NORTH

1 **CAT & OTHER ANIMALS BUILDING PLUMBING FLOOR PLAN**
1/4" = 1'-0"

MILLER
architecture
interiors
planning

"Shelter Planners of America"

1177 Idaho Street, Suite 200
Redlands, CA 92374
Phone: 909-335-7400
Fax: 909-335-7299
info@miller-aip.com

LICENSED ARCHITECT
GARY W. MILLER
No. C14635
REN. 9-30-23
STATE OF CALIFORNIA

owner approval

initials	date	phase

revisions/addenda

#	Date	Comment

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www.imegcorp.com
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0 1 2 3
REF. SCALE IN INCHES

PROJECT #20007569.00

PRELIMINARY NOT FOR CONSTRUCTION

ANIMAL CARE CENTER
18313 VALLEY BLVD. BLOOMINGTON, CA 92313
SAN BERNARDINO COUNTY

project information

Project Number:	1227
Drawn By:	Author
Checked By:	MB
Issue Date:	06/01/23

sheet name
CAT & OTHER ANIMALS BUILDING PLUMBING FLOOR PLAN

sheet number
PD-102

Sheet Of Sheets

1 CAT & OTHER ANIMALS BUILDING PLUMBING ROOF PLAN
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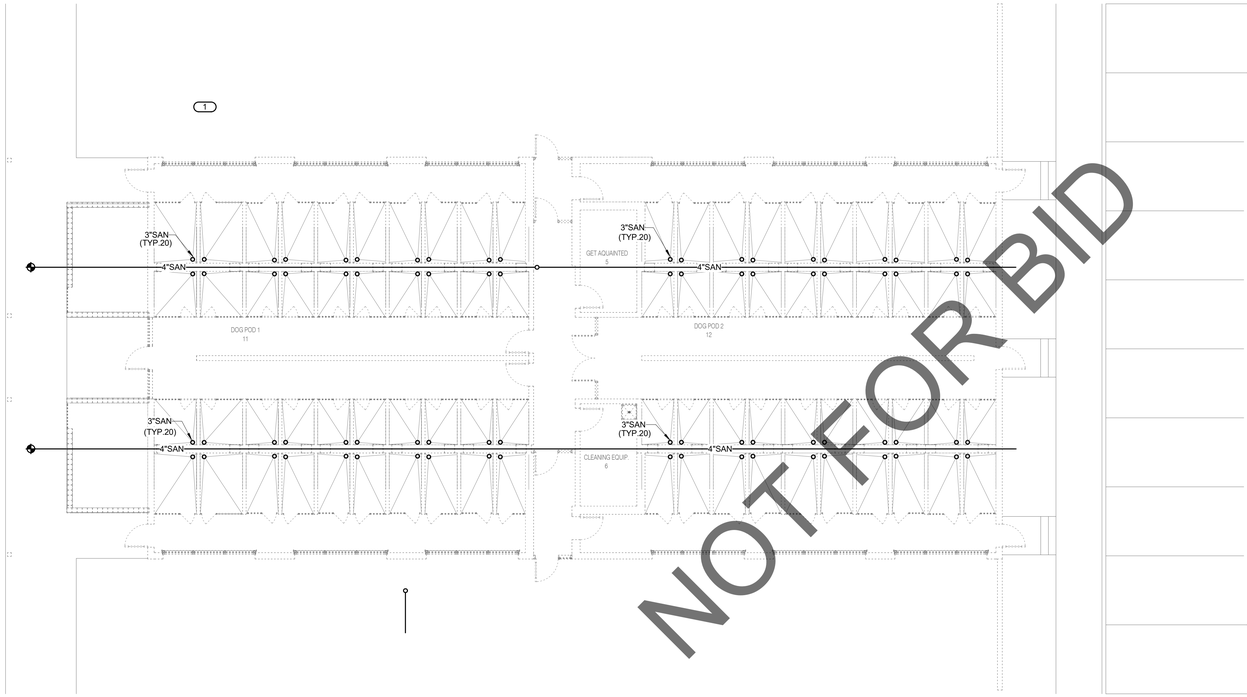

1 ADOPTION DOG BUILDING 1 PLUMBING UNDERFLOOR PLAN

1/8" = 1'-0"

KEY NOTES (#)

1. ALL ADOPTION BUILDINGS AND STRAY DOG BUILDINGS HAVE TYPICAL PLUMBING LAYPOUTS TO ADOPTION DOG BUILDING 1.

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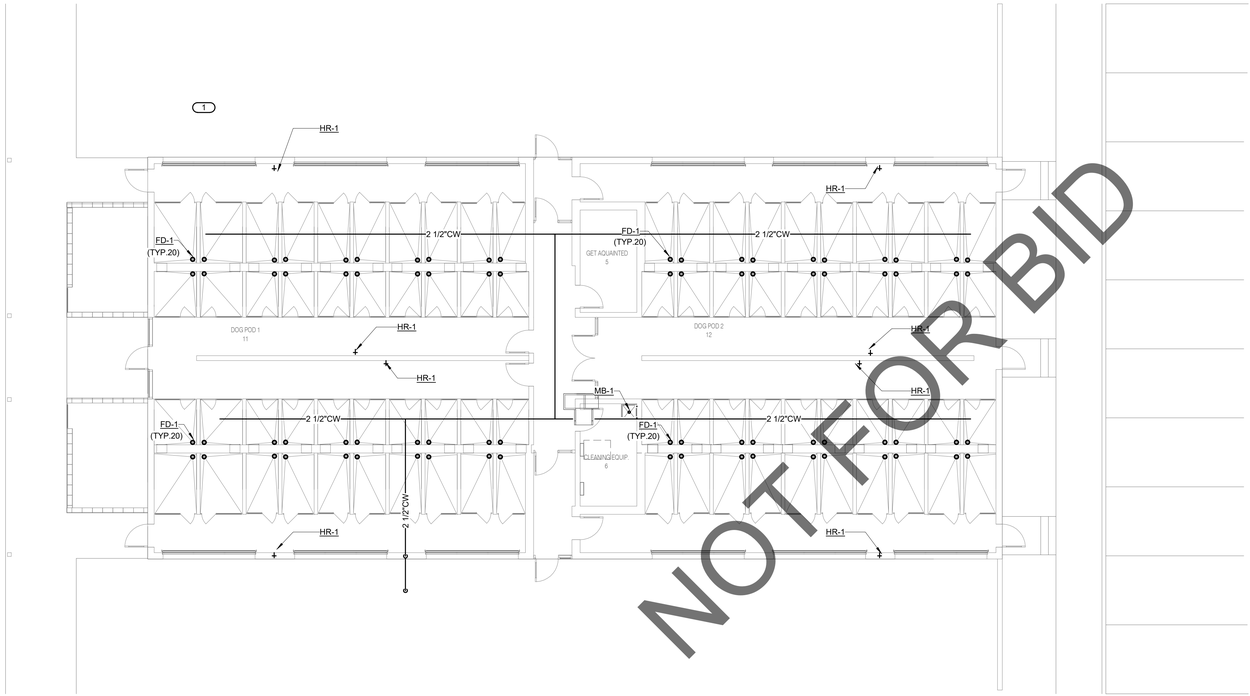

NORTH

1 ADOPTION DOG BUILDING 1 PLUMBING FLOOR PLAN

1/8" = 1'-0"

KEY NOTES #

1. ALL ADOPTION BUILDINGS AND STRAY DOG BUILDINGS HAVE TYPICAL PLUMBING LAYPOUTS TO ADOPTION DOG BUILDING.
2. ALL KENNELS SHALL RECEIVE CW CONNECTION FOR AUTOMATIC WATERING BOWLS.

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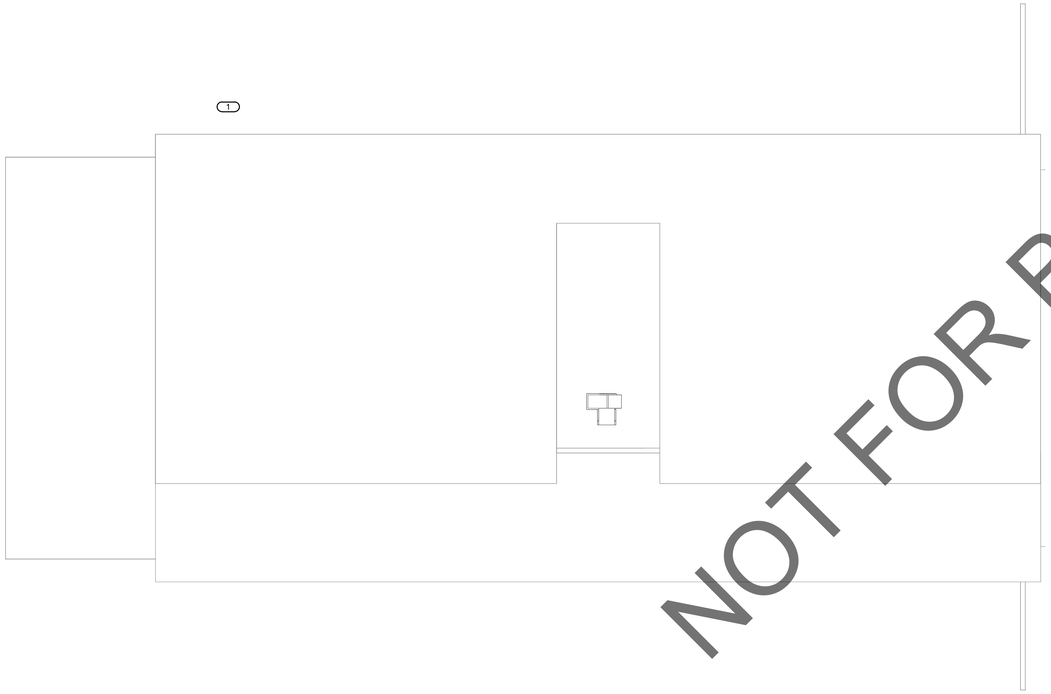

1 **ADOPTION DOG BUILDING 1 PLUMBING ROOF PLAN**
1/8" = 1'-0"

KEY NOTES #

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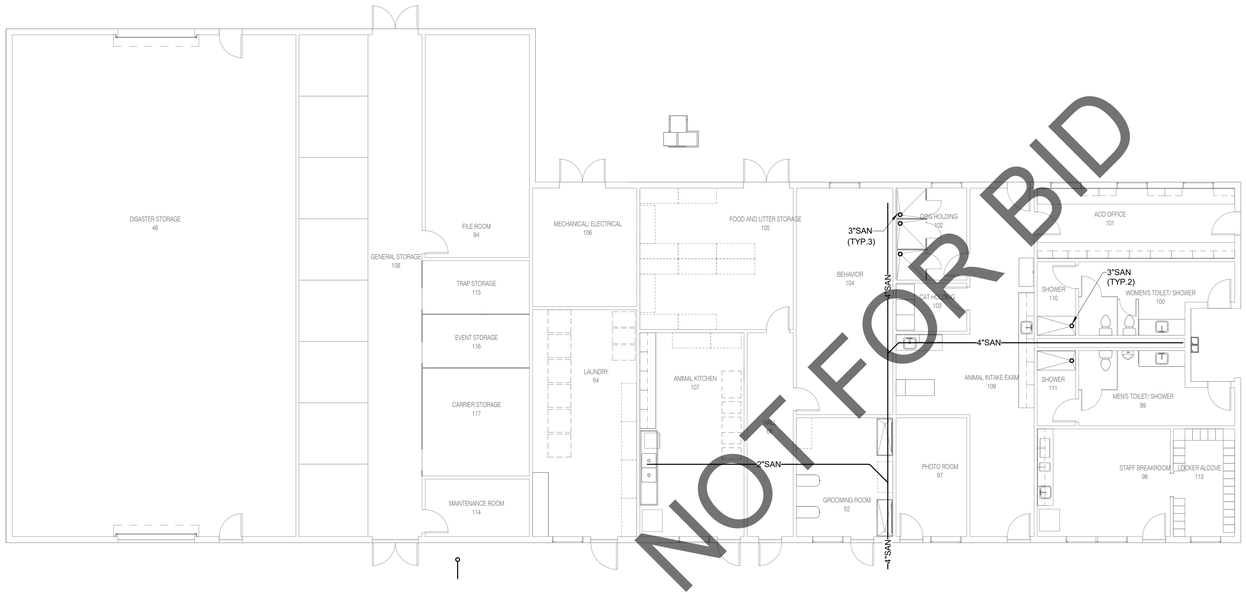

1 **SUPPORT BUILDING PLUMBING UNDERFLOOR PLAN**
1/8" = 1'-0"

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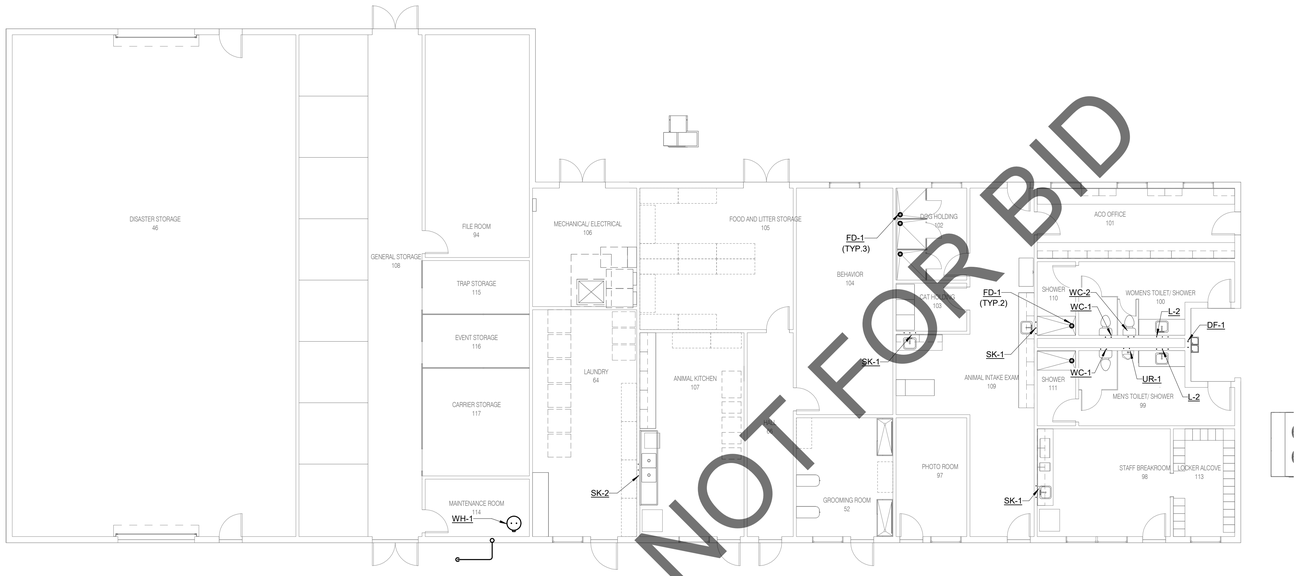

1 SUPPORT BUILDING PLUMBING FLOOR PLAN

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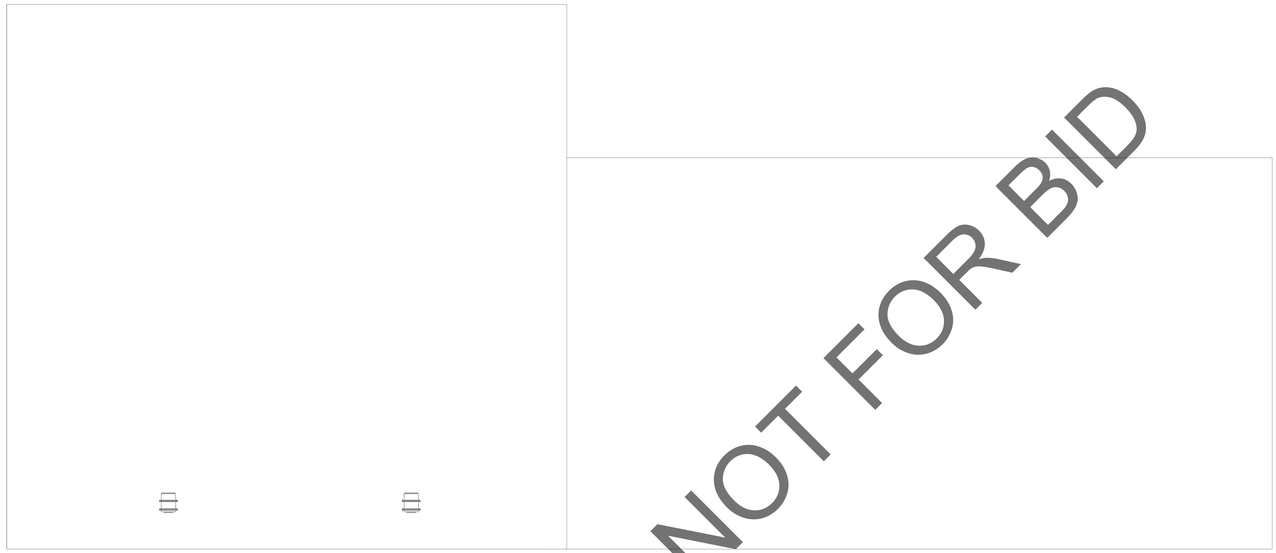

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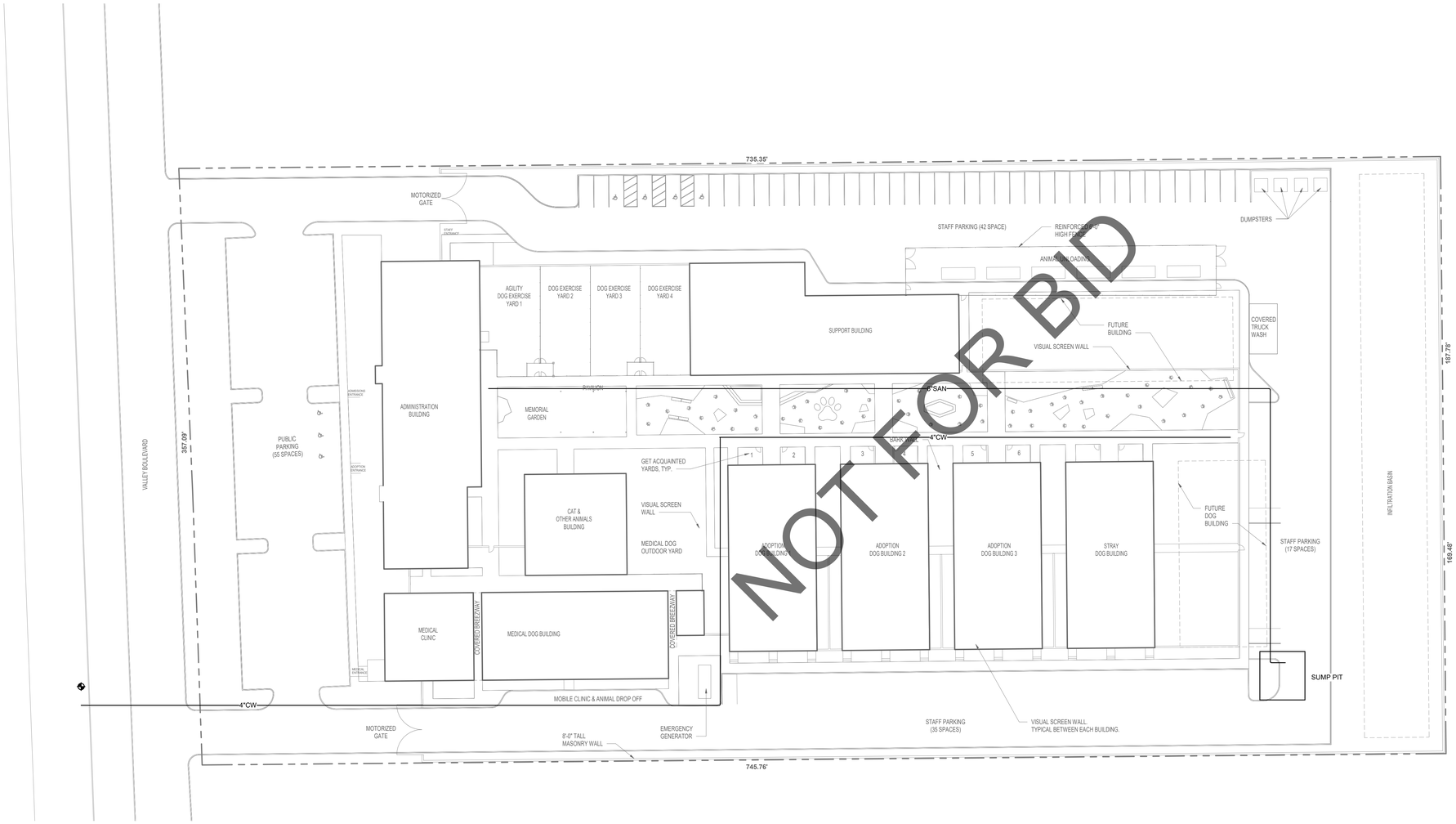

NORTH 1 **PLUMBING SITE PLAN**
1" = 30'-0"

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DESIGN CRITERIA AND LOADS

1. STRUCTURE HAS BEEN DESIGNED TO COMPLY WITH:
   IBC 2009 2012 2015 2018
   CALIFORNIA BUILDING CODE AND SUPPLEMENTS
   CHICAGO BUILDING CODE
   ASCE/SEI 7-05 10 16
   ACI 318-08 11 14
   ACI 530-08 11 13
   AISC 360-05 10 16
   AISC 341-05,10,16, INCLUDING SUPPLEMENTS
   AWS D1.1
   AISI S100
   NDS-05 12,15,18 AND SDPWS-05 08 15
   TMS 402/602-16
2. OCCUPANCY RISK CATEGORY — I II III IV
3. SEISMIC:
   SEISMIC DESIGN CATEGORY — A B C D E F
   IMPORTANCE FACTOR — 1.0 1.25 1.50
   SOIL CLASSIFICATION PER
   GEOTECHNICAL REPORT — A B C D E F
   S_S — ___ g g
   S_1 — ___ g g
   S_{ds} — ___ g g
   S_{d1} — ___ g g
   CLOSEST ACTIVE FAULT IS ___ LOCATED ___ MILES FROM THE SITE.
   LATERAL DESIGN IS BASED ON SITE-SPECIFIC RESPONSE SPECTRUM PROVIDED IN THE GEOTECHNICAL REPORT. LATERAL SYSTEM OF THE BUILDING HAS BEEN MODELED IN _______.
   SEISMIC FORCE RESISTING SYSTEM — ___
   R — ___
   C_d — ___
   Ω_O — ___
   ANALYSIS PROCEDURE — ___
   BASE SHEAR, STRENGTH LEVEL — $V = C_S \times W$ = ___ x ___ = ___ KIPS, EAST-WEST
   $V = C_S \times W$ = ___ x ___ = ___ KIPS, NORTH-SOUTH
4. WIND:
   BASIC WIND SPEED — ___ MPH
   IMPORTANCE FACTOR — 0.87 1.0 1.15
   EXPOSURE CLASS — A B C D
   MWFRS DESIGN PRESSURE — ___ PSF
   NET ROOF UPLIFT PRESSURE — ___ [LC: 0.6 0.9DL + 1.0WL]
   C&C DESIGN PRESSURE — PER APPLICABLE BUILDING CODE SEE ___
5. WIND (CITY OF CHICAGO):
   MWFRS PRESSURE — 20 PSF
   COMPONENTS PRESSURE — 25 PSF
   CORNER PRESSURE — 30 PSF
   PRESSURE AT PROJECTIONS — 40 PSF
   NET ROOF UPLIFT PRESSURE — ___ [LC: 0.9DL + 1.0WL]
6. LIVE LOADS:
   TYPICAL ROOF — ___ PSF (REDUCIBLE)
   TYPICAL FLOOR — ___ PSF (REDUCIBLE)
   MECHANICAL — ___ PSF (UNREDUCIBLE)
   CORRIDORS, STAIR & PUBLIC AREAS — 100 PSF (UNREDUCIBLE)
   PARTITION LOAD — 15 PSF (UNREDUCIBLE)
   ELEVATOR MACHINE FLOOR — 125 PSF (UNREDUCIBLE)
   HANDRAILS — MAX OF SIMULTANEOUS VERT AND HORIZ THRUST 50 PLF APPLIED AT THE TOP OF THE RAILING OR 200 LBS IN ANY DIRECTION
   SEE S____ FOR LOADING PLANS
   NOTE: LIVE LOADS SHALL BE POSTED AS REQUIRED PER SECTION 1603A.3 OF CBC. THE HOSPITAL IS RESPONSIBLE FOR MAINTAINING THE ACTUAL LOAD BELOW THE POSTED LIMITS.
7. SNOW:
   GROUND SNOW — ___ PSF
   SNOW EXPOSURE FACTOR — 0.7 0.8 0.9 1.0 1.1 1.2
   THERMAL FACTOR — 0.85 1.0 1.1 1.2 1.3
   IMPORTANCE FACTOR — 0.8 1.0 1.1 1.2
   FLAT-ROOF SNOW — ___ PSF
   DESIGN SNOW — ___ PSF
   RAIN-ON-SNOW SURCHARGE — 5 PSF
   DRIFTING SNOW — ___
8. ALL LATERAL LOAD RESISTANCE AND STABILITY OF THE BUILDING IN THE COMPLETED STRUCTURE IS PROVIDED BY _________ IN EACH ORTHOGONAL DIRECTION. REFER TO PLANS FOR LOCATIONS. THE __________ SERVE AS HORIZONTAL DIAPHRAGMS DISTRIBUTING THE LATERAL WIND AND SEISMIC FORCES TO THE VERTICAL LATERAL ELEMENTS WHICH IN TURN CARRY THE LOAD TO THE BUILDING FOUNDATIONS.

G[illegible]RAL

1. [illegible] WITH TITLE [illegible] THE CALIFORNIA BUILDING CODE, LATEST [illegible] OTHER LOCAL OR S[illegible]E AGENCIES HAVING JURISDICTION ON THIS [illegible]
2. [illegible] THE [illegible] ION SITE, [illegible] ON MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. THE ENGINEER AND THEIR PERSONNEL HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER ANY CONSTRUCTION CONTRACTOR OR OTHER ENTITY OR THEIR EMPLOYEES IN CONNECTION WITH THEIR WORK OR ANY HEALTH OR SAFETY PRECAUTIONS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE JOBSITE SAFETY. THE ENGINEER AND THE ENGINEER'S CONSULTANTS SHALL BE MADE ADDITIONAL INSUREDS UNDER THE CONTRACTOR'S GENERAL LIABILITY INSURANCE POLICY.
3. ALL DRAWINGS ARE CONSIDERED TO BE A PART OF THE CONTRACT DOCUMENTS. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE START OF CONSTRUCTION SO A CLARIFICATION CAN BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR ARCHITECT.
4. ALL DIMENSIONS AND SITE CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE JOBSITE PRIOR TO CONSTRUCTION, START OF SHOP DRAWINGS, START OF CONSTRUCTION, AND/OR FABRICATION OF MATERIALS. IF DISCREPANCIES ARE ENCOUNTERED, OR CONDITIONS DEVELOP THAT ARE NOT COVERED BY THE CONTRACT DOCUMENTS, THE ARCHITECT SHALL BE NOTIFIED FOR CLARIFICATION.
5. CONTRACTOR SHALL PROVIDE AND BE RESPONSIBLE FOR THE PROTECTION AND REPAIR OF ADJACENT EXISTING SURFACES AND AREAS WHICH MAY BE DAMAGED AS A RESULT OF NEW WORK.
6. STRUCTURAL DRAWINGS INCLUDE DESIGN REQUIREMENTS AND DIMENSIONS FOR STRUCTURAL INTEGRITY BUT DO NOT SHOW ALL DETAIL DIMENSIONS TO FIT INTRICATE ARCHITECTURAL AND MECHANICAL DETAILS. CONTRACTOR SHALL SO CONSTRUCT THE WORK SO IT WILL CONFORM TO THE CLEARANCES REQUIRED BY ARCHITECTURAL, MECHANICAL AND ELECTRICAL DESIGN.
7. ALL SYMBOLS AND ABBREVIATIONS USED ON THE DRAWINGS ARE CONSIDERED TO BE CONSTRUCTION STANDARDS. IF CLARIFICATION IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.
8. DO NOT SCALE DRAWINGS. PRINTED DIMENSIONS HAVE PRECEDENCE OVER SCALED DRAWINGS AND LARGE-SCALE OVER SMALL-SCALE DRAWINGS. CONTRACTOR TO DETERMINE FINAL DIMENSION WITH ARCHITECT.
9. TYPICAL DETAILS SHALL APPLY TO SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY REFERENCED. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK.
10. THE CONTRACT DOCUMENTS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE AND SAFETY OF WORKMEN DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING AND SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE ARCHITECT OR STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OR APPROVAL OF THE ABOVE ITEMS AND DOES NOT IN ANY WAY RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITIES FOR THE ABOVE.
11. SEE ARCHITECTURAL, ELECTRICAL AND MECHANICAL DRAWINGS FOR DETAILS, CONDITIONS, PITS, TRENCHES, PADS, DEPRESSIONS, ROOF/FLOOR OPENINGS, STAIRS, SLEEVES, ITEMS TO BE EMBEDDED OR ATTACHED TO STRUCTURAL ELEMENTS, ETC., NOT SHOWN ON THE STRUCTURAL DRAWINGS.
12. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR MECHANICAL, ELECTRICAL AND PLUMBING WITH APPROPRIATE TRADE CONTRACTORS. OPENING SIZES AND LOCATIONS SHOWN FOR DUCTS, PIPE, INSERTS AND OTHER PENETRATIONS WHEN SHOWN ARE FOR GENERAL INFORMATION ONLY AND SHALL BE VERIFIED PRIOR TO FORMING.
13. NO HOLES, NOTCHES, BLOCKOUTS, ETC. ARE ALLOWED IN STRUCTURAL ELEMENTS UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER.
14. BEFORE SUBMITTING A PROPOSAL FOR THIS WORK, EACH BIDDER SHALL VISIT THE PREMISES AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS, TEMPORARY CONSTRUCTION REQUIRED, QUANTITIES AND TYPE OF EQUIPMENT, ETC. THE BID SHALL INCLUDE ALL SUMS REQUIRED TO DO THE WORK WITHIN THE EXISTING CONDITIONS.
15. SHOP DRAWINGS SHALL BE REVIEWED AND COORDINATED PRIOR TO SUBMITTING TO THE ARCHITECT. EACH SHOP DRAWING SUBMITTED SHALL BE STAMPED INDICATING REVIEW BY THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR AND REVIEW BY THE ARCHITECT SHALL NOT BEGIN UNTIL THIS IS COMPLETE. WORK SHALL NOT BEGIN WITHOUT REVIEW BY THE ARCHITECT/STRUCTURAL ENGINEER.
16. SHOP DRAWINGS SHALL BE REVIEWED BY THE ARCHITECT/STRUCTURAL ENGINEER FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT ONLY. NOTATIONS MADE BY THE ARCHITECT/STRUCTURAL ENGINEER ON THE SHOP DRAWINGS DO NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH THE REQUIREMENTS OF THE DRAWINGS.

CAST-IN-PLACE CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE PUBLICATIONS: ACI 117, ACI 301, ACI 305.1, ACI 306.1, ACI 308.1, ACI 318 AND SP-066, UNO.
2. CONCRETE MATERIALS SHALL CONFORM TO:
   CEMENT — ASTM C150, TYPE I OR II
   FLY ASH — ASTM C618, TYPE C OR F
   FINE AND COARSE AGGREGATE — ASTM C33
   LIGHTWEIGHT AGGREGATE — ASTM C330
   WATER — POTABLE
   AIR-ENTRAINING ADMIXTURE — ASTM C260
   WATER-REDUCING ADMIXTURE — ASTM C494
3. CONCRETE STRENGTHS SHALL CONFORM TO:

INTENDED USE	28-DAY STRENGTH (PSI)	MAX W/C RATIO	A/E	SLUMP
LIGHTWEIGHT	4000	0.5	4-7%	5"
FOUNDATIONS	4000	0.45	5-8%	1"-4"
SLAB-ON-GRADE	4000	0.5	N/A	4"-6"
UNLESS NOTED OTHERWISE	4000	0.45	5-8%	1"-4"

4. LIGHTWEIGHT CONCRETE SHALL HAVE A DRY DENSITY OF 107-116 PCF.
5. DRYPACK SHALL BE 1:3-1/2 PORTLAND CEMENT TO SAND WITH A MINIMUM 28-DAY STRENGTH OF 7000 PSI.
6. GROUT SHALL BE 1:3:2 PORTLAND CEMENT TO SAND TO PEA GRAVEL WITH A MINIMUM 28-DAY STRENGTH OF 7000 PSI.
7. SLAB ON GRADE CONSTRUCTION:
   LOCATE SAW CUT CONTROL JOINTS ALONG COLUMN LINES WITH INTERMEDIATE JOINTS SPACED PER THE TABLE BELOW, UNO. SLAB PANELS SHALL HAVE A MAXIMUM LENGTH TO WIDTH RATIO OF 1.5:1. PROVIDE ADDITIONAL CONTROL JOINTS AT ALL RE-ENTRANT CORNERS.

THICKNESS (IN)	MAX JOINT SPACING (FT)
4	12
5	13
6	15

8. CROSS REFERENCE ARCHITECTURAL AND STRUCTURAL DRAWINGS TO ASSURE PROPER DIMENSIONS AND PLACEMENT OF ALL ANCHOR BOLTS, INSERTS, NOTCHES, EDGES OF WALLS/GRADE BEAMS AND PIERS.
9. UNO, ALL FOOTINGS SHALL BE CENTERED UNDER WALLS, PIERS OR COLUMNS.
10. SANDBLAST ALL EXISTING CONCRETE SURFACES OLDER THAN 28 DAYS AGAINST WHICH CONCRETE IS TO BE PLACED, UNLESS DIRECTED OTHERWISE IN WRITING BY THE STRUCTURAL ENGINEER.
11. PROVIDE SLEEVES FOR PLUMBING AND ELECTRICAL PENETRATIONS THROUGH CONCRETE BEFORE PLACING. SECURE SUCH SLEEVES TO PREVENT MOVEMENT DURING PLACING OPERATIONS. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATIONS OF PENETRATIONS.
12. CORE DRILLING CONCRETE IS NOT PERMITTED UNLESS NOTED OTHERWISE OR APPROVED IN WRITING BY THE ARCHITECT. NOTIFY THE ARCHITECT IN ADVANCE OF CONDITIONS NOT SHOWN ON THE DRAWINGS.
13. CONFIRM WITH ARCHITECT THAT MATERIALS TO BE EMBEDDED ARE SUITABLE FOR EMBEDMENT IN CONCRETE.
14. THE OUTSIDE DIAMETER OF EMBEDDED CONDUIT OR PIPE SHALL NOT EXCEED 1/3 OF THE STRUCTURAL SLAB THICKNESS, INCLUDING AT CROSS-OVERS, AND SHALL BE PLACED BETWEEN THE TOP AND BOTTOM REINFORCING WITH A MINIMUM 3" CLEAR COVER. CONDUIT OR PIPE RUNNING PARALLEL TO EACH OTHER SHALL BE SPACED AT LEAST 8" APART AND NO MORE THAN 2 RUNS STACKED VERTICALLY IN THE SLAB. CONDUIT OR PIPE SHALL NOT BE EMBEDDED IN SLAB THICKNESSES LESS THAN 6 INCHES.
15. DO NOT PLACE PIPES, DUCTS, REGLETS OR CHASES IN STRUCTURAL CONCRETE WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER THROUGH THE ARCHITECT.
16. NO ALUMINUM SHALL BE ALLOWED IN THE CONCRETE WORK UNLESS COATED TO PREVENT ALUMINUM-CONCRETE REACTION.
17. WATERSTOPS SHALL BE A FLEXIBLE BENTONITE PVC PRODUCT. ACCEPTABLE PRODUCTS INCLUDE: CETCO WATERSTOP-RX AND GREENSTREAK SWELLSTOP WESTEC BARRIER TECHNOLOGIES TPE-R WATERSTOP AND GREENSTREAK PVC WATERSTOP.
18. PROJECTING CORNERS OF BEAMS, WALLS, COLUMNS, ETC., SHALL BE FORMED WITH A 3/4 INCH CHAMFER, UNLESS NOTED OTHERWISE ON ARCHITECTURAL DRAWINGS.
19. SLOPE SLABS TO DRAINS OR FOR POSITIVE DRAINAGE IF NO DRAINS ARE PRESENT, AND PROVIDE DEPRESSIONS WHERE SHOWN ON THE STRUCTURAL AND/OR ARCHITECTURAL DRAWINGS, WITHOUT REDUCING THE THICKNESS OF SLAB INDICATED. FOR SLAB-ON-GRADE DEPRESSIONS GREATER THAN 1 INCH, REFER TO DETAILS FOR ADDITIONAL REINFORCING.
20. INTERNALLY VIBRATE ALL CAST-IN-PLACE CONCRETE EXCEPT SLABS-ON-GRADE WHICH NEED ONLY BE VIBRATED AROUND UNDER FLOOR DUCTS AND OTHER EMBEDDED ITEMS. VIBRATE TOPS OF COLUMNS.
21. PROVIDE VERTICAL CONTROL JOINTS IN EXPOSED CONCRETE WALLS AT A MINIMUM UNIFORM SPACING NOT TO EXCEED 25 FEET PER ACI 224.3. COORDINATE JOINT LOCATIONS WITH ARCHITECTURAL DRAWINGS.
22. CONCRETE SHALL NOT BE PERMITTED TO DROP MORE THAN 5 FEET.
23. CONCRETE SLABS SHALL BE CURED BY KEEPING CONTINUOUSLY WET FOR 7 DAYS. FORMS FOR CONCRETE WALLS SHALL BE LEFT IN PLACE FOR 7 DAYS OR MAY BE STRIPPED AFTER 3 DAYS AND COATED WITH AN APPROVED CURING COMPOUND.
24. NOTIFY THE ARCHITECT/STRUCTURAL ENGINEER 48 HOURS MINIMUM PRIOR TO ALL POURS.
25. THE DESIGN AND ENGINEERING OF FORMWORK, AS WELL AS ITS CONSTRUCTION, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. FORMS SHALL BE DESIGNED TO HAVE SUFFICIENT STRENGTH TO SAFELY WITHSTAND THE LOADS RESULTING FROM PLACEMENT AND VIBRATION OF THE CONCRETE, AND SHALL ALSO BE DESIGNED FOR SUFFICIENT RIGIDITY TO MAINTAIN SPECIFIED TOLERANCES. CONTRACTOR SHALL SUBMIT DETAILED FORMWORK SHOP DRAWINGS TO THE ARCHITECT TO BE REVIEWED FOR GENERAL COMPLIANCE WITH THE DESIGN CONCEPT ONLY.
26. THE STRUCTURAL STEEL FRAME WILL DEFLECT WHILE CONCRETE IS BEING PLACED. THIS WILL RESULT IN THE NEED TO ADJUST SCREEDS AFTER CONCRETE HAS BEEN PLACED TO PRODUCE A LEVEL SURFACE. ADDITIONAL CONCRETE WILL BE REQUIRED, AND IS ANTICIPATED, AT NO EXTRA COST.
27. NO CONCRETE SHALL BE PLACED ONTO OR AGAINST SUBGRADES CONTAINING FREE WATER, FROST, ICE OR SNOW.
28. DURING WINTER CONSTRUCTION, ALL FOOTINGS SHALL BE PROTECTED FROM FROST PENETRATION UNTIL THE BUILDING IS ENCLOSED AND TEMPORARY HEAT IS PROVIDED.
29. THE CONCRETE CONTRACTOR SHALL FURNISH MIX DESIGN SHOP DRAWINGS FOR REVIEW.
30. GENERAL CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR SIZE, LOCATION AND HEIGHT OF MECHANICAL EQUIPMENT PADS ON CONCRETE SLAB ON STEEL DECK AND SLAB-ON-GRADE.

REINFORCING STEEL

1. ALL REINFORCING STEEL SHALL BE DETAILED AND PLACED IN CONFORMANCE WITH THE AMERICAN CONCRETE INSTITUTE "ACI DETAILING MANUAL" (SP-066) EXCEPT AS OTHERWISE SHOWN, NOTED OR SPECIFIED.
2. CONCRETE REINFORCING STEEL SHALL BE HIGH STRENGTH NEW BILLET STEEL CONFORMING TO THE FOLLOWING STANDARDS:
   DEFORMED BARS — ASTM A615, GR60 — Fy = 60 KSI
   DEFORMED BARS IN SFRS — ASTM A706, GR 60 — Fy = 60 KSI
   WELDED WIRE REINFORCING — ASTM A1064 — Fy = 65 KSI
   EPOXY-COATED BARS — ASTM A775 — Fy = 60 KSI
   GALVANIZED-COATED BARS — ASTM A767 — Fy = 60 KSI
   STEEL WIRE — ASTM A1064 — Fy = 60 KSI
3. MINIMUM CONCRETE COVER SHALL BE PROVIDED AS FOLLOWS TO THE OUTERMOST REINFORCING BARS:
   CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND — 3"
   EXPOSED TO WEATHER OR IN CONTACT WITH GROUND
   #6 BARS OR LARGER — 2"
   #5 BARS OR SMALLER — 1 1/2"
   NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND
   SLABS, JOISTS AND WALLS WITH #14 AND #18 BARS — 1 1/2"
   SLABS, JOISTS AND WALLS WITH #11 BARS OR SMALLER — 3/4"
   BEAMS, COLUMNS, PEDESTALS AND TENSION TIES — 1 1/2"
4. BAR SPLICES SHALL BE PROVIDED WHERE INDICATED ON THE DRAWINGS. ALL SPLICES SHALL BE CLASS 'B' AS DEFINED IN ACI 318. IF SPLICE LENGTH IS NOT GIVEN ON THE DRAWINGS, PROVIDE LAP LENGTH (IN INCHES) AS FOLLOWS:

	3000 PSI CONCRETE		4000 PSI CONCRETE		5000 PSI CONCRETE	
BAR SIZE	OTHER	TOP	OTHER	TOP	OTHER	TOP
#3	22	28	19	25	17	22
#4	29	38	25	33	23	29
#5	36	47	31	41	28	36
#6	43	56	37	49	34	44
#7	63	81	54	71	49	63
#8	72	93	62	81	56	72
#9	81	105	70	91	63	81
#10	90	116	78	101	69	90
#11	98	128	85	111	76	99

   LAP LENGTHS ASSUME CLEAR SPACING BETWEEN BARS OF 2 BAR DIAMETERS, AND A MINIMUM COVER OF 1 BAR DIAMETER. FOR DEVELOPMENT LENGTHS, DIVIDE BY 1.3. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 1'-0" OF FRESH CONCRETE BELOW.
5. ALL REINFORCING IN CONCRETE USED FOR THE CONTAINMENT OF WATER SHALL BE HOT-DIP GALVANIZED OR EPOXY-COATED.
6. USE LOW HYDROGEN ELECTRODES, GRADE E-90, FOR WELDING OF REINFORCING BARS.
7. PROVIDE ADEQUATE TIES FOR ALL REINFORCING BARS AND STIRRUPS IN CONCRETE SLABS AND BEAMS. ANCHOR BOLTS, DOWELS, REINFORCING STEEL, INSERTS, ETC., SHALL BE SECURELY TIED IN PLACE PRIOR TO POURING CONCRETE. CONCRETE BLOCKS SHALL ONLY BE USED TO SUPPORT REINFORCING OFF GRADE.
8. SUPPORTS FOR REINFORCEMENT SHALL HAVE CLASS 2 PROTECTION AS DEFINED IN THE CRSI MANUAL OF STANDARD PRACTICE, UNO.
9. SUPPORTS FOR COATED REINFORCEMENT SHALL HAVE CLASS 1 PROTECTION AS DEFINED IN THE CRSI MANUAL OF STANDARD PRACTICE, UNO.

10. CONTINUOUS REINFORCING SHALL BE LAPPED AT MIDSPAN FOR TOP BARS AND DIRECTLY OVER THE SUPPORT FOR BOTTOM BARS.
11. ALL WELDED WIRE REINFORCING (WWR) SHALL BE LAPPED 2 PANELS AT EDGES AND ENDS.
12. DOWELS BETWEEN FOOTINGS AND WALLS OR COLUMNS SHALL BE THE SAME GRADE, SIZE AND SPACING OR NUMBER AS THE VERTICAL REINFORCING, RESPECTIVELY, UNO.
13. ALL TOP BARS IN GRADE BEAMS SHALL BE CONTINUOUS OVER SUPPORTS AND LAP AT MID-SPAN BETWEEN SUPPORTS. WHERE GRADE BEAMS ARE SIMPLE SPAN, TOP BARS SHALL BE CONTINUOUS FOR FULL LENGTH AND HOOKED DOWN AT EACH END.
14. ALL BOTTOM BARS IN GRADE BEAMS SHALL BE CONTINUOUS BETWEEN SUPPORTS AND LAP OVER SUPPORTS.
15. REINFORCING IN WALL FOOTINGS BETWEEN COLUMNS SHALL EXTEND INTO COLUMN FOOTINGS A MINIMUM OF 2 FEET.
16. REINFORCING IN FOOTINGS AND GRADE BEAMS SHALL BE ACCURATELY PLACED, SPACED, SUPPORTED AND SECURED BEFORE PLACING CONCRETE.
17. CUTTING OF REINFORCING WHICH CONFLICTS WITH EMBEDDED OBJECTS IS NOT ACCEPTABLE.
18. REINFORCING BARS SHALL BE BENT COLD, AND NO METHOD OF FABRICATION SHALL BE USED WHICH WOULD BE INJURIOUS TO THE MATERIAL. HEATING OF BARS FOR BENDING IS NOT PERMITTED.
19. FIELD WELDING OR BENDING OF REINFORCING IS NOT PERMITTED EXCEPT AS INDICATED ON THE DRAWINGS OR AS APPROVED BY THE STRUCTURAL ENGINEER.
20. SUBMIT SHOP DRAWINGS FOR FABRICATION AND PLACEMENT OF REINFORCING STEEL. INCLUDE SCHEDULES AND DIAGRAMS OF BENT BARS AND SHOW ARRANGEMENT OF REINFORCEMENT. STRUCTURAL ENGINEER'S REVIEW WILL BE FOR COMPLIANCE WITH DESIGN REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING DIMENSIONS AND QUANTITIES.

MASONRY

1. MINIMUM 28-DAY COMPRESSIVE STRENGTHS FOR MASONRY CONSTRUCTION SHALL BE:
   DESIGN ASSEMBLY STRENGTH, f'm — 2000 PSI
   INDIVIDUAL CONCRETE MASONRY UNITS — 2800 PSI
   MORTAR — 1800 PSI
   GROUT — 2000 PSI
2. MASONRY MATERIALS SHALL CONFORM TO THE FOLLOWING STANDARDS:
   CONCRETE MASONRY UNITS (CMU) — ASTM C90, GRADE N-1
   MORTAR — ASTM C270, TYPE S
   GROUT — ASTM C476
   REINFORCING STEEL — ASTM A615, GR 60
   PLATE AND BENT BAR ANCHORS — ASTM A36
   SHEET METAL ANCHORS AND TIES — ASTM A1008
   WIRE MESH TIES — ASTM A1064
   WIRE TIES AND ANCHORS — ASTM A951
   ANCHOR BOLTS — ASTM A307, GRADE A
3. BAR SPLICES SHALL BE PROVIDED WHERE INDICATED ON THE DRAWINGS. IF SPLICE LENGTH IS NOT GIVEN ON THE DRAWINGS, PROVIDE LAP LENGTHS (IN INCHES) AS FOLLOWS EXCEPT BARS LARGER THAN #9 SHALL BE MECHANICALLY SPLICED:
   ASD (IBC 2009):
4. LOAD BEARING MASONRY SHALL HAVE FULL HEIGHT 9 GAUGE MINIMUM HORIZONTAL REINFORCEMENT NOT TO EXCEED 16" OC VERTICALLY.
5. ALL LOAD BEARING MASONRY WALLS TO HAVE FULL BED, HEAD AND COLLAR JOINTS.
6. ALL CELLS SHALL BE FILLED WITH GROUT, UNLESS NOTED OTHERWISE.
7. PROVIDE A MINIMUM OF 1 INCH GROUT BETWEEN MAIN REINFORCING AND/OR BOLTS AND MASONRY UNIT FACE. VERTICAL REINFORCEMENT SHALL BE CENTERED IN WALL, UNO.
8. CELLS SHALL BE IN VERTICAL ALIGNMENT. DOWELS IN FOOTINGS SHALL BE SET TO ALIGN WITH CORES CONTAINING REINFORCING STEEL.
9. ALL CELLS CONTAINING REINFORCING SHALL BE FILLED SOLID WITH GROUT, AND ALSO WHERE NOTED ON THE DRAWINGS.
10. STACK BOND LAID MASONRY SHALL HAVE VERTICAL REINFORCEMENT AT MAXIMUM ______" OC SPACING.
11. COORDINATE ANY UNIDENTIFIED PIPE OR DUCT PASSING THROUGH STRUCTURAL MASONRY WALLS, UNLESS NOTED OR DETAILED SPECIFICALLY.
12. REFER TO ARCHITECTURAL DRAWINGS FOR SURFACE AND HEIGHT OF UNITS, LAYING PATTERN AND JOINT TYPE. ALL BLOCK SHALL BE RUNNING BOND, UNO.
13. THE LOAD BEARING CONCRETE MASONRY WALLS FOR THIS PROJECT WERE DESIGNED TO SPAN VERTICALLY AND BE BRACED BY THE ROOF AND FLOOR FRAMING ELEMENTS OF THE STRUCTURE. DURING CONSTRUCTION, THE MASONRY CONTRACTOR SHALL PROVIDE LATERAL BRACING UNTIL THE ROOF STRUCTURE IS INSTALLED AS RECOMMENDED BY ACI 530 TMS 402/602 AND THE "STANDARD PRACTICE FOR BRACING MASONRY WALLS UNDER CONSTRUCTION", PREPARED BY THE COUNCIL FOR MASONRY WALL BRACING. THIS BRACING IS TO PREVENT UNNECESSARY STRESS OR DAMAGE TO THE MASONRY WALLS FROM WIND LOADS, WHICH CAN OCCUR WHILE THE WALLS ARE NOT PROPERLY BRACED BY THE ROOF AND FLOOR STRUCTURE.
14. THE MASONRY CONTRACTOR SHALL FURNISH SHOP DRAWINGS OF PRODUCT DATA, REINFORCEMENT DETAILS, AND MIX DESIGNS FOR ARCHITECT/STRUCTURAL ENGINEER'S REVIEW BEFORE FABRICATION.

STEEL

1. STRUCTURAL STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "DETAILING FOR STEEL CONSTRUCTION" AND FABRICATED AND ERECTED IN ACCORDANCE WITH THE "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS".
2. STRUCTURAL STEEL SHALL CONFORM TO ASTM STANDARDS AS NOTED BELOW:
   WIDE FLANGE SHAPES — ASTM A992 — Fy = 50 KSI
   OTHER ROLLED SHAPES — ASTM A36 — Fy = 36 KSI
   PIPE SECTIONS — ASTM A53, GR B — Fy = 35 KSI
   HSS SECTIONS, ROUND — ASTM A500, GR C — Fy = 46 KSI
   HSS SECTIONS, SQ/RECT — ASTM A500, GR B — Fy = 46 KSI
   BASE AND CONNECTION PLATES — ASTM A36 — Fy = 36 KSI
   ANCHOR RODS — ASTM F1554, GR 36 — Fy = 36 KSI
   HIGH STRENGTH BOLTS — ASTM F3125, GR A325 — Fv = 120 KSI
   HIGH STRENGTH BOLTS — ASTM F3125, GR A490 — Fv = 150 KSI
   HIGH STRENGTH TWIST-OFF BOLTS — ASTM F3125, GR F1852 — Fv = 120 KSI
   HIGH STRENGTH TWIST-OFF BOLTS — ASTM F3125, GR F2280 — Fv = 150 KSI
   HEAVY HEX NUTS — ASTM A563
   WASHERS — ASTM F436
   HEADED STUDS — ASTM A108, TYPE B
   ELECTRODES FOR ARC WELDING — AWS 5.1, E70XX
3. HIGH STRENGTH BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH AISC "SPECIFICATIONS FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS". REFER TO DETAILS FOR BOLT SIZE AND MATERIAL ASTM DESIGNATION.
4. USE TENSION-CONTROL, "TWIST-OFF" BOLTS FOR ALL HIGH STRENGTH BOLTS REQUIRING FULL TENSION AS INDICATED ON THE DRAWINGS.
5. ALL HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM F3125, GRADE A325N, UNO. FOR ALL DRAG STRUT BOLTS, HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM F3125, GRADE A490SC.
6. ALL BOLTED CONNECTIONS SHALL BE BEARING TYPE, UNLESS NOTED OTHERWISE.
7. STANDARD BOLT HOLES IN STEEL SHALL BE 1/16 INCH LARGER IN DIAMETER THAN NOMINAL SIZE OF BOLT USED, UNO.
8. BOLTS IN SLOTTED HOLES SHALL BE LOCATED IN THE CENTER OF THE HOLE AFTER FIELD ASSEMBLY IS COMPLETE, UNLESS DETAILED OTHERWISE.
9. ALL WELDS SHALL CONFORM TO THE AMERICAN WELDING SOCIETY "STRUCTURAL WELDING CODE - STEEL" (AWS D1.1), "STRUCTURAL WELDING CODE - SEISMIC SUPPLEMENT" (AWS D1.8), AND BE MADE WITH APPROVED ELECTRODES.
10. WELD LENGTHS INDICATED ON THE DRAWINGS ARE THE NET EFFECTIVE LENGTH REQUIRED. WHERE FILLET WELD SYMBOL IS GIVEN WITHOUT INDICATION OF SIZE, USE MINIMUM SIZE WELDS AS SPECIFIED IN AISC 360, SECTION J2.4 AND CHAPTER 22 OF THE CALIFORNIA BUILDING CODE.
11. USE BACKING FOR ALL FULL PENETRATION WELDS. ALL FULL AND/OR PARTIAL PENETRATION WELDS SHALL BE FULLY DETAILED ON THE SHOP DRAWINGS.
12. WELD ACCESS HOLES SHALL BE FABRICATED IN ACCORDANCE WITH THE RECOMMENDATIONS OF AWS D1.1.
13. ALL WELDING OF STRUCTURAL STEEL SHALL BE PERFORMED BY CERTIFIED WELDERS WITH EXPERIENCE AND CERTIFICATION IN THE TYPES OF WELDING CALLED FOR. WELDERS SHALL HAVE BEEN RECENTLY QUALIFIED AS PRESCRIBED IN "QUALIFICATION PROCEDURES" OF THE AMERICAN WELDING SOCIETY (AWS).
14. FIELD CONNECTIONS SHALL BE WELDED OR BOLTED. SHOP CONNECTIONS SHALL BE WELDED, UNO. WELDS INDICATED WITH A SHOP WELD SYMBOL MAY BE MADE IN THE FIELD WITH THE APPROVAL OF THE STRUCTURAL ENGINEER. LOCATIONS OF ALL FIELD WELDS SHALL BE CLEARLY SHOWN ON THE SHOP DRAWINGS. WELDS SHALL BE DESIGNED TO BE FULLY EQUIVALENT IN STRENGTH TO BOLTED CONNECTIONS DETAILED TO MINIMIZE BENDING IN THE CONNECTION.
15. HEADED STUDS:
   A. SHALL BE FABRICATED IN ACCORDANCE WITH AWS D1.1 AND WITHIN THE TOLERANCES SET FORTH IN AWS D1.1.
   B. SHALL BE NELSON GRANULAR FLUX-FILLED SHEAR CONNECTOR OR ANCHOR STUDS (OR APPROVED EQUIVALENT). STUDS SHALL BE MANUFACTURED OF COLD ROLLED STEEL WHICH CONFORMS TO ASTM A108.
   C. STUDS SHALL BE AUTOMATICALLY END WELDED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS IN SUCH A MANNER AS TO PROVIDE COMPLETE FUSION BETWEEN THE END OF THE STUD AND THE PLATE. THERE SHOULD BE NO POROSITY OR EVIDENCE OF LACK OF FUSION BETWEEN THE WELDED END OF THE STUD AND THE PLATE. THE STUD SHALL DECREASE IN LENGTH DURING WELDING APPROXIMATELY 1/8" FOR 5/8"ø AND SMALLER AND 3/16" FOR LARGER THAN 5/8"ø. WELDING SHALL BE DONE ONLY BY QUALIFIED WELDERS APPROVED BY THE INSPECTION AGENCY.
16. ALL STEEL EXPOSED TO WEATHER SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION. ABRADED AREAS TO BE TOUCHED UP WITH GALVALOY. ALL HOLLOW SECTIONS SHALL HAVE WELDED CAP PLATES TO SEAL EXPOSED ENDS.
17. PROVIDE ONE SHOP COAT OF PAINT ON STRUCTURAL STEEL EXPOSED TO PUBLIC VIEW ONLY.
18. REFER TO DRAWINGS FOR DETAIL OF DECK OPENINGS. REFER TO ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS, ETC. FOR EXACT SIZE, LOCATION, AND COUNT OF REQUIRED OPENINGS.
19. CUTS, HOLES, OPENINGS, ETC., REQUIRED IN STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES SHALL BE SHOWN ON THE SHOP DRAWINGS. BURNING OF HOLES AND CUTS IN THE FIELD SHALL NOT BE ALLOWED, EXCEPT BY WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER. NO HOLES SHALL BE CUT IN STRUCTURAL STEEL BY OTHER TRADES UNLESS SHOWN ON STRUCTURAL DRAWINGS OR APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.
20. FURNISH AND INSTALL MISCELLANEOUS STEEL (CURBS, HANGERS, EXPANSION JOINT ANGLES, STRUTS, ETC.) AS CALLED FOR OR AS NECESSARY PER ARCHITECTURAL AND MECHANICAL/ELECTRICAL DRAWINGS.
21. NON-SHRINK GROUT FOR BASE AND BEARING PLATES SHALL BE A PRE-MIXED, NON-METALLIC, NON-CORROSIVE, NON-STAINING PRODUCT CONTAINING SELECTED SILICA SAND, PORTLAND CEMENT, SHRINKAGE COMPENSATING AGENTS AND PLASTICIZING/WATER REDUCING AGENTS. MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE 7000 PSI.
22. THE STRUCTURAL STEEL FABRICATOR SHALL FURNISH SHOP DRAWINGS OF ALL STRUCTURAL STEEL FOR ARCHITECT/STRUCTURAL ENGINEER'S REVIEW BEFORE FABRICATION.

NOT FOR BID

COLD-FORMED STEEL FRAMING (CFSF) SYSTEM

1. MATERIAL, DESIGN AND MANUFACTURE SHALL BE IN ACCORDANCE WITH THE "STANDARD FOR COLD-FORMED STEEL FRAMING - GENERAL PROVISIONS" OF THE AMERICAN IRON AND STEEL INSTITUTE.
2. STEEL STUDS, HEADERS, TRACKS, AND OTHER ELEMENTS USED FOR THIS PROJECT ARE SIZED BASED ON SSMA. ELEMENTS OF EQUAL OR GREATER CAPACITY MAY BE EXCHANGED.
3. STRUCTURAL CFSF SHALL BE SUPPLIED BY A CURRENT MEMBER OF THE STEEL STUD MANUFACTURERS ASSOCIATION.
4. COLD-FORMED STRUCTURAL STUDS SHALL CONFORM TO THE FOLLOWING STANDARDS:
   ROLLED SECTIONS, CONNECTION MATERIAL, AND STIFFENER PLATES
   18 GAUGE AND THINNER — ASTM A653, GR 33 — Fy = 33 KSI
   16 GAUGE AND THICKER — ASTM A653, GR 50 — Fy = 50 KSI
   CONNECTION MATERIAL >3/16" — ASTM A36 — Fy = 36 KSI
   ANCHOR RODS — ASTM F1554, GR 36 — Fy = 36 KSI
   BOLTS — ASTM A307 — Fv = 10 KSI
   HOT-DIP COATING — ASTM A924, G60
   ELECTRO-PLATE COATING — ASTM A591
   ALUMINUM-ZINC COATING — ASTM A792, GR 40
   INSTALLATION — ASTM C955 AND ASTM C1007
   ELECTRODES FOR ARC WELDING — AWS 5.1, E60XX
5. STRUCTURAL COLD FORM STEEL FRAMING IS DEFINED AS THE FOLLOWING:
   A. ANY COLD FORMED FRAMING THICKER THAN 20 GA (33 MIL)
   B. ANY EXTERIOR COLD FORMED FRAMING
   C. ALL OTHER STEEL STUD FRAMING IS NON-STRUCTURAL AND NOT A PART OF THE STRUCTURAL PACKAGE
6. STRUCTURAL CFSF IS PERFORMANCE SPECIFIED. DESIGN INFORMATION INCLUDED IN THESE DOCUMENTS IS TO BE CONSIDERED A GUIDELINE FOR BIDDING PURPOSES ONLY. STUD DEPTH IS REQUIRED TO MEET THOSE INDICATED ON THE PLANS. CONNECTION DETAILS ARE ONLY AN INDICATION OF SUGGESTED SUPPORT AND SLIP JOINT ORIENTATION. GAUGE, SECTION, MATERIAL, BRACING, CONNECTIONS, STIFFENERS, AND SIMILAR DETAILS ARE THE RESPONSIBILITY OF THE MANUFACTURER BASED ON LOADS GIVEN ON THE PLANS.
7. PROVIDE TRACKS, BLOCKING, HEADERS, CLIP ANGLES, BRIDGING, SHOES, REINFORCEMENTS, FASTENERS AND ACCESSORIES TO PROVIDE A COMPLETE METAL FRAME SYSTEM IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
8. BEARING STUDS MUST BE FABRICATED WITH FULL STUD END SEATED AGAINST TRACK WEB. DO NOT USE STUD THAT HAS BEEN CUT AT PUNCHOUT.
9. FRAMING FABRICATOR SHALL ENSURE PUNCHOUT ALIGNMENT WHEN ASSEMBLING FRAMING AND FIELD CUTTING TO LENGTH.
10. TRACK SHALL BE THE SAME SIZE AND GAUGE AS THE STUD.
11. UNIFORM BEARING SURFACE SHALL BE PROVIDED WITH A MAXIMUM 1/4 INCH GAP BETWEEN BOTTOM TRACK AND THE FOUNDATION OR SLAB. IT SHALL BE ACCOMPLISHED BY THE USE OF LOAD BEARING SHIMS AND/OR GROUT PROVIDED BETWEEN THE UNDERSIDE OF THE WALL BOTTOM TRACK AND THE TOP OF THE FOUNDATION OR SLAB AT EACH STUD.
12. IN THE EVENT A TRACK BUTT JOINT OCCURS WITHIN A PANEL, ABUTTING PIECES OF TRACK SHALL BE BUTT WELDED OR SPLICED TOGETHER. NO SUCH SPLICES SHALL OCCUR AT ANY HEAD OR SILL CONDITION.
13. FRAME WALL OPENINGS LARGER THAN 2'-0" SQUARE WITH DOUBLE STUD AT EACH JAMB OF FRAME EXCEPT WHERE MORE THAN 2 ARE SHOWN OR INDICATED. INSTALL RUNNER TRACKS AND JACK STUDS ABOVE AND BELOW WALL OPENINGS. ANCHOR TRACKS TO JAMB STUDS BY WELDING, AND SPACE JACK STUDS SAME AS FULL HEIGHT STUDS OF WALL. SECURE STUD SYSTEM WALL OPENING FRAME IN MANNER INDICATED.
14. INSTALL HORIZONTAL BRIDGING IN STUD SYSTEM NOT MORE THAN 5'-0" ON CENTER. FASTEN AT EACH STUD INTERSECTION.
15. UNLESS OTHERWISE NOTED, ATTACH MATERIALS BY BOLTING OR SCREW FASTENERS.
   A. SCREW CONNECTIONS:
      1) SCREWS LARGER THAN SPECIFIED MAY BE USED, PROVIDED THE MINIMUM SPACING AND EDGE DISTANCE REQUIREMENTS ARE MET.
      2) SCREWS SHALL BE FULLY DRIVEN AND HAVE A MINIMUM PENETRATION OF THREE THREADS THROUGH THE LAST MATERIAL JOINED.
      3) SCREWS SHALL HAVE A PROTECTIVE COATING COMPLYING WITH RECOGNIZED DESIGN STANDARDS FOR THE PROJECT ENVIRONMENTAL CONDITIONS.
   B. BOLT CONNECTIONS:
      1) BOLTS SHALL MEET OR EXCEED THE REQUIREMENTS OF ASTM A307 AND SHALL BE INSTALLED WITH NUTS AND WASHERS AT SPACING PER RECOGNIZED DESIGN STANDARD.
   C. WELD CONNECTIONS:
      1) ALL WELDED CONNECTIONS ARE TO BE PERFORMED IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) D1.3 FOR WELDING SHEET STEEL IN STRUCTURES.
16. UNLESS INDICATED OTHERWISE ON THE DRAWINGS OR IN SHEAR WALL PANELS, FASTEN GYPSUM BOARD WITH #6 x 1" BUGLE HEAD SCREWS AT 12" OC AT ALL SUPPORTS AND EDGES.
17. WEB CRIPPLING BASED ON MINIMUM 10" UNPUNCHED STEEL AT BOTH ENDS.
18. ALL FRAMING COMPONENTS SHALL BE CUT SQUARELY FOR ATTACHMENT TO PERPENDICULAR MEMBERS.
19. ALL FIELD CUTTING OF STUDS SHALL BE DONE BY SAWING.
20. PREFABRICATED COLD FORM TRUSSES:
   A. DESIGN, FABRICATE, TRANSPORT AND ERECT COLD FORM TRUSSES IN ACCORDANCE WITH AISI S214 STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
   B. DESIGN FOR LOADS, IN ADDITION TO MEMBER WEIGHTS, AS GIVEN IN THE DESIGN CRITERIA NOTES AND AS NOTED ON THE DRAWINGS.
   C. PRE-FABRICATED PRE-ENGINEERED TRUSSES ARE PERFORMANCE SPECIFIED. DESIGN INFORMATION INCLUDED IN THESE DOCUMENTS IS TO BE CONSIDERED SCHEMATIC. SECTION, BRACING, CONNECTIONS, AND SIMILAR DETAILS ARE THE RESPONSIBILITY OF THE MANUFACTURER BASED ON LOADS GIVEN ON THE PLANS AND SPECIFICATIONS.
   D. TRUSS CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING THE PROPERLY SIZED ANCHORAGE FOR TRUSS-TO-TRUSS CONNECTIONS.
   E. ALL PERMANENT AND TEMPORARY BRACING AND FASTENING AT BEARINGS SHALL BE DESIGNED BY THE TRUSS MANUFACTURER, UNO.
21. CONSTRUCTION SHALL NOT BEGIN UNTIL SHOP DRAWINGS AND CALCULATIONS HAVE BEEN REVIEWED BY THE ARCHITECT/STRUCTURAL ENGINEER. SUBMIT COMPLETE TECHNICAL INFORMATION ON ALL COLD-FORMED STEEL STRUCTURAL MEMBERS, INCLUDING SECTION PROPERTIES, ALLOWABLE DESIGN STRESSES, DESCRIPTION OF CONNECTIONS AND FINISHES. DO NOT PROCEED WITH INSTALLATION UNTIL SUBMITTALS HAVE BEEN REVIEWED AND RETURNED.

HIGH LIFT GROUTED CONSTRUCTION

1. WHERE HIGH LIFT GROUTING IS USED, CONFORM TO THE SPECIFICATIONS AND THE CALIFORNIA BUILDING CODE.
2. CLEANOUT OPENINGS SHALL BE PROVIDED AT THE BOTTOM OF EACH POUR OF GROUT. ANY OVERHANGING MORTAR OR OTHER DEBRIS SHALL BE REMOVED FROM THE INSIDES OF CELL WALLS.
3. THE FOUNDATION OR OTHER HORIZONTAL CONSTRUCTION JOINTS SHALL BE CLEANED OF ALL LOOSE MATERIAL AND MORTAR DROPPINGS BEFORE EACH POUR.
4. THE CLEANOUTS SHALL BE SEALED BEFORE GROUTING. ALL CELLS SHALL BE FILLED.
5. AN APPROVED ADMIXTURE REDUCING EARLY WATER LOSS AND PRODUCING AN EXPANSION ACTION SHALL BE USED IN THE GROUT.

STRUCTURAL SHEET INDEX

STRUCTURAL ABBREVIATION KEY

ABBR:	DESCRIPTION:	ABBR:	DESCRIPTION:
#	NUMBER OR POUNDS	KSF	KIPS PER SQUARE FOOT
@	AT	KSI	KIPS PER SQUARE INCH
°	DEGREE	L	LENGTH
ø	DIAMETER	LBS	POUNDS
(E)	EXISTING	LL	LIVE LOAD
A.B.	ANCHOR BOLT	LLH	LONG LEG HORIZONTAL
ARCH	ARCHITECT, -URE, -URAL	LLV	LONG LEG VERTICAL
B.O.	BOTTOM OF	LONG.	LONGITUDINAL
bf	BEAM FLANGE WIDTH	LSH	LONG SIDE HORIZONTAL
BF	BRACE FRAME	LSV	LONG SIDE VERTICAL
BM	BEAM	LT WT	LIGHTWEIGHT
B.N.	BOUNDARY NAILING	MAX	MAXIMUM
BOTT	BOTTOM	MECH	MECHANICAL
BTWN	BETWEEN	MANUF	MANUFACTURER
CFSF	COLD FORM STEEL FRAMING	MIN	MINIMUM
CGS	CENTER OF GRAVITY OF THE TENDON	NIC	NOT IN CONTRACT
CJP	COMPLETE JOINT PENETRATION WELD	NTS	NOT TO SCALE
CLR	CLEAR	OC	ON CENTER
CL	CENTERLINE	OH	OPPOSITE HAND
CMU	CONCRETE MASONRY UNIT	OPNG	OPENING
COL	COLUMN	OSB	ORIENTED STRAND BOARD
CONC	CONCRETE	PCF	POUNDS PER CUBIC FOOT
CONN	CONNECTION	P.H.	PENTHOUSE
CONST	CONSTRUCTION	PJP	PARTIAL JOINT PENETRATION WELD
CONT	CONTINUOUS	PL	PLATE
COORD	COORDINATION	PLF	POUNDS PER LINEAR FOOT
DIA	DIAMETER	PSF	POUNDS PER SQUARE FOOT
DL	DEAD LOAD	PSI	POUNDS PER SQUARE INCH
DET	DETAIL	PT	POST-TENSION, -ED, -ING
DWG	DRAWING	R	RADIUS
DWL	DOWEL	REINF	REINFORCING, -MENT, -ED
EA	EACH	REQD	REQUIRED
EF	EACH FACE	RTU	ROOF TOP UNIT
EFF	EFFECTIVE	SC	SLIP CRITICAL
EL	ELEVATION	SCHED	SCHEDULE
ELEC	ELECTRICAL	SFRS	SEISMIC FORCE-RESISTING SYSTEM
EMBED	EMBEDMENT	SIM	SIMILAR
E.N.	EDGE NAILING	SL	SNOW LOAD
EOD	EDGE OF DECK	S.M.S.	SHEET METAL SCREW
EOS	EDGE OF SLAB	SP	SPACE(S)
EQ	EQUAL	SPECS	SPECIFICATION(S)
EQUIP	EQUIPMENT	SQ	SQUARE
ETC	ETCETERA	STIFF	STIFFENER
EW	EACH WAY	STL	STEEL
EXP	EXPANSION	SYM	SYMMETRICAL
EXT	EXTERIOR	T&B	TOP AND BOTTOM
f 'c	CONCRETE COMPRESSIVE STRENGTH	T.O.	TOP OF
FDN	FOUNDATION	TC	PRE-TENSIONED BOLT
F.N.	FIELD NAILING	TEMP	TEMPERATURE
FT	FOOT	tf	BEAM FLANGE THICKNESS
FTG	FOOTING	THK	THICK
Fy	YIELD STRESS	TRANS	TRANSVERSE
GA	GAGE OR GAUGE	TYP	TYPICAL
GALV	GALVANIZED	UON	UNLESS OTHERWISE NOTED
GLB	GLULAM BEAM	VERT	VERTICAL
GT	GIRDER TRUSS	VIF	VERIFY IN FIELD
HORIZ	HORIZONTAL	W/	WITH
HSA	HEADED STUD ANCHOR	WP	WORK POINT
HSB	HIGH STRENGTH BOLT	WT	WEIGHT
JT	JOINT	WWR	WELDED WIRE REINFORCING
K, KIP	KILOPOUND (1,000 POUNDS)		

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owner approval

initials	date	phase

revisions/addenda

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ANIMAL CARE CENTER
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SAN BERNARDINO COUNTY

project information

Project Number: 22007569.00
Drawn By: Author
Checked By: JP
Issue Date: 06/12/23

sheet name

GENERAL NOTES

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PRELIMINARY NOT FOR CONSTRUCTION

sheet number

S-101

Sheet Of Sheets

STEEL DECK

1. MATERIAL, DETAILING, DESIGN, MANUFACTURE AND ERECTION OF STEEL DECKS SHALL BE IN ACCORDANCE WITH THE STEEL DECK INSTITUTE (SDI) SPECIFICATION.
2. DECK SIZE AND GAUGE INDICATED ON THE DRAWINGS ARE BASED ON THE FOLLOWING:
   A. VULCRAFT 2015 VERCO VR4 AND VR5 CATALOG FOR GRAVITY DESIGN LOADS AND UNSHORED CONSTRUCTION SPANS.
   B. STEEL DECK INSTITUTE (SDI) DIAPHRAGM DESIGN MANUAL 3RD EDITION FOR DIAPHRAGM LOADS.
3. STEEL DECK GALVANIZING SHALL CONFORM TO ASTM A653 WITH A MINIMUM COATING OF G60 ASTM A924 WITH A MINIMUM COATING OF G90.
4. PAINTED STEEL ROOF DECK SHALL CONFORM TO ASTM A1008, GRADE C.
5. ALL DECK SHALL MEET THE MINIMUM TYPE AND GAUGE INDICATED ON THE DRAWINGS, AND AS FOLLOWS:

TYPE	GAUGE	Ix	Sx	Fy
1.5" B (ROOF)	22	0.155	0.186	33
	20	0.201	0.234	33
	18	0.289	0.318	33
	16	0.373	0.408	33
2" VLI	22	0.314	0.244	50
	20	0.403	0.326	50
	18	0.558	0.485	50
	16	0.704	0.653	40
3" VLI	22	0.710	0.387	50
	20	0.907	0.512	50
	18	1.252	0.761	50
	16	1.582	1.013	40

TYPE	GAUGE	Ix	Sx	Fy
1.5" PLB/HSB (ROOF)	22	0.192	0.188	50
	20	0.231	0.237	50
	18	0.306	0.331	50
	16	0.381	0.410	50
2" W2 FORMLOCK	22	0.340	0.256	50
	20	0.422	0.333	50
	18	0.564	0.481	50
	16	0.707	0.638	50
3" W3 FORMLOCK	22	0.736	0.410	50
	20	0.907	0.528	50
	18	1.213	0.768	50
	16	1.516	0.966	50

6. ALL FLOOR AND ROOF DECK SHALL BE VENTED.
7. UNLESS NOTED OTHERWISE, DECK SHALL BE FASTENED WITH __"ø PUDDLE WELDS AT 12" OC AT ALL SUPPORTS AND EDGES. SIDE LAPS SHALL BE FASTENED WITH #10 TEK SCREWS, MINIMUM ONE AT EACH MIDSPAN. OPENING EDGES SHALL RECEIVE THE SAME WELDING AS REQUIRED AT DECK ENDS. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS EXPERIENCED IN COLD-FORMED STEEL DECK WORK.
8. PROVIDE 16 GAUGE WELD WASHERS AT PUDDLE WELD CONNECTIONS TO 24 GAUGE AND LIGHTER STEEL DECKS.
9. MINIMUM BEARING OF DECKING ON SUPPORTS SHALL BE 2 INCHES. SHEETS SHALL BE ATTACHED TO ALL SUPPORTING STEEL MEMBERS BY WELDING AS INDICATED ON DRAWINGS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. UPON COMPLETION OF ERECTION, ALL WELDS IN EXPOSED DECK AREAS SHALL HAVE TOUCH-UP, DE-SLAG, CLEAN AND PRIME WITH A ZINC RICH PRIMER.
10. INSTALL DECK WITH A MINIMUM 2 INCH END LAP CENTERED OVER SUPPORTS.
11. USE SUMP PANS AT ALL ROOF DRAINS. MINIMUM THICKNESS FOR SUMP PANS SHALL BE 14 GAUGE.
12. DECK MANUFACTURER SHALL FURNISH ALL RIDGE AND VALLEY PLATES, SUMP PANS AND DRAIN PLATES AND OTHER ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION. DECK MANUFACTURER SHALL PROVIDE ALL CLOSURE PLATES AND POUR STOPS NOT PROVIDED BY THE STEEL FABRICATOR.
13. CUTTING AND FRAMING OF OPENINGS FOR OTHER TRADES SHALL BE THE RESPONSIBILITY OF THE TRADES INVOLVED. HOLES THAT ARE LOCATED AND DIMENSIONED ON THE DRAWINGS SHALL BE THE RESPONSIBILITY OF THE DECK ERECTOR.
14. CONDUITS ARE NOT ALLOWED IN CONCRETE SLAB ON STEEL DECK.
15. DO NOT PLACE PIPES, DUCTS, REGLETS OR CHASES IN COMPOSITE FLOOR SYSTEMS WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.
16. DO NOT EXCEED 25 LBS PER HANGER AND A MINIMUM SPACING OF 2'-0" ON CENTER WHEN ATTACHING TO STEEL ROOF DECK. THIS 25 LBS LOAD AND 2'-0" SPACING INCLUDES ADJACENT MECHANICAL, ELECTRICAL, AND ARCHITECTURAL ITEMS HANGING FROM THE DECK. IF THE HANGER RESTRICTIONS CANNOT BE ACHIEVED, SUPPLEMENTAL FRAMING SUPPORTED OFF STEEL FRAMING WILL NEED TO BE ADDED. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING LOCATION AND WEIGHT OF ALL THE ELEMENTS BEING HUNG.
17. CORRUGATED FORM DECK GAUGES SHOWN ON THE DRAWINGS ARE INTENDED TO SUPPORT THE WEIGHT OF THE WET CONCRETE PLUS A CONSTRUCTION LIVE LOAD OF 20 PSF WITHOUT INTERMEDIATE SHORING BASED ON A THREE SPAN CONTINUOUS CONDITION. DECK MANUFACTURER SHALL EVALUATE OTHER SPAN CONDITIONS FOR DEFLECTION WHICH SHALL NOT EXCEED L/180 NOR 1/8 INCH UNDER THE UNIFORMLY DISTRIBUTED CONCRETE DEAD LOAD AND NOTE AREAS WHICH WILL REQUIRE SHORING TO CONTROL DEFLECTION AND/OR MEET ALLOWABLE STRESSES.
18. SUBMIT SHOP DRAWINGS SHOWING ERECTION PROCEDURES, WELDING PROCEDURES, VERTICAL LOAD AND DIAPHRAGM SHEAR CAPACITY FURNISHED, DECK SHORING REQUIREMENTS, UNDERWRITER'S LABORATORIES (UL) FIRE RATING NUMBER AND COMPOSITE BEAM AND GIRDER STUD PROFILES TO THE ARCHITECT/STRUCTURAL ENGINEER FOR REVIEW. FABRICATION SHALL NOT BEGIN WITHOUT APPROVED SHOP DRAWINGS.

STRUCTURAL TESTS AND INSPECTION

1. UNLESS NOTED, MATERIALS SHALL CONFORM AND TESTS AND INSPECTIONS SHALL BE PERFORMED BY THE INSPECTION AGENCY WHO IS APPROVED THE ARCHITECT AND THE STRUCTURAL ENGINEER. CONTINUOUS AND PERIODIC TESTING AND INSPECTION SHALL CONFORM TO IBC CHAPTER 17, AND AS FOLLOWS:

A.	DRIVEN DEEP FOUNDATIONS	1704.8 1705.7
B.	CAST-IN-PLACE DEEP FOUNDATIONS	1704.9 1705.8
C.	HELICAL PILE FOUNDATIONS	1704.10 1705.9
D.	CONCRETE CONSTRUCTION	1704.4 1705.3
E.	MASONRY CONSTRUCTION	1704.5 1705.4
F.	STEEL CONSTRUCTION	1704.3 1705.2 CHAPTER N OF AISC 360
G.	WOOD CONSTRUCTION	1704.6 1705.5
H.	SOILS	1704.7 1705.6
I.	WIND RESISTANCE	1705.10 1705.11
J.	SEISMIC RESISTANCE	1705.11, 1705.12 1705.12, 1705.13

2. REFER TO ARCHITECTURAL, CIVIL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS OR SPECIFICATIONS FOR TESTING AND INSPECTION REQUIREMENTS OF NON-STRUCTURAL COMPONENTS.
3. DUTIES OF THE INSPECTION AGENCY PER IBC CHAPTER 17:
   A. SUBMIT A PROPOSED TESTING AND INSPECTION PROGRAM TO THE OWNER, THE ARCHITECT AND THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL AT LEAST TWO WEEKS PRIOR TO COMMENCEMENT OF WORK.
   B. PERFORM ALL TESTING AND INSPECTION REQUIRED PER APPROVED TESTING AND INSPECTION PROGRAM.
   C. FURNISH INSPECTION REPORT TO THE BUILDING OFFICIAL, THE OWNER, THE ARCHITECT, STRUCTURAL ENGINEER AND THE GENERAL CONTRACTOR. THE REPORTS SHALL BE COMPLETED AND FURNISHED WITHIN 48 HOURS OF INSPECTED WORK.
   D. SUBMIT A FINAL SIGNED REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE SPECIAL INSPECTION AGENCY'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

CONCRETE/FOUNDATION LEGEND

- XX'-XX" — INDICATES TO SLAB ELEVATION.
- X" THICK CONCRETE SLAB W/ #X@X"OC EW T&B — INDICATES CONCRETE SLAB AND SPAN DIRECTION, FOR SCHEDULE AND DETAILS SEE SHEET **X/S/X.X**
- F# — INDICATES FOOTING MARK. SEE SCHEDULE ON SHEET**X/S/X.X**
- INDICATES CONCRETE WALL ON CONTINUOUS FOOTING.
- INDICATES STEP IN SLAB/FRAMING.
- INDICATES CHANGE IN SLOPE.

STEEL LEGEND

- C# — INDICATES START OF STEEL HSS COLUMN AT FLOOR PLAN LEVEL. FOR COLUMN SIZE, REFER TO COLUMN SCHEDULE ON PLAN.
- XX'-XX" — INDICATES TOP OF STEEL ELEVATION
- A — INDICATES STEEL/COMPOSITE STEEL DECK. ARROWS INDICATE SPAN DIRECTION. SEE SHEET **X/S-XXX** FOR SCHEDULES AND TYPICAL DETAILS.
- INDICATES TYPICAL BOLTED COLLECTOR BEAM CONNECTION. SEE DETAIL **X/S-XXX**
- INDICATES COMPLETE PENETRATION WELDED MOMENT CONNECTION, SEE TYPICAL DETAILS.
- INDICATES BEAM LATERAL BRACE
- INDICATES BEARING WALL ABOVE
- INDICATES BEARING WALL BELOW. SEE FOR WALL STUDS AND WALL HEADERS UNO
- # XX'-XX" — DENOTES SINGLE SIDED SHEARWALL WITH LENGTH PER SCHEDULE **X/S-XXX**
- #A XX'-XX" — DENOTES DOUBLE SIDED SHEARWALL WITH LENGTH PER SCHEDULE **X/S-XXX**
- (#) # XX'-XX" — DENOTES QUANTITY WHERE MORE THAN ONE DRAGS IS REQUIRED; DENOTES DRAG MARK PER SCHEDULE ON; DENOTES REQUIRED DRAG LENGTH

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No. C14635
REN. 9-30-23
STATE OF CALIFORNIA

owner approval

initials	date	phase

revisions/addenda

#	Date	Comment

ANIMAL CARE CENTER
18313 VALLEY BLVD. BLOOMINGTON, CA 92313
SAN BERNARDINO COUNTY

project information

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GENERAL NOTES

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S-102

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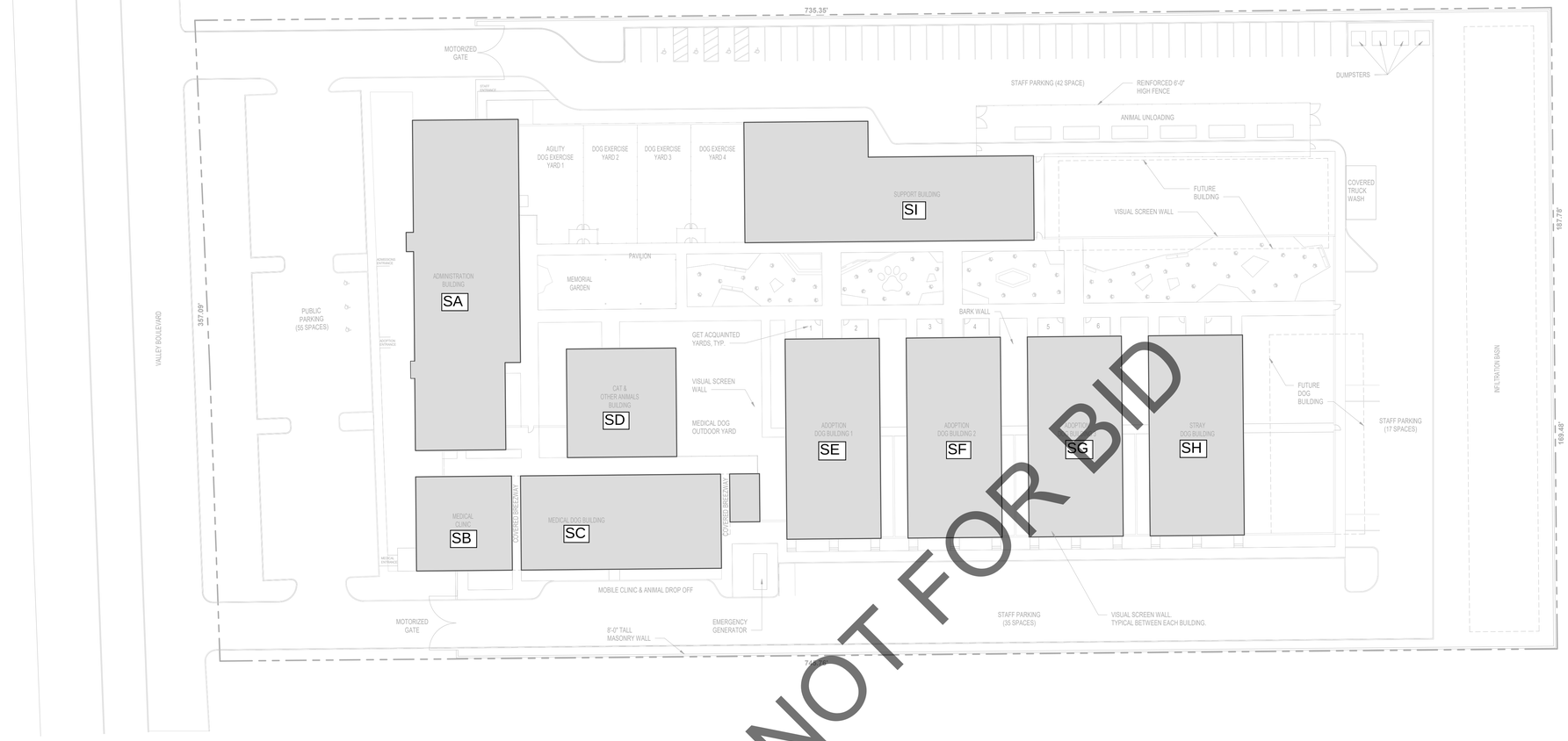

1 SITE PLAN
1" = 30'-0"

NORTH

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SITE PLAN

sheet number

SS-201

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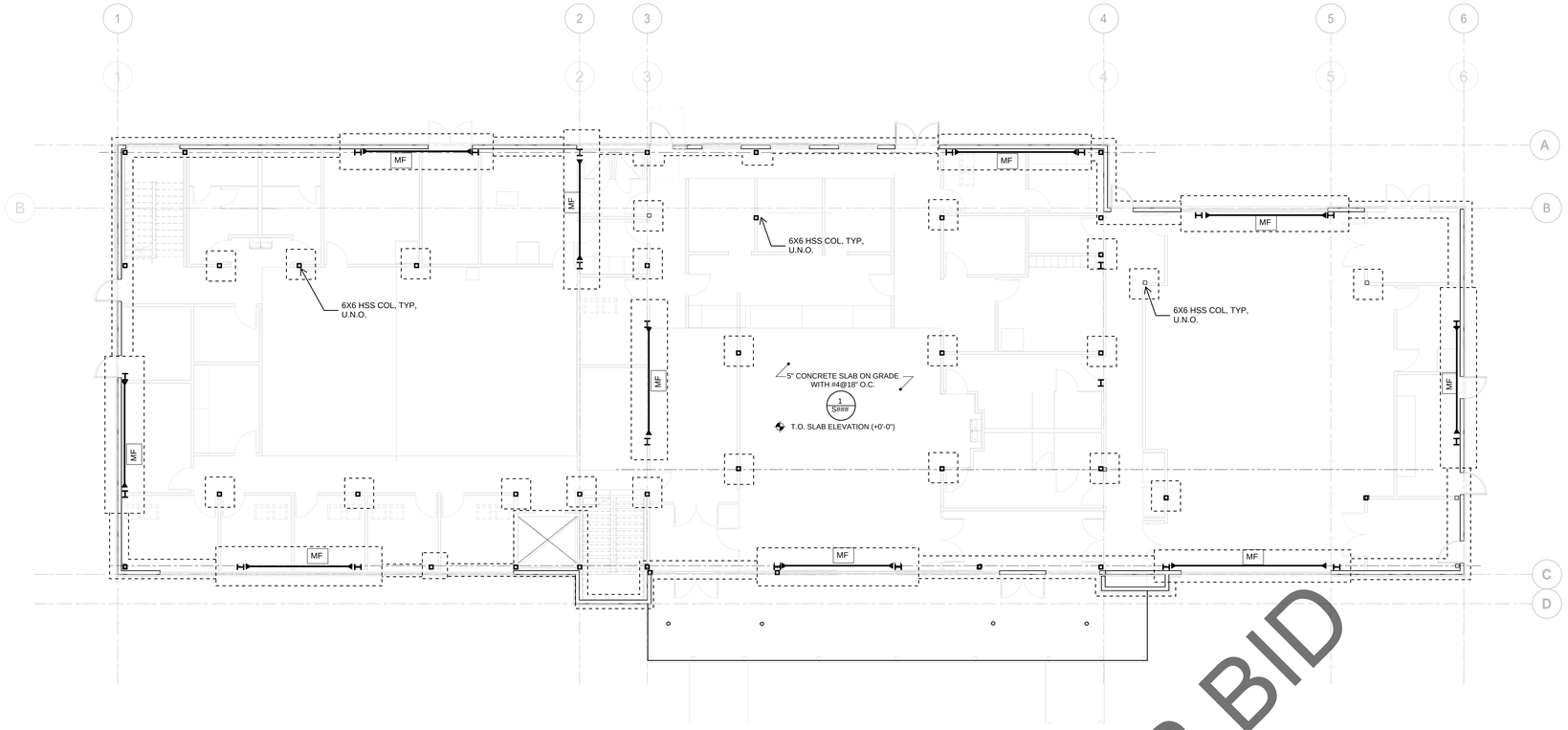

1 ADMINISTRATION BUILDING FOUNDATION PLAN

1/8" = 1'-0"

NORTH

FOUNDATION PLAN NOTES

1. SEE SHEET **S-XXX** SERIES FOR STRUCTURAL NOTES.
   SEE SHEET **S-XXX** SERIES FOR TYPICAL CONCRETE DETAILS.
   SEE SHEET **S-XXX** SERIES FOR TYPICAL STEEL DETAILS.
   SEE SHEET **S-XXX** SERIES FOR TYPICAL WOOD DETAILS
2. TOP OF SLAB ON GRADE = 0'-0" UNO
3. TOP OF FOOTING SHALL BE 1'-4" BELOW TOP OF SLAB OR FINISH GRADE, UNO.
4. S.A.D. FOR DIMENSIONS, ELEVATIONS, SLOPES, CURBS, STEPS, AND PADS NOTED ON PLAN.
5. COORDINATE LOCATION OF SLAB STEPS AND DEPRESSIONS WITH ARCHITECTURAL DRAWINGS.
6. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
7. ALL FOUNDATION EXCAVATIONS MUST BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF REINFORCING STEEL.
8. PRIOR TO THE CONTRACTOR REQUESTING A BUILDING DEPARTMENT INSPECTION, THE SOILS ENGINEER SHALL ADVISE THE BUILDING OFFICIAL IN WRITING THAT:
   A. THE BUILDING PAD WAS PREPARED IN ACCORDANCE WITH THE SOILS REPORT,
   B. THE UTILITY TRENCHES HAVE BEEN PROPERLY BACKFILLED AND COMPACTED, AND
   C. THE FOUNDATION EXCAVATIONS COMPLY WITH THE INTENT OF THE SOILS REPORT
9. TYPICAL SLAB ON GRADE: 5" THICK W/ #4 AT 18" O.C. EA WAY FOR UNDERLAYMENT SEE **X/S-XXX**
10. WFX — DENOTES CONTINUOUS FOOTING. SEE SCHEDULE **X/S-XXX** FOR FOOTING SIZE AND REINFORCEMENT
11. S — · — S DENOTES STEPPED FOOTING. SEE DETAIL **X/S-XXX**
12. CONTRACTOR SHALL COORDINATE AND LOCATE ALL DUCT, PIPE, CONDUIT, ETC PENETRATIONS THRU WALLS AND FOOTINGS AND PROVIDE THE ASSOCIATED FRAMING AND FOUNDATION CONDITIONS PER THE TYPICAL DETAILS.
13. DENOTES METAL STUD FRAMED WALL
14. DENOTED 12" CMU WALL
15. SW# DENOTES METAL STUD SHAR WALL W/15/32" PLYWOOD

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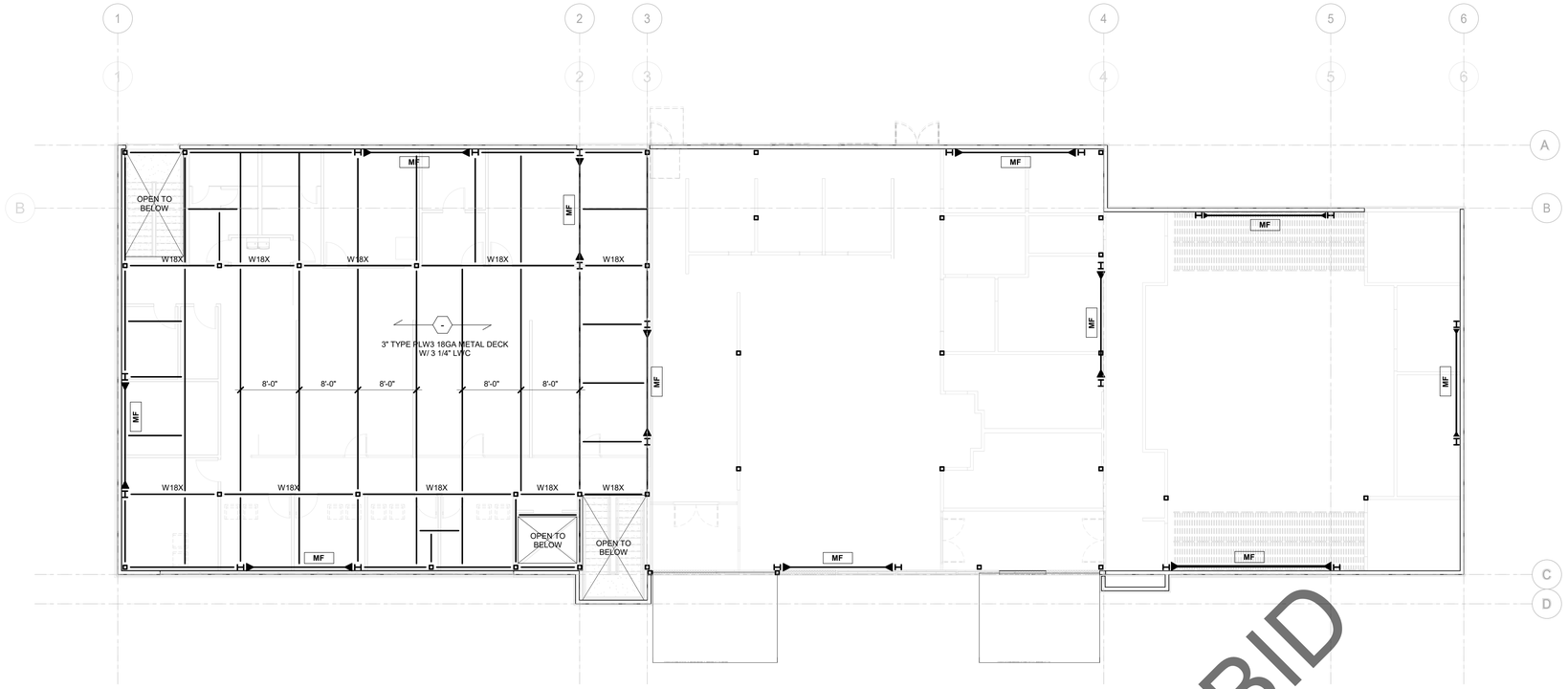
sheet name

ADMINISTRATION BUILDING FOUNDATION PLAN

sheet number

SA-201

Sheet Of Sheets



ROOF PLAN NOTES

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   SEE SHEET **S-XXX** SERIES FOR TYPICAL DETAILS.
2. ALL DIMENSIONAL INFORMATION SHOWN IS BASED ON THE ARCHITECTURAL DRAWINGS. FOR ANY DIMENSIONAL INFORMATION NOT SHOWN REFER TO THE ARCHITECTURAL DRAWINGS.
3. BEAM TO BE EQUALLY SPACED BETWEEN SUPPORTS UNO.
4. FOR COLUMN SIZES, SEE FOUNDATION PLAN.
5. MF STEEL MOMENT FRAME

NORTH

1 ADMINISTRATION BUILDING STRUCTURAL SECOND FLOOR FRAMING PLAN

1/8" = 1'-0"

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ADMINISTRATION BUILDING STRUCTURAL SECOND FLOOR FRAMING PLAN

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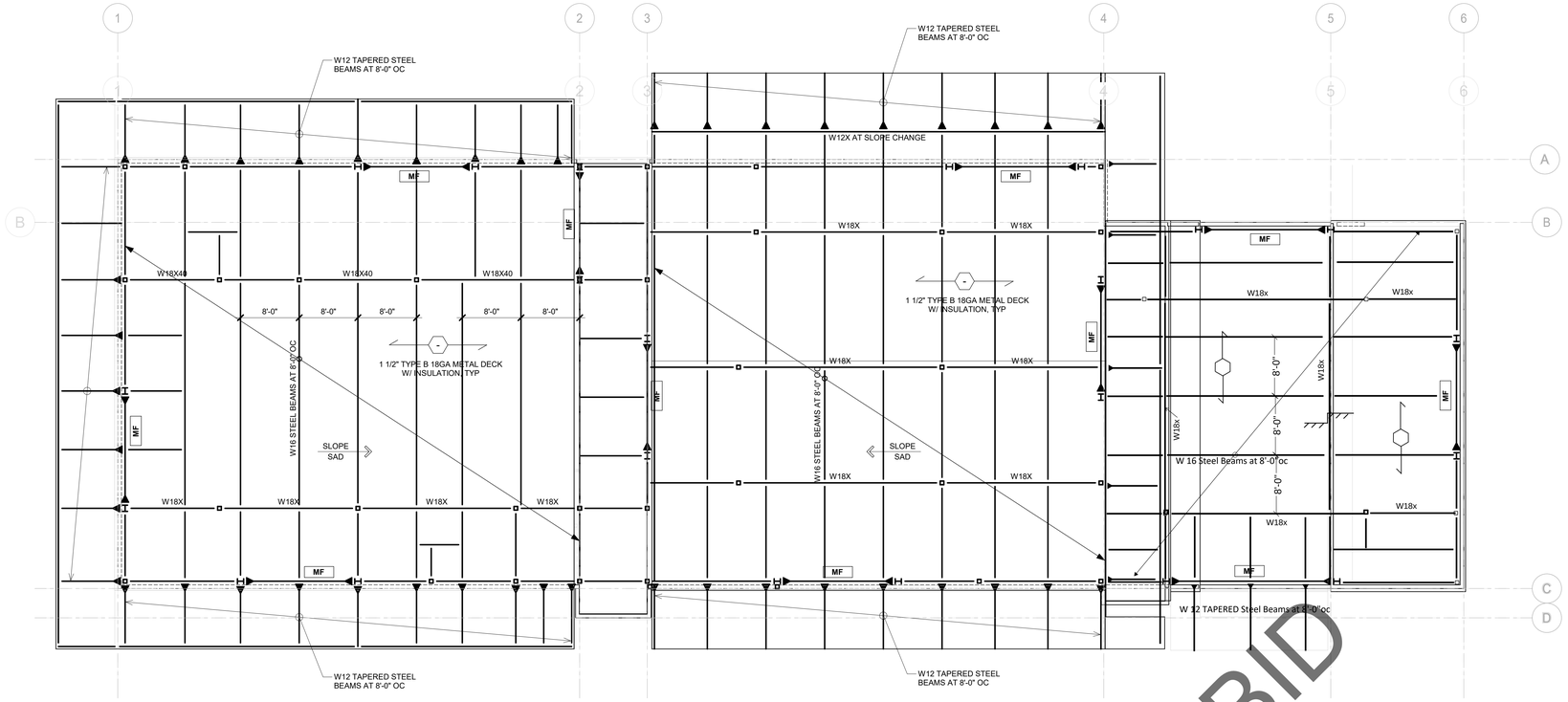

ROOF PLAN NOTES

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5. MF STEEL MOMENT FRAME

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1 ADMINISTRATION BUILDING STRUCTURAL ROOF PLAN

1/8" = 1'-0"

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REF. SCALE IN INCHES PROJECT #22007569.00

PRELIMINARY NOT FOR CONSTRUCTION

ANIMAL CARE CENTER
18313 VALLEY BLVD. BLOOMINGTON, CA 92313
SAN BERNARDINO COUNTY

project information

Project Number:	22007569.00
Drawn By:	Author
Checked By:	JP
Issue Date:	06/12/23

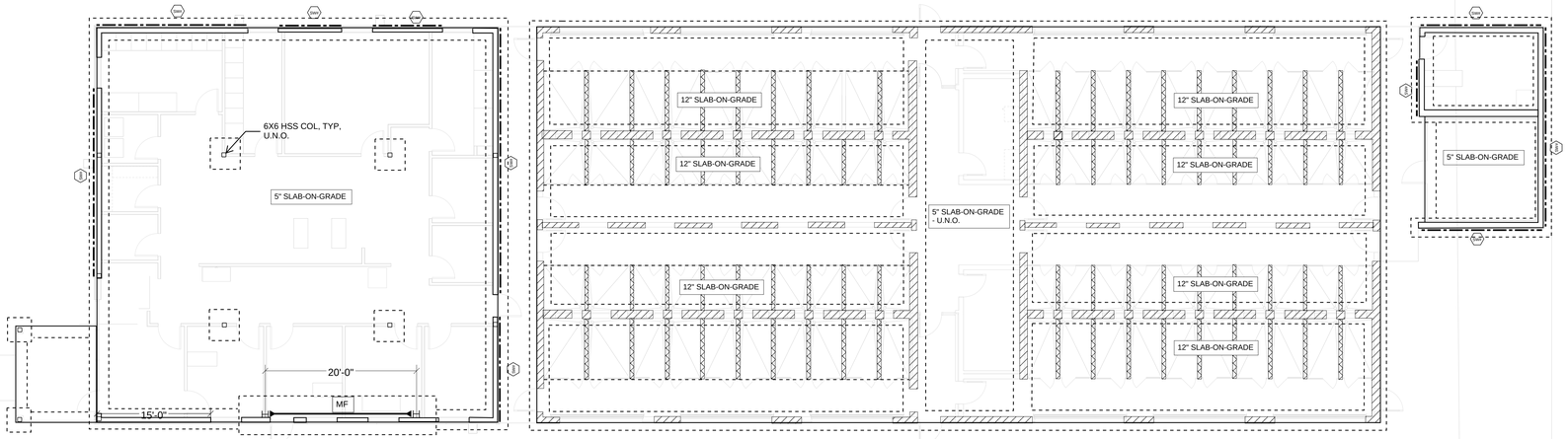
sheet name

ADMINISTRATION BUILDING STRUCTURAL ROOF PLAN

sheet number

SA-203

Sheet Of Sheets



NORTH 1 **MEDICAL CLINIC STRUCTURAL FLOOR PLAN**

1/8" = 1'-0"

FOUNDATION PLAN NOTES

1. SEE SHEET **S-XXX** SERIES FOR STRUCTURAL NOTES.
   SEE SHEET **S-XXX** SERIES FOR TYPICAL CONCRETE DETAILS.
   SEE SHEET **S-XXX** SERIES FOR TYPICAL STEEL DETAILS.
   SEE SHEET **S-XXX** SERIES FOR TYPICAL WOOD DETAILS
2. TOP OF SLAB ON GRADE = 0'-0" UNO
3. TOP OF FOOTING SHALL BE 1'-4" BELOW TOP OF SLAB OR FINISH GRADE, UNO.
4. S.A.D. FOR DIMENSIONS, ELEVATIONS, SLOPES, CURBS, STEPS, AND PADS NOTED ON PLAN.
5. COORDINATE LOCATION OF SLAB STEPS AND DEPRESSIONS WITH ARCHITECTURAL DRAWINGS.
6. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
7. ALL FOUNDATION EXCAVATIONS MUST BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF REINFORCING STEEL.
8. PRIOR TO THE CONTRACTOR REQUESTING A BUILDING DEPARTMENT INSPECTION, THE SOILS ENGINEER SHALL ADVISE THE BUILDING OFFICIAL IN WRITING THAT:
   A. THE BUILDING PAD WAS PREPARED IN ACCORDANCE WITH THE SOILS REPORT,
   B. THE UTILITY TRENCHES HAVE BEEN PROPERLY BACKFILLED AND COMPACTED, AND
   C. THE FOUNDATION EXCAVATIONS COMPLY WITH THE INTENT OF THE SOILS REPORT
9. TYPICAL SLAB ON GRADE: 5" THICK W/ #4 AT 18" O.C. EA WAY FOR UNDERLAYMENT SEE **X/S-XXX**
10. WFX — DENOTES CONTINUOUS FOOTING. SEE SCHEDULE **X/S-XXX** FOR FOOTING SIZE AND REINFORCEMENT
11. S — · — S DENOTES STEPPED FOOTING. SEE DETAIL **X/S-XXX**
12. CONTRACTOR SHALL COORDINATE AND LOCATE ALL DUCT, PIPE, CONDUIT, ETC PENETRATIONS THRU WALLS AND FOOTINGS AND PROVIDE THE ASSOCIATED FRAMING AND FOUNDATION CONDITIONS PER THE TYPICAL DETAILS.
13. DENOTES METAL STUD FRAMED WALL
14. DENOTED 12" CMU WALL
15. SW# DENOTES METAL STUD SHAR WALL W/15/32" PLYWOOD

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LICENSED ARCHITECT
GARY W. MILLER
No. C14635
REN. 9-30-23
STATE OF CALIFORNIA

owner approval

initials	date	phase

revisions/addenda

#	Date	Comment

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MEDICAL CLINIC STRUCTURAL FLOOR PLAN

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SBC-201

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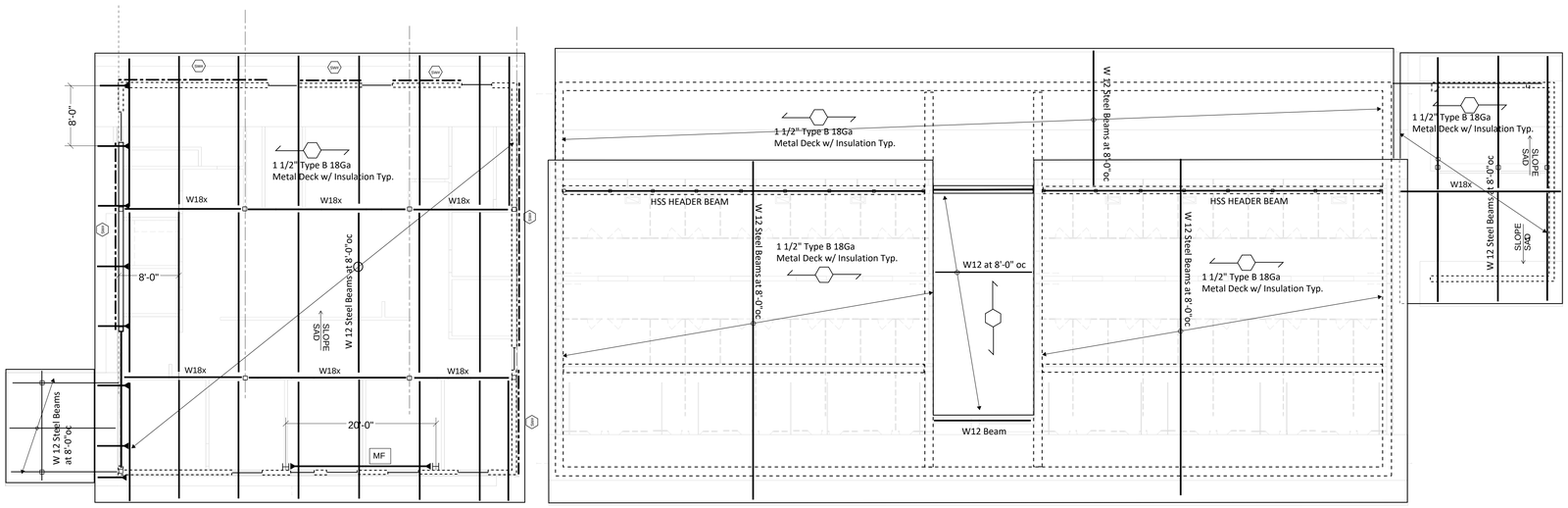

ROOF PLAN NOTES

1. SEE SHEET **S-XXX** SERIES FOR STRUCTURAL NOTES.
   SEE SHEET **S-XXX** SERIES FOR TYPICAL DETAILS.
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3. BEAM TO BE EQUALLY SPACED BETWEEN SUPPORTS UNO.
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5. MF STEEL MOMENT FRAME

NORTH 1 **MEDICAL CLINIC STRUCTURAL ROOF PLAN**
1/8" = 1'-0"

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SBC-202

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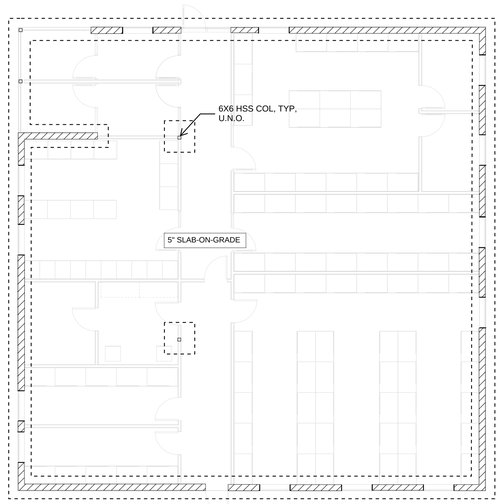

1 NORTH

CAT & OTHER ANIMALS BUILDING STRUCTURAL FLOOR PLAN

1/8" = 1'-0"

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CAT & OTHER ANIMALS BUILDING STRUCTURAL FLOOR PLAN

sheet number

SD-201

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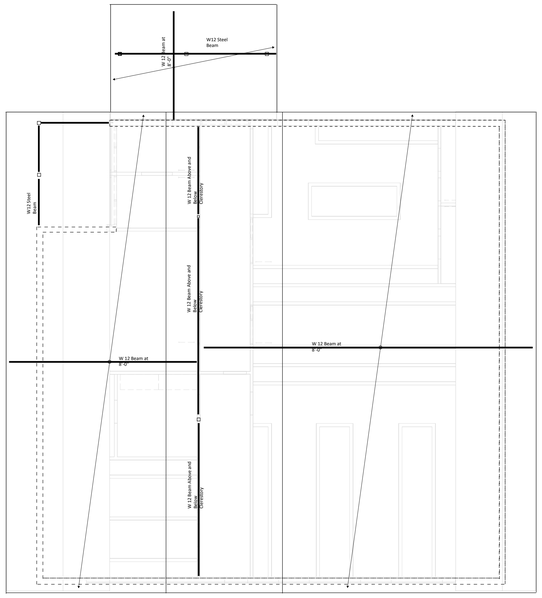

1 NORTH

CAT & OTHER ANIMALS BUILDING STRUCTURAL ROOF PLAN

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CAT & OTHER ANIMALS BUILDING STRUCTURAL ROOF PLAN

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SD-202

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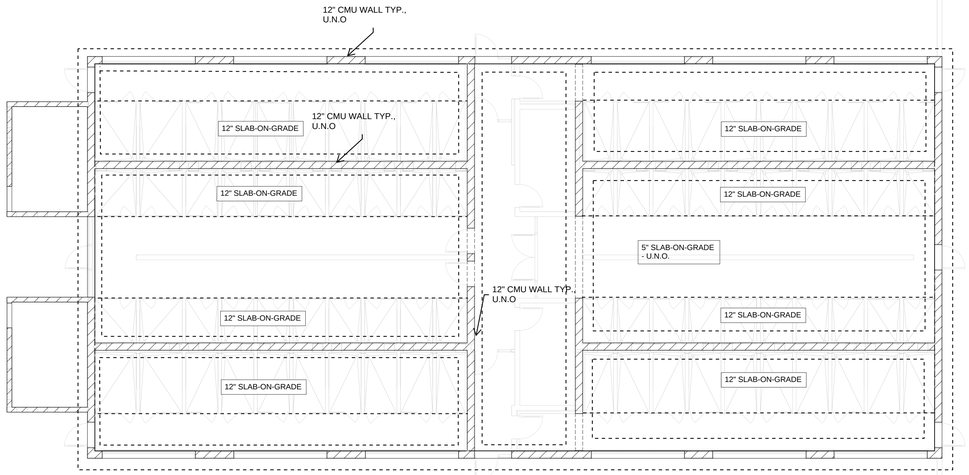

NORTH

1 ADOPTION DOG BUILDING 1 FOUNDATION PLAN

1/8" = 1'-0"

FOUNDATION PLAN NOTES

1. SEE SHEET **S-XXX** SERIES FOR STRUCTURAL NOTES.
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REN. 9-30-23
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SAN BERNARDINO COUNTY

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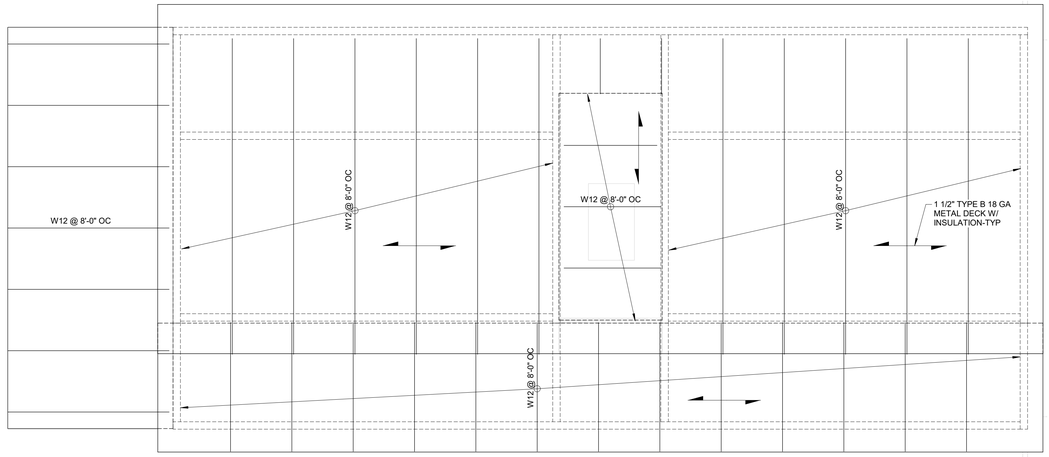
ADOPTION DOG BUILDING 1 FOUNDATION PLAN

sheet number

SE-201

Sheet Of Sheets



NORTH 1 **ADOPTION DOG BUILDING 1 STRUCTURAL ROOF PLAN**

1/8" = 1'-0"

ROOF PLAN NOTES

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ADOPTION DOG BUILDING 1 STRUCTURAL ROOF PLAN

sheet number

SE-202

Sheet Of Sheets

1 ADOPTION DOG BUILDING 2 STRUCTURAL FLOOR PLAN

1/8" = 1'-0"

NORTH

FOUNDATION PLAN NOTES

1. SEE SHEET **S-XXX** SERIES FOR STRUCTURAL NOTES.
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ADOPTION DOG BUILDING 2 STRUCTURAL FLOOR PLAN

sheet number

SF-201

Sheet Of Sheets

1 ADOPTION DOG BUILDING 2 STRUCTURAL ROOF PLAN

1/8" = 1'-0"

NORTH

ROOF PLAN NOTES

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ADOPTION DOG BUILDING 2 STRUCTURAL ROOF PLAN

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1 ADOPTION DOG BUILDING 3 STRUCTURAL FLOOR PLAN

1/8" = 1'-0"

NORTH

FOUNDATION PLAN NOTES

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LICENSED ARCHITECT
GARY W. MILLER
No. C14635
REN. 9-30-23
STATE OF CALIFORNIA

owner approval

initials	date	phase

revisions/addenda

#	Date	Comment

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REF. SCALE IN INCHES PROJECT #22007569.00

PRELIMINARY NOT FOR CONSTRUCTION

ANIMAL CARE CENTER
18313 VALLEY BLVD. BLOOMINGTON, CA 92313
SAN BERNARDINO COUNTY

project information

Project Number:	22007569.00
Drawn By:	Author
Checked By:	JP
Issue Date:	06/12/23

sheet name

ADOPTION DOG BUILDING 3 STRUCTURAL FLOOR PLAN

sheet number

SG-201

Sheet Of Sheets

1 NORTH **ADOPTION DOG BUILDING 3 STRUCTURAL ROOF PLAN**
1/8" = 1'-0"

ROOF PLAN NOTES

1. SEE SHEET **S-XXX** SERIES FOR STRUCTURAL NOTES.
   SEE SHEET **S-XXX** SERIES FOR TYPICAL DETAILS.
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3. BEAM TO BE EQUALLY SPACED BETWEEN SUPPORTS UNO.
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5. MF STEEL MOMENT FRAME

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NORTH 1 **STRAY DOG BUILDING STRUCTURAL FLOOR PLAN**
1/8" = 1'-0"

FOUNDATION PLAN NOTES

1. SEE SHEET **S-XXX** SERIES FOR STRUCTURAL NOTES.
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14. DENOTED 12" CMU WALL
15. SW# DENOTES METAL STUD SHAR WALL W/15/32" PLYWOOD

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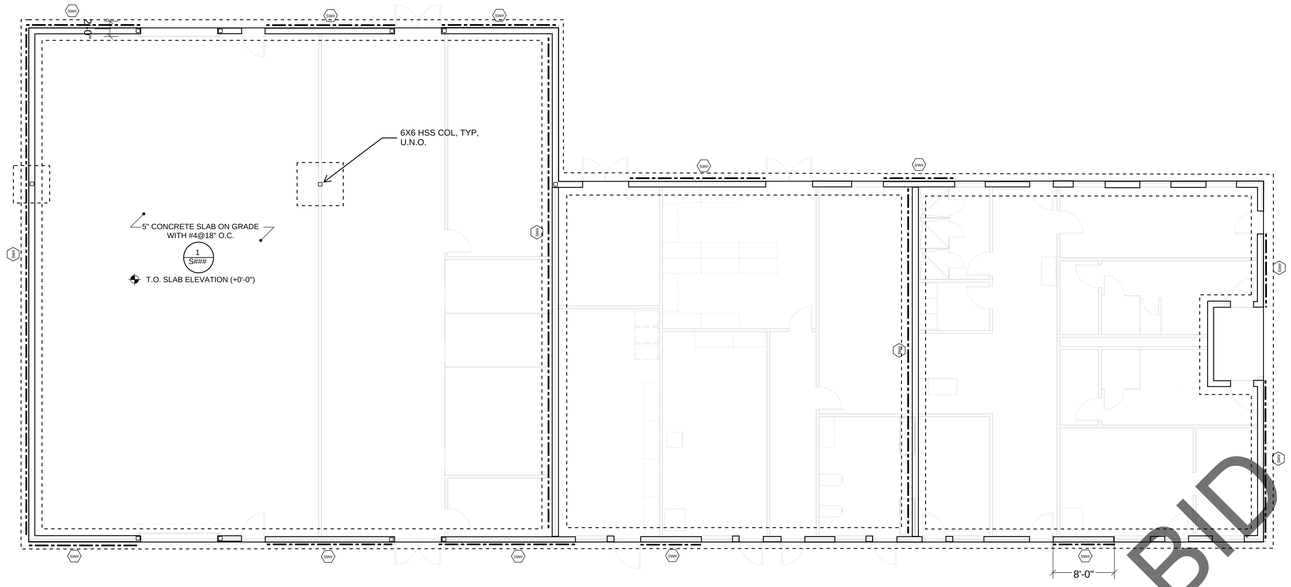

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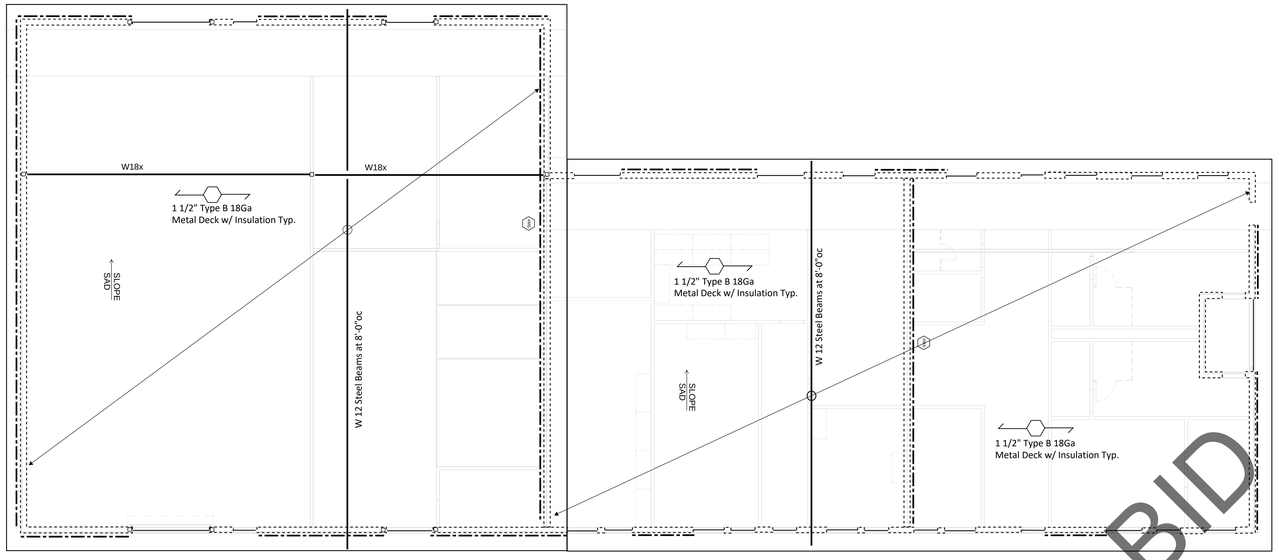

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APPENDIX 4

AIR QUALITY IMPACT ANALYSIS

Animal Care Facility (MIL-291)

AIR QUALITY IMPACT ANALYSIS

COUNTY OF SAN BERNARDINO

PREPARED BY:

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Alyssa Barnett
abarnett@urbanxroads.com

MAY 1, 2024

TABLE OF CONTENTS

APPENDICES

LIST OF EXHIBITS

LIST OF TABLES

LIST OF ABBREVIATED TERMS

%	Percent
°F	degrees Fahrenheit
µg/m^3	Microgram per Cubic Meter
1992 CO Plan	1992 Federal Attainment Plan for Carbon Monoxide
AB 2595	California Clean Air Act
AQIA	Air Quality Impact Analysis
AQP	Air Quality Plans
BAAQMD	Bay Area Air Quality Management District
BACM	Best Available Control Measure
C_2H_3Cl	vinyl chloride
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California EPA
CALGreen	California Green Building Standards Code
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CO	Carbon Monoxide
COHb	Carboxyhemoglobin
County	County of San Bernardino
EIR	Environmental Impact Report
EMFAC	EMissions FACtor model
EPA	Environmental Protection Agency
g/L	Gram/Liter
GHG	Greenhouse Gas
H_2S	Hydrogen Sulfide
LST	Localized Significance Thresholds
LST Methodology	Final Localized Significance Threshold Methodology
MM	Mitigation Measures
Mph	Miles Per Hour
MWELO	Model Water Efficient Landscape Ordinance
NAAQS	National Ambient Air Quality Standards
NO	Nitric Oxide

NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
O_2	Oxygen
O_2 deficiency	Chronic Hypoxemia
O_3	Ozone
Pb	Lead
PM	Particulate Matter
PM_{10}	Particulate matter 10 microns or less
$PM_{2.5}$	Particulate matter 2.5 microns or less
ppm	Parts Per Million
Project	Wildomar Meadows Project
RECLAIM	Regional Clean Air Incentives Market
ROG	Reactive Organic Gases
RTP	Regional Transportation Plan
Rule 1113	SCAQMD Rule 1113 - Architectural Coatings
Rule 403	SCAQMD Rule 403 - Fugitive Dust
Rule 445	SCAQMD Rule 445 – Wood-Burning Devices
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_4	Sulfates
SOX	Sulfur Oxides
SRA	Source Receptor Area
TAC	Toxic Air Contaminant
Title I	Non-Attainment Provisions
Title II	Mobile Source Provisions
VOC	Volatile Organic Compounds
vph	Vehicles Per Hour

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EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *Animal Care Facility (MIL-291) Air Quality Impact Analysis* are summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines (1). Table ES-1 shows the findings of significance for each potential air quality impact under CEQA.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Regional Construction Emissions	3.4	*Less Than Significant*	*n/a*
Regional Operational Emissions	3.5	*Less Than Significant*	*n/a*
Localized Construction Emissions	3.7	*Less Than Significant*	*n/a*
Localized Operation Emissions	3.8	*Less Than Significant*	*n/a*
CO "Hot Spot" Analysis	3.9	*Less Than Significant*	*n/a*
Air Quality Management Plan	3.10	*Less Than Significant*	*n/a*
Toxic Air Contaminants Analysis	3.11	*Less Than Significant*	*n/a*
Sensitive Receptors	3.12	*Less Than Significant*	*n/a*
Odors	3.13	*Less Than Significant*	*n/a*
Cumulative Impacts	3.14	*Less Than Significant*	*n/a*

ES.2 STANDARD REGULATORY REQUIREMENTS/BEST AVAILABLE CONTROL MEASURES

Measures listed below (or equivalent language) shall appear on all Project grading plans, construction specifications and bid documents, and the County of San Bernardino will ensure such language is incorporated prior to issuance of any development permits. South Coast Air Quality Management District (SCAQMD) Rules that are currently applicable during construction activity for this Project include but are not limited to Rule 403 (Fugitive Dust) and Rule 1113 (Architectural Coatings) (2) (4). It should be noted that these Rules represent Best Available Control Measures (BACMs) and are not mitigation since they are regulatory requirements. As such, credit for Rule 403 and Rule 1113 have been taken.

RULE 403

The contractor shall adhere to applicable measures contained in Table 1 of Rule 403 including, but not limited to (2):

- All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 25 miles per hour (mph) per SCAQMD guidelines in order to limit fugitive dust emissions.

- The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the Project are watered at least three (3) times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day.
- All access points to the Project site shall have track out devices installed.
- The contractor shall ensure that traffic speeds on unpaved roads and Project site areas are limited to 15 mph or less.

RULE 1113

The following measures shall be incorporated into Project plans and specifications as implementation of SCAQMD Rule 1113 (4):

- Only "Low-Volatile Organic Compounds (VOC)" paints consistent with SCAQMD Rule 1113 shall be used.

ES.3 CONSTRUCTION-SOURCE MITIGATION

Project construction emissions would not exceed applicable SCAQMD regional thresholds of significance. Therefore, Project construction-source emissions would be considered less than significant on a project-specific and cumulative basis.

ES.4 OPERATIONAL-SOURCE MITIGATION MEASURES

Project operational emissions would not exceed applicable SCAQMD regional of local thresholds of significance. Therefore, Project operational-source emissions would be considered less than significant on a project-specific and cumulative basis.

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1 INTRODUCTION

This report presents the results of the Air Quality Impact Analysis (AQIA) prepared by Urban Crossroads, Inc., for the proposed Animal Care Facility (MIL-291) (Project). The purpose of this AQIA is to evaluate the potential air quality impacts associated with construction and operation of the proposed Project and identify measures, as necessary, to reduce emissions in comparison to thresholds established by the SCAQMD.

1.1 SITE LOCATION

The Animal Care Facility (MIL-291) Project is located north of San Bernardino Freeway and south of Valley Boulevard, in the Bloomington area in the County of San Bernardino, as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The proposed Project site is approximately 6.0-acres in size. The existing Devore Animal Shelter has currently exceeded its useful life span and is unable to accommodate the growth required due to existing facility deterioration, limited wastewater and sewage capacity, remote location, and other factors. As such, the Project is proposed to enhance services and expand capacity and additional work areas to accommodate the growth of the Animal Care Division.

The Project will include enhanced services, expanded capacity, and additional work areas to accommodate the growth of the Animal Care Division. The new facility will increase animal housing units to allow the County to serve additional municipalities in the Central Valley Region of the County. Program services will be enhanced to include a veterinary clinic; expanded pet adoption areas; animal exercise play yard; increased staffing work areas; volunteer work areas; expanded parking and other provisions to allow the Division to accommodate growth and increased demand for services. The new shelter will consist of a two-story, 14,691 square-foot (sf) administrative office building, seven dog housing/kennel buildings totaling 35,846-sf, a 2,758-sf medical clinic, 8,896-sf support building, 5830-sf cat and other animal housing building, 5,934-sf medical dog building with a 436-sf euthanasia facility, and 540-sf car wash structure (total of 74,391-sf). The Project is anticipated to have an Opening Year of 2026. The preliminary Project site plan is shown on Exhibit 1-B.

EXHIBIT 1-A: LOCATION MAP

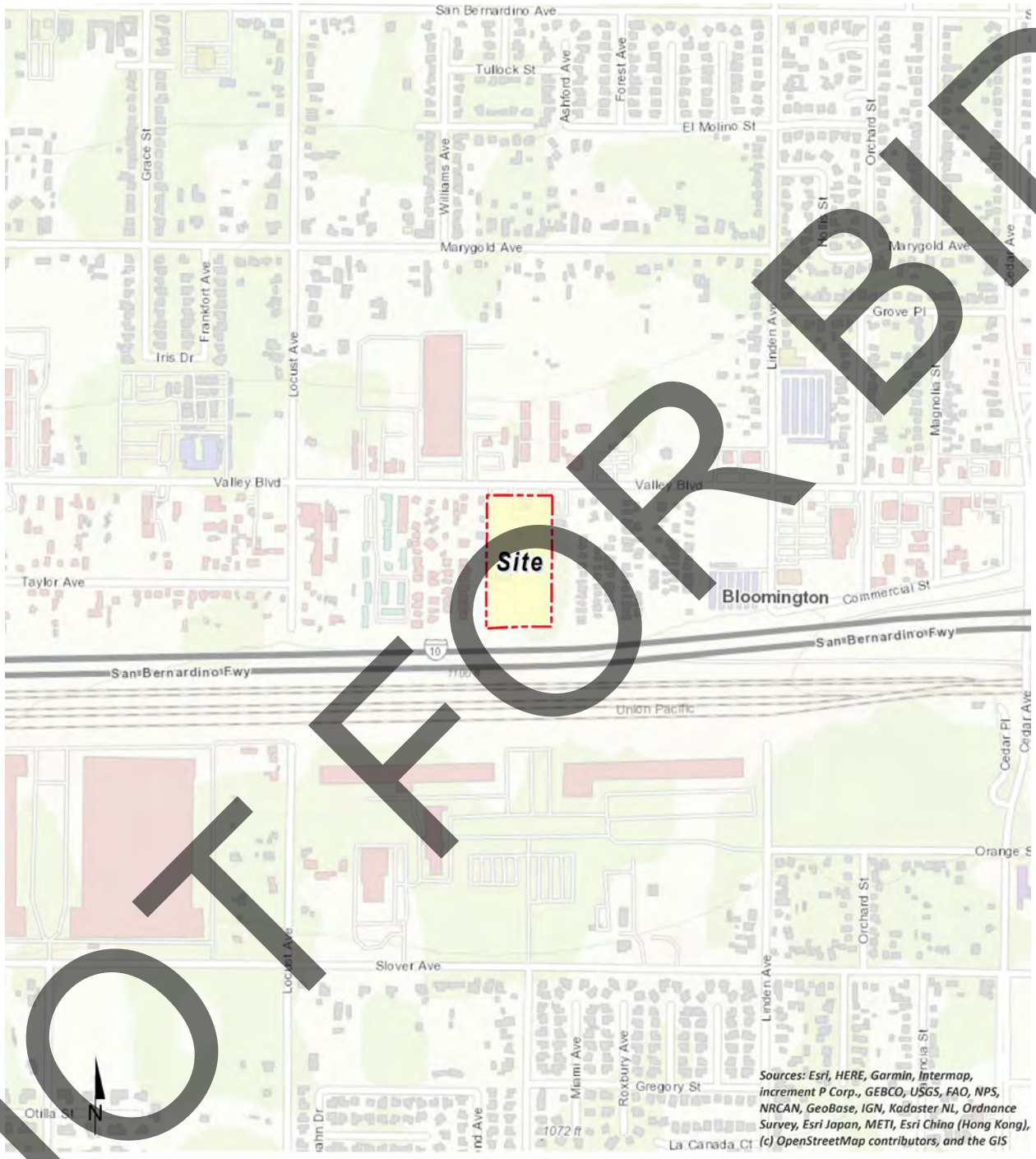
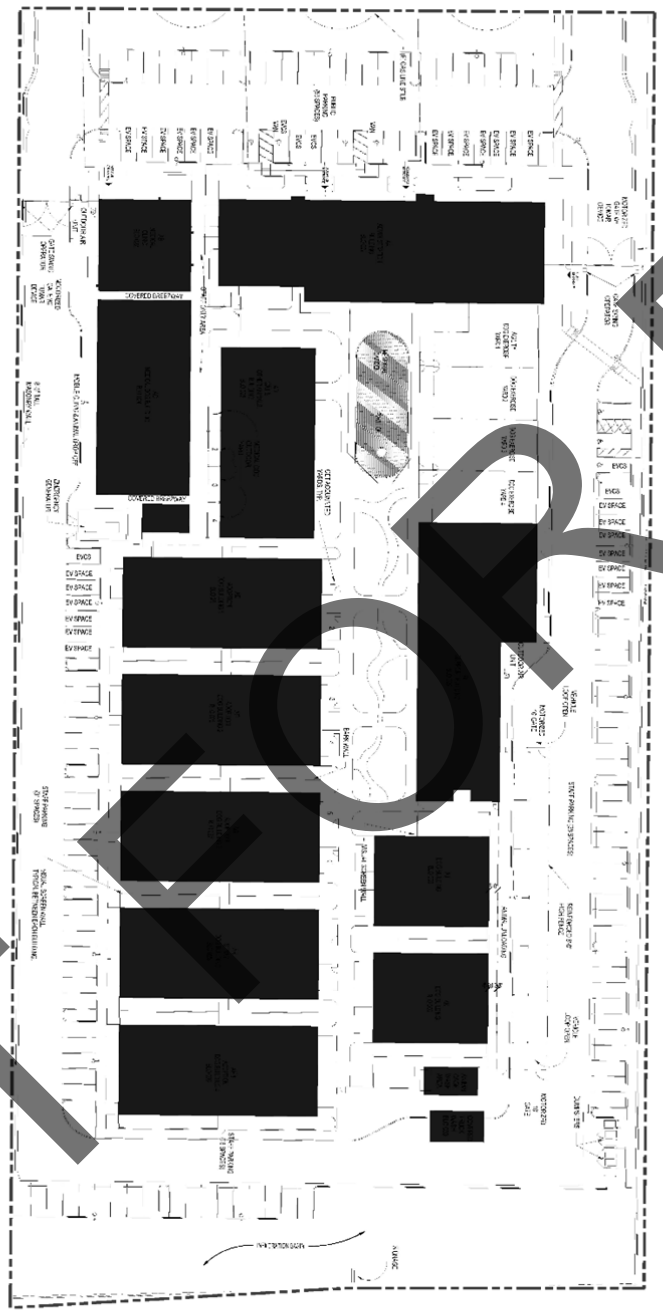


EXHIBIT 1-B: SITE PLAN



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2 AIR QUALITY SETTING

This section provides an overview of the existing air quality conditions in the Project area and region.

2.1 SOUTH COAST AIR BASIN

The Project site is located in the South Coast Air Basin (SCAB) within the jurisdiction of SCAQMD (5). The SCAQMD was created by the 1977 Lewis-Presley Air Quality Management Act, which merged four county air pollution control bodies into one regional district. Under the Act, the SCAQMD is responsible for bringing air quality in areas under its jurisdiction into conformity with federal and state air quality standards. As previously stated, the Project site is located within the SCAB, a 6,745-square-mile subregion of the SCAQMD, which includes portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County.

The SCAB is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Los Angeles County portion of the Mojave Desert Air Basin is bounded by the San Gabriel Mountains to the south and west, the Los Angeles / Kern County border to the north, and the Los Angeles / San Bernardino County border to the east. The Riverside County portion of the Salton Sea Air Basin is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley.

2.2 REGIONAL CLIMATE

The regional climate has a substantial influence on air quality in the SCAB. In addition, the temperature, wind, humidity, precipitation, and amount of sunshine influence the air quality.

The annual average temperatures throughout the SCAB vary from the low to middle 60s in degrees Fahrenheit (°F). Due to a decreased marine influence, the eastern portion of the SCAB shows greater variability in average annual minimum and maximum temperatures. January is the coldest month throughout the SCAB, with average minimum temperatures of 47°F in downtown Los Angeles and 36°F in San Bernardino. All portions of the SCAB have recorded maximum temperatures above 100°F.

Although the climate of the SCAB can be characterized as semi-arid, the air near the land surface is quite moist on most days because of the presence of a marine layer. This shallow layer of sea air is an important modifier of SCAB climate. Humidity restricts visibility in the SCAB, and the conversion of sulfur dioxide (SO_2) to sulfates (SO_4) is heightened in air with high relative humidity. The marine layer provides an environment for that conversion process, especially during the spring and summer months. The annual average relative humidity within the SCAB is 71% along the coast and 59% inland. Since the ocean effect is dominant, periods of heavy early morning fog are frequent and low stratus clouds are a characteristic feature. These effects decrease with distance from the coast.

More than 90% of the SCAB's rainfall occurs from November through April. The annual average rainfall varies from approximately nine inches in Riverside to fourteen inches in downtown Los

Angeles. Monthly and yearly rainfall totals are extremely variable. Summer rainfall usually consists of widely scattered thunderstorms near the coast and slightly heavier shower activity in the eastern portion of the SCAB with frequency being higher near the coast.

Due to its generally clear weather, about three-quarters of available sunshine is received in the SCAB. The remaining one-quarter is absorbed by clouds. The ultraviolet portion of this abundant radiation is a key factor in photochemical reactions. On the shortest day of the year there are approximately 10 hours of possible sunshine, and on the longest day of the year there are approximately 14½ hours of possible sunshine.

The importance of wind to air pollution is considerable. The direction and speed of the wind determines the horizontal dispersion and transport of the air pollutants. During the late autumn to early spring rainy season, the SCAB is subjected to wind flows associated with the traveling storms moving through the region from the northwest. This period also brings five to ten periods of strong, dry offshore winds, locally termed "Santa Anas" each year. During the dry season, which coincides with the months of maximum photochemical smog concentrations, the wind flow is bimodal, typified by a daytime onshore sea breeze and a nighttime offshore drainage wind. Summer wind flows are created by the pressure differences between the relatively cold ocean and the unevenly heated and cooled land surfaces that modify the general northwesterly wind circulation over southern California. Nighttime drainage begins with the radiational cooling of the mountain slopes. Heavy, cool air descends the slopes and flows through the mountain passes and canyons as it follows the lowering terrain toward the ocean. Another characteristic wind regime in the SCAB is the "Catalina Eddy," a low level cyclonic (counterclockwise) flow centered over Santa Catalina Island which results in an offshore flow to the southwest. On most spring and summer days, some indication of an eddy is apparent in coastal sections.

In the SCAB, there are two distinct temperature inversion structures that control vertical mixing of air pollution. During the summer, warm high-pressure descending (subsiding) air is undercut by a shallow layer of cool marine air. The boundary between these two layers of air is a persistent marine subsidence/inversion. This boundary prevents vertical mixing which effectively acts as an impervious lid to pollutants over the entire SCAB. The mixing height for the inversion structure is normally situated 1,000 to 1,500 feet above mean sea level.

A second inversion-type forms in conjunction with the drainage of cool air off the surrounding mountains at night followed by the seaward drift of this pool of cool air. The top of this layer forms a sharp boundary with the warmer air aloft and creates nocturnal radiation inversions. These inversions occur primarily in the winter, when nights are longer and onshore flow is weakest. They are typically only a few hundred feet above mean sea level. These inversions effectively trap pollutants, such as nitrogen oxides (NO_X) and carbon monoxide (CO) from vehicles, as the pool of cool air drifts seaward. Winter is therefore a period of high levels of primary pollutants along the coastline.

2.3 WIND PATTERNS AND PROJECT LOCATION

The distinctive climate of the Project area and the SCAB is determined by its terrain and geographical location. The SCAB is located in a coastal plain with connecting broad valleys and

low hills, bounded by the Pacific Ocean in the southwest quadrant with high mountains forming the remainder of the perimeter.

Wind patterns across the south coastal region are characterized by westerly and southwesterly onshore winds during the day and easterly or northeasterly breezes at night. Winds are characteristically light although the speed is somewhat greater during the dry summer months than during the rainy winter season.

2.4 CRITERIA POLLUTANTS

Criteria pollutants are pollutants that are regulated through the development of human health based and/or environmentally based criteria for setting permissible levels. Criteria pollutants, their typical sources, and health effects are identified below (6):

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
CO	CO is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest during the winter morning, when little to no wind and surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone (O_3), motor vehicles operating at slow speeds are the primary source of CO in the SCAB. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.	Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of decreased oxygen (O_2) supply to the heart. Inhaled CO has no direct toxic effect on the lungs but exerts its effect on tissues by interfering with O_2 transport and competing with O_2 to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for O_2 supply can be adversely affected by exposure to CO. Individuals most at risk include fetuses, patients with diseases involving heart and blood vessels, and patients with chronic hypoxemia (O_2 deficiency) as seen at high altitudes.

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
SO_2	SO_2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms SO_4. Collectively, these pollutants are referred to as sulfur oxides (SO_X).	Coal or oil burning power plants and industries, refineries, diesel engines.	A few minutes of exposure to low levels of SO_2 can result in airway constriction in some asthmatics, all of whom are sensitive to its effects. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2. Animal studies suggest that despite SO_2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. In these studies, efforts to separate the effects of SO_2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically, or one pollutant alone is the predominant factor.

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
NO_X	NO_X consist of nitric oxide (NO) and nitrogen dioxide (NO_2) and five other compounds, which are formed when nitrogen (N) combines with oxygen. Their lifespan in the atmosphere ranges from one to seven days for NO and NO_2. NO_X is typically created during combustion processes and are major contributors to smog formation and acid deposition. NO_2 is a criteria air pollutant and may result in numerous adverse health effects; it absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility. Of the seven types of nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere. As ambient concentrations of NO_2 are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO_2 than those indicated by regional monitoring station.	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.	Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposure to NO_2 at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups. In animals, exposure to levels of NO_2 considerably higher than ambient concentrations result in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of O_3 exposure increases when animals are exposed to a combination of O_3 and NO_2.
O_3	O_3 is a highly reactive and unstable gas that is formed when VOCs and NO_X, both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the	Formed when reactive organic gases (ROG) and NO_X react in the presence of	Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
	presence of sunlight. O_3 concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.	sunlight. ROG sources include any source that burns fuels, (e.g., gasoline, natural gas, wood, oil) solvents, petroleum processing and storage and pesticides.	the most susceptible sub-groups for O_3 effects. Short-term exposure (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. Elevated O_3 levels are associated with increased school absences. In recent years, a correlation between elevated ambient O_3 levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple outdoor sports and live in communities with high O_3 levels. O_3 exposure under exercising conditions is known to increase the severity of the responses described above. Animal studies suggest that exposure to a combination of pollutants that includes O_3 may be more toxic than exposure to O_3 alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
Particulate Matter (PM)	PM_{10}: A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. PM pollution is a major cause of reduced visibility (haze) which is caused by the scattering of light and consequently the significant reduction air clarity. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the lungs where they may be deposited, resulting in adverse health effects. Additionally, it should be noted that PM_{10} is considered a criteria air pollutant. $PM_{2.5}$: A similar air pollutant to PM_{10} consisting of tiny solid or liquid particles which are 2.5 microns or smaller (which is often referred to as fine particles). These particles are formed in the atmosphere from primary gaseous emissions that include SO_4 formed from SO_2 release from power plants and industrial facilities and nitrates that are formed from NO_X release from power plants, automobiles and other types of combustion sources. The chemical composition of fine particles highly depends on location, time of year, and weather conditions. $PM_{2.5}$ is a criteria air pollutant.	Sources of PM_{10} include road dust, windblown dust and construction. Also formed from other pollutants (acid rain, NO_X, SO_X, organics). Incomplete combustion of any fuel. $PM_{2.5}$ comes from fuel combustion in motor vehicles, equipment and industrial sources, residential and agricultural burning. Also formed from reaction of other pollutants (acid rain, NO_X, SO_X, organics).	A consistent correlation between elevated ambient fine PM (PM_{10} and $PM_{2.5}$) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in lifespan, and an increased mortality from lung cancer. Daily fluctuations in $PM_{2.5}$ concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children, and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long term exposure to PM. The elderly, people with pre-existing respiratory or cardiovascular disease, and children appear to be more susceptible to the effects of high levels of PM_{10} and $PM_{2.5}$.
VOC	VOCs are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms)	Organic chemicals are widely used as ingredients in household	Breathing VOCs can irritate the eyes, nose and throat, can cause difficulty breathing and nausea, and can damage

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
	that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical reactions and/or may be toxic. Compounds of carbon (also known as organic compounds) have different levels of reactivity; that is, they do not react at the same speed or do not form O_3 to the same extent when exposed to photochemical processes. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. Exceptions to the VOC designation include CO, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. VOCs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The terms VOC and ROG (see below) interchangeably.	products. Paints, varnishes and wax all contain organic solvents, as do many cleaning, disinfecting, cosmetic, degreasing and hobby products. Fuels are made up of organic chemicals. All of these products can release organic compounds while you are using them, and, to some degree, when they are stored.	the central nervous system as well as other organs. Some VOCs can cause cancer. Not all VOCs have all these health effects, though many have several.
ROG	Similar to VOC, ROGs are also precursors in forming O_3 and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and NO_X react in the presence of sunlight. ROGs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The terms ROG and VOC (see previous) interchangeably.	Sources similar to VOCs.	Health effects similar to VOCs.
Lead (Pb)	Pb is a heavy metal that is highly persistent in the environment and is considered a criteria pollutant. In the past, the primary source of Pb in the air was	Metal smelters, resource recovery, leaded gasoline,	Fetuses, infants, and children are more sensitive than others to the adverse effects of Pb exposure. Exposure to low levels of Pb can adversely

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
	emissions from vehicles burning leaded gasoline. The major sources of Pb emissions are ore and metals processing, particularly Pb smelters, and piston-engine aircraft operating on leaded aviation gasoline. Other stationary sources include waste incinerators, utilities, and lead-acid battery manufacturers. It should be noted that the Project does not include operational activities such as metal processing or Pb acid battery manufacturing. As such, the Project is not anticipated to generate a quantifiable amount of Pb emissions.	deterioration of Pb paint.	affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased Pb levels are associated with increased blood pressure. Pb poisoning can cause anemia, lethargy, seizures, and death; although it appears that there are no direct effects of Pb on the respiratory system. Pb can be stored in the bone from early age environmental exposure, and elevated blood Pb levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of Pb because of previous environmental Pb exposure of their mothers.
Odor	Odor means the perception experienced by a person when one or more chemical substances in the air come into contact with the human olfactory nerves (7).	Odors can come from many sources including animals, human activities, industry, natures, and vehicles.	Offensive odors can potentially affect human health in several ways. First, odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. Second, studies have shown that the VOCs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
			odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects such as stress.

2.5 EXISTING AIR QUALITY

Existing air quality is measured at established SCAQMD air quality monitoring stations. Monitored air quality is evaluated in the context of ambient air quality standards. These standards are the levels of air quality that are considered safe, with an adequate margin of safety, to protect the public health and welfare. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) currently in effect are shown in Table 2-2 (8).

The determination of whether a region's air quality is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to the state and federal standards. At the time of this AQIA, the most recent state and federal standards are presented in Table 2-2. The air quality in a region is considered to be in attainment if the measured ambient air pollutant levels for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, PM_{10}, and $PM_{2.5}$ are not to be exceeded. All others are not to be equaled or exceeded. It should be noted that the three-year period is presented for informational purposes and is not the basis for how attainment status is determined. Attainment status for a pollutant means that the SCAB meets the standards set by the U.S. Environmental Protection Agency (EPA) or the California EPA (CalEPA). Conversely, nonattainment means that an area has monitored air quality that does not meet the NAAQS or CAAQS. The State Implementation Plan (SIP) is required by the federal Clean Air Act (CAA) for area that are designated non-attainment under the NAAQS. The SIP outlines the measures that a state will take to improve air quality in the area designated nonattainment. Once nonattainment areas meet the standards and additional redesignation requirements, the EPA designates the area as a maintenance area (9).

TABLE 2-2: AMBIENT AIR QUALITY STANDARDS (1 OF 2)

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page …

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California Air Resources Board (5/4/16)

TABLE 2-2: AMBIENT AIR QUALITY STANDARDS (2 OF 2)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

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2.6 REGIONAL AIR QUALITY

Air pollution contributes to a wide variety of adverse health effects. The EPA has established NAAQS for six of the most common air pollutants: CO, Pb, O_3, particulate matter (PM_{10} and $PM_{2.5}$), NO_2, and SO_2 which are known as criteria pollutants. The SCAQMD monitors levels of various criteria pollutants at 37 permanent monitoring stations and 5 single-pollutant source Pb air monitoring sites throughout the air district (10). On January 25, 2024, CARB adopted the proposed 2023 amendments to the state and national area designations. See Table 2-3 for attainment designations for the SCAB (11). Appendix 2.1 provides geographic representation of the state and federal attainment status for applicable criteria pollutants within the SCAB.

TABLE 2-3: ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SCAB

Criteria Pollutant	State Designation	Federal Designation
O_3 – 1-hour standard	Nonattainment	--
O_3 – 8-hour standard	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Unclassifiable/Attainment
NO_2	Attainment	Unclassifiable/Attainment
SO_2	Attainment	Unclassifiable/Attainment
Pb[1]	Attainment	Unclassifiable/Attainment

Note: See Appendix 2.1 for a detailed map of State/National Area Designations within the SCAB
"-" = The national 1-hour O_3 standard was revoked effective June 15, 2005.

2.7 LOCAL AIR QUALITY

The SCAQMD has designated general forecast areas and air monitoring areas (referred to as Source Receptor Areas [SRA]) throughout the district in order to provide information regarding air quality conditions to Southern California residents. The Project site is located within the Central San Bernardino Valley 1 area (SRA 34). The Central San Bernardino Valley 1 monitoring station is located approximately 5.4 miles northwest of the Project site and reports air quality statistics for O_3, CO, NO_2, PM_{10}, and $PM_{2.5}$.

The most recent three (3) years of data available is shown on Table 2-4 and identifies the number of days ambient air quality standards were exceeded for the study area, which is considered to be representative of the local air quality at the Project site. Data for O_3, CO, NO_2, PM_{10}, and $PM_{2.5}$ for 2020 through 2022 was obtained from the SCAQMD Air Quality Data Tables (12). Additionally, data for SO_2 has been omitted as attainment is regularly met in the SCAB and few monitoring stations measure SO_2 concentrations.

[1] The Federal nonattainment designation for lead is only applicable towards the Los Angeles County portion of the SCAB.

TABLE 2-4: PROJECT AREA AIR QUALITY MONITORING SUMMARY 2020-2022

Pollutant	Standard	Year		
		2020	2021	2022
O_3				
Maximum Federal 1-Hour Concentration (ppm)		0.151	0.125	0.144
Maximum Federal 8-Hour Concentration (ppm)		0.111	0.103	0.107
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm	56	44	44
Number of Days Exceeding State/Federal 8-Hour Standard	> 0.070 ppm	89	83	70
CO				
Maximum Federal 1-Hour Concentration	> 35 ppm	1.7	1.9	1.6
Maximum Federal 8-Hour Concentration	> 20 ppm	1.2	1.4	1.0
NO_2				
Maximum Federal 1-Hour Concentration	> 0.100 ppm	0.066	0.067	0.067
Annual Federal Standard Design Value		0.019	0.019	0.018
PM_{10}				
Maximum Federal 24-Hour Concentration (µg/m^3)	> 150 µg/m^3	61	73	62
Annual Federal Arithmetic Mean (µg/m^3)		35.8	32.1	31.5
Number of Days Exceeding Federal 24-Hour Standard	> 150 µg/m^3	0	0	0
Number of Days Exceeding State 24-Hour Standard	> 50 µg/m^3	6	4	8
$PM_{2.5}$				
Maximum Federal 24-Hour Concentration (µg/m^3)	> 35 µg/m^3	46.10	55.10	38.10
Annual Federal Arithmetic Mean (µg/m^3)	> 12 µg/m^3	11.95	12.07	10.89
Number of Days Exceeding Federal 24-Hour Standard	> 35 µg/m^3	1	2	1

ppm= Parts Per Million
Source: SCAQMD Historical Air Quality Data By Year, Air Quality Data Tables.

2.8 REGULATORY BACKGROUND

2.8.1 FEDERAL REGULATIONS

The EPA is responsible for setting and enforcing the NAAQS for O_3, CO, NO_X, SO_2, PM_{10}, and Pb (13). The EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of CARB.

The federal CAA was first enacted in 1955 and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The federal CAA establishes the federal air

quality standards, the NAAQS, and specifies future dates for achieving compliance (14). The federal CAA also mandates that states submit and implement SIPs for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA that identify specific emission reduction goals for areas not meeting the NAAQS require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA most directly applicable to the development of the Project site include Title I (Non-Attainment Provisions) and Title II (Mobile Source Provisions) (15) (16). Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants O_3, NO_2, SO_2, PM_{10}, CO, $PM_{2.5}$, and Pb. The NAAQS were amended in July 1997 to include an additional standard for O_3 and to adopt a NAAQS for $PM_{2.5}$. Table 2-3 (previously presented) provides the NAAQS.

Mobile source emissions are regulated in accordance with Title II provisions. These provisions require the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of hydrocarbons and NO_X. NO_X is a collective term that includes all forms of NO_X which are emitted as byproducts of the combustion process.

2.8.2 CALIFORNIA REGULATIONS

CALIFORNIA AIR RESOURCES BOARD

CARB, which became part of the CalEPA in 1991, is responsible for ensuring implementation of the California CAA (AB 2595), responding to the federal CAA, and for regulating emissions from consumer products and motor vehicles. AB 2595 mandates achievement of the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date. The CARB established the CAAQS for all pollutants for which the federal government has NAAQS and, in addition, establishes standards for SO_4, visibility, hydrogen sulfide (H_2S), and vinyl chloride (C_2H_3Cl). However, at this time, H_2S and C_2H_3Cl are not measured at any monitoring stations in the SCAB because they are not considered to be a regional air quality problem. Generally, the CAAQS are more stringent than the NAAQS (17) (13).

Local air quality management districts, such as the SCAQMD, regulate air emissions from stationary sources such as commercial and industrial facilities. All air pollution control districts have been formally designated as attainment or non-attainment for each CAAQS.

Under the California CAA non-attainment areas are required to prepare Air Quality Plans (AQP) that include specified emission reduction strategies in an effort to meet clean air goals. These plans are required to include:

- Application of Best Available Retrofit Control Technology to existing sources;
- Developing control programs for area sources (e.g., architectural coatings and solvents) and indirect sources (e.g., motor vehicle use generated by residential and commercial development);

- A District permitting system designed to allow no net increase in emissions from any new or modified permitted sources of emissions;
- Implementing reasonably available transportation control measures and assuring a substantial reduction in growth rate of vehicle trips and miles traveled;
- Significant use of low emissions vehicles by fleet operators;
- Sufficient control strategies to achieve a 5% or more annual reduction in emissions or 15% or more in a period of three years for ROGs, NO_X, CO and PM_{10}. However, air basins may use an alternative emission reduction strategy that achieves a reduction of less than 5% per year under certain circumstances.

TITLE 24 ENERGY EFFICIENCY STANDARDS AND CALIFORNIA GREEN BUILDING STANDARDS

California Code of Regulations (CCR) Title 24 Part 6: The California Energy Code was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption.

The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on August 1, 2009, and is administered by the California Building Standards Commission.

CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2022 California Green Building Code Standards that became effective on January 1, 2023. The CEC anticipates that the 2022 energy code will provide $1.5 billion in consumer benefits and reduce GHG emissions by 10 million metric tons (17). The Project would be required to comply with the applicable standards in place at the time plan check submittals are made. These require, among other items (18):

NONRESIDENTIAL MANDATORY MEASURES

- Short-term bicycle parking. If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5% of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).
- EV charging stations. New construction shall facilitate the future installation of EV supply equipment. The compliance requires empty raceways for future conduit and documentation that the electrical system has adequate capacity for the future load. The number of spaces to be provided for is contained in Table 5.106. 5.3.3 (5.106.5.3). Additionally, Table 5.106.5.4.1 specifies requirements for the installation of raceway conduit and panel power requirements for medium- and heavy-duty EV supply equipment for warehouses, grocery stores, and retail stores.
- Outdoor light pollution reduction. Outdoor lighting systems shall be designed to meet the backlight, uplight and glare ratings per Table 5.106.8 (5.106.8).

- Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1. 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).
- Excavated soil and land clearing debris. 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed (5.408.3).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
  - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1)
  - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor- mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).
  - Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combine flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).
  - Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).
- Outdoor potable water uses in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent (5.304.1).
- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 sf or for excess consumption where any tenant within a new building or within an addition that is project to consume more than 1,000 gallons per day (GPD) (5.303.1.1 and 5.303.1.2).
- Outdoor water uses in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).

- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

2.8.3 AIR QUALITY MANAGEMENT PLANNING

Currently, the NAAQS and CAAQS are exceeded in most parts of the SCAB. In response, the SCAQMD has adopted a series of AQMPs to meet the NAAQS and CAAQs (20). AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy. A detailed discussion on the AQMP and Project consistency with the AQMP is provided in Section 3.10.

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3 PROJECT AIR QUALITY IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will violate an air quality standard, contribute to an existing or projected air quality violation, or determine if it will result in a cumulatively considerable net increase of a criteria pollutant for which the SCAB is non-attainment under an applicable NAAQS and CAAQS. Additionally, the Project has been evaluated to determine consistency with the applicable AQMP, exposure of sensitive receptors to substantial pollutant concentrations, and the impacts of odors. The significance of these potential impacts is described in the following section.

3.2 STANDARDS OF SIGNIFICANCE

The criteria used to determine the significance of potential Project-related air quality impacts are taken from the *CEQA Guidelines* (14 CCR §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to air quality if it would (1):

- Conflict with or obstruct implementation of the applicable air quality plan.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard.
- Expose sensitive receptors to substantial pollutant concentrations.
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. affecting a substantial number of people.

The SCAQMD has also developed regional significance thresholds for other regulated pollutants, as summarized at Table 3-1 (21). The SCAQMD's CEQA Air Quality Significance Thresholds (March 2023) indicate that any projects in the SCAB with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact.

TABLE 3-1: MAXIMUM DAILY REGIONAL EMISSIONS THRESHOLDS

Pollutant	Regional Construction Threshold	Regional Operational Thresholds
NO_X	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_X	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Pb	3 lbs/day	3 lbs/day

lbs/day = Pounds Per Day