Corp.
2. Phillips Drill Co.
3. Rawl Products Co.

2.2 MATERIAL AND FABRICATION

A. Hangers: Steel cadmium plated.

B. Straps: One-hole and two-hole malleable iron, hot-dipped galvanized or steel, cadmium or zinc plated.

C. Beam Clamps: Malleable iron, hot-dipped galvanized or cadmium plated.

D. Channels and Fittings:

1. Channels: Hot-dipped galvanized.
2. Fittings: Galvanized.

E. Anchors: Self drilling and expansion bolt types. No wood or fiber plugs or concrete nails are acceptable.

PART 3 - EXECUTION

3.1 USE

A. Use one-hole or two-hole straps for single conduit runs on walls or ceilings.

B. Use hangers with solid steel rods for hanging single conduits.

C. Use formed channel trapezes for groups of two or more conduits.

D. To fasten boxes and supports to:

1. Wood: Use wood screws or screw type nails of equal holding power.
2. Brick and Concrete: Use bolts and expansion shields.
3. Hollow Masonry Units: Use toggle bolts.

F. Do not penetrate reinforced concrete beams with fastenings more than 1-1/2" or reinforced concrete joints with more than 3/4" fastenings to prevent contact with reinforcing steel.

END OF SECTION 260190

SECTION 32 13 13
CONCRETE WORK

PART 1 GENERAL

1.01 SECTION INCLUDES

This section includes general requirements for the concrete paving and concrete curbing.

1.02 QUALITY ASSURANCE

For concrete finishing use only trained and experienced concrete finishers.

1.03 SUBMITTALS

A. Mix design shall be submitted to the District Inspector for approval prior to pour. The mix design shall show the mix identification number and the applicable proportions, weights, and quantities of Portland cement, aggregate, water, and admixtures. The mix design submittal shall also include the size and source of aggregate, the type and source of Portland cement, the branch and designation of admixtures, and the type of construction for which the concrete is used.

B. Submit manufacturer's specifications and catalog cut sheet on all specified materials required for the concrete work

PART 2 PRODUCTS

2.01 CONCRETE

A. Concrete for paving (walks), shall be hardrock with a minimum compressive strength at 28 days of f 'c = 3,000 PSI and conform to ASTM C-94.

B. Concrete for curbs shall be hardrock with a minimum compressive strength at 28 days of f 'c = 3,000 PSI and conform to ASTM C-94.

C. Cement: ASTM C-150, Type I or II, low alkali.

D. Aggregate: ASTM C-33, non-reactive, 1 inch maximum.

E. Slump: Maximum slump - 4 inches.

2.02 CONCRETE FINISH

A. Walks – finish for paving shall be medium broom.

B. Concrete curbs – shall be medium broom finish.

2.03 REINFORCING STEEL

A. All reinforcing bars shall be free of rust, grease, mill scale or any material which might affect its bond to concrete. All bar bends shall be made cold.

B. Reinforcing steel for Concrete Work shall be deformed and shall conform to ASTM A-615, Grade 60. No. 3 bars may be grade 40. All reinforcing steel shall be positioned as indicated on Drawings.

2.04 EXPANSION JOINTS

Expansion joints shall be non-bituminous, ½" thickness, meeting ASTM Standard D-1751. (Homex 300 or equal).

2.05 SOFT-CUT JOINTS

Use blades and equipment that is designed for Soft-Cut technology which is based on the combination of the Soft-Cut blade and skid plate. The up-cutting rotation of the blade combines with the skid plate, which applies pressure to the surface to prevent chipping and spalling.

2.06 CURING COMPOUND

Provide liquid curing compound, ASTM C-309, clear.

2.07 BASE

Base (rock base) shall be crush aggregate base material as per section 200-2.2 of the SSPWC

2.08 SEALER

Sealer shall be a water base clear penetrating sealer.

PART 3 EXECUTION

3.01 SUB GRADE PREPARATION

The subgrade preparation shall be over-excavated, aerated, and compacted as per the requirements of the Geotechnical requirements noted in the reference section of these specifications. This work must be approved by the Geotechnical engineer prior to proceeding with the Work.

3.02 SURFACE CONDITIONS

A. Take adequate precautions for mixing, placing, finishing, curing, and protecting concrete during unfavorable weather conditions.

B. Prior to all work of this Section, carefully inspect the installed work of all other trades, and verify that all such work is complete to the point where this installation may properly commence.

C. All concrete shall be properly consolidated during placement. All reinforcing steel and embedded items shall be securely tied in place to prevent displacement during concrete placement. Support reinforcement on blocks.

D. Verify that concrete may be placed to the lines and elevations indicated on the Drawings, with all required clearance from reinforcement.

E. Layout paving surfaces to slope and drain to planting areas at a minimum of 1%. Walkways shall not have a cross slope greater that 2% and the slope in the direction of travel shall not exceed 5%. Layout must be approved by the District Inspector prior to pour. Where concrete paving is poured adjacent to existing concrete, continue the existing slope across the new concrete section.

3.03 PREPARATION

A. Remove all wood scraps and debris from the areas in which concrete will be placed.

B. Thoroughly clean the areas to ensure proper placement and bonding of concrete.

C. Thoroughly wet the forms or oil them; remove all standing water.

D. Thoroughly clean all transporting and handling equipment.

E. Compact base to 95% relative compaction per ASTM D-1557.

3.04 PLACING CONCRETE

A. Convey concrete from mixer to place of final deposit by methods that will prevent separation and loss of materials.

B. For chuting, pumping and pneumatically conveying concrete, use only equipment of such size and design as to ensure a practically continuous flow of concrete at the delivery and without loss or separation of materials.

C. Deposit concrete as nearly as possible in its final position to avoid segregation due to re-handling and flowing.

D. Place concrete as dry as possible consistent with good workmanship, never exceeding the maximum specified slump.

E. Place concrete at such a rate that concrete is, at all times, plastic and flows readily between bare bars.

F. When placing is once started, carry it on as a continuous operation until placement of the panel or section is complete.

G. Thoroughly consolidate all concrete by suitable means during placement, working it around all embedded fixtures and into corners of forms.

H. During placement, thoroughly compact the concrete by hand tamping and by mechanical vibration.

3.05 TOLERANCE

Concrete planes shall be checked with a ten-foot straight-edge in two directions. There shall be no high spots or low spots greater than 1/8" in ten feet. All edges shall be straight and true.

3.06 SOFT-CUT LINES

The Contractor shall determine the best time to soft cut the lines on the concrete. This timing is usually 7-20 hours after the pour. Avoid cutting too soon which will cause raveling of the concrete or too late which cracking may occur. Joints shall be cut straight with equipment and saw blades designed for early-entry concrete sawing.

3.07 SCORE LINES AND EXPANSION JOINTS

A. Score lines shall be straight and shall be of the proper alignment as shown on the Drawings. The score depths shall be approved prior to finishing.

B. Expansion joints shall be straight, in line and plumb.

3.08 CURING AND PROTECTION

Freshly deposited concrete shall be protected from pre-mature drying and excessively hot or cold temperatures and shall be maintained without drying at a relatively constant temperature for the period of time necessary for the hydration of the cement and proper hardening of the concrete. Apply liquid curing compound as soon as finishing is complete, within 2 hours, and in accordance with Manufacturer's directions.

END OF SECTION 32 13 13

SECTION 32 14 13
CONCRETE PAVERS

PART 1 GENERAL

1.01 SECTION INCLUDES

This section includes general requirements for the installation of the concrete pavers.

1.02 SUBMITTALS

Submit four (4) samples of each concrete paver specified to the District for approval. Concrete pavers must be full size and represent the colors to be supplied.

1.03 PRODUCT HANDLING

Concrete pavers shall be delivered and unloaded at jobsite on pallets and bound in such a manner that no damage occurs to the product during hauling, handling, or unloading at the jobsite.

1.04 QUALIFICATIONS

ICPI certified installers shall be utilized for the construction of the concrete pavers.

PART 2 PRODUCTS

2.01 CONCRETE PAVERS

A. Concrete pavers shall be concrete interlocking paving units and shall conform to ASTM C-936.

B. Concrete pavers shall be interlocking concrete pavers manufactured by Angelus Block, style – Holland 60 mm. Colors shall be the blended `Gray-Charcoal' and the `Charcoal' as indicated on the drawings.

C. Pattern: running bond in the direction as indicated on the drawings.

2.02 BASE

Base for interlocking pavers shall be crushed rock, $^{3}/_{8}$" to ½" size, open graded of same size and conform to ASTM D-1863, clean free of clay particles or other contaminants.

2.03 GEOTEXTILE FABRIC

Weed fabric shall be Mirafi 140N, needle punched, non-woven geotextile or equal.

2.04 BEDDING SAND

Bedding sand shall be clean construction sand conforming to ASTM C-33.

2.05 JOINT SAND

Joint sand shall be Alliance Super Sand (polymeric sand), color gray.

2.06 PAVER SEALER

Paver sealer shall be Stain BLOCKER Invisible by BP Pro.

PART 3 EXECUTION

3.01 BASE

A. Compact subgrade to 90% relative compaction.

B. After concrete edging has cured, install geotextile fabric on top of compacted subgrade. Overlap geotextile fabric rolls a minimum of 3" wide or as per manufacturer's specifications. Secure fabric in place with 6" long galvanized steel jute netting staples or with manufacturer's approved stakes spaced 10'-0" O.C. over fabric rolls as well as along all fabric seams.

C. After concrete edging has cured, install base material to the grades and details shown on the plans.

D. Compact base to 90% relative compaction per ASTM D-1557.

E. The base shall be placed below the finish elevation by the thickness of the interlocking concrete pavers plus the sand leveling course. The finish surface of the compacted base shall be uniform and match the contours of the finish pavers with no variation of $^1/_8$" throughout the area.

3.02 BEDDING SAND COURSE

Thickness of sand laying course should be uniform to ensure an even surface. The designed thickness should be a maximum of 1 inch with nor variation of $^1/_8$" and shall match the contour of the finish pavers.

3.03 INSTALLATION OF INTERLOCKING CONCRETE PAVING STONES

A. Pavers shall be clean and free of foreign materials before installation.

B. Installation should start from a corner or straight edge and proceed forward over the undistributed sand laying course.

C. Paving work shall be plumb, level, and true to line and grade; shall be installed to properly coincide and align with adjacent work and elevations.

D. Paving stones should be installed hand tight and level on the undisturbed sand laying course. String lines shall be used to hold pattern lines true.

E. Use a rubber plate vibrator to compact the stones and to vibrate the sand up into the joints between the stones.

F. Spread polymeric plaster sand over the installed concrete pavers so that it may be vibrated into the joints between the stones. Complete installation as per Manufacturer's requirement.

G. Excess sand shall be disposed of from surface area.

H. The completed concrete paver installation shall be washed down and cleaned to provide a clean finished workmanlike installation.

I. Cutting of paving stones shall be done with either a double-bladed breaker or a masonry saw.

3.04 SEALING

A. Surface Preparation – all surface must be clean, free from efflorescence and loose debris including dust and plant material prior to application of StainBLOCKER. The surface and the joint sand shall be thoroughly dry.

B. Application – BP Pro StainBLOCKER shall be sprayed onto the pavement to saturate the surface to achieve the optimum surface seal. Apply two (2) applications to achieve coverage rate of 1 gallon per 150 sq. ft.

C. Manufacturer's Recommendations – review and comply with Manufacturer's instructions.

3.05 CLEAN-UP

A. Upon completion of the work in this Section, make a thorough inspection of installed masonry and verify that units have been installed in accordance with the provisions of this Section.

B. Make necessary adjustments.

C. Clean up and disposal of all work-related materials shall be the responsibility of the Contractor.

D. Contractor shall restore adjacent areas to original plane and remove excess dirt from site.

END OF SECTION 32 14 13

SECTION 32 84 23
IRRIGATION SYSTEM

PART 1 GENERAL

1.01 SECTION INCLUDES

This section includes requirements for the installation of the Irrigation System.

1.02 RELATED SECTIONS

32 93 30 – Sod Lawn Planting
32 93 33 – Shrub Planting
32 93 43 – Tree Planting

1.03 REQUIREMENTS OF REGULATORY AGENCIES

Secure all permits and licenses necessary for the work. Give all notices and comply with all laws, ordinances, rules, and regulations concerning the installation of the sprinkler system as drawn and specified.

1.04 SITE CONDITIONS

A. Prior to beginning any work, the Contractor and the District Inspector shall participate in a thorough irrigation system review of the project site. All remote control valves shall be turned on and observed in operation by both the Contractor and PVSD Representative. Any existing defects will be listed in detail identifying the specific valve station number and describing the exact broken or non-functioning irrigation component noted during the site review. At the conclusion of the irrigation review, the Contractor shall generate a summary of the items identified by both parties listing all remote control valves operated, identifying if the valve performed without any defects or specifically identifying any observed defects or non-functioning components, such as broken heads, clogged nozzles, non-operating valve solenoids, broken piping, or other noted defects. The completed summary of items noted shall be listed on a document called 'Existing Irrigation System Observations.' This document shall be signed by the Contractor and submitted to the PVSD Representative for a confirming signature. The mutually signed 'Existing Irrigation System Observations' document shall be sent to the attention of the Landscape Architect for inspection purposes at the conclusion of the construction work. If requested by the PVSD Representative, the Contractor shall provide a list of the existing defective irrigation components noted with a detailed written proposal to repair each item identified on the list. A copy of this proposal will be sent to the Landscape Architect. This additional work proposal must be reviewed and approved in writing by the PVSD and formally presented to the General Contractor before the Landscape Subcontractor can begin any additional repair work. The mutually signed 'Existing Irrigation System Observation' document shall be used as a guide to identify any collateral damage caused to the existing irrigation system as a result of new construction performed on site by the Contractors. Any damage caused to the existing irrigation system not specifically identified on the 'Existing Irrigation System Observation' document

shall be repaired or replaced at the Contractor's expense. In the event that the Contractor does not participate or perform the existing irrigation site review, any existing irrigation equipment or components damaged on the project site noted by the Landscape Architect during the final irrigation system review shall be repaired or replaced by the Contractor at their expense to the satisfaction of PVSD.

B. Do not willfully install the sprinkler system as indicated on the drawing when it is obvious in the field that unknown obstructions or grade differences exist that might not have been considered in the engineering. Such obstructions or differences should be brought to the attention of the District Inspector.

C. Before excavating for sprinkler lines, locate all underground utility lines so that the proper precautions may be taken to avoid damage to such utilities. In the event of a conflict between underground lines, promptly notify the District who will arrange for the relocation of one or the other. Failure to follow this procedure places the responsibility upon the Contractor for making any and all repairs for damage of any kind at his own expense.

D. Provide necessary safeguards and exercise caution against injury or defacement of any existing site improvements. Contractor shall be responsible for any damage resulting from his operations and shall repair or replace such damage at his own expenses. No trucks or vehicles of any kind shall be allowed to pass over sidewalks, curbs, etc., unless adequate protection is provided.

E. Existing Trees
   1. Exercise all possible care and precautions to avoid injury to tree roots, trunks, and branches. All excavating within drip line of trees shall be done very carefully and by hand pick and shovel if it appears that large roots are within trenching zones.
   2. Alter alignment of pipe to avoid large tree roots, 2-inch and larger in diameter.
   3. Wrap exposed and bridging tree roots with several layers of burlap and keep moist. Close all trenches within drip lines, within 24 hours.
   4. All severed roots 1-inch and larger shall be hand pruned with sharp tools and painted with acceptable horticultural seal.

1.05 MATERIAL LIST

Submit to the District for acceptance, five (5) copies of all materials and equipment, including Manufacturer's names and catalog numbers, to be furnished and installed under this contract within 10 days after the award of the contract.

1.06 RECORD DRAWINGS

A. Provide and record daily a complete record set of prints on bond which shall be corrected to show changes from the original drawings and specifications and the exact installed locations, sizes, and kinds of equipment. Prints for this purpose may be obtained from the District. Keep this set of drawings on the site and use only as a record set.

B. Use these drawings as work progress sheets. Make neat and legible annotations thereon as the work proceeds, showing the work as actually installed. Keep these drawings available at all times for inspection and in a location designated by the District.

C. Before the date of the final inspection, transfer all information from the record prints to a clean set of prints procured from the District. Make work neat, in ink and subject to review and acceptance of the District. District will scan final drawings into a permanent electronic record document.

D. Dimension from two permanent points of reference such as building corners, sidewalks or road intersections, the location of:
   1. Connection to existing water lines.
   2. Connection to existing electrical power.
   3. Gate valves.
   4. Routing of sprinkler pressure lines and control wiring.
   5. Electric control valves.
   6. Quick coupling valves.
   7. Other related equipment as directed by District.

1.07 TESTS AND SITE OBSERVATIONS

A. All tests shall be made in the presence of the District; at least forty-eight (48) hours' notice shall be given for tests.

B. Record drawings must be current and shall be verified by the District at the time of all observations.

C. Site observations for all items pertaining to the work of this Section shall be performed by the District.

D. Specific site observations for valve assemblies, sprinkler coverage, control wires and splices and any other observations deemed necessary by the District shall be performed by the District.

E. An open trench main line check for pipe quality and depths shall be performed by the District.

F. Head Layout - using flag marker layout all drip emitter, tree flood bubblers, and spray heads in field prior to trenching. Review head layout with District and Landscape Architect and make adjustments in fields as directed prior to installing irrigation.

G. Center load pipe with small amount of backfill to prevent arching and whipping under pressure. Leave joints exposed for observation during pressure test. No water shall be permitted in the pipe until the above has been accomplished and a period of at least 24 hours has elapsed for solvent weld setting and curing.

Main lines to be tested up to valve at 125 pounds pressure and there shall be no leaks. Furnish force pump and pressure gauge. Lateral lines of system to be tested at line pressure with risers capped. Tests to be for 2 hour period and verified by the District.

H. Backfill quality and compaction of trenches shall be verified by the District. Do not backfill trenches until all tests have been completed and accepted.

I. Perform a coverage test in the presence of the District to determine if the water coverage for planting areas is complete and adequate. Furnish materials and perform all work required to correct any inadequacies of coverage due to deviations from drawings, or where the system has been willfully installed as indicated on the drawings when it is obviously inadequate, without bringing this to the attention of the District.

J. The coverage test shall be completed, and the irrigation system modified if necessary and accepted, prior to the start of the planting operations.

K. The entire system shall be checked out thoroughly and completely by the Contractor, five (5) days prior to the final observation. All heads shall be properly aligned and adjusted for coverage and cleared of any foreign materials. All valves shall be properly adjusted. Sprinkler controller valve chart shall be checked for accuracy.

L. At the end of the Maintenance Period, a final observation shall be made by the Contractor and District to check out the entire system.

M. Final inspection prior to acceptance:
   1. Operate each system in its entirety for the District at time of final inspection. Rework any items deemed not acceptable to the District.
   2. Deliver to the District all accessories, charts, record drawings, and equipment as required before final inspection.

1.08 GUARANTEE

A. The entire sprinkler system shall be guaranteed for a period of one (1) year from date of final acceptance.

B. Should any portion of the irrigation system malfunction due to poor workmanship or defective materials, corrections shall be promptly made by the Contractor at his own expense.

C. Any damage to paving, plating, or other developments due to the settlements of improperly compacted trench soil, shall also be promptly repaired at the Contractor's expense, to the satisfaction of the District.

PART 2 PRODUCTS

2.01 GENERAL

A. Irrigation materials shall be as listed on the Irrigation Legend and in these specifications.

B. The irrigation products specified on the drawings in these specifications are selected to match existing products in use. Substitutions are permitted only when product name is followed by or equal.

C. Use only new materials of brands and types as noted on the drawings and as specified.

2.02 MATERIALS

A. PVC primer and solvents - as recommended by Manufacturer. John-Manville, Lasco, or Pacific Western.

B. Main Line Fittings - Schedule 40, PVC Type 1, Grade 1, Cell Classification 12454-B, side gated, Lasco Spears, or approved equal.

C. Lateral non-pressure line fittings - Schedule 40, PVC Type 1, Grade 1, Cell Classification 12454-B, side gated, Lasco or approved equal.

D. Nipples and Risers - PVC Schedule 80.

E. Pipe, Main Line shall be PVC Schedule 40 for size 1 ½" or less, solvent weld pipe in conformance with ASTM D-1785, D-1784. Mainline 2" and larger shall be Class 315 PVC.

F. Pipe, Lateral Non-Pressure Lines shall be PVC Schedule 40, solvent weld in conformance with ASTM D-1785, D-1784.

G. Thread Sealant shall be smooth, non-hardening sealant, compatible with the pipe materials specified. Do not use Teflon tape.

PART 3 EXECUTION

3.01 WORKMANSHIP AND INSTALLATION.

A. Layout and Adjustments
1. The drawings are diagrammatic to the extent that many offsets, special fittings, and exact locations of the equipment are not shown. The locations of all valves, heads, lines, etc., shall be installed, however, as accurately as possible to the locations that are indicated on the drawings.
2. The locations of main lines are indicated as bordering walks, curbs and fences shall be placed as close as possible. Locate lines within planting areas wherever possible.

3. All indicated locations of heads and equipment are placed with careful consideration to overlap, protection of the premises, lights, proposed tree locations and general layout. Coordinate installation of sprinkler irrigation materials, including pipe, so there is no interference with utilities, other construction, or difficulty in planting trees and shrubs. Layout sprinkler heads and make any minor adjustments required due to differences between site and drawings. Adjustments shall be accomplished, maintaining proper sprinkler head coverage and overlap of sprinkler throws.

B. Connections
   1. All connections shall be made into existing lines as indicated on the drawings.
   2. Field verify existing line types in the field.

C. Cutting and Patching
   1. When piping crosses concrete paving and asphalt paving, sawcutting is required. Cut AC paving and/or concrete with concrete sawcutting tools straight and in those locations approved by the District.
   2. Remove concrete and/or AC, base, and soil to the required depth for mainlines.
   3. Concrete walks shall be backfilled entirely with compacted sand. Compact to 95% and patched with new concrete.
   4. AC paving shall be backfilled entirely with a 1-sac sand slurry mix. Compact to 95% and patch with new AC paving.
   5. Concrete paving shall be received medium broom finish.
   6. Remove from site any excavated soil.

D. Trenching and Backfilling
   1. Trench and excavate as necessary to install the system. Excavated material shall be neatly arranged so as to cause a minimum of inconvenience to pedestrian and vehicular traffic. No soil shall be placed on concrete paving without an adequate moisture proof membrane to protect paving.
   2. Trenches for all pipe shall be open vertical construction with firm level bottom and sufficiently wide to provide free working space around the work installed and to provide ample space for backfilling and tamping.
   3. Depth of trenches shall be sufficient to provide a minimum cover above the top of the pipe as follows:
      a) Mains and control wires: 24-inches minimum cover.
      b) PVC laterals: 12-inches minimum cover.
   4. When two (2) pipes are to be placed in the same trench, provide a minimum of 6-inch horizontal clearance. Place pipe side by side; do not install one pipe on top of another.
   5. After the installation is complete and the required tests and inspections have been made and approved, the excavations and trenches shall be backfilled with clean soil, free of rubbish, rocks, and pebbles larger than one-half inch.

E. Plastic Pipe
   1. Do not install multiple assemblies on plastic lines. Provide each assembly with its own outlet.
   2. Install assemblies specified herein in accordance with respective detail. In absence of detail drawings or specifications pertaining to specific items required to complete work, perform such work in accordance with best standard practice.
   3. Clean PVC pipe and fittings before installation. For solvent weld pipe use installation and solvent welding methods as recommended by the pipe and fitting manufacturer. For gasketed pipe installation follow detailed assembly instructions furnished by the manufacturer.
   4. On PVC to metal connections, work the metal connections first. Use non-hardening sealant on all threaded joints. Screw hand tight and ½ turn by wrench. Where threaded PVC connections are required, use threaded PVC adapters into which the pipe may be welded.
   5. Pipe shall have a firm, uniform bearing, for the entire length of each pipe line, to prevent uneven settlement. Pipe shall be snaked from side to side of trench bottom to allow for expansion and contraction. One additional foot per 100 foot of pipe is the minimum allowance for snaking. Never lay PVC pipe when there is water in the trench or when the temperature is 32° F or below.
   6. Use 45° fittings at all changes in depth of pipe. Coupling to be of same materials and wall thickness as pipe.

F. Sprinkler Controller – the irrigation controller is existing.

G. Sprinkler Heads
   1. Prior to installing heads, flush laterals, and risers with full line pressure. Repeat whenever system is opened up for repairs or replacements. Start flushing operation at the highest point of delivery and work to the lowest.
   2. Align all part circle heads so that no spray shall hit building walls or concrete paving.
   3. Adjust all spray nozzles so that there will be no amount of overspray, and so that the entire set will be as evenly balanced as possible.
   4. Install with each lawn area sprinkler head, a "Triple Swing" joint with Schedule 80 PVC nipples and threaded ells.
   5. Install all tree bubblers and drip emitters on PVC flexible hose with two (2) solvent weld male adapters.

3.02 FIELD QUALITY CONTROL

A. Adjustment to System
   1. Flush and adjust all sprinkler heads for optimum performance and to prevent overspray onto walk, roadways, and buildings wherever possible.
   2. Select the best degree of arc to fit existing site conditions.
   3. Set all sprinkler heads perpendicular to finished grades unless other designated on the drawings.

3.03 TESTING AND INSPECTION

A. Do not allow or cause any work of this section to be covered up or enclosed until it has been inspected, tested, and approved by the District. Before backfilling the main line, and with all control valves in place, but before lateral pipes are connected, completely flush and test the mainline, and repair all leaks. Flush out each section of lateral pipe before emitters are attached.

B. Make all necessary provisions for thoroughly bleeding the line of air and debris. Before testing, fill the line with water for a period of at least 24 hours.

3.04 FINAL INSPECTION

Thoroughly clean, adjust and balance all systems. Demonstrate the entire system to the District proving that all remote control valves are properly balanced, that all emitters are properly flowing, and that the entire system is installed and is workable, clean, and efficient.

END OF SECTION 32 84 23

SECTION 32 93 30
SOD LAWN PLANTING

PART 1 GENERAL

1.01 SECTION INCLUDES

This section includes requirements for the installation of the plant material.

1.02 SUBMITTALS

Furnish material invoices indicating the quantities of fertilizers, soil amendments, and all materials delivered to the job site. Material invoices must be approved by the Landscape Architect prior to incorporating soil amendments. Certificates shall be prepared by the supplier or distributor and shall indicate the quantities and qualities of materials used.

1.03 PROTECTION

A. Contractor shall check or locate existing structures, electric cables or conduits, utility lines and other existing features or conditions above or below ground level that might be damaged as a result of the operation. Questions or conflicts arising out of such examination prior to or during operation shall be immediately directed to the attention of the District for necessary action or decisions before resuming operation. Contractor shall be responsible for repair or replacement at no cost to the District for features or conditions damaged through failure to comply with the above procedures.

B. Protect existing trees and tree roots from any damage that may be caused as a result of any planting or irrigation operations.

1.04 ALTERNATES

Alternates will not be permitted, except where indicated, and as approved by the Landscape Architect.

1.05 LANDSCAPE ON-SITE OBSERVATIONS

A. The Contractor shall notify the district and the Landscape Architect forty-eight (48) hours in advance for all required On-Site Observations. The final On-Site Observation shall require seven (7) days advance notice.

B. The Contractor shall submit for approval a complete work schedule indicating tentative dates for On-Site Observations.

C. Record drawings shall be current and present at the time of On-Site Observations and shall be updated on a weekly basis.

D. Landscape On-Site Observations shall be required for the following phases of Work:

1. Job start meeting.
2. Finish grading – when all fine grading work is complete, notify the Landscape Architect or District for approval prior to proceeding with the planting.
3. Soil Preparation – furnish certificates for soil amendments at this time. Quantities must be reviewed by the Landscape Architect or District prior to incorporating into soil. When all soil preparation work is complete notify the Landscape Architect or District for approval prior to proceeding with the work.
4. Irrigation System Review – see Irrigation Section.
5. Review planting during the planting process.
6. Review planting after installation for District approval.
7. Maintenance – there is no maintenance period required for this project.

PART 2 PRODUCTS

2.01 MATERIALS – LANDSCAPE

A. Soil Amendments: Organic soil amendment shall be Agromin "Agromend," or equal.

B. Backfill Material shall be:
1. 1/3 organic soil amendment
2. 2/3 existing site soil.
3. Commercial Fertilizer (15-15-15), 1 lb./cu. yd.
4. Iron, Zinc, Manganese, 1 oz. /cu. yd.

C. Soil preparation materials for sod lawn planting areas shall per 1,000 square feet:
1. Three cubic yards of organic soil amendment
2. Commercial Fertilizer (15-15-15), eight pounds

D. Lawn shall be sod, Marathon II as grown by Southland Sod Farms.

PART 3 EXECUTION

3.01 SITE CONDITION

No plant materials shall be planted until all operations in conjunction with the installation of the irrigation system have been approved by the District and the Landscape Architect. Final grades shall be established, and the planting areas shall be properly prepared and graded.

3.02 LAWN AREAS – NEW SOD

A. The existing lawn area shall be scrapped off and removed leaving only subgrade. This subgrade shall be graded for positive drainage to the existing drain grades. After the grading is approved by the District Inspector soil preparation materials shall be thoroughly and evenly incorporated into the top six inches of the soil then the entire area shall be fine graded to receive the new sod lawn.

B. Stones or rocks over 1" in size, construction refuse, and other deleterious material shall be removed from the site, safely and legally disposed of.

C. After soil prep and fine grading is complete roll lawn areas with a water ballast roller to create even surface. Soil should be moist to a depth of six inches.

D. To lay sod, select a starting point parallel to the longest straight boundary of the area. Stagger the strips and avoid overlapping edges. Avoid cutting the sod in short narrow strips. Butt edges and ends of sod so that they fit tightly, with no overlapping. Avoid standing or kneeling on sod while it is being laid. After sod is installed, roll lightly to squeeze out air pockets.

E. Follow all recommended sod planting procedures provided by sod grower, Southland Farms.

END OF SECTION 32 93 30

SECTION 32 93 33
SHRUB PLANTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section includes general requirements for the installation of the shrub planting and the espalier plants.

B. The District shall purchase and deliver to the site forty-eight (48) 5-gallon shrubs. The Contractor shall layout the shrubs in their location and when approved by the District, shall install the shrub planting.

1.02 RELATED SECTIONS

Section 32 84 23 – Irrigation Systems
Section 32 93 30 – Sod Lawn Planting
Section 32 93 43 – Tree Planting

1.03 SUBMITTALS

Furnish material invoices indicating the quantities of fertilizers, soil amendments, mulch, and all materials required to complete the Work. Material invoices must be approved by the Landscape Architect prior to incorporating soil amendments. Certificates shall be prepared by the supplier or distributor and shall indicate the quantities and qualities of materials used.

1.04 PROTECTION

Contractor shall check or locate existing structures, electric cables or conduits, utility lines and other existing features or conditions above or below ground level that might be damaged as a result of the operation. Questions or conflicts arising out of such examination prior to or during operation shall be immediately directed to the attention of the District for necessary action or decisions before resuming operation. Contractor shall be responsible for repair or replacement at no cost to the District for features or conditions damaged through failure to comply with the above procedures.

1.05 ALTERNATES

Alternates will not be permitted, except where indicated, and as approved by the Landscape Architect.

PART 2 PRODUCTS

2.01 MATERIALS – LANDSCAPE

A. 5-gallon shrubs shall be purchased and delivered to site by PVSD for Contractor to position and plant.

B. Soil amendments: organic soil amendment shall be Agromin "Agromend," or equal.

C. Backfill material shall be:
1. 1/3 organic soil amendment
2. 2/3 existing site soil.
3. Commercial Fertilizer (15-15-15), 1 lb./cu. yd.
4. Iron, Zinc, Manganese, 1 oz. /cu. yd.

D. Soil preparation materials per 1,000 square feet:
1. Three cubic yards of organic soil amendment
2. Commercial Fertilizer (15-15-15), eight pounds

E. Mulch shall be Agromin ES-2 mulch or equal.

F. Pre-Emergent herbicide – product 'Dimension'.

PART 3 EXECUTION

3.01 SITE CONDITION

No plant materials shall be planted until all operations in conjunction with the installation of the irrigation system have been approved by the District and the Landscape Architect. Final grades shall be established, and the planting areas shall be properly prepared and graded.

3.02 GROUND PREPARATION – ALL AREAS

A. After the site clearance and preparation has been approved by the District, planted areas shall be thoroughly cultivated to a depth of six inches to reduce any compaction caused by the Work. Protect existing tree roots.

B. Stones or rocks over 1" in size, construction refuse, and other deleterious material shall be removed from the site, safely and legally.

C. Apply soil preparation materials to all planting areas and thoroughly incorporate into the top six inches of soil.

D. Wet soil thoroughly and allow to settle. Repeat this compaction procedure until soil is stable enough to permit aeration and drainage for plant material.

E. Finish grade all planting areas to a smooth, uniform surface ready for planting. Finish grade shall be one inch below finish grade of adjacent paved surfaces unless otherwise noted on Drawings.

3.03 PLANTING – SHRUBS

A. Shrub planting shall comply with details on drawings.

B. Make necessary adjustments and excavate pits of square outline and vertical sides for all plants. Scarify sides and bottoms of all plant pits. Set trees vertical.

C. At all times, protect roots and root ball of plants from drying.

D. If directed by the Landscape Architect, the Contractor shall prune plants in accordance with standard horticultural practice.

3.04 PRE-EMERGENT HERBICIDE

Broadcast pre-emergent herbicide product 'Dimension' over surface of exposed soil in shrub planters at rate per Manufacturer's specifications. Herbicide shall be applied prior to wood mulch installation.

3.05 MULCH

Install three-inch layer of mulch throughout shrub areas without groundcover. Finish grade shrub areas to a smooth uniform surface to receive mulch. Keep mulch away from tree and shrub crown. Dress mulch areas to present a clean uniform appearance when complete.

END OF SECTION 32 93 33

SECTION 32 93 40
DECOMPOSED GRANITE PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

This section includes general requirements for the installation of the decomposed granite paving.

1.02 QUALITY ASSURANCE

Work of this section to supervised by a Contractor with a C-27 license.

1.03 SUBMITTALS

Submit one (1) sample of decomposed granite in one-quart clear bag for review and approval along with all other Manufacturer's product specification sheet for stabilizer.

PART 2 PRODUCTS

2.01 DECOMPOSED GRANITE

Decomposed granite shall be existing ¼" minus 'Golden Tan' located on the west side of the classroom building. Salvage and relocate to secured utility area as per plans.

2.02 DECOMPOSED GRANITE STABILIZER

Decomposed granite stabilizer shall be Technisoil G3 pathway stabilizer at the rate of 1 gallon per 20 sq. ft. or approved equal.

2.03 ALTERNATE

Contractor can order decomposed granite with stabilizer already added by bulk materials facility as an alternate.

PART 3 EXECUTION

3.01 SITE PREPARATION

A. The existing electrical utility surface area is open soil. Salvage existing tan decomposed granite from area identified on plan and install within chain link security area to a depth of 2-3". Compact to 95% relative compaction.

B. Place a 2-inch layer of decomposed granite over utility surface area. Evenly grade using landscape rakes then apply Technisoil G3 pathway stabilizer, evenly and thoroughly at the rate of 1 gallon per 20 sq. ft. After G3 is fully absorbed into material, compact surface to 95% using vibrator plate compactor. After compaction, the section of new decomposed granite surfacing shall be a minimum of 2-3 inches throughout.

END OF SECTION 32 93 40

SECTION 32 93 43
TREE PLANTING

PART 1 GENERAL

1.01 SECTION INCLUDES

This section includes general requirements for the installation of trees.

1.02 SUBMITTALS

A. Furnish material invoices indicating the quantities of fertilizers, soil amendments, and all materials delivered to the jobsite. Material invoices must be approved by the Landscape Architect prior to incorporating soil amendments. Certificates shall be prepared by the supplier or distributor and shall indicate the quantities and qualities of materials used.

B. Plant Material – submit clear photos of all plant material specified taken and the source. Indicate plant material height and spread measured at the source. Photos must clearly show the plant quality and size. The Landscape Architect will determine if the photos meet the specifications and if further site inspection at the nursery is required or if another source is required to produce the specified plant material.

1.03 PROTECTION

A. Contractor shall check or locate existing structures, electric cables or conduits, utility lines and other existing features or conditions above or below ground level that might be damaged because of the operation. Questions or conflicts arising out of such examination prior to or during operation shall be immediately directed to the attention of the District for necessary action or decisions before resuming operation. Contractor shall be responsible for repair or replacement at no cost to the District for features or conditions damaged through failure to comply with the above procedures.

B. Protect existing trees and tree roots from any damage that may be caused by the Work.

1.04 QUALITY

All trees shall have a growth habit normal to the species and shall be sound, healthy, vigorous, and free from insect pests, plant diseases, sun scalds, fresh bark abrasions, excessive abrasions, or other objectionable disfigurements. Tree trunks shall be sturdy and well "hardened off." All trees shall have normal well-developed branch systems, and vigorous and fibrous roots systems which are neither root bound, nor pot bound and are free of kinked or girdling roots.

1.05 ALTERNATES

Alternates will not be permitted, except where indicated, and as approved by the Landscape Architect.

1.06 GUARANTEE

All trees shall be guaranteed for one year. This guarantee is in addition to, and not a limitation other rights the District may have under the Contract Document.

PART 2 PRODUCTS

2.01 MATERIALS – LANDSCAPE

A. Trees: varieties, sizes, and quantities, as noted on plans.

B. Tree Stakes: tree stakes shall be 2" diameter Lodgepole Pine, pressure treated with Chemonite (ACZA) @ 0.40 pounds per cubic foot, for in-ground rating. Stakes shall be 10 feet long. Horizontal supports shall be 1 x 6 cedar.

C. Tree Ties: tree ties shall be virgin flexible vinyl, meeting ASTM D-412, with U.V. inhibitor. 24" inches long. (Cinch Ties of eq.)

D. Root barrier shall be high density polyethylene flat panels, 24 inches long by 18 inches deep, thickness 0.085 inch with vertical ribs at six inches on center with formed connectors that connect panels to the specified total required length.

E. Soil Amendments: organic soil amendment shall be Agromin "Agromend," or equal.

F. Backfill Material shall be:
1. 1/3 organic soil amendment
2. 2/3 existing site soil.
3. Commercial Fertilizer (15-15-15), 1 lb./cu. yd.
4. Iron, Zinc, Manganese, 1 oz. /cu. yd.

PART 3 EXECUTION

3.01 SITE CONDITION

No trees shall be planted until all operations in conjunction with the installation of the irrigation system have been approved by the District and the Landscape Architect. Final grades shall be established, and the planting areas shall be properly prepared and graded.

3.02 TREE PLANTING PITS

A. Excavate tree planting pits 12 inches wider than the tree box size on all sides and excavate to a depth that allows the tree crown (finish grade at the top of the box) to set two inches above the adjacent finish grades. Scarify the sides of the tree pit.

B. Thoroughly blend the backfill mix and apply water while backfilling. Tree root ball, plant pit and backfill material must be moist for the duration of installation. After tree is set plumb and staked, build temporary berm and fill basin with water. At all times, do not allow the tree root ball to dry out.

C. Stake tree as per details and, if necessary, trim top of tree stakes so no scaffold branches can rub against the tree stakes. Stakes and ties shall be set so that the tree is supported without leaning. Remove nursery stakes on trees immediately after the tree is staked.

3.03 TREE PRUNING

If directed by the Landscape Architect, remove specific branches or prune adhering to the ANSI A300 pruning standards.

3.04 ROOT BARRIER

Install tree root barriers in the total lengths and manner as shown on the plans and details. The vertical root deflecting ribs shall be facing inwards to the root ball and the double top edge shall be set 2 inches above the finish grade. Connect panels with the flexible joiner strips to the required overall length shown on the legend. Install panels straight, uniform in a vertical position.

END OF SECTION 32 93 43

SECTION 32 94 60
LANDSCAPE MAINTENANCE

PART 1 GENERAL

1.01 MAINTENANCE PERIOD

There is no extended landscape maintenance period with this project. Once the PVSD Inspectors have accepted the irrigation and planting work as complete, the Contractor shall be released from the landscape scope of work.

END OF SECTION 32 94 60