GENERAL BID AND CONSTRUCTION NOTES

1 THESE NOTES APPLY TO ALL DRAWINGS, UNLESS NOTED OTHERWISE. ALL OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE DRAWINGS AND/OR GENERAL NOTES ARE TO BE BROUGHT TO THE ATTENTION OF THE OWNER AND THE ARCHITECT BEFORE PROCEEDING WITH ANY WORK SO INVOLVED. ALL NOTIFICATIONS SHALL BE IN WRITING USING RFI NUMBERING W/ DATE FOR CHRONOLOGICAL REFERENCING. ALL CHANGE ORDERS TO BE CROSS REFERENCED FROM RFI FOR ACCURATE LOG SHEET

2 FROM BID PERIOD THROUGH CONSTRUCTION, THE CONTRACT DOCUMENTS OFFER QUALITY CONTROL FOR AESTHETIC DESIGN OF INTENT. THE GENERAL CONTRACTOR, HIS REPRESENTATIVES, SUBCONTRACTORS AND ALL ENTITIES ASSOCIATED WITH CONSTRUCTION, THE GENERAL CONTRACTOR MUST SUBMIT TO THE ARCHITECT, IN WRITING FOR REVIEW AND APPROVAL ALL FIELD DESIGN OR PRODUCT CHANGES IMPACTING THE APPEARANCE PRIOR TO ORDERING MATERIALS OR PRODUCTS: ANY UNAUTHORIZED WORK SUBSTITUTING THE ARCHITECTS DESIGN THAT WHICH IMPACT THE APPEARANCE, WILL BE REJECTED AT GC'S EXPENSE AND REPLACED PER ORIGINAL SPECIFIED DRAWINGS. ANY AND ALL AESTHETIC CHANGES REQUIRES BOTH ARCHITECT AND OWNERS SIGNATURES TOGETHER TO MAKE TRULY BINDING TO PREVENT UNILATERAL DECISIONS AS THERE ABOVE IS STRICTLY ENFORCEMENT, NO EXCEPTIONS.

3 ARCHITECT SHALL BE NOTIFIED OF DESIGN CHANGES PRIOR TO EXECUTION OF WORK AND HAVE ACCESS BEFORE TRADE COVER-UPS FOR FIELD REVIEW. DISPUTES BETWEEN ARCHITECT, CONTRACTOR AND OWNER SHALL BE IN STRICT CONFORMANCE WITH LATEST AMERICAN INSTITUTE OF ARCHITECTURE EDITION, FORM A101 AND B101 (SIGNED OR UNSIGNED).

4 CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY & PROTECTION IN AND AROUND JOB SITE & OR ADJACENT PROPERTIES. CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS TO BE REMOVED, RELOCATED OR REMAIN INTACT AND HOW THE NEW CONSTRUCTION RELATES TO THE SITE CONDITION. THE CONTRACTOR SHALL EXAMINE THE JOB SITE, CONFIRM ALL UTILITY LOCATIONS, SIZES, PRESSURES, ETC.. AND PROTECT, RELOCATE, CONNECT OR REMOVE ALL NECESSARY FOR TOTAL PROJECT COMPLETION, VERIFY ALL DIMENSIONS AND SATISFY HIMSELF AS TO THE EXISTING CONDITIONS UNDER WHICH HE WILL BE OBLIGATED TO OPERATE. NOTIFY THE ARCHITECT OF ANY AND ALL DISCREPANCIES PRIOR TO COMMENCING WORK.

5 THE CONTRACTOR IS RESPONSIBLE FOR ALL INSTALLATIONS THROUGH UTILIZING ARCHITECT'S DRAWINGS AS INSTRUMENTS FOR INSTRUCTION, NOT THE PRODUCT ITSELF AS THE DRAWINGS DO NOT REPRESENT THE METHOD OF CONSTRUCTION. CONTRACTOR IS TO SUPERVISE AND DIRECT THE WORK UNDER HIS CONTRACT AND IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. THE 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, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. THE ARCHITECT SHALL NOT HAVE CONTROL OVER OR CHARGE OF FIELD SAFETY, ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, OR THEIR AGENTS AND ANY OTHER PERSONS PERFORMING PORTIONS OF THE WORK SINCE THESE ARE SOLELY THE CONTRACTOR'S RESPONSIBILITY INCLUDING TIME SCHEDULES AND TRADE SEQUENCE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

OBSERVATION VISITS TO THE SITE BY THE ARCHITECT OR
6. STRUCTURAL ENGINEER FIELD REPRESENTATIVE SHALL NEITHER BE CONSTRUED AS INSPECTION NOR APPROVAL AS NOT AS INSPECTION AND DOES NOT IN ANY WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES. UNLESS NOTED OBSERVATION VISITS TO THE SITE BY FIELD REPRESENTATIVES OF THE ARCHITECT AND/OR HIS CONSULTANTS ARE NOT TO INCLUDE INSPECTIONS OF REQUIRED FOR SAME, WHICH ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ANY SUPPORT SERVICES PERFORMED BY THE ARCHITECT AND/OR HIS CONSULTANTS DURING CONSTRUCTION ARE TO BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES WHICH ARE FURNISHED BY OTHERS. THESE SUPPORT SERVICES PERFORMED BY THE ARCHITECT AND/OR HIS CONSULTANTS, WHETHER OF MATERIAL OR WORK, AND WHETHER PERFORMED PRIOR TO, DURING OR AFTER COMPLETION OF CONSTRUCTION ARE PERFORMED SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING GENERAL CONFORMANCE WITH DESIGN CONCEPT AND CONTRACT DRAWINGS AND SPECIFICATIONS AND THEREFORE, THEY DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE.
THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BUILDING BACKING SLEEVES, FRAMING FOR LIGHT FIXTURES, ELECTRICAL LIGHTS, A/C EQUIPMENT, DRAPERY, CEILING TRACKS, PLUMBING EQUIPMENT, COUNTERS, HANDRAILS, AND ALL OTHER ITEMS REQUIRING BACKING SUPPORT

7. THE ARCHITECT SHALL BE ENTITLED TO RELY UPON THE PROFESSIONAL CAPABILITY OF THE CONTRACTOR (AND HIS SUB-CONTRACTORS) FROM OWNERS' SELECTION TO ASSURE ALL IN FIELD IS HANDLED IN PROFESSIONAL MANNER. THE ARCHITECT WILL BE INSTRUMENTAL IN CLARIFYING DRAWING INTERPRETATIONS AND OTHER INQUIRIES DURING BID & CONSTRUCTION IN A TIMELY MANNER AS IS THE GENERAL CONTRACTOR TO FIELD VERIFY AND REPORT ANY DISCREPANCIES ON FIELD NOT ADDRESSED ON PLANS. ANYONE SUPPLYING LABOR AND MATERIALS TO THE PROJECT IS TO CAREFULLY EXAMINE ALL PORTIONS TO RECEIVE WORK. ANY CONDITIONS DETRIMENTAL TO WORK TO BE REPORTED IN WRITING TO ARCHITECT PRIOR TO BEGINNING WORK. NOTIFY THE ARCHITECT IF ANY CONDITIONS EXIST WHICH WILL PREVENT THE COMPLETION OF WORK IN A PROFESSIONAL AND SATISFACTORY MANNER AS WELL AS ANY AND ALL ADDITIONAL WORK TO BE PERFORMED BEFORE STARTING WORK. COMMENCEMENT OF WORK IMPLIES ACCEPTANCE OF SUBSURFACES WITH OWNER, ARCHITECT AND DEVELOPER FOR ENTIRE PROJECT SITE.

8 ALL CONTRACTORS AND SUBCONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH THE CONTENTS OF ALL THE DRAWING AND ITEMS NOTED INSIDE THE INDEX OF BOX OF THIS SHEET. ALL DRAWINGS AND SPECIFICATIONS ARE CONSIDERED TO BE PART OF THE CONTRACT DOCUMENTS. IF CLARIFICATION IS REQUIRED THE CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK. REGARDLESS OF THEIR LICENSE CLASSIFICATION. NO REQUEST FOR CHANGE ORDER WILL BE CONSIDERED BASE UPON INFORMATION FOUND IN ONE AREA OF THE PLANS OR SPECIFICATIONS, AND NOT THE OTHER. INFORMATION FOUND IN ONE PART OF THE PLANS SHALL BE DEEMED TO BE IN ALL SECTIONS.

9. ALL DIMENSIONS AND THE SITE CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE JOB SITE PRIOR ANY WORK EXECUTION AND FABRICATION OF MATERIALS TO REPORT AND NOTIFY TO THE ARCHITECT FOR SUCH CLARIFICATION IN WRITING. IF DISCREPANCIES ARE ENCOUNTERED, OR CONDITIONS DEVELOP NOT COVERED BY THE CONTRACT DOCUMENTS, ALL DIMENSIONS AND THE SITE CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE JOB SITE PRIOR TO WORK BY COMMUNICATING TO THE ARCHITECT SUCH FINDINGS DURING THE COURSE OF WORK. ACTUAL FIELD DIMENSION/CONDITIONS SHALL HAVE PRECEDENCE FROM PRINTED DIMENSIONS ON THESE DRAWINGS. REPORT TO ARCHITECT ANY DISCREPANCIES THAT INTERFERES WITH NEW WORK. DO NOT SCALE DRAWINGS. PRINTED DIMENSIONS HAVE PRECEDENCE OVER SCALED DRAWINGS AND LARGE SCALE OVER SMALL. B

10 NOTIFY ARCHITECT AND INSPECTORS 48 HOURS PRIOR TO COVER-UPS BY CONCRETE OR WITH FINISHES FOR OBSERVATION.

11 ARCHITECT DOES NOT PREPARE SHOP DRAWINGS AS EACH VENDOR SHALL SECURE THEIR OWN SHOP DRAWINGS INCLUDING DIFFERED ITEMS WITH CITY. ALL SHOP DRAWINGS AND PRODUCT SUBMITTALS REVIEW FROM THE ARCHITECT'S OFFICE SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR COMPLIANCE WITH THE STRUCTURAL CONSTRUCTION DOCUMENT. SHOP DRAWING SUBMITTALS AND PRODUCT SUBMITTALS WILL BE REVIEWED FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AS INDICATED BY THE CONSTRUCTION DOCUMENT. QUANTITIES OR DIMENSIONS WILL NOT BE REVIEWED. PROCESSES, TECHNIQUES OF CONSTRUCTION, SAFETY PROCEDURES, OR COORDINATION OF THE WORK WITH THAT OF ANY OTHER TRADE WILL NOT BE REVIEWED. SHOULD ANY COMMENT BE RELATED TO THE ABOVE BE MADE BY ARCHITECT, SUCH COMMENT SHALL BE CONSIDERED ADVISORY ONLY, OFFERED AS A COURTESY TO FACILITATE WORK, AND IS NOT AN INDICATION THAT ALL SUCH INSTANCES, WHERE SUCH A COMMENT WOULD BE APPROPRIATE, IT HAS BEEN IDENTIFIED. CLIENT AGREES TO INDEMNIFY AND HOLD HARMLESS THE ARCHITECT FROM ANY AND ALL CLAIMS OR LIABILITIES ARISING FROM SUCH ERRORS OR NEGLIGENCE. A

A
D

AGENCY NOTE (LANDSCAPE) F

CERTIFICATION OF LANDSCAPE DESIGN SHALL STATE THAT "THE DESIGN OF THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF THE COUNTY OF ORANGE LANDSCAPE IRRIGATION CODE AND THE GUIDELINES FOR IMPLEMENTATION OF THE LANDSCAPE IRRIGATION CODE (INCLUDING ALL ELEMENTS OF SECTION 2) AND SHALL BEAR THE STAMP, LICENSE NUMBER AND SIGNATURE OF THE LANDSCAPE PROFESSIONAL AS REQUIRED BY STATE LAW AND ZONING CODE SECTION 7-9-68. INCLUDE APPLICABLE REFERENCE NUMBERS: LND23-0047, PA19-0078, GRD23-0096, RE23-005 A

CONSULTANTS

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T-24 CALCULATIONS
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Direct: 714.335.3521 Office: 714.880.8089
kyle@infinitysolar.net www.infinitysolar.net

GENERAL CONTRACTOR C
TBD AT TIME OF PERMIT

GENERAL AGENCY NOTES

1. ALL NEW CONSTRUCTION SHOWN ON THE PLANS SHALL CONFORM TO THE 2019 EDITION OF 2019 CALIFORNIA RESIDENTIAL CODE, THE CALIFORNIA BUILDING CODE (CBC); CMC 2019 CALIFORNIA MECHANICAL CODE, CPC 2019 CALIFORNIA PLUMBING CODE; 2019 ENERGY CODE (T-24), CEC: 2019 CALIFORNIA ELECTRICAL CODE AND 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE AND 2017 NEC AS AMENDED BY THE STATE OF CALIFORNIA W/ COUNTY AND MUNICIPAL CODES APPLIES TO ALL PERMIT NUMBERS STARTING WITH 22 SERIES WHILE PERMITS NUMBERS STARTING WITH 23 SERIES SHALL CONFORM TO 2022 EDITIONS FOR ALL CATEGORIES OF THE ABOVE

2. CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS TO BE REMOVED, RELOCATED OR REMAIN INTACT AND HOW THE NEW CONSTRUCTION RELATES TO THE SITE CONDITION. ALL CONSTRUCTION AND INSTALLATION SHALL COMPLY WITH THE LATEST CONDITIONS (STATE/COUNTY/CITY) OF CODES AND ORDINANCES INCLUDING CAL OSHA AND FIRE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL CODE COMPLIANCE OF WORK OF EVERY TRADE.

3. "THE DISCHARGE OF POLLUTANTS TO ANY STORM DRAINAGE SYSTEM IS PROHIBITED. NO SOLID WASTE, PETROLEUM BYPRODUCTS, SOIL PARTICULATE, CONSTRUCTION WASTE MATERIALS, OR WASTEWATER GENERATED FROM CONSTRUCTION SITES OR BY CONSTRUCTION ACTIVITIES SHALL BE PLACED, CONVEYED OR DISCHARGED INTO THE STREET, GUTTER OR STORM DRAIN SYSTEM." FOR COUNTY STANDARD NPDES OUTLINE, REFER TO SHEET GN-5 A

4. CONTRACTOR TO PROVIDE A PORTABLE TOILET AND HAND WASH STATION PER OSHA REGULATIONS AS AN ONSITE REST ROOM.

5. HOUSE ADDRESS NUMBER SHALL BE MOUNTED ON HOUSE & SHALL BE VISIBLE AND LEGIBLE FROM THE STREET IN A CONTRAST COLOR 4" TALL MINIMUM

6. FOR TYPICAL FIRE PROTECTION REQUIREMENTS NOTES IN COMPLYING WITH CHAPTER 7A, REFER TO PAGES GN-1 AND GN-2 AS ENTIRE BUILDING DESIGN SHALL COMPLY WITH CHAPTER 7A SECTION THROUGHOUT.

7. ALL DIMENSIONS AND THE SITE CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE JOB SITE PRIOR TO WORK. THE ARCHITECT SHALL BE NOTIFIED FOR CLARIFICATION. ACTUAL FIELD DIMENSION/CONDITIONS SHALL HAVE PRECEDENCE FROM PRINTED DIMENSIONS ON THESE DRAWINGS. REPORT TO ARCHITECT ANY DISCREPANCIES THAT INTERFERES WITH NEW RETROFIT WORK. A

8. THE CONTRACTOR IS RESPONSIBLE FOR MEANS, METHODS AND SEQUENCE OF WORK THROUGH UTILIZING ARCHITECT'S DRAWINGS AS INSTRUMENTS FOR INSTRUCTION, NOT THE PRODUCT ITSELF. THE ARCHITECT WILL BE INSTRUMENTAL IN CLARIFYING DRAWING INTERPRETATIONS AND OTHER INQUIRIES DURING BID & CONSTRUCTION IN A TIMELY MANNER. THE ARCHITECT SHALL NOT HAVE CONTROL OVER OR CHARGE OF FIELD SAFETY, ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, OR THEIR AGENTS AND ANY OTHER PERSONS PERFORMING PORTIONS OF THE WORK SINCE THESE ARE SOLELY THE CONTRACTOR'S RESPONSIBILITY INCLUDING TIME SCHEDULES AND TRADE SEQUENCE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

9. THERE SHALL BE NO TRENCHES OR EXCAVATIONS 5 FEET OR MORE IN DEPTH INTO WHICH A PERSON IS REQUIRED TO DESCEND, OR OBTAIN PERMIT FROM STATE OF CALIFORNIA, DIVISION OF OCCUPATIONAL SAFETY AND HEALTH (CAL/OSHA). THIS PERMIT AND ANY OTHER SAFETY PERMIT SHALL BE OBTAINED PRIOR TO COMMENCE OF ANY WORK." CONTACT CAL/OSHA AT 714-558-4451 FOR ADDITIONAL INFORMATION.

10. DEFERRED SUBMITTALS AND SHOP DRAWINGS GENERATED BY VENDORS WILL BE REQUIRED TO BE SECURED/PERMITTED W/ CITY PRIOR TO FABRICATION AND INSTALL AS APPLICABLE TO THIS PROJECT. ITEMS INCLUDE BUT NOT LIMITED TO ARE FIRE SPRINKLERS, PRECAST & STEEL SHOP DRAWINGS ARE A SEPARATE PERMITS AND REQUIRED TO SUBMIT SEPARATELY. ANY INFO/DRAWINGS SHOWN INSIDE THESE SET OF DRAWINGS THAT ARE NOT OF BASE PERMIT ARE SHOWN FOR REFERENCE ONLY; DEFERRED SUBMITTALS SHALL BE PREPARED BY OTHERS SEPARATELY AND SECURED/PERMITTED WITH COUNTY PRIOR.

11. DIG ALERT (811) HTTPS://WWW.DIGALERT.ORG/ IS TO BE CONTACTED AND THAT COMPLIANCE WITH EXCAVATION SAFETY IN ACCORDANCE WITH GOVERNMENT CODE 4216 WILL BE FOLLOWED PRIOR TO ANY EXCAVATION TAKING PLACE. PROVIDE AN ACKNOWLEDGEMENT SIGNATURE SPACE AND PROVIDE SIGNATURE BY EITHER THE OWNER OR THE CONTRACTOR FOR NOTIFYING THE OWNER 24 HOURS IN ADVANCE USING FORM FROM LINK HTTPS://WWW.DIGALERT.ORG/PDFS/DIGALERTPAD.PDF

12. FOR NPDES REQUIREMENTS AND EMERGENCY CONTACTS, SEE SHEET GN-5

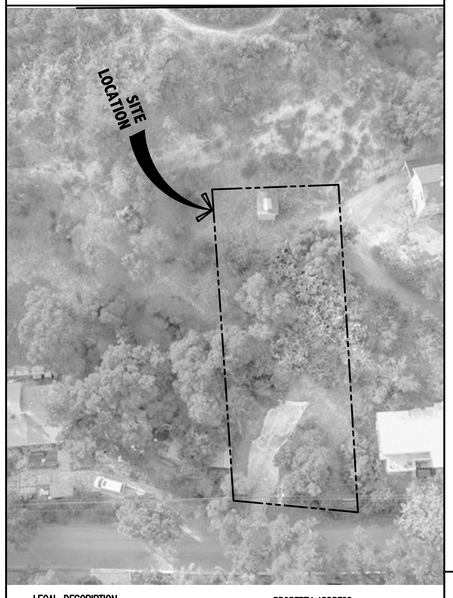
13. PER COUNTY POLICY, OVER 2 STORY NEW STRUCTURE, A SOIL REPORT IS REQ'D TO SUBMIT SOIL REPORT FOR COUNTY REVIEW APPROVAL. REQUIRED SOIL ENGINEER SHALL REVIEW STAMPS AND SIGNATURES ON FOUNDATION PLANS, RETAINING WALL AND SHORING PLANS AND DETAIL SHEETS WITH DATE

CONDITIONS OF APPROVAL

REFER TO SHEET GN-3 FOR CONDTIONS OF APPROVAL NOT SHOWN ON THIS PAGE

GENERAL FIRE DEPARTMENT NOTES

REFER TO SHT GN-1 & GN-2 FOR FIRE DEPARTMENT NOTES NOT SHOWN ON THIS PAGE



LEGAL DESCRIPTION
Legal description: LOT 33 NORTH AND THR N LOT 31 TRACT 926,
APN 84210206 COUNTY OF ORANGE

PROPERTY ADDRESS
20601 Trabuco Oaks Dr, Trabuco Canyon, CA 92678

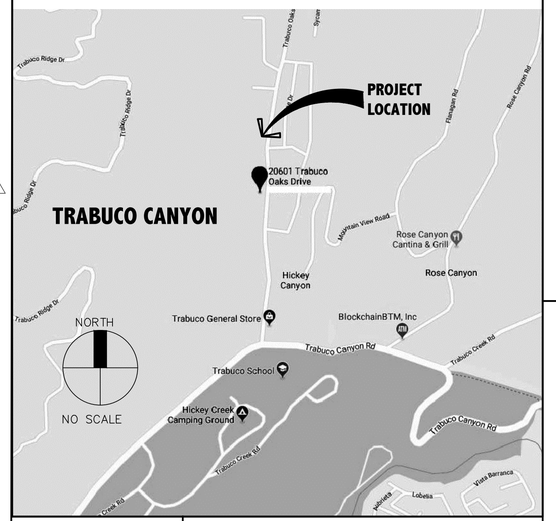
NOTE: AERIAL IS DIAGRAMATIC, REFER TO SITE ARCHITECT SITE PLAN AND CIVIL PLANS FOR SCALED DRAWINGS

NORTH

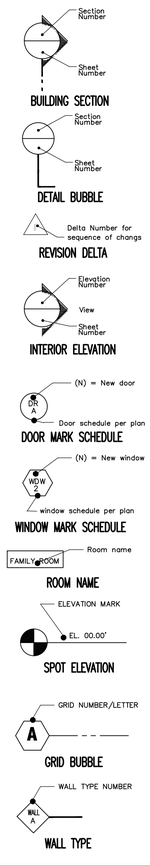
AERIAL SITE PLAN

NO SCALE

VICINITY MAP



STD SYMBOLS



ABBREVIATIONS

AB	ANCHOR BOLT	INT	INTERIOR
AC	ASPHALTIC CONCRETE	L	LONG (LENGTH)
ADJ	ADJUSTABLE	LAM	LAMINATE(D)
AFF	ABOVE FINISH FLOOR	LAV	LAVATORY
AL	ALUMINUM	LT	LIGHT
ANOD	ANODIZED	MAS	MASONRY
AP	ACCESS PANEL	MAX	MAXIMUM
ARCH	ARCHITECT	MB	MACHINE BOLT
BD	BOARD	MECH	MECHANIC(AL)
BEL	BELOW	MED	MEDIUM
BET	BETWEEN	MET	METAL
BLDG	BUILDING	MFR	MANUFACTURE(ER)
BLK(G)	BLOCK(ING)	MIN	MINIMUM
BM	BEAM	MISC	MISCELLANEOUS
B	BOTTOM	MO	MASONRY OPENING
BRG	BEARING	MTL	MATERIAL(S)
BS	BOTH SIDES	NAT	NATURAL
BUL	BULLETIN	(N)	NEW
BUR	BUILT UP ROOFING	NIC	NOT IN CONTRACT
CB	CATCH BASIN	NOM	NOMINAL
CEM	CEMENT	N	NORTH
CI	CAST IRON	NTS	NOT TO SCALE
CJ	CEILING JOIST	OC	ON CENTER(S)
CLG	CEILING	OD	OUTSIDE DIAMETER
CLR	CLEAR(ANCE	OPNG	OPENING
COL	COLUMN	OPP	OPPOSITE
CONC	CONCRETE	PLAS	PLASTER, PLASTIC
CONST	CONSTRUCTION	PLWDD	PLYWOOD
CONT	CONTINUOUS	PSF	POUNDS PER SF
CONTR	CONTRACT(OR)	PSI	POUNDS PER SQ
D	DEEP (DEPTH)	PVC	POLYVINYL CHLORIDE
DIAG	DIAGONAL	R	RISER
DIAM	DIAMETER	(R)	REMODELED
DIM	DIMENSION	RAD	RADIUS
DN	DOWN	RD	ROOF DRAIN
DR	DOOR	REF	REFERENCE
DS	DOWNSPOUT	REFL	REFLECT(ED),
DTL	DETAIL	REINF	REINFORCE(D),
E	EAST	REQ	REQUIRE(D)
EA	EACH	REV	REVISION(S)
EL	ELEVATION	RM	ROOM
ELEC	ELECTRIC(AL)	RO	ROUGH OPENING
EMER	EMERGENCY	S	SOUTH
EQ	EQUAL	SC	SOLID CORE
EX	EXHAUST	SEC	SECTION
(E)	EXISTING	SF	SQUARE FOOT
EXP	EXPOSED	SHT	SHEET
EXT	EXTERIOR	SIM	SIMILAR
FD	FLOOR DRAIN	SPEC	SPECIFICATION(S)
FAU	FORCED AIR UNIT	SQ	SQUARE
FF	FINISH FLOOR	SYM	SYMMETRY(ICAL)
FIN	FINISH(ED)	T	TREAD, TOP
FJ	FLOOR JOIST	TEL	TELEPHONE
FOC	FACE OF CONCRETE	(T)	TEMPERED
FLR	FLOOR(ING)	T&G	TONGUE AND GROVE
FV	FIELD VERIFY	THK	THICK(NESS)
FOM	FACE OF MASONRY	TOP	TOP OF PARAPET
FOS	FACE OF STUDS	TOS	TOP OF SLAB
FTG	FOOTING	TS	TOP OF STEEL
GA	GAUGE	TW	TOP OF WALL
GI	GALVANIZED IRON	TYP	TYPICAL
GL	GLASS	UON	UNLESS OTHERWISE NOTED
GLB	GLUE LAMINATED BEAM	VCT	VINYL COMPOSITION TILE
GYP	GYPSUM	VERT	VERTICAL
H	HIGH (HEIGHT)	VG	VERTICAL GRAIN
HB	HOSE BIBB	VIN	VINYL
HC	HOLLOW CORE	W	WEST, WIDTH,,
HDR	HEADER	WC	WATER CLOSET
HDW	HARDWARE	WD	WOOD
HM	HOLLOW METAL	WP	WATERPROOFING
HOR	HORIZONTAL	WR	WATER REPELLENT
HT	HEIGHT	@	AT
ID	INSIDE DIAMETER	O/	OVER
INCL	INCLUDE(D)	O	ROUND
		W/	WITH
		W/O	WITHOUT

EXISTING SITE CONDITIONS: D A

Existing Site Conditions: Located at a small rural neighborhood immediately off Trabuco Canyon Road, this new residential structure as a tiny house built into an hillside. The lot comprises of 10,644 square feet of cactus, live oaks, olive along with low growth vegetation. The toe of slope starts at street as it uniformly slopes up above to 65 feet at upper rear corner of site. The combination of building retaining walls and site retaining walls offer grades to step down as tiers to accommodate the new infrastructure of the subterranean garage and depressed driveway portion.

INDEX B D

NOTE: IF THIS SET IS NOT 24"X36" SIZE, IT IS NOT TO SCALE C A

PERMIT LEGEND (INDEX DESIGNATION)
Each cover page are packaged by several assigned sheets in the index, as been broken down into separate permit clusters of this page A-1: The numbers below circled are inclusive to this particular cluster set:

1 Drawing Package containing Site Plan & Grading Plans, & BMP/Erosion "Permit #GRD23-0096"
2 Drawings Package containing building & MEP as "Permits #BLD22-1286, #PLB22-0850, #MEC22-0641 & #ELE22-0989"
3 Drawing Package containing Shoring and Site Retaining walls #Permit #RWP23-0104 & Shoring permit #BLD23-2075 & Encroachment permit #RE23-0550
4 Drawing Package containing Aquarobic Septic Tank Mini-plant site plumbing "Permit #PLB23-1358"
5 Drawing Package containing Landscaping sheets "Permit #LND23-0047"
6 Drawing Package containing Solar sheets "Permit #SLR25-0345"

See note 10 this page under "GENERAL AGENCY NOTES" for itemized instructions/sequence for all deferred permits and refer to "PROJECT SCOPE" this page for all 3 PGK numbers for groupings to any other miscellaneous permit reference numbers not mentioned (NOTE: Contractor is responsible for collaborating all sheets to build the full index for both bid and construction)

ARCHITECTURAL Building/Safety permit #BLD23-2075 D
A-1 COVER SHEET
A-1.1 FIRE DEPARTMENT COVER PAGE
GN-1 FIRE DEPT SUMMARY
GN-2 FIRE CODE SPEC
GN-3 CONDITIONS OF APPROVAL
GN-4 BUILDING SPECIFICATIONS
GN-5 CAL GREEN CODE AND NPDES REQUIREMENTS
A-2 ARCHITECTURAL SITE PLAN
A-3 FLOOR PLAN & ROOF PLAN
A-4 EXTERIOR ELEVATIONS
A-5 BUILDING SECTION & DETAILS
A-6 STAIR SECTIONS AND DETAILS
A-7 WINDOW AND DOOR SCHEDULE
D-1 MISCELLANEOUS DETAILS

MECHANICAL ELECTRICAL & PLUMBING D
permits #PLB22-0850, #MEC22-0641 & #ELE22-0989
MEP-1 MECH, ELEC, PLUMBING PLANS
MEP-2 MECH, ELEC, PLUMBING SPECS
MEP-3 KITCHEN AND BATH BUILDING CODES
T-24-1 TITLE 24 ENERGY REPORT
T-24-2 TITLE 24 ENERGY REPORT

SOLAR PANEL SHOP DRAWING Revised #SLR25-0345
PV.01 GENERAL COVER SHEET
PV-01A BATERY NOTES E
PV.02 ROOF AND FIRE ALARM
PV.03 STRUCTURAL DETAILS
PV.04 THREE LINE DIAGRAM
PV.05 ELECTRICAL CALCS
PV.06 LABELS
PV.07 PLKYCARD MAP
MM MICROINVERTER MAP
SPEC SPECIFICATIONS

STRUCTURAL (BUILDING PORTION) permit #BLD22-1286 D
S-1.1 GENERAL NOTES AND SPECIAL INSPECTIONS
S-1.2 GENERAL NOTES AND SPECIAL INSPECTIONS
S-2.1 FOUNDATION PLAN & DWELLING FLOOR FRAMING PLANS
S-2.2 LOFT FLOOR/ROOF FRAMING PLANS
S-3.1 FOUNDATION DETAILS
S-4.1 FRAMING DETAILS
S-4.2 FRAMING DETAILS
S-4.3 FRAMING DETAILS
S-4.4 FRAMING DETAILS
S-5.1 STEEL FRAMING DETAILS
HFX-1 HARDIE FRAME DETAILS
HFX-2 HARDIE FRAME DETAILS
S-6.1 WATER PROOF NOTES
A S-6.2 SHOTCRETE NOTES
S-6.3 SHOTCRETE WALLS STRUCTURAL DETAILS
S-6.4 SHOTCRETE WALLS STRUCTURAL DETAILS
Encroachment permit #RE23-0550
Shoring permit #BLD23-2075 &
Retaining walls permit #RWP23-0104,

CIVIL (SITE RETAINING WALLS) C
SW-1.1 GENERAL NOTES & SPECIAL INSPECTIONS
SW-1.2 WATERPROOFING NOTES
SW-2.1 CONCRETE STEPS AND SITE PLAN
SW-2.2 RETAINING WALLS & SHORING PLANS
SW-3.1 FOUNDATION & RETAINING WALL DETAILS
SW-3.2 FOUNDATION & RETAINING WALL DETAILS
SW-3.3 FOUNDATION & RETAINING WALL DETAILS
SW-3.4 FOUNDATION & RETAINING WALL DETAILS
D SW-3.5 CROSS SECTION
SW-4.1 FOUNDATION & RETAINING WALL DETAILS
SW-4.2 FOUNDATION & RETAINING WALL DETAILS
SW-4.3 SHOTCRETE WALL STRUCTURAL DETAILS
SW-4.4 SHOTCRETE WALL STRUCTURAL DETAILS

CIVIL GRADING PLANS Permit #GRD23-0096,
C-1 TITLE SHEET (COVER PAGE)
C-2 PRECISE GRADING PLAN
C-3 SECTIONS
C-4 SECTIONS
C-5 SECTIONS
C-6 SECTIONS
C-7 SECTIONS
C-8 SECTIONS D G
C-9 BMP'S & EROSION CONTROL
C-10 BMP'S & EROSION CONTROL
C-10A EROSION CONTROL & WM-8 & SE6 DETAILS
T-1 TOPOGRAPHIC MAP

SITE PLUMBING PLAN Site Plumbing #PLB23-1358,
P-1 AQUAROBIC SEPTIC TANK MINI-PLANT

LANDSCAPE permit #LND23-0047
L-1.0 EXISTING VEGITATION PRESERVATION/REMOVAL
L-2.0 LANDSCAPE PLANTING PLANS
L-2.1 LANDSCAPE PLANT LEGEND & DETAILS
L-2.2 LANDSCAPE DETAILS
L-2.3 LANDSCAPE PLANTING NOTES & SPECS
L-3.0 IRRIGATION PLAN
L-3.1 IRRIGATION LEGEND
L-3.2 IRRIGATION DETAILS
L-3.3 IRRIGATION DETAILS
L-3.4 IRRIGATION DETAILS
L-3.5 IRRIGATION SPECS
L-4.0 FUEL MODIFICATION ZONE PLAN

GENERAL NOTE TO CONTRACTOR: THERE ARE ITEMS NOT LISTED IN SHEET INDEX ABOVE THAT ARE STILL PART OF THE CONSTRUCTION DOCUMENTS THAT IS A SEPARATE FORMAT OF 8-1/2 X 11; REFER TO FULL BIDDING PACKAGE AS ITEMS INCLUDE BUT NOT LIMITED TO ARE SOILS REPORT, STRUCTURAL CALCULATIONS, ARBOR REPORT, COLOR PRODUCT BROCHURE AND FIRE ASSEMENT/FIRE PREVENTION PLANNING REPORTS

PROJECT DATA

OWNER
Alexander Tchourbanov
426 E 30th St,
Ph 520.400.9008 Cell 520.820.7281
Email: achurbanov@gmail.com

GENERAL AGENCY NOTES (B)

OCFA STANDARD RESIDENTIAL SITE PLAN NOTES

OCFA REQUIREMENTS

1. OCFA SITE INSPECTIONS ARE REQUIRED FOR THIS PROJECT. PLEASE SCHEDULE ALL FIELD INSPECTIONS AT LEAST 72 HOURS IN ADVANCE. INSPECTIONS CANCELED AFTER 1 P.M. ON THE DAY BEFORE THE SCHEDULED DATE WILL BE SUBJECT TO A RE-INSPECTION FEE. CALL OCFA INSPECTION SCHEDULING AT (714) 573-6150.
2. FOR PROJECTS WITH FUEL MODIFICATION, A VEGETATION CLEARANCE INSPECTION IS REQUIRED PRIOR TO A LUMBER DROP INSPECTION. USE THE FUEL MODIFICATION PLAN SERVICE REQUEST NUMBER TO SCHEDULE THE VEGETATION CLEARANCE INSPECTION.
3. ACCESS ROADS AND HYDRANTS SHALL BE MAINTAINED AND REMAIN CLEAR OF OBSTRUCTIONS AT ALL TIMES DURING AND AFTER CONSTRUCTION. AREAS WHERE PARKING IS NOT PERMITTED SHALL BE CLEARLY IDENTIFIED AT ALL TIMES. OBSTRUCTION OF FIRE LANES AND HYDRANTS MAY RESULT IN CANCELLATION OR SUSPENSION OF INSPECTIONS.
4. THE PROJECT ADDRESS SHALL BE CLEARLY POSTED AND VISIBLE FROM THE PUBLIC ROAD DURING CONSTRUCTION.
5. ALL GATES IN CONSTRUCTION FENCING SHALL BE EQUIPPED WITH EITHER A KNOX OR BREAKAWAY PADLOCK.
6. ALL FIRE HYDRANTS SHALL HAVE A "BLUE REFLECTIVE PAVEMENT MARKER" INDICATING THEIR LOCATION PER THE OCFA STANDARD. ON PRIVATE PROPERTY MARKERS ARE TO BE MAINTAINED IN GOOD CONDITION BY THE PROPERTY OWNER.
7. ADDRESS NUMBERS SHALL BE LOCATED AND BE OF A COLOR AND SIZE SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE ROADWAY FROM WHICH THE BUILDING IS ADDRESSED IN ACCORDANCE WITH OCFA GUIDELINE B-01.
8. APPROVED ACCESS WALKWAYS SHALL BE PROVIDED TO ALL REQUIRED OPENINGS AND ALL RESCUE WINDOWS.
9. APPROVAL OF THIS PLAN SHALL NOT BE CONSTRUED AS APPROVAL OF ANY INFORMATION OR PROJECT CONDITIONS OTHER THAN THOSE ITEMS AND REQUIREMENTS IDENTIFIED IN OCFA GUIDELINE B-01 AND RELATED PORTIONS OF THE 2022 CFC AND CBC. THIS PROJECT MAY BE SUBJECT TO ADDITIONAL REQUIREMENTS NOT STATED HEREIN UPON EXAMINATION OF ACTUAL SITE AND PROJECT CONDITIONS OR DISCLOSURE OF ADDITIONAL INFORMATION.

PROJECT SPECIFIC NOTES (CHECK ALL THAT APPLY)

- ○ STRUCTURES LOCATED IN A FIRE HAZARD SEVERITY ZONE OR WILDLAND--URBAN INTERFACE AREA ARE SUBJECT TO THE CONSTRUCTION REQUIREMENTS PRESCRIBED IN CHAPTER 7A OF THE 2022 CBC AND/OR SECTION 337 OF THE 2022 CRC. CONSTRUCTION MATERIALS/METHODS ARE REVIEWED AND INSPECTED BY THE BUILDING DEPARTMENT.
- ○ ONE OR MORE STRUCTURES SHOWN ON THIS PLAN ARE LOCATED ADJACENT TO A FUEL MODIFICATION AREA. CHANGES TO THE FUEL MODIFICATION ZONE LANDSCAPING, NEW STRUCTURES, OR ADDITION/ALTERATION TO EXISTING STRUCTURES REQUIRES REVIEW AND APPROVAL BY THE OCFA.
- ○ PROJECTS LOCATED IN STATE RESPONSIBILITY AREAS AND IN LOCAL RESPONSIBILITY AREA VHFHSZ SHALL ALSO COMPLY WITH ALL APPLICABLE REQUIREMENTS FROM TITLE 14, DIV. 1.5, CH. 7, SUBCH. 2 "SRA FIRE SAFE REGULATIONS" AND GUIDELINE B-01A.

GENERAL AGENCY NOTES

1. REFER TO SHEET A-1 FOR TYPICAL MULTI-AGENCY NOTES

GENERAL FIRE DEPARTMENT NOTES

A FUEL MODIFICATION PLAN IS PART OF THESE DOCUMENTS REFERENCE AS OCFD SERVICE REQUEST #284008 (REFER TO FM SHEETS) AS REQUIRES A SEPARATE AND INDEPENDENT APPROVAL PROCESS FROM OTHER COUNTY AGENCIES.

2. ALL FIRE CODES SHALL COMPLY FROM 2019 CALIFORNIA BUILDING CODES "CBC", 2019 CALIFORNIA FIRE CODES "CFC" AND NATIONAL FIRE CODE ASSOCIATION "NFPA" STANDARDS AND LOCAL AMENDMENTS INCLUDING FUEL MODIFICATIONS FROM PR 125 OCFD GUIDELINES.
3. THIS PROJECT IS LOCATED IN A VERY HIGH FIRE SEVERITY ZONE "SRA" WITHIN STATE RESPONSIBILITY AND REQUIRES AN PREAPPROVED PR 125 SR#285412 PRIOR TO ISSUING A SITE PLAN "P 160" SR #284008
4. SEE SHEET A-2 FOR EXISTING FIRE HYDRANT LOCATIONS OFF-SITE
5. ALL CONSTRUCTION PRINCIPLES COUPLED TO FIRE MITIGATION MEASURE, INTERLOCKING FUEL TREATMENT, AND PROGRESSIVE LANDSCAPE DESIGN SHALL MEET PER CBC7A AND CRC 337. REFER TO INFORMATION GENERATED BY FIREWISE FOR FIRE ASSESMENT/FIRE PREVENTION PLANNING REPORTS ALONG WITH FM SHEETS FOR LANDSCAPE FUEL MODIFICATION PLANS.
6. FIRE MITIGATION MEASURES:
   FIRE SPRINKLERS SHALL BE INSTALLED IN THE ATTIC SPACE, SYSTEM DESIGN WILL REQUIRE A FOUR (4) HEAD CALCULATION FOR THE SPRINKLER DESIGN. THE FOUR HEAD CALCULATION MUST HAVE A MINIMUM .05 DENSITY DESIGN, QR AND INTERMEDIATE TEMPERATURE HEADS; THE HEADS MAY BE OF A SMALL ORIFICE TYPE SUCH AS 3/8 OR 7 /16. LISTED DOMESTIC DEMAND SHUTOFF VALVES MAY BE USED TO TRY TO MINIMIZE UPGRADING METER SIZES WHERE POSSIBLE. COPPER PIPING IS REQUIRED IN THE ATTICS; CPVC WILL ONLY BE PERMITTED IN THE ATTIC IF LISTED HEADS ARE USED TO PROTECT PIPING IN ACCORDANCE WITH THEIR LISTING.
   APPENDAGES AND PROJECTIONS ATTACHED TO EXTERIOR FIRE-RESISTIVE WALLS, SHALL BE CONSTRUCTED TO MAINTAIN THE SAME FIRE-RESISTANT STANDARDS AS THE EXTERIOR WALLS OF THE STRUCTURE.
   THE EXTERIOR SURFACE OR CLADDING SHALL MEET SECTION 707A.3.1 WHEN TESTED IN ACCORDANCE WITH ASTM E2707 AS THE EXTERIOR SURFACE OR CLADDING SHALL BE TESTED TO MEET THE PERFORMANCE REQUIREMENTS OF SFM STANDARD 12-7A1.
   THE ROOF SHALL BE TYPE "A" AND COMPLY WITH ASTM D 3909 FOR UNDERLAYMENTS INSTALLED OVER THE COMBUSTIBLE DECKING. SOLAR PANEL, ACCESSORIES WITH ATTACHMENT ASSEMBLY SHALL HAVE THE SAME CLASS "A" RATING AS ROOF
   ALL WINDOW ASSEMBLIES SHALL EXCEED THE CBC7A, CRC337 REQUIREMENTS BY HAVING BOTH INNER AND OUTER TEMPERED PLATE GLASS.
   GARAGE DOOR SEAL MUST PREVENT EMBER INTRUSION PER 708A.4
   EXTERIOR WINDOWS, SKYLIGHTS AND EXTERIOR GLAZED DOOR ASSEMBLY REQUIREMENTS SHALL MEET 708A.2.1
   THE EXTERIOR DOOR ASSEMBLY SHALL HAVE A FIRE-RESISTANCE RATING SHALL MEET NFPA 252. EXTERIOR DOORS SHALL COMPLY TO 708A.3. EXTERIOR GLAZED DOOR ASSEMBLIES SHALL COMPLY WITH SECTION 2406 SAFETY GLAZING, OR HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN 20 MINUTES WHEN TESTED ACCORDING TO NFPA 257, OR BE TESTED TO MEET THE PERFORMANCE REQUIREMENTS OF SFM STANDARD 12-7A-2 AND FOR EXTERIOR DOOR GLAZING. GLAZING IN EXTERIOR DOORS SHALL COMPLY WITH SECTION 708A.3.1 AND 708A.2.1.
   WALL ASSEMBLY BEHIND STRUCTURAL GLASS VENEER SHALL COMPLY WITH SECTION 707A.3.

ADDITIONALLY ALL GENERAL RELATED FIRE CODE SECTION SHALL APPLY

GENERAL NOTES FOR FIRE MITIGATION

NOTE: REFER TO GN-1 SHEET FOR FURTHER BREAKDOWN CODES FROM CHAPTER 7A SECTION AS INFORMATION BELOW IS A HIGHLIGHT FROM FIRE STUDY REPORT.

GENERAL: CBC7A and CRC3337 construction principles coupled to mitigation measure, interlocking fuel treatment, and progressive landscape design.

MITIGATION MEASURES:
Appendages and projections attached to exterior fire-resistive walls, shall be constructed to maintain the same fire-resistant standards as the exterior walls of the structure.

ROOF: The roof area will have one layer of minimum 72 pound (32.4 kg) mineral-surfaced, non-perforated cap sheet complying with ASTM D 3909 installed over the combustible decking.

FIRE SPRINKLERS: Fire sprinklers shall be installed in the attic space, system design will require a four (4) head calculation for the sprinkler design. The four head calculation must have a minimum .05 density design, QR and intermediate temperature heads; the heads may be of a small orifice type such as 3/8 or 7 /16. Listed domestic demand shutoff valves may be used to try to minimize upgrading meter sizes where possible. Copper piping is required in the attics; CPVC will only be permitted in the attic if listed heads are used to protect piping in accordance with their listing.

WINDOWS: All window assemblies shall exceed the CBC7A, CRC337 requirements by having both inner and outer tempered plate glass.

708A.2.1 Exterior windows, skylights and exterior glazed door assembly requirements

Exterior windows, skylights and exterior glazed door assemblies shall comply with one of the following requirements: Be constructed of multipane glazing with a minimum of one tempered pone meeting the requirements of Section 2406 Safety Glazing, or
Be constructed of glass block units, or
Have a fire-resistance rating of not less than 20 minutes when tested according to NFPA 257, or
Be tested to meet the performance requirements of SFM Standard 12-7A-2

708A.2.1 Exterior windows, skylights and exterior glazed door assembly requirements. Exterior windows, skylights and exterior glazed door assemblies shall comply with one of the following requirements: Be constructed of multipane glazing with a minimum of one tempered pane meeting the requirements of Section 2406 Safety Glazing, or
Be constructed of glass block units, or Have a fire-resistance rating of not less than 20 minutes when tested according to NFPA 257, or
Be tested to meet the performance requirements of SFM Standard 12-7A-2

708A.2.2 Structural glass veneer: The wall assembly behind structural glass veneer shall comply with Section 707A.3.

708A.3 Exterior doors: Exterior doors shall comply with one of the following: The exterior surface or cladding shall be of non combustible material.
The exterior surface or cladding shall be of ignition resistant material.

The exterior door shall be constructed of solid core wood that complies with the following requirements: Stiles and rails shall not be less than 13/8 inches thick. Panels shall not be less than 11/4 inches thick, except for the exterior perimeter of the panel that shall be permitted to taper to a tongue not less than 3/8 inch thick. The exterior door assembly shall have a fire-resistance rating of not less than 20 minutes when tested according to NFPA 252.

The exterior surface or cladding shall be tested to meet the performance requirements of Section 707A.3.1 when tested in accordance with ASTM E2707.
The exterior surface or cladding shall be tested to meet the performance requirements of SFM Standard 12-7A1.

708A.3.1 Exterior door glazing: Glazing in exterior doors shall comply with Section 708A.2.1.

Garage door seal must prevent ember intrusion.

708A.4 Weather stripping: Exterior garage doors shall be provded with neoprene stripping to resist the intrusion of embers from entering through gaps between doors and door openings when visible gaps exceed 1/8 inch (3.2 mm). Weather stripping or seals shall be installed on the bottom, sides, and tops of doors to reduce gaps between doors and door openings to 1/8 inch (3.2 mm) or less.
Solar panel must have the same Class A just like roof covering, plan check process assures better evaluate a solar PV system for fire performance, an update of the UL1703 was required.

The new fire test protocol necessitates the same two fire tests for the module needed for the old UL1703 and borrowed from the roof fire rating standard, UL790:

FIRE PROTECTION CHECK LIST

NOTE: N/A = CONDITIONS NOT APPLICABLE

REFER TO "SHEET GN-2 FOR CODE EXPANSION TO BELOWS OUTLINE

Fire Protection Plan 2019 CBC Chapter 7A Screening Form:

Chapter 7A Code Section	Yes	No	OCFA has approved the following:
703A.2 Qualifications by Testing	X		
703A.3 Approved Agency	X		
703A.4 Labeling	X		
703A.5 Weathering and surface treatment protection	X		
703A.5.2.1 Fire-retardant-treated wood	X		
703A.5.2.2 Fire-retardant-treated wood shingles and shakes		N/A	
703A5.3 Surface treatment protection	X		
703A.6 Alternate for materials, design, tests methods of construction	X		
703A.7 Standards of Quality 704A.2 Ignition-Resistant Material	X		
704A.3 Conditions of acceptance for ignition-resistant material tested in accordance with ASTM E84 or UL 723	X		
704A.4 Alternate methods for determining ignition-resistant material	X		
705A.1 Roofing General	X		
705A.2 Roof Coverings	X		
705A.3 Roof Valleys	X		
705A.4 Roof Gutters	X		
706A.1 Vents General	X		
706A.2 Vents Requirements	X		
706A.3 Ventilation opening on the underside of eaves and cornices	X X		
707A.2 Exterior Covering General	X		
707A.3 Exterior Walls	X		
707A.3.1 Conditions of acceptance when tested in accordance with ASTM E2707	X		
707A.3.2 Extent of Exterior Wall Covering	X		
707A.4 Open Roof Eaves	X		
707A.5 Enclosed Roof Eaves and Roof Eave Soffits	X		
707A.6 Exterior Porch Ceilings	X		
707A.7 Floor Projections	X		
707A.8 Underfloor Protection	X		
707A.9 Underside of Appendages	X		
707A.10 Conditions of acceptance when tested in accordance with ASTM E2957	X		
708A.2.1 Exterior Windows, Skylights and Doors General	X		
708A.2. Exterior glazing	X		
708A.2.1 Exterior Windows, Skylights and exterior glazed door assembly requirements	X		
708A.2.2 Operable Skylights		N/A	
708A.2.3 Structural glass veneer	X		
708A.3 Exterior Doors	X		
708A.3.1 Exterior Door Glazing	X		
708A.4 Garage Door Perimeter Gap	X		
709A.2 Decking Where required	X		
709A.3 Decking Surfaces	X		
709A.4 Requirements of type of ignition-resistant material in Section 709A.3, Item 1	X		
709A.4.1 Conditions of acceptance for ASTM E2632	X		
709A.4.2 Conditions of acceptance for ASTM E2726	X		
709A.5 Requirements for type of material in Section 709A.3, Item 7	X		
710A.1 Accessory Structures General		N/A	
710A.2 Accessory Structures Applicability		N/A	
710A.3 Accessory Structures Where required		N/A	
710A.3.1 Accessory Building Requirements		N/A	
710A.3.2 Attached miscellaneous structure requirements		N/A	
710A.3.3 Detached miscellaneous structure	X		

Name of Community: (TOR DISTRICT) TRABUCO OAKS RESIDENTIAL OF FOOTHILL/TRABUCCO SPECIFIC PLAN
Zoning: R 1 SRA FIRE ZONE

List the final tract and lot numbers on the line(s) below that this form is associates to:

APN 84210206 COUNTY OF ORANGE
Legal description: LOT 33 NORTH AND THR N LOT 31 TRACT 926

Date: 3-23-20

Signature. Name, A...

CONTACT TO THE ABOVE:
JOHN A. SALAT Architects CA LIC C-24445
22386 Woodgrove Road
Lake Forest, CA 92630

Attn: John Salat E-mail: freeingwinds@earthlink.net HTTP://ZenArchitect.com
Ph 949-235-4847 FAX 888-608-4934

Contractor shall exercise the responsibility with architect in securing latest approved drwgs. prior to actually executing work

REVISIONS NO.
(D) BUILDING DEPT SUBMITTAL 3-19-25

JOHN A. SALAT ARCHITECTS
22386 Woodgrove Road, Lake Forest, CA 92630
PH 949-235-4847 email: freeingwinds@earthlink.net
z e n a r c h i t e c t . c o m

architect

THOURBANOV RESIDENCE
NEW DWELLING
FIRE PROTECTION NOTES

OWNER/SITE ADDRESS:
CONTACT: Alexander Tchourbanov
20601 Trabuco Oaks Dr,
Trabuco Canyon, CA 92678
Ph 520.909.0869 Email: achurbanov@gmail.com

REGISTERED PROFESSIONAL ARCHITECT JOHN A. SALAT NO. C-24445 EXP. 10-29-20 STATE OF CALIFORNIA

DRAWN JS
CHECKED JS
DATE SEE REVISION BOX ABOVE FOR DATE
SCALE AS NOTED ON PLANS
JOB NO.
SHEET

GN-1

1 OF (PER INDEX) SHEETS

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CHAPTER 7A FIRE PROTECTION CODE (2019 REFERENCE)

GENERAL NOTES (FIRE MITIGATION MEASURES)

ALL FIRE CODES SHALL COMPLY FROM 2019 CALIFORNIA BUILDING CODES "CBC", 2019 CALIFORNIA FIRE CODES "CFC" AND NATIONAL FIRE CODE ASSOCIATION "NFPA" STANDARDS AND LOCAL AMENDMENTS INCLUDING FUEL MODIFICATIONS FROM PR 125 OCFD GUIDELINES SHALL APPLY.

ALL CONSTRUCTION PRINCIPLES COUPLED TO FIRE MITIGATION MEASURE, INTERLOCKING FUEL TREATMENT, AND PROGRESSIVE LANDSCAPE DESIGN SHALL MEET PER CBC7A AND CRC 337. (REFER TO SEPERATE STUDY INFORMATION GENERATED BY FIREWISE CONSULTANT FOR FIRE ASSESMENT/FIRE PREVENTION PLANNING REPORTS ALONG WITH FM SHEETS FOR LANDSCAPE FUEL MODIFICATION PLANS).

701A.3.2 Application to accessory buildings and miscellaneous structures: New accessory buildings and miscellaneous structures specified in Section 710A shall comply only with the requirements of that section.
701A.4 Inspection and certification: Building permit applications and final completion approvals for buildings within the scope and application of this chapter shall comply with the following:
1. Building permit issuance. The local building official shall, prior to construction, provide the owner or applicant a certification that the building as proposed to be built complies with all applicable state and local building standards, including those for materials and construction methods for wildfire exposure as described in this chapter. Issuance of a building permit by the local building official for the proposed building shall be considered as complying with this section.
2. Building permit final. The local building official shall, upon completion of construction, provide the owner or applicant with a copy of the final inspection report that demonstrates the building was constructed in compliance with all applicable state and local building standards, including those for materials and construction methods for wildfire exposure as described in this chapter. Issuance of a certificate of occupancy by the local building official for the proposed building shall be considered as complying with this section.

701A.5 Vegetation management compliance
Prior to building permit final approval, the property shall be in compliance with the vegetation management requirements prescribed in California Fire Code Section 4906, including California Public Resources Code 4291 or California Government Code Section 51182. Acceptable methods of compliance inspection and documentation shall be determined by the enforcing agency and shall be permitted to include any of the following:
1. Local, state or federal fire authority or designee authorized to enforce vegetation management requirements
2. Enforcing agency
3. Third party inspection and certification authorized to enforce vegetation management requirements
4. Property owner certification authorized by the enforcing agency

Section 702A Definitions: For the purposes of this chapter, certain terms are defined below:

CDF DIRECTOR means the Director of the California Department of Forestry and Fire Protection.

EXTERIOR COVERING. The exposed siding or cladding material applied to the exterior side of an exterior wall, roof eave soffit, floor projection or exposed underfloor framing.
FIRE PROTECTION PLAN is a document prepared for a specific project or development proposed for a Wildland Urban Interface Fire Area. It describes ways to minimize and mitigate potential for loss from wildfire exposure.

The Fire Protection Plan shall be in accordance with this chapter and the California Fire Code, Chapter 49. When required by the enforcing agency for the purposes of granting modifications, a fire protection plan shall be submitted. Only locally adopted ordinances that have been filed with the California Building Standards Commission or the Department of Housing and Community Development in accordance with Section 1.1.8 shall apply.

FIRE HAZARD SEVERITY ZONES are geographical areas designated pursuant to California Public Resources Codes Sections 4201 through 4204 and classified as Very High, High, or Moderate in State Responsibility Areas or as Local Agency Very High Fire Hazard Severity Zones designated pursuant to California Government Code, Sections 51175 through 51189. See California Fire Code Chapter 49.

The California Code of Regulations, Title 14, Section 1280, entitles the maps of these geographical areas as "Maps of the Fire Hazard Severity Zones in the State Responsibility Area of California."

HEAVY TIMBER. A type of construction classification specified in Section 602. For use in this chapter, heavy timber shall be sawn lumber or glue laminated wood with the smallest minimum nominal dimension of 4 inches (102 mm). Heavy timber walls or floors shall be sawn or glue-laminated planks splined, tongue-and-grove, or set close together and well spiked.

IGNITION-RESISTANT MATERIAL. A type of building material that resists ignition or sustained flaming combustion sufficiently so as to reduce losses from wildland-urbon interface conflagrations under worst-case weather and fuel conditions with wildfire exposure of burning embers and small flames, as prescribed in Section 703A and SFM Standard 12-7A-5, Ignition-Resistant Material.

LOCAL AGENCY VERY HIGH FIRE HAZARD SEVERITY ZONE means an area designated by a local agency upon the recommendation of the CDF Director pursuant to Government Code Sections 51177(c), 51178 and 5118 that is not a state responsibility area and where a local agency, city, county, city and county, or district is responsible for fire protection.

Section 703A Standards of Quality

703A.1 General: Building material, systems, assemblies and methods of construction used in this chapter shall be in accordance with Section 703A.
703A.2 Qualification by testing: Material and material assemblies tested in accordance with the requirements of Section 703A shall be accepted for use when the results and conditions of those tests are met. Product evaluation testing of material and material assemblies shall be approved or listed by the State Fire Marshal, or identified in a current report issued by an approved agency.

703A.3 Approved agency: Product evaluation testing shall be performed by an approved agency as defined in Section 1702. The scope of accreditation for the approved agency shall include building product compliance with this code.

703A.4 Labeling
Material and material assemblies tested in accordance with the requirements of Section

703A shall bear an identification label showing the fire test results. That identification label shall be issued by a testing and/or inspecting agency approved by the State Fire Marshal.
1. Identification mark of the approved testing and/or inspecting agency
2. Contact and identification information of the manufacturer
3. Model number or identification of the product or material
4. Pre-test weathering specified in this chapter
5. Compliance standard as described under Section 703A.7

703A.5 Weathering and surface treatment protection

703A.5.1 General: Material and material assemblies tested in accordance with the requirements of Section 703A shall maintain their fire test performance under conditions of use, when installed in accordance with the manufacturers instructions.

703A.5.2 Weathering: Fire-retardant-treated wood and fire-retardant-treated wood shingles and shakes shall meet the fire test performance requirements of this chapter after being subjected to the weathering conditions contained in the following standards, as applicable to the materials and the conditions of use

703A.5.2.1 Fire-retardant-treated wood: Fire-retardant-treated wood shall be tested in accordance with ASTM D2898 (Method A) and the requirements of Section 2303.2.

703A.5.2.2 Fire-retardant-treated wood shingles and shakes: Fire-retardant-treated wood shingles and shakes shall be approved and listed by the State Fire Marshal in accordance with Section 208(c), Title 19 California Code of Regulations.

703A.5.3 Surface treatment protection: The use of paints, coatings, stains or other surface treatments are not an approved method of protection as required in this chapter.

703A.6 Alternates for materials, design, tests and methods of construction: The enforcing agency is permitted to modify the provisions of this chapter for site-specific conditions in accordance with Section 1.11.2.4. When required by the enforcing agency for the purposes of granting modifications, a fire protection plan shall be submitted in accordance with the California Fire Code, Chapter 49.

703A.7 Standards of quality: The State Fire Marshal standards for exterior wildfire exposure protection listed below and as referenced in this chapter are located in the California Referenced Standards Code, Part 12 and Chapter 35 of this code.

SFM Standard 12-7A-1: Exterior Wall Siding and Sheathing. A fire resistance test standard consisting of a 150 kW intensity direct flame exposure for a 10-minute duration.
SFM Standard 12-7A-2: Exterior Windows. A fire resistance test standard consisting of a 150 kW intensity direct flame exposure for an 8-minute duration.
SFM Standard 12-7A-3:Horizontal Projection Underside A fire resistance test standard consisting of a 300 kW intensity direct flame exposure for a 10-minute duration.
SFM Standard 12-7A-4: Decking. A two-part test consisting of a heat release rate (Part A) deck assembly combustion test with an under deck exposure of 80 kW intensity direct flame for a 3-minute duration, and a (Part B) sustained deck assembly combustion test consisting of a deck upper surface burning ember exposure with a 12 mph wind for 40 minutes using a 2.2lb (1kg) burning "Class A" size 12? x 12? x 2.25? (300 mm x 300 mm x 57 mm) roof test brand.
SFM Standard 12-7A-4A: Decking Alternate Method A. A heat release rate deck assembly combustion test with an under deck exposure of 80 kW intensity direct flame for a 3-minute duration
SFM Standard 12-7A-5: Ignition-resistant Material. A generic building material surface burning flame spread test standard consisting of an extended 30 minute ASTM E84 or UL 723 test method as is used for fire-retardant-treated wood.

ASTM D2898 Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing

ASTM D3909/D3909M Standard Specification for Asphalt Roll Roofing (Glass Felt) Surfaced with Mineral Granules

ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials

ASTM E2632/E2632M Standard Test Method for Evaluating the Under-Deck Fire Test Response of Deck Materials

ASTM E2707 Standard Test Method for Determining Fire Penetration of Exterior Wall Assemblies Using a Direct Flame Impingement Exposure

ASTM E2726/E2726M Standard Test Method for Evaluating the Fire Test Response of Deck Structures to Burning Brands

ASTM E2886/E2886M Standard Test Method for Evaluating the Ability of Exterior Vents to Resist the Entry of Embers and Direct Flame Impingement

ASTM E2957 Standard Test Method for Resistance to Wildfire Penetration of Eaves, Soffits and Other Projections

NFPA 257 Standard on Fire Test for Window and Glass Block Assemblies

UL 723 Standard for Test for Surface Burning Characteristics of Building Materials

designated by the enforcing agency to be at a significant risk from wildfires.

Section 704A Ignition-Resistant Construction
704A.1 General: The materials prescribed herein for ignition resistance shall conform to the requirements of this chapter.
704A.2 Ignition-resistant material: Ignition-resistant materials shall comply with one of the following:
1. The requirements in Section 704A.3 when tested in accordance with the test procedures set forth in ASTM E84 or UL 723,
2. The test procedures and requirements set forth in SFM Standard 12-7A-5 "Ignition-Resistant Material", or
3. One of the alternative methods in Section 704A.4.

704A.3 Conditions of acceptance for ignition-resistant material tested in accordance with ASTM E84 or UL 723: A material shall comply with the conditions of acceptance in items 1 and 2 below when the test is continued for an additional 20-minute period, meaning for a total test period of an "extended" 30-minute test period.
1. The material shall exhibit a flame spread index not exceeding 25 and shall show no evidence of progressive combustion following the extended 30-minute test period.
2. The material shall exhibit a flame front that does not progress more than 101 /2 feet (3200 mm) beyond the centerline of the burner at any time during the extended 30-minute test period.

704A.4 Alternative methods for determining ignition-resistant material: Any one of the following shall be accepted as meeting the definition of ignition-resistant material:
1. Noncombustible material. Material that complies with the definition for noncombustible materials in Section 202.
2. Fire-retardant-treated wood. Fire-retardant-treated wood identified for exterior use that complies with the requirements of Section 2303.2.
3. Fire-retardant-treated wood shingles and shakes. Fire-retardant-treated wood shingles and shakes, as defined in Section 1505.6 and listed by State Fire Marshal for use as "Class B" roof covering, shall be accepted as an ignition-resistant wall covering material when installed over solid sheathing.

Section 705A Roofing
705A.1 General: Roofs shall comply with the requirements of Chapter 7A and Chapter 15. Roofs shall have a roofing assembly installed in accordance with its listing and the manufacturer's installation instructions.

705A.2 Roof coverings: Where the roof profile allows a space between the roof covering and roof decking, the spaces shall be constructed to resist the intrusion of flames and embers, be firestopped with approved materials or have one layer of minimum 72 pound (32.4 kg) mineral-surfaced nonperforated cap sheet complying with ASTM D3909 installed over the combustible decking.

705A.3 Roof valleys: Where valley flashing is installed, the flashing shall be not less than 0.019-inch (0.48 mm) No. 26 gage galvanized sheet corrosion-resistant metal installed over not less than one layer of minimum 72 pound (32.4 kg) mineral-surfaced nonperforated cap sheet complying with ASTM D3909, at least 36-inch-wide (914 mm) running the full length of the valley.

705A.4 Roof gutters: Roof gutters shall be provided with the means to prevent the accumulation of leaves and debris in the gutter.
Section 706A Vents:

706A.1 General: Where provided, ventilation openings for enclosed attics, enclosed eave soffit spaces, enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters, and underfloor ventilation shall be in accordance with Section 1203 and Sections 706A.1 through 706A.3 to resist building ignition from the intrusion of burning embers and flame through the ventilation openings.

706A.2 Requirements: Ventilation openings for enclosed attics, enclosed eave soffit spaces, enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters, and underfloor ventilation openings shall be fully covered with metal wire mesh, vents, other materials or other devices that meet one of the following requirements:
1. Vents shall be listed to ASTM E2886 and comply with all of the following:
1. There shall be no flaming ignition of the cotton material during the Ember Intrusion Test.
2. There shall be no flaming ignition during the Integrity Test portion of the Flame Intrusion Test.
3. The maximum temperature of the unexposed side of the vent shall not exceed 662?F (350°C).
2. Vents shall comply with all of the following:
1. The dimensions of the openings therein shall be a minimum of 1/16-inch (1.6 mm) and shall not exceed 1/8-inch (3.2 mm).
2. The materials used shall be noncombustible.
Exception: Vents located under the roof covering, along the ridge of roofs, with the exposed surface of the vent covered by noncombustible wire mesh, may be of combustible materials.
3. The materials used shall be corrosion resistant.

706A.3 Ventilation openings on the underside of eaves and cornices: Vents shall not be installed on the underside of eaves and cornices.
Exceptions:
1. Vents listed to ASTM E2886 and complying with all of the following:
1. There shall be no flaming ignition of the cotton material during the Ember Intrusion Test.
2. There shall be no flaming ignition during the Integrity Test portion of the Flame Intrusion Test.
3. The maximum temperature of the unexposed side of the vent shall not exceed 662?F (350°C).
2. The enforcing agency shall be permitted to accept or approve special eave and cornice vents that resist the intrusion of flame and burning embers.
3. Vents complying with the requirements of Section 706A.2 shall be permitted to be installed on the underside of eaves and cornices in accordance with either one of the following conditions:
1. The attic space being ventilated is fully protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or,
2. The exterior wall covering and exposed underside of the eave are of noncombustible materials, or ignition-resistant materials, as determined in accordance with SFM Standard 12-7A-5 Ignition-Resistant Material and the requirements of Section 704A.3, and the vent is located more than 12 feet (3.66 m) from the ground or walking surface of a deck, porch, patio or similar surface.

Section 707A Exterior Covering
707A.1 Scope: The provisions of this section shall govern the materials and construction methods used to resist building ignition and/or safeguard against the intrusion of flames resulting from small ember and short-term direct flame contact exposure.

707A.2 General: The following exterior covering materials and/or assemblies shall comply with this section:
1. Exterior wall covering material
2. Exterior wall assembly
3. Exterior exposed underside of roof eave overhangs
4. Exterior exposed underside of roof eave soffits
5. Exposed underside of exterior porch ceilings
6. Exterior exposed underside of floor projections
7. Exterior underfloor areas

Exceptions:
1. Exterior wall architectural trim, embellishments, fascias, and gutters
2. Roof or wall top cornice projections and similar assemblies
3. Roof assembly projections over gable end walls
4. Solid wood rafter tails and solid wood blocking installed between rafters having minimum dimension 2 inch (50.8 mm) nominal
5. Deck walking surfaces shall comply with Section 709A.4 only

707A.3 Exterior walls: The exterior wall covering or wall assembly shall comply with one of the following requirements:
1. Noncombustible material
2. Ignition-resistant material
3. Heavy timber exterior wall assembly
4. Log wall construction assembly
5. Wall assemblies that have been tested in accordance with the test procedures for a 10-minute direct flame contact exposure test set forth in ASTM E2707 with the conditions of acceptance shown in Section 707A.3.1
6. Wall assemblies that meet the performance criteria in accordance with the test procedures for a 10-minute direct flame contact exposure test set forth in SFM Standard 12-7A-1.

Exception: Any of the following shall be deemed to meet the assembly performance criteria and intent of this section:
1. One layer of 5/8-inch Type X gypsum sheathing applied behind the exterior covering or cladding on the exterior side of the framing
2. The exterior portion of a 1-hour fire resistive exterior wall assembly designed for exterior fire exposure including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual

707A.3.1 Conditions of acceptance when tested in accordance with ASTM E2707
The ASTM E2707 test shall be conducted on a minimum of three test specimens and the conditions of acceptance in Items 1 and 2 below shall be met. If any one of the three tests does not meet the conditions of acceptance, three additional tests shall be run. All of the additional tests shall meet the conditions of acceptance.
1. Absence of flame penetration through the wall assembly at any time.
2. Absence of evidence of glowing combustion on the interior surface of the assembly at the end of the 70- min test.

707A.3.2 Extent of exterior wall covering: Exterior wall coverings shall extend from the top of the foundation to the roof, and terminate at 2 inch (50.8 mm) nominal solid wood blocking between rafters at all roof overhangs, or in the case of enclosed eaves, terminate at the enclosure.

707A.4 Open roof eaves: he exposed roof deck on the underside of unenclosed roof eaves shall consist of one of the following:
1. Noncombustible material
2. Ignition-resistant material
3. One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside exterior of the roof deck
4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the roof deck designed for exterior fire exposure including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual

Exceptions: The following materials do not require protection:
1. Solid wood rafter tails on the exposed underside of open roof eaves having a minimum nominal dimension of 2 inch (50.8 mm)
2. Solid wood blocking installed between rafter tails on the exposed underside of open roof eaves having a minimum nominal dimension of 2 inch (50.8 mm)
3. Gable end overhangs and roof assembly projections beyond an exterior wall other than at the lower end of the rafter tails
4. Fascia and other architectural trim boards

707A.5 Enclosed roof eaves and roof eave soffits: The exposed underside of enclosed roof eaves having either a boxed-in roof eave soffit with a horizontal underside, or sloping rafter tails with an exterior covering applied to the under-side of the rafter tails, shall be protected by one of the following:
1. Noncombustible material
2. Ignition-resistant material
3. One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the rafter tails or soffit
4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the rafter tails or soffit including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual
5. Boxed-in roof eave soffit assemblies with a horizontal underside that meet the performance criteria in Section 707A.10 when tested in accordance with the test procedures set forth in ASTM E2957.
6. Boxed-in roof eave soffit assemblies with a horizontal underside that meet the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3.
Exceptions: The following materials do not require protection:
1. Gable end overhangs and roof assembly projections beyond an exterior wall other than at the lower end of the rafter tails
2. Fascia and other architectural trim boards

707A.6 Exterior porch ceilings: The exposed underside of exterior porch ceilings shall be protected by one of the following:
1. Noncombustible material
2. Ignition-resistant material
3. One layer of 5/8-inch Type X gypsum sheathing applied behind the exterior covering on the underside of the ceiling
4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the ceiling assembly including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual
5. Porch ceiling assemblies with a horizontal underside that meet the performance criteria in Section 707A.10 when tested in accordance with the test procedures set forth in ASTM E2957.
6. Porch ceiling assemblies with a horizontal underside that meet the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3.

Exception: Architectural trim boards.
707A.7 Floor projections: The exposed underside of a cantilevered floor projection where a floor assembly extends over an exterior wall shall be protected by one of the following:
1. Noncombustible material
2. Ignition-resistant material
3. One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the floor projection
4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the floor projection including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual
5. The underside of a floor projection assembly that meets the performance criteria in Section 707A.10 when tested in accordance with the test procedures set forth in ASTM E2957.
6. The underside of a floor projection assembly that meets the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3.

Exception: Architectural trim boards.

707A.8 Underfloor protection: The underfloor area of elevated or overhanging buildings shall be enclosed to grade in accordance with the requirements of this chapter or the underside of the exposed underfloor shall consist of one of the following:
1. Noncombustible material
2. Ignition-resistant material
3. One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the floor projection
4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the floor including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual
5. The underside of a floor assembly that meets the performance criteria in Section 707A.10 when tested in accordance with the test procedures set forth in ASTM E2957.
6. The underside of a floor assembly that meets the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3.

Exception: Heavy timber structural columns and beams do not require protection.

707A.9 Underside of appendages: When required by the enforcing agency the underside of overhanging appendages shall be enclosed to grade in accordance with the requirements of this chapter or the underside of the exposed under-floor shall consist of one of the following:
1. Noncombustible material
2. Ignition-resistant material
3. One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the floor projection
4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the floor including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual
5. The underside of a floor assembly that meets the performance criteria in accordance with the test procedures set forth in either of the following:
1. 5.1. SFM Standard 12-7A-3; or
2. 5.2. ASTM E2957

Exception: Heavy timber structural columns and beams do not require protection.

707A.10 Conditions of acceptance when tested in accordance with ASTM E2957
The test shall be conducted on a minimum of three test specimens and the conditions of acceptance in Items 1 through 3 below shall be met. If any one of the three tests does not meet the conditions of acceptance, three additional tests shall be run. All of the additional tests shall meet the conditions of acceptance.
1. Absence of flame penetration of the eaves or horizontal projection assembly at any time.
2. Absence of structural failure of the eaves or horizontal projection subassembly at any time.
3. Absence of sustained combustion of any kind at the conclusion of the 40-minute test.

Section 708A EXTERIOR WINDOWS, SKYLIGHTS AND DOORS
708A.1 General
708A.2 Exterior glazing: The following exterior glazing materials and/or assemblies shall comply with this section:
1. Exterior windows
2. Exterior glazed doors
3. Glazed openings within exterior doors
4. Glazed openings within exterior garage doors
5. Exterior structural glass veneer
6. Skylights
7. Vents

708A.2.1 Exterior windows, skylights and exterior glazed door assembly requirements: Exterior windows, skylights and exterior glazed door assemblies shall comply with one of the following requirements:
1. Be constructed of multipane glazing with a minimum of one tempered pane meeting the requirements of Section 2406 Safety Glazing, or
2. Be constructed of glass block units, or
3. Have a fire-resistance rating of not less than 20 minutes when tested according to NFPA 257, or
4. Be tested to meet the performance requirements of SFM Standard 12-7A-2 when the decking surface material complies with the performance requirements ASTM E84 with a Class B flame spread rating.
7. Any material that complies with the performance requirements of Section 709A.5 when tested in accordance with ASTM E2632 and when attached exterior wall covering is also composed of only noncombustible or ignition-resistant materials.
Exception: Wall material shall be permitted to be of any material that otherwise complies with this chapter when the decking surface material complies with the performance requirements ASTM E84 with a Class B flame spread rating.

708A.2.2 Structural glass veneer: The wall assembly behind structural glass veneer shall comply with Section 707A.3.
708A.3 Exterior doors: Exterior doors shall comply with one of the following:
1. The exterior surface or cladding shall be of noncombustible material.
2. The exterior surface or cladding shall be of ignitionresistant material.
3. The exterior door shall be constructed of solid core wood that complies with the following requirements:
1. Stiles and rails shall not be less than 13/8 inches thick.
2. Panels shall not be less than 11/4 inches thick, except for the exterior perimeter of the panel that shall be permitted to taper to a tongue not less than 3/8 inch thick.
4. The exterior door assembly shall have a fire-resistance rating of not less than 20 minutes when tested according to NFPA 252.
5. The exterior surface or cladding shall be tested to meet the performance requirements of Section 707A.3.1 when tested in accordance with ASTM E2707.
6. The exterior surface or cladding shall be tested to meet the performance requirements of SFM Standard 12-7A1.

708A.3.1 Exterior door glazing: Glazing in exterior doors shall comply with Section 708A.2.1.

708A.4 Weather stripping: Exterior garage doors shall be provided with weather stripping to resist the intrusion of embers from entering through gaps between doors and door openings when visible gaps exceed 1/8 inch (3.2 mm). Weather stripping or seals shall be installed on the bottom, sides, and tops of doors to reduce gaps between doors and door openings to 1/8 inch (3.2 mm) or less.

Section 709A Decking
709A.1 General: The walking surface material of decks, porches, balconies and stairs shall comply with the requirements of this section.
709A.2 Where required: The walking surface material of decks, porches, balconies and stairs shall comply with the requirements of this section when any portion of such surface is within 10 feet (3048 mm) of the building.
709A.3 Decking Surfaces: The walking surface material of decks, porches, balconies and stairs shall be constructed with one of the following materials:
1. Material that complies with the performance requirements of Section 709A.4 when tested in accordance with both ASTM E2632 and ASTM E2726.
2. Ignition-resistant material that complies with the performance requirements of 704A.3 when tested in accordance with ASTM E84 or UL 723.
3. Material that complies with the performance requirements of both SFM Standard 12-7A-4 and SFM Standard 12-7A-5.
4. Exterior fire retardant treated wood
5. Noncombustible material
6. Any material that complies with the performance requirements of SFM Standard 12-7A-4A when attached exterior wall covering is also composed of noncombustible or ignition-resistant material.
Exception: Wall material may be of any material that otherwise complies with this chapter

709A.4 Requirements for type of ignition-resistant material in Section 709A.3, Item 1
The material shall be tested in accordance with both ASTM E2632 and ASTM E2726 and shall comply with the conditions of acceptance in Sections 709A.4.1 and 709A4.2. The material shall also be tested in accordance with ASTM E84 or UL 723 and comply with the performance requirements of Section 704A.3.

709A.4.1 Conditions of acceptance for ASTM E2632: The ASTM E2632 test shall be conducted on a minimum of three test specimens and the conditions of acceptance in Items 1 through 3 below shall be met. If any one of the three tests does not meet the conditions of acceptance, three additional tests shall be run. All of the additional tests shall meet the conditions of acceptance.
1. Peak heat release rate of less than or equal to 25 kW/ft2 (269 kW/m2).
2. Absence of sustained flaming or glowing combustion of any kind at the conclusion of the 40-min observation period.
3. Absence of falling particles that are still burning when reaching the burner or floor.

709A.4.2 Conditions of acceptance for ASTM E2726
The ASTM E2726 test shall be conducted on a minimum of three test specimens and the conditions of acceptance in Items 1 and 2 below shall be met. If any one of the three tests does not meet the conditions of acceptance, three additional tests shall be run. All of the additional tests shall meet the conditions of acceptance.
1. Absence of sustained flaming or glowing combustion of any kind at the conclusion of the 40-min observation period.
2. Absence of falling particles that are still burning when reaching the burner or floor.

709A.5 Requirements for type of ignition-resistant material in Section 709A.3, Item 6
The material shall be tested in accordance with ASTM E2632 and shall comply with the following condition of acceptance. The ASTM E2632 test shall be conducted on a minimum of three test specimens and the peak heat release rate shall be less than or equal to 25 kW/ft2 (269 kW/m2). If any one of the three tests does not meet the conditions of acceptance, three additional tests shall be run. All of the additional tests shall meet the condition of acceptance.

Section 710A Accessory Structures

710A.1 General: Accessory buildings and miscellaneous structures defined in this section that have the potential to pose a significant exterior fire exposure hazard to applicable buildings during wildfires shall be constructed to conform to the requirements of this section.

710A.2 Applicability: The provisions of this section shall apply to the buildings covered by Section 701A.3,
Exception 1. This section shall also apply to specified attached and detached miscellaneous structures that require a building permit, including but not limited to trellises, arbors, patio covers, carports, gazebos, and similar structures.
Exceptions:
1. Decks shall comply with the requirements of Section 709A.
2. Awnings and canopies shall comply with the requirements of Section 3105.
3. Exterior wall architectural trim, embellishments, and fascias.
4. Roof or wall top cornice projections and similar assemblies.

710A.3 Where required:No requirements shall apply to accessory buildings or miscellaneous structures when located at least 50 feet from an applicable building. Applicable accessory buildings and attached miscellaneous structures, or detached miscellaneous structures that are installed at a distance of less than 3 feet from an applicable building, shall comply with this section. When required by the enforcing agency, detached miscellaneous structures that are installed at a distance of more than 3 feet but less than 50 feet from an applicable building shall comply with the requirements of this section.

710A.3.2 Attached miscellaneous structure requirements: Applicable miscellaneous structures that are attached to, or installed at a distance of less than 3 feet from, an applicable building shall be constructed of noncombustible materials or of ignition-resistant materials as described in Section 704A.2.

710A.3.3 Detached miscellaneous structure requirements: When required by the enforcing agency, applicable detached miscellaneous structures that are installed at a distance of more than 3 feet but less than 50 feet from an applicable building shall be constructed of noncombustible materials or of ignition-resistant materials as described in Section 704A.2.
IGNITION-RESISTANT MATERIAL [SFM] (See Chapter 7A, Section 702A for defined term.)

Contractor shall exercise the responsibility with architect in securing latest approved drwgs. prior to actually executing work

NO./REVISION/DATE
1 BUILDING DEPT SUBMITTAL 3-19-25

JOHN A. SALAT ARCHITECTS
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THOURBANOV RESIDENCE
CHAPTER 7.A NOTES
FIRE PROTECTION CODES

OWNER/SITE ADDRESS:
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REGISTERED PROFESSIONAL ENGINEER JOHN A. SALAT No. C-34445 EXP. 10-29-25 STATE OF CALIFORNIA

DRAWN JS
CHECKED JS
DATE SEE REVISION BOX ABOVE FOR DATE
SCALE AS NOTED ON PLANS
JOB NO.
SHEET
GN-2
1 OF (PER INDEX) SHEETS

These documents are property of John A. Salat Architects and are registered/copy right protected from both reproduction and modification in protecting misuse. It is unlawful/punishable and taken to full extent of law from claims arising of legal expenses associated of misuse weather directly or indirectly related for these documents to this project. Drawings are not intended as record of actual installed construction, therefore waive responsibility for discrepancies

AGENCY NOTES

CONDITIONS OF APPROVAL TO COMPLY

Attachment 2
Conditions of Approval
PA19-0078

1 **BASIC/ZONING REGULATIONS PA19-0078**

This approval constitutes approval of the proposed project only to the extent that the project complies with the Orange County Zoning Code and any other applicable zoning regulations. Approval does not include any action or finding as to compliance or approval of the project regarding any other applicable ordinance, regulation or requirement.

2 **BASIC/TIME LIMIT PA19-0078**

This approval is valid for a period of 36 months from the date of final determination. If the use approved by this action is not established within such period of time, this approval shall be terminated and shall thereafter be null and void.

3 **BASIC/LAND USE PLAN PA19-0078**

Except as otherwise provided herein, this permit is approved as a land use plan. If the applicant proposes changes regarding the location or alteration of any use or structure, the applicant shall submit a changed plan to the Director, OC Development Services, for approval. If the Director, OC Development Services, determines that the proposed change complies with the provisions and the spirit and intent of the original approval action, and that the action would have been the same for the changed plan as for the approved plot plan, he may approve the changed plan without requiring a new public hearing.

4 **BASIC/COMPLIANCE PA19-0078**

Failure to abide by and faithfully comply with any and all conditions attached to this approving action shall constitute grounds for the revocation of said action by the Orange County Planning Commission.

5 **BASIC/COMPLIANCE PA19-0078**

Failure to abide by and faithfully comply with any and all conditions attached to this approving action shall constitute grounds for the revocation of said action by the Orange County Planning Commission.

6 **INDEMNIFICATION PA19-0078**

Applicant shall, at its own expense, defend, indemnify and hold harmless the County of Orange, its officers, agents and employees from any claim, action or proceeding against the County, its officers, agents or employees to attack, set aside, void, or annul any approval of the application or related decision, or the adoption of any environmental

documents, findings or other environmental determination, by the County of Orange, its Board of Supervisors, Planning Commission, Zoning Administrator, Subdivision Committee, Director of OC Public Works, or Deputy Director of OC Development Services concerning this application. The County may, at its sole discretion, participate in the defense of any action, at the applicant's expense, but such participation shall not relieve applicant of his/her obligations under this condition. Applicant shall reimburse the County for any court costs and attorney's fees that the County may be required to pay as a result of such action. If litigation is filed challenging the Project, the County may, at its sole discretion, require the Applicant to post a bond, enter into an escrow agreement, obtain an irrevocable letter of credit from a qualified financial institution, or provide other security, to the satisfaction of the County, in anticipation of litigation and possible attorney's fee awards. The County shall promptly notify the applicant of any such claim, action or proceeding.

7 **BASIC/APPEAL EXACTIONS PA19-0078**

Pursuant to Government Code Section 66020, the applicant is hereby informed that the 90-day approval period in which the applicant may protest the fees, dedications, reservations or other exactions imposed on this project through the conditions of approval has begun.

8 **PURCHASER NOTIFICATION PA19-0078 (Custom)**

Prior to the issuance of building permit final, the applicant shall provide written evidence statement to the satisfaction of the Manager, OC Planning, that the purchaser of this home will be provided with a copy of Foothill/Trabuco Specific Plan.

9 **[FP05] FUEL MODIFICATION PLAN PA19-0078**
[Res] Service Codes: 1.9 & 1.10

A. Prior to the recordation of a subdivision map (except for conveyance purposes) or the issuance of a preliminary grading permit (whichever occurs first), the applicant must provide the Manager, Permit Services with a clearance from OCFA, or other Local Fire Agency (if applicable), demonstrating approval of a conceptual or precise fuel modification plan.

B. Prior to the issuance of a precise grading permit, the applicant must provide the Manager, Permit Services with a clearance from OCFA, or other Local Fire Agency (if applicable), demonstrating approval of a precise fuel modification plan.

10 **[FP06] RESIDENTIAL SITE PLAN PA19-0078**
[Res] Service Codes: 1.9 & 1.10

Prior to issuance of a building permit, the applicant shall provide a residential site plan for review and approval by the Fire Code Official. *Note-refer to the OCFA website to obtain a copy of "Residential Site Review Assistance" form for information regarding the submittal requirements.

11 **[FP07] FIRE HAZARD SEVERITY ZONE PA19-0078**

Prior to the issuance of a building permit, in all Fire Hazard Severity Zones within State Responsibility Areas (SRA) and within Very High Fire Hazard Severity Zones within the Local Responsibility Areas (LRA), the applicant shall provide the Manager, Permit Services with a clearance from OCFA, or other Local Fire Agency (if applicable), indicating compliance with all requirements of Chapter 47 and Chapter 7A or shall have and approved Fire Protection Plan which provides protection equivalent to the risk for the site.

12 **[G01] GEOLOGY REPORT PA19-0078**

Prior to the issuance of a grading permit, the applicant shall submit a geotechnical report to the Manager, Permit Services, for approval. The report shall include the information and be in the form as required by the Grading Code and Grading Manual.

13 **[G04] SOILS REPORT/SEPTIC PA19-0078**

Prior to the recordation of a subdivision map, or issuance of any grading permits, whichever comes first, the applicant shall submit a soils report which demonstrates that an on-site sewage disposal system can be designed in accordance with County standards, in a manner meeting the approval of the Manager, Permit Services. The report shall present a log of the soil borings and results of percolation tests performed in accordance with County of Orange "On Site Sewage Disposal System Guidelines" and a grading plan, of site grades on each lot as proposed on the tentative map. Tests shall be reported by a Registered Environmental Health Specialist, Registered Civil Engineer, or Registered Geologist.

14 **[LA02] PRIVATE LANDSCAPING PA19-0078**

A. Prior to the issuance of precise grading permits, the applicant shall submit a detailed landscape plan for the project area which shall be approved by the Manager, Permit Services in consultation with the Manager, OC Planning. The plan shall be certified by a professional appropriately licensed in the State of California, as required, as taking into account approved preliminary landscape plan (if any), County Standard Plans for landscape areas, adopted plant palette guides, applicable scenic and specific plan requirements, and water conservation measures contained in the County of Orange Landscape Code (Ord. No. 09-010).

B. Prior to the approval of final inspection, applicant shall install said landscaping and irrigation system and shall have a licensed landscape architect or licensed landscape contractor, certify that it was installed in accordance with the approved plan.

C. Prior to the approval of final inspection, the applicant shall furnish said installation certification, including an irrigation management report for each landscape irrigation system, and any other implementation report determined applicable, to the Manager, Permit Services.

15 **[T08] ROAD FEE PROGRAM PA19-0078 (Custom)**

Prior to the issuance of building permits, the applicant shall pay applicable fees for the Major Thoroughfare and Bridge Fee Program listed below, in a manner meeting the approval of the Manager, Permit Services.

a. Foothill/Eastern Transportation Corridor
b. Santiago Canyon Road Fee Program
c. Foothill Circulation Phasing Plan

16 **[WQ01] WATER QUALITY MANAGEMENT PLAN PA19-0078**

Prior to the issuance of any grading or building permits, the applicant shall submit for review and approval by the Manager, Permit Services, a Water Quality Management Plan (WQMP) specifically identifying Best Management Practices (BMPs) that will be used onsite to control predictable pollutant runoff. The applicant shall utilize the Orange County Drainage Area Management Plan (DAMP), Model WQMP, and Technical Guidance Manual for reference, and the County's WQMP template for submittal. This WQMP shall include the following:

- Detailed site and project description
- Potential stormwater pollutants
- Post-development drainage characteristics
- Low Impact Development (LID) BMP selection and analysis
- Structural and Non-Structural source control BMPs
- Site design and drainage plan (BMP Exhibit)
- GIS coordinates for all LID and Treatment Control BMPs
- Operation and Maintenance (O&M) Plan that (1) describes the long-term operation and maintenance requirements for BMPs identified in the BMP Exhibit; (2) identifies the entity that will be responsible for long-term operation and maintenance of the referenced BMPs; and (3) describes the mechanism for funding the long-term operation and maintenance of the referenced BMPs

The BMP Exhibit from the approved WQMP shall be included as a sheet in all plan sets submitted for plan check and all BMPs shall be depicted on these plans. Grading and building plans must be consistent with the approved BMP exhibit.

17 **[WQ02] COMPLIANCE WITH THE NPDES PA19-0078 IMPLEMENTATION PROGRAM**

Prior to the issuance of a certificate of use and occupancy, the applicant shall demonstrate compliance with the County's NPDES Implementation Program in a manner meeting the satisfaction of the Manager, OC Inspection, including:

- Demonstrate that all structural Best Management Practices (BMPs) described in the BMP Exhibit from the project's approved WQMP have been implemented, constructed and installed in conformance with approved plans and specifications
- Demonstrate that the applicant has complied with all non-structural BMPs described in the project's WQMP
- Submit for review and approval an Operations and Maintenance (O&M) Plan for all structural BMPs (the O&M Plan shall become an attachment to the WQMP;
- Demonstrate that copies of the project's approved WQMP (with attached O&M Plan) are available for each of the initial occupants;
- Agree to pay for a Special Investigation from the County of Orange for a date twelve (12) months after the issuance of a Certificate of Use and Occupancy for the project to verify compliance with the approved WQMP and O&M Plan
- Demonstrate that the applicant has RECORDED one of the following:
1. A water quality implementation agreement that has the approved WQMP and O&M Plan attached; or
2. The final approved Water Quality Management Plan (WQMP) and Operations and Maintenance (O&M) Plan.

18 **WALLS IN PUBLIC RIGHT-OF-WAY PA19-0078 (Custom)**

Prior to the issuance of any grading or building permit the will obtain a County Property Permit (CPP) for all work within the County Right-of-way.

19 **OFF-SITE TREE MITIGATION SITE PA19-0078 (Custom)**

Prior to the issuance of any grading or building permit the applicant will identify the location for the off-site tree migration property within the Foothill/Trabuco Specific Plan Area, and demonstrate an agreement with the property owner(s) for the tree mitigation.

20 **GREY WATER PA19-0078 (Custom)**

Encourages the homeowner to use the grey water from the septic system to feed into the newly proposed landscape irrigation system.

Contractor shall exercise the responsibility with architect in securing latest approved drwgs. prior to actually executing work

NO./REVISION/DATE

D BUILDING DEPT SUBMITTAL 3-19-25

JOHN A. SALAT ARCHITECTS
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architect

THOURBANOV RESIDENCE
COUNTY AGENCY
CONDITIONS OF APPROVAL

OWNER/SITE ADDRESS:
CONTACT: Alexander Tchourbanov
20601 Trabuco Oaks Dr,
Trabuco Canyon, CA 92678
Ph 520.909.0869 Email: acturbanov@gmail.com

REGISTERED PROFESSIONAL ARCHITECT JOHN A. SALAT NO. C-24445 EXP. 10-29-25 STATE OF CALIFORNIA

DRAWN JS
CHECKED JS
DATE SEE REVISION BOX ABOVE FOR DATE
SCALE AS NOTED ON PLANS
JOB NO.
SHEET

GN-3

1 OF (PER INDEX) SHEETS

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SPECIFICATIONS

DIVISION 1 – GENERAL REQUIREMENTS

A. SECTION 1-A ARCHITECTURAL ADMINISTRATIVE NOTES

1. THIS IS A BUILDER'S SET OF DRAWINGS PREPARED TO A LEVEL OF COMPLETION SATISFACTORY FOR BUILDING PERMIT PURPOSES AT THE TIME OF THEIR PREPARATION, AND FOR CONSTRUCTION BY A KNOWLEDGEABLE AND EXPERIENCED BUILDER FAMILIAR WITH THIS TYPE OF WORK. SUCH DOCUMENTS WILL REQUIRE PREPARATION AND SUPPLEMENTAL DETAILS, PRODUCT SPECIFICATIONS, AND ELABORATION AND INTERPRETATION BY EXPERIENCED CONTRACTORS, SUB-CONTRACTORS AND OWNER'S INDEPENDENT CONSULTANTS.
2. RULES AND REGULATIONS: ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH THE LATEST FEDERAL, STATE, COUNTY, CITY OR GOVERNING AGENCIES UNIFORM CODES, RULES, REGULATION OR AMENDMENTS. NOTHING IN THESE DRAWINGS OR NOTES SHALL BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.
3. BUILDING ADDRESS NUMBERS TO BE PROVIDED AT THE FRONT OF ALL BUILDINGS AND SHALL BE VISIBLE AND LEGIBLE FROM THE STREET

B. SECTION 1-B ARCHITECTURAL GENERAL NOTES

CONTRACTOR SHALL ONLY UTILIZE APPLICABLE AS SOME ITEMS MAY NOT APPLY TYPICAL GENERAL NOTES. WHERE IN CONFLICT, MANUFACTURE INSTALLATION MATERIALS AND SPECS SHALL SUPERSEDE THIS PAGE AS INFORMATION NOTED MAY BE GENERIC OR DATED, CONTACT VENDORS TO SECURE INSTRUCTIONS AND NOTIFY THE ARCHITECT THE FINDINGS PRIOR TO USE.

DIVISION 2 – SITE WORK

SECTION 2-A EARTHWORK:

SOIL REPORT: PERFORM ALL WORK IN THIS SECTION IN CONFORMANCE WITH WITH STRUCTURAL ENGINEERS AND SOILS REPORTS

DIVISION 3 – CONCRETE

SECTION 3-A CONCRETE WORK (CAST-IN-PLACE): SEE STRUCTURAL NOTES
SECTION 3-B REINFORCING STEEL: (SEE STRUCTURAL NOTES)

DIVISION 4 – MASONRY

SECTION 4-A BRICK MASONRY: (SEE STRUCTURAL NOTES)
SECTION 4-B CONCRETE UNIT MASONRY: (SEE STRUCTURAL NOTES)

DIVISION 5 – METALS

SECTION 5-A MISCELLANEOUS AND STRUCTURAL METALS: – SEE STRUCTURAL SPECS & WEATHERING STEEL SPEC. of DIVISION 7, ITEM 9 THIS PAGE

DIVISION 6 – WOODS & PLASTICS

SECTION 6-A ROUGH CARPENTRY: (SEE STRUCTURAL NOTES)
SECTION 6-B ROUGH CARPENTRY FIRE STOPPING:
PROVIDE FIRESTOPS AT ALL CONCEALED LOCATIONS. PROVIDE FIREBLOCKING AT 10'-0" MAXIMUM SPACING

SECTION 6-C FINISH CARPENTRY: REFER TO PLANS

DIVISION 7 – THERMAL AND MOISTURE PROTECTION

A. SECTION 7-A SHEET METAL AND FLASHING:

NOTE: CHAPTER 7A FIRE OUTLINED ON SHT GN-2 SHALL SUPERCEED THESE SPECS

STANDARDS:

a. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA) "THE NRCA ROOFING AND WATERPROOFING MANUAL"
b. SEALANT AND WATERPROOFERS INSTITUTE (SWI) AND WATERPROOFING CONTRACTORS ASSOCIATION.

2. MEASUREMENTS: VERIFY ALL DIMENSIONS SHWN ON DRAWINGS BY TAKING FIELD MEASUREMENTS; PREPER FIT AND ATTACHMENT OF ALL PARTS IS REQUIRED.
3. STANDARDS: ALL WORK INCLUDED IN THIS SECTION SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATION CONTAINED IN THE LATEST EDITION OF THE "ARCHITECTURAL SHEET METAL MANUAL", PUBLISHED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION (SMACNA)
4. ZINC-COATED (GALVANIZED) STEEL: (CALLED "GALVANIZED IRON" HEREINAFTER AND ON DRAWINGS) SHALL CONFIRM TO FEDERAL SPEC. QQ- S775A, TYPE 1, CLASS 4: EITHER GALVANIZED OR BONDERIZED ASTM A- 93, COATING CLASS 1.50 OZ. PER SQ. FT. UNLESS OTHERWISE INDICATED, ALL METAL 26 GAUGE.
5. INSTALLATION: SHEET METAL FLASHING SHALL BE INSTALLED AT ALL LOCATIONS WHERE DIFFERENT MATERIALS INTERSECT SUCH AS ROOF TO WALL, ROOF TO ROOF, DECK/BALCONY/LANDING TO WALL, PENETRATIONS INTO WALLS. SHEET METAL FLASHING IS NOT LIMITED TO ABOVE MENTIONED ITEMS BUT SHALL ALSO INCLUDE ALL OTHER LOCATIONS RECOMMENDED IN THE "ARCHITECTURAL SHEET METAL MANUAL".
6. VALLEY FLASHING: 26 GAUGE GALVANIZED IRON, 18" WIDE FOR SHINGLES, 24" WIDE FOR SHAKES (1-1/2" HIGH) RAISED CENTER DIVERTER. THE CENTER OF ALL FLASHING FOR ALL THROUGH ROOF VENTS AND ALL ELECTRICAL SERVICE CONNECTIONS, SHALL NOT BE LESS THAN 16" FROM CENTER OF ANY VALLEY. SEE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS FOR MISSION TILE OR FLAT CONCRETE TILE.
7. WEATHER PROTECTION: A DETAILS FOR WEATHER-RESISTIVE BARRIERS, FLASHING, COUNTER-FLASHING, ETC. PER CBC (1503)
8. DETAIL CORROSION-RESISTANT WEEP SCREED MINIMUM OF 4" ABOVE THE EARTH OR 2" ABOVE PAVED AREAS (CRC R703.6.2.), SEE ALSO DIVISION 9 FOR ADDITIONAL PLASTER WEATHERPRODFING INFORMATION
9. WEATHERING STEEL SHALL MEET ASTM SPECIFICATIONS A588, A242, A606-4, A847, A871-05 AND A709-50, COR-TEN OR EQ. THE CORROSION-RETARDING EFFECT SHALL MEET THE CONCENTRATION OF ALLOYING ELEMENTS WITHIN 1/10 OF NATURALLY-DEVELOPED PATINA PROTECTING THE SURFACE REGENERATES CONTINUOUSLY WHEN SUBJECTED TO THE INFLUENCE OF THE WEATHER ALLOWING TO RUST IN ORDER TO FORM THE PROTECTIVE COATING THAT GUARDS AGAINST FUTURE CORROSION. (NOTE- CONTRACTOR MAY SUBSTITUTE CORTEN WITH FACTORY PAINTED STEEL MONOCHROMATIC MATCHING BROWN COLOR USING HARD SHELL SPECIALTY COATINGS

B. SECTION 7-B INSULATION:

1. INSULATION SHALL BE PROVIDED AND INSTALLED PER TITLE 24, CALIFORNIA ADMINISTRATIVE CODE. PROVIDE THERMAL INSULATION IN ALL EXTERIOR STUD WALLS, EXTENDING FULL HEIGHT OF WALLS, FITTED TIGHTLY BETWEEN STUDS
2. AFTER INSTALLING THE INSULATION, THE INSTALLER SHALL POST IN A CONSPICUOUS LOCATION IN THE BUILDING, AN INSULATION CERTIFICATE, SIGNED BY THE INSTALLER AND THE BUILDER, STATING THAT THE INSTALLATION CONFORMS WITH THE REQUIREMENTS OF TITLE 24, PART 2, CHAPTER 2-53 OF THE CALIFORNIA ADMINISTRATIVE CODE.
3. REFER TO DRAWINGS AND T-24 SHEETS TO SUPERSEDE HIGHER "R" RATINGS. FRAMING SHALL BE MINIMUM 2X ITS DEPTH TO FIT BATT INSULATION SO TO MAINTAIN 1" AIR GAP ABOVE, WHERE LESS THAN DEPTH FRAMING, PROVIDE COMPRESSED CEILING RIGID BOARD TO MAINTAIN THE 1" AIR GAP ABOVE. DWELLING UNITS SHALL RECEIVE A MINIMUM R-30 BLANKET INSULATION AT CEILING, R19 AT WALLS AND R19 AT ALL FLOORS OVER UNHEATED SPACES UNLESS NOTED OTHERWISE
4. THE INSULATION SHALL CONFORM TO FLAME-SPREAD RATING AND SMOKE DENSITY REQUIREMENTS OF SECTION 2602 AND 707 OF THE LATEST UNIFORM BUILDING CODE PUBLISHING

C. SECTION 7-C CAULKING & SEALANTS:

CODES AND STANDARDS:

A. SEALANT AND WATERPROOFERS INSTITUTE (SWI),
B. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA) "ROOFING AND WATERPROOFING MANUAL."

INSTALLATION: INSTALL PER MANUFACTURERS PRINTED INSTALLATION INSTRUCTIONS.

SEALANT LOCATIONS:

A. NON-POROUS SURFACES SUCH AS GLASS, METAL, CERAMIC TILE AND PLASTIC.
B. POROUS SURFACES SUCH AS BLOCK AND CONCRETE.
C. LOCATIONS SUCH AS CERAMIC TILE, PLUMBING FIXTURES, AND OTHERS WHERE MILDEW RESISTANT SEALANT IS REQUIRED.
D. LOCATION WHERE HIGH DEGREE OF MOVEMENT IS ANTICIPATED.
E. JOINTS AND CRACKS AROUND WINDOWS, THRESHOLDS, DOOR FRAMES, WALL PENETRATIONS, CONNECTIONS AND OTHER JOINTS NECESSARY TO SEAL OFF BUILDING FROM OUTSIDE AIR AND MOISTURE.
F. ALL JOINTS NECESSARY TO MAKE THE BUILDING WATERTIGHT AND TO PREVENT THE PASSAGE OF DIRT, DUST, WIND, AIR OR WATER.

D. SECTION 7-D BUILDING PAPER:

2. PROVIDE 15 LB FELT MIN FEDERAL SPECIFICATION UU-B-790. INSTALL UNDER EXTERIOR SIDING AND TRIM AND CAREFULLY APPLY SO AS TO FORM A WATERTIGHT MEMBRANE. EACH COURSE PF PAPER SHALL OVERLAP THE COURSE BENEATH IT 6" MINIMUM. WHERE PAPER MEETS ANY OPENING THE PAPER SHALL BE CAREFULLY LAPPED OVER THE FRAME TO PREVENT THE PASSAGE OF WATER BEHIND THE FRAME. INSTALL SISALKRAFT PAPER AT EXTERIOR DOOR AND WINDOW FRAMES PER WINDOW & DOOR MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.

SEE DIVISION "9" FOR ADDITIONAL INFORMATION ON WEATHERPROOFING

E. SECTION 7-E ROOFING AND MEMBRANES:

1. SHINGLE ROOF
SEE ROOF PLAN FOR FULL SPEC
2. FLAT DECKS: WALKING DECKS

EXTERIOR DECK SHALL BE PORCELAIN TILE APPLICATION WITH INVERTED WATER PROOF MEMBRANE ON PLYWOOD DECK SUBSRATE THIN-SET APPLICATION PER MANUFACTURERS INSTRUCTIONS
HTTPS://DURADEK.COM/GENERAL/AVOID-LEAKY-TILE-DECKS-TILEDEK-PART-1

EXTERIOR DECK WATER PROOF MEMBRANE SHALL BE CALENDARED POLYVINYL CHLORIDE (PVC) FILM AS A LAMINATED WOVEN, HEAT-SET POLYESTER FABRIC TO ACCEPT OVERLAY TO SURFACE BY DURADEK/DURARAIL. FOR INSTALLATION USE, INSTALL SOLID EXTRA THICK SUBSTRATE OF EXTERIOR-RATED SHEATHING OF 3/4-IN CDX PLYWOOD. THEN APPLY CBU (CEMENT BACKER UNIT)- 1/2 INCH (13MM) DUROCK CEMENT BOARD, AS MANUFACTURED BY USG. CBU TO BE APPLIED TO THE PLYWOOD USING A LATEX HYDRAULIC MORTAR AND FASTENERS IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. PROVIDE THIN SET MORTAR IN ACCORDANCE WITH THE SPECIFICATIONS OF BOTH OF THE MORTAR MANUFACTURER ALONG WITH THE MEMBRANE MANUFACTURER. LAMINATE UNDERLAYMENT PANEL TO PLYWOOD SUBFLOOR USING POLYMER MODIFIED MORTAR. COVER MORTAR WITH PANEL IMMEDIATELY. STAGGER JOINTS BY 12" MINIMUM. FOLLOW DIRECTIONS FROM PLYWOOD SUBFLOOR JOINTS. FIT ENDS AND EDGES CLOSELY, LEAVING A MAXIMUM 1/8 INCH (3MM) GAP AT PANEL EDGES AND ENDS. FASTEN PANELS TO SUBFLOOR WHILE MORTAR IS WET WITH 1 1/4 INCH (32MM) NICKEL COATED SCREWS SPACED 6 INCHES ON CENTER IN BOTH DIRECTIONS AND 1/2 INCH (12.5MM) FROM ENDS AND EDGES. DO NOT OVERDRIVE FASTENERS. FINSTALL FLASHINGS AND ACCESSORIES. SEAL AROUND ALL PENETRATIONS, DRAINS, AND EDGES MIX RAPID SETTING, FLEXIBLE, POLYMER-MODIFIED THINSET MORTARS IN ACCORDANCE WITH LATEX MANUFACTURER'S DIRECTIONS OR AS SPECIFIED BY TMAC OR TCNA. FINALLY, APPLY TWO COATS OF A VERY GOOD SEALER SUCH AS MIRACLE SEALANTS 511 IMPREGNATOR SEALER, AGAIN FOLLOWING THE MANUFACTURER'S INSTRUCTIONS.

DIVISION 8 – DOORS & WINDOWS

A. SECTION 8-A DOORS & WINDOWS:

1. THE DOOR FROM GARAGE TO THE RESIDENCE TO BE SELF-CLOSING, TIGHT-FITTING, 1-3/8-INCH-THICK SOLID WOOD OR A 20-MINUTE RATED ASSEMBLY. (CBC 406.1)
2. PROVIDE NATURAL VENTILATION IN BATHROOMS AND TOILET COMPARTMENTS THROUGH OPENABLE EXTERIOR WALL OPENINGS WITH AN AREA NOT LESS THAN 5% OF ROOM FLOOR AREA WITH A MINIMUM OF 1'-1/2' SQUARICAL SECTION (OR MECHANICAL VENTILATION 5 AIR CHANGES PER HOUR). (SEC 1203.3) . PROVIDE NATURAL VENTILATION, IN HABITABLE ROOMS, WITH AN AREA OF NOT LESS THAN 5 SQUARE FEET).
3. NATURAL LIGHT: THE MINIMUM NET GLAZED AREA SHALL NOT BE LESS THAN 8 PERCENT OF THE FLOOR AREA OF THE ROOM SERVED. (CBC 1205.2) EXCEPTION 1: ADJOINING SPACES. FOR THE PURPOSE OF NATURAL LIGHTING, ANY ROOM IS PERMITTED TO BE CONSIDERED AS A PORTION OF AN ADJOINING ROOM WHERE ONE-HALF OF THE AREA OF THE COMMON WALL IS OPEN AND UNOBSTRUCTED AND PROVIDES AN OPENING OF NOT LESS THAN ONE-TENTH OF THE FLOOR AREA OF THE INTERIOR ROOM OR 25 SQUARE FEET WHICHEVER IS GREATER . EXCEPTION: OPENINGS REQUIRED FOR NATURAL LIGHT SHALL BE PERMITTED TO OPEN INTO A THERMALLY ISOLATED SUNROOM ADDITION OR PATIO COVER WHERE THE COMMON WALL PROVIDES A GLAZED AREA OF NOT LESS THAN ONE-TENTH OF THE FLOOR AREA OF THE INTERIOR ROOM OR 20 SQUARE FEET, WHICHEVER IS GREATER. (CBC 1205.2)
4. REQUIRED WINDOW AREA FOR LIGHT SHALL BE NOT LESS THAN 8 PERCENT OF THE FLOOR AREA OF THE ROOM SERVED. THE MINIMUM OPENABLE AREA TO THE OUTDOORS SHALL BE 4 PERCENT OF THE FLOOR AREA BEING VENTILATED
5. EVERY SLEEPING ROOM AND ANY BASEMENT MUST HAVE AT LEAST ONE OPENABLE WINDOW OR DOOR APPROVED FOR EMERGENCY RESCUE WITH A MINIMUM NET CLEAR OPENING OF 5.7 SQUARE FEET, EXCEPT THAT WINDOWS AT THE GRADE FLOOR SHALL HAVE A MINIMUM NET OPENING OF 5 SQUARE FEET. THE MINIMUM NET CLEAR OPENING HEIGHT DIMENSION SHALL BE 24". THE MINIMUM NET CLEAR OPENING WIDTH DIMENSION SHALL BE 20". THE BOTTOM OF THE CLEAR OPENING SHALL BE NO MORE THAN 44" FROM THE FLOOR
6. WINDOW WHERE THE OPENING OF THE SILL PORTION OF THE OPERABLE WINDOW IS LOCATED MORE THAN 72" ABOVE THE FINISHED GRADE OR SURFACE BELOW. THE LOWEST PART OF THE CLEAR OPENING OF THE WINDOW SHALL BE A MINIMUM OF 24" ABOVE THE FINISHED FLOOR SURFACE OF THE ROOM IN WHICH THE WINDOW IS LOCATED. GLAZING BETWEEN THE FLOOR AND A HEIGHT OF 24" SHALL BE FIXED OR HAVE OPENINGS SUCH THAT A 4" DIAMETER SPHERE MAY NOT PASS. (CBC 1405.12. 2)
7. DMIT
8. DOORS AND WINDOWS EXPOSED TO OUTSIDE AIR SHALL BE FULLY WEATHERSTRIPPED.
9. SLIDING GLASS DOORS (PATIO TYPE) TO HAVE A MINIMUM CATEGORY CLASSIFICATION OF II PER LATEST EDITION CBC STD, 24-2, TABLE 24-2A.
10. SECURITY REQUIREMENTS:
a) PROVIDE PEEP HOLE OR VISION PANEL AT FRONT DOOR
b) PROVIDE STEEL PLATE AT THE DEAD BOLT STRIKER AT ALL EXTERIOR DOORS
c) WINDOWS SHALL CONFORM TO THE STANDARDS OF THE C.B.C.
11. DMIT
12. STANDARDS: ALL DOORS SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL WOOD WINDOW AND DOOR ASSOCIATION, WOODWORK INSTITUTE OF CALIFORNIA AND TITLE 24) CALIFORNIA ADMINISTRATIVE CODE.

B. SECTION 8-B GLAZING

1. FOR ALL SAFETY GLAZING IN HAZARDOUS LOCATIONS, SEE PLANS OR DOOR AND WINDOW SCHEDULE. (SEC 2406.4) STANDARDS: TITLE 24, CALIFORNIA ADMINISTRATIVE CODE; SAFETY STANDARD FOR ARCHITECTURAL GLAZING MATERIALS (16 CFR1201) ISSUED BY THE CONSUMER PRODUCT SAFETY COMMISSION

2. SAFETY GLAZING OCCURANCE/CONDITIONS PER CBC 2406.1 & 2406.5
a. GLAZING AT EXTERIOR DOORS OR WITHIN 40" OF ANY LOCKING MECHANISM SHALL BE FULLEY TEMPERED GLASS, OR RATED BURGLARY RESISTANT GLAZING (S.C.M.C. 15.28.120)
b. GLAZING IN FIXED AND SLIDING PANELS OF SLIDING DOORS AND PANELS IN SWINGING DOORS.
c. GLAZING IN DOORS ENCLOSURES INCLUDING ALL WINDOWS ADJACENT TO SUCH DOORS, AMENITIES FOR BATHTUBS, SHOWERS, STEAM ROOMS, SAUNAS, SWIMMING POOLS, ETC WITHIN 5' VERTICAL SURFACE DRAIN INLET GLAZING WITHIN 2' VERTICAL EDGE OF CLOSED DOOR AND WITHIN 5' OF WALKING SURFACE
d. GLAZING IN RAILING AND STAIR LANDING AREAS
e. GLAZING IN WALLS AND FENCES USED AS THE BARRIER FOR SWIMMING POOLS AND SPAS OR GLAZING LESS THAN 18" ABOVE THE FLOOR
f. OPERABLE WINDOWS LOCATED MORE THAN 6 FEET ABOVE FINISHED GRADE OR OTHER SURFACE BELOW, THE LOWEST PART OF THE CLEAR OPENING OF THE WINDOW SHALL BE MINIMUM 24 INCHES ABOVE THE FINISHED FLOOR SURFACE OF THE ROOM IN WHICH THE WINDOW IS LOCATED. (CBC 1405.12.2)
g. GLAZING IN INGRESS AND EGRESS DOORS (INCLUDING WARDROBE DOORS) AND WITHIN 40" OF THE DOOR.
h. GLAZING IN DOORS AND ENCLOSURES FOR BATHTUBS AND SHOWERS TO HAVE A MINIMUM CATEGORY CLASSIFICATION OF II PER CBC STD. 24-2, TABLE 24-2A & CBC 11.34A.6

3. GLAZING MATERIAL FOR SKYLIGHTS IF GLASS SHALL COMPLY WITH CBC CHAPTER 24. IF PLASTIC, SPECIFY MANUFACTURER AND ICC REPORT NUMBER NOTED PER PLANS. SKYLIGHT (CBC 2405.4) CURB ASSEMBLY w/ MINIMUM 4 HIGH CURB.
4. GLAZING IN DOORS AND FIXED GLAZED PANELS OF MORE THAN NINE SQUARE FEET TO HAVE A MINIMUM CATEGORY CLASSIFICATION OF II PER LATEST EDITION UBC 24-2, TABLE 24-2A.
5. GLAZING IN DOORS AND FIXED GLAZED PANELS OF NINE SQ. FT. OR LESS TO HAVE A MINIMUM CATEGORY CLASSIFICATION OF 1 PER CBC STD. 24-2, TABLE 24-2 A.
6. GLAZED WARDROBE DOORS TO MEET IMPACT TEST PER CBC STD. 24-2, PART II. LAMINATED GLASS MUST ALSO MEET THE TEST REQUIREMENTS OF LATEST EDITION CBC STD. 24-2, PART II.

DIVISION 9 – FINISHES

A. SECTION 9-A LATHING AND PLASTERING.

1. ALL WEATHER EXPOSED SURFACES SHALL HAVE A WEATHER-RESISTIVE BARRIER TO PROTECT THE INTERIOR WALL COVERING SUCH BARRIER SHALL BE EQUAL TO THAT PROVIDED FOR IN UBC STANDARD 14-1 FOR KRAFT WATERPROOF BUILDING PAPER OR ASPHALT SATURATED RAG FELT, APPLIED HORIZONTALLY, WITH THE UPPER LAYER LAPPED 2 INCHES OVER THE LOWER LAYER, AND LAPPED 6 INCHES AT ALL VERTICAL JOINTS. (2007 CBC SECTION 1402.1)
2. PROVIDE ONE-HOUR FIRE-RESISTIVE CONSTRUCTION (5/8-INCH TYPE X GYPSUM WALLBOARD) IN THE GARAGE SIDE OF WALLS COMMON WITH THE RESIDENCE. WHEN THE GARAGE SUPPORTS A FLOOR ABOVE, THE CEILING, POSTS AND BEAMS IN THE GARAGE SHALL BE SIMILARLY PROTECTED. CBC 708, CBC 406.1.
3. VENEER: PROVIDE NOTES AND DETAILS OF VENEER ATTACHMENT FOR ADHERED VENEER, AND ANCHORED VENEER (1405). B. PROVIDE NON-COMBUSTIBLE SUPPORT FOR ANCHORED VENEER – LIMIT DEFLECTION AND DESIGN FOR REDUCED STRESSES.
4. COMBUSTIBLE EAVE OVERHANGS WITHIN 3 FEET OF PROPERTY LINE SHALL BE OF ONE-HOUR FIRE-RESISTIVE OR HEAVY TIMBER CONSTRUCTION CONFORMING TO CBC 602.4.5
5. COLOR OF PAINT OR PLASTER COLOR SHALL BE SELECTED BY OWNER –PROVIDE COLOR CHIPS FOR OWNERS REVIEW

A. CONTINUED SECTION (9-A LATHING AND PLASTERING):

6. R1B LATH SHALL BE FLAT R1B, 1/8", 3.4 LBS. PER SQ. YARD, GALVANIZED. METAL LATH: SHALL BE STANDARD DIAMOND MESH, GALVANIZED WEIGHING THREE (3) POUNDS PER SQ. FT. WIRE MESH: 1-1/2" MESH, SEVENTEEN GAUGE, GALVANIZED FORE OR AFTER WEAVING, OR APPROVED EQUAL. EXTERIOR LATH: PROVIDE TWO LAYERS OF GRADE D PAPER OVER ALL WOOD BASE SHEATHING. (CBC 2510.6.3,LATHING MATERIALS AND THEIR APPLICATION AND PLASTER MATERIALS AND THEIR APPLICATION SHALL BE IN STRICT ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE "HANDBOOK OF RECOMMENDED NOTES FOR LATHING, FURRING AND PLASTERING", OF THE NATIONAL FOUNDATION FOR LATHING AND PLASTERING INC. WATERPROOF PAPER: PLASTER KRAFT BUILDING PAPER, FEDERAL NOTES (UU-B-790, CLASS.
7. CONTINUE SECTION (15-C EQUIPMENT)

FORCED AIR UNITS: CONSULT INSTALLATION DIRECTIONS FOR APPROPRIATE CLEARANCES. THE RETURN AIR INLET FOR BLOWER TYPE FURNACES MUST BE AT LEAST TEN FEET FROM THE DRAFT HOOD OF YOUR WATER HEATER OR OTHER FUEL BURNING APPLIANCE AND MUST NOT BE WHERE IT WILL PICK UP OBJECTIONABLE ODORS OR MOISTURE. FORCED AIR UNITS REQUIRE BULKY DUCTS AND PLENUMS. FORCED AIR UNITS ARE MUST COMPLY WITH TITLE 24 REQUIREMENTS REFERENCING THE 2007 CALIFORNIA ENERGY CODE, SEE T-24 SHEET

8. FURNACE INSTALLED IN UNDER-FLOOR SPACES SHALL COMPLY WITH THE FOLLOWING PER CMC SEC 1004.2. UNLESS FURNACE IS SUPPORTED ON THE GROUND SHOULD REST ON A CONCRETE SLAB EXTENDING A MINIMUM OF 3 INCHES ABOVE GRADE
9. PROVIDE COMBUSTION AIR FOR ALL GAS FIRED APPLIANCES PER CMC CHAPTER 7. 13.7 FUEL BURNING WATER HEATER IS NOT ALLOWED IN BEDROOM OR BATHROOM UNLESS DIRECT VENT TYPE OR COMPLYING WITH CPC 505(6).
10. DISCHARGE POINTS FOR EXHAUST AIR SHALL BE A MINIMUM OF 3 FEET FROM ANY OPENING WHICH ALLOWS AIR ENTRY INTO OCCUPIED PORTIONS OF THE STRUCTURE. BUCTLESS VENTS SHALL NOT BE USED IN BATHROOMS WHERE A TUB OR SHOWER IS LOCATED
11. FUEL-BURNING WATER HEATERS SHALL NOT BE INSTALLED IN BATHROOMS OR BEDROOMS OR IN A CLOSET WITH THE ONLY ACCESS THROUGH A BATHROOM OR BEDROOM. (CPC SEC 509.0); EXCEPT WATER HEATERS HAVING DIRECT VENT SYSTEMS.
12. THE FIRST PARAGRAPH OF SUBSECTION 504.2 OF THE SECTION 504 OF THE CALIFORNIA MECHANICAL CODE IS HEREBY AMENDED TO READ AS FOLLOWS: 504.2 DOMESTIC RANGE HOODS AND VENTILATING FAN DUCTING SHALL BE INSTALLED FOR COOKING FACILITIES WITH AN APPROVED FORCED-DRAFT SYSTEM OF VENTILATION VENTED TO THE OUTSIDE. VENTILATING DUCTS USED FOR DOMESTIC KITCHEN RANGE VENTILATION SHALL BE OF METAL, OR OTHER APPROVED MATERIAL, AND SHALL HAVE SMOOTH INTERIOR SURFACES. DUCTS FOR DOMESTIC RANGE HOODS SHALL ONLY SERVE COOKING APPLIANCES. (BALANCE OF THE SUBSECTION TO REMAIN UNCHANGED.)
13. INDOOR VENTILATION SHALL MEET THE MINIMUM BEST PRACTICES GUIDELINES BASED FROM ASHRAE 62.2 FOR BOTH LOCAL VENTILATION AND WHOLE-BUILDING VENTILATION REQUIREMENTS. EXHAUST FAN DUCTING SHALL MEET THE WHOLE-BUILDING EXHAUST VENTILATION SYSTEM AIRFLOW. UNITS SHALL HAVE SOUND RATING OF ONE OR LESS AT THE REQUIRED VENTILATION. WHOLE-BUILDING VENTILATION SHALL BE SMOOTH METAL DUCT DESIGN REQUIREMENTS OF TABLE 7.1, "THE WHOLE-BUILDING FAN FANS IS TREATED TO PROVIDE AT LEAST THE MINIMUM VENTILATION RATE AT A MINIMUM STATIC PRESSURE OF 0.25" W.C THE METHOD.

THIS PROJECT SUPPORTS THE ENCLOSED T-24 SHEET USING PERFORMANCE METHOD PER SHEET EMP-1 AND EMP-2 WITH ONE CENTRAL FAN UNIT SPECIFIED PER BRAND AND MODEL AS BELOW

14. USING T-24 SHEET GUIDELINES, THE EQUIPMENT LIST FOR THIS PROJECT AS FOLLOWS:

A. EXHAUST FANS
MAIN HOUSE: 105 CFM BY "BROAN" MODEL S50TE110

B. HVAC EQUIPMENT
FURNACES MAKE CARRIER MODEL 58STX110 EFFICIENCY 80
CONDENSING MAKE CARRIER MODEL 24ABA360A0 13.0 - SEER

C. EQUIPMENT FORMS
APPENDIX III "HOMEOWNER'S OPERATION AND MAINTENANCE DOCUMENTS" FORM IS AVAILABLE AT CITY. CONTRACTOR TO FILL OUT FORMS THROUGH THE EQUIPMENT INSTALLERS PRIOR TO CALLING FOR FINAL INSPECTION.

D.

SECTION 15-D FIREPLACE

1. PROVIDE FACTORY LISTED SPARK ARRESTERS AND SHROUDS AT CHIMNEY TERMINATIONS. CBC21 13.9.1
2. FACTORY BUILT METAL FIREPLACES SHALL HAVE A GLASS OR METAL DOORS B. GAS LOG INSTALLED IN FIREPLACE REQUIRE DAMPER TO BE PROVIDED WITH MECHANICAL STOP. DAMPER TO REMAIN IN THE OPEN POSITION. C. OUTSIDE COMBUSTION AIR (SEE MANUFACTURER'S INSTALLATIONS) D. PROVIDE AND SHOW HEARTH AND CLEARANCE TO COMBUSTIBLE MATERIALS

DIVISION 10 – SPECIALTIES

SECTION 10-A MISCELLANEOUS & SPECIALTIES:

INSTALLATION: ALL ITEMS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS AND ACCEPTED SHOP DRAWINGS. ADHESIVE INSTALLATION WILL NOT BE PERMITTED.

DIVISION 11 – EQUIPMENT

SECTION 11-A APPLIANCES AND SPECIAL EQUIPMENT:

MEASUREMENTS: VERIFY ALL DIMENSIONS SHOWN ON THE DRAWING BY TAKING FIELD MEASUREMENTS. PROPER FIT AND ATTACHMENT OF ALL PARTS IS REQUIRED.

DIVISION 12 – FURNISHINGS

NOT INCLUDED IN THESE NOTES.

DIVISION 13 – SPECIAL CONSTRUCTION

NOT INCLUDED IN THESE NOTES.

DIVISION 14 – CONVEYING EQUIPMENT

NOT INCLUDED IN THESE NOTES.

DIVISION 15 – MECHANICAL

A. SECTION 15-A GENERAL MECHANICAL NOTES

1. SEE SHEET MEP-1 AND MEP-2 FOR ADDITIONAL NOTES, PLANS AND DIAGRAM INFO. T-24 AND MECHANICAL SHEET SHALL SUPERSEDE WHERE CONFLICTS MAY OCCUR ON THIS PAGE
2. FOR PURPOSES OF CLARITY AND LEGIBILITY, THE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC TO THE EXTENT THAT OFFSETS, BENDS, SPECIAL FITTINGS AND TRANSITIONS ARE NOT INDICATED AS LOCATIONS TO BE GOVERNED BY STRUCTURAL. CONTRACTOR SHALL MAKE USE OF ALL DATA IN ALL OF THE CONTRACT DOCUMENTS, AND SHALL VERIFY THIS INFORMATION AT THE SITE. THE CONTRACTOR MAY NEED TO SUPPLY ADDITIONAL INFORMATION FOR CITY TO SECURE DEFERRED PERMIT ITEMS, NOT THE ARCHITECT.
3. MATERIALS AND EQUIPMENT SHALL BE NEW AND LISTED BY UNDERWRITER'S LABORATORIES, INC. (U.L.), AND BEAR THEIR LABEL WHEREVER STANDARDS HAVE BEEN ESTABLISHED AND THEIR LABEL SERVICE IS AVAILABLE OR FURNISHED.
4. ENERGY REQUIREMENTS: PROVIDE ALL MATERIAL AND EQUIPMENT TO LOCAL ENERGY REQUIREMENTS, SEE T-24 SHEET
5. EQUIPMENT SPECIFIED BY MANUFACTURER'S NUMBER SHALL INCLUDE ALL ACCESSORIES, CONTROLS, ETC., LISTED IN THE CATALOG AS STANDARD WITH THE EQUIPMENT. OPTIONAL OR ADDITIONAL ACCESSORIES SHALL BE FURNISHED AS SPECIFIED ON DRAWINGS.

B. SECTION 15-B VENTILATION/DUCTING

1. FLUES: PROVIDE FLUES, FRESH AIR INTAKE GRILL, ETC., FOR ALL FUEL BURNING AND GAS-FIRED HEATING EQUIPMENT REQUIRING FLUE VENTING AS NOTED ON PLANS.
2. ATTIC VENTS ARE 3 FT. ABOVE EAVE AND BALANCE ARE AT 2:5 PROVIDE ATTIC VENTILATION 1/150 OF ATTIC AREA, OR 1/300 IF 50 EAVE (CBC 1203.2). BAFFLES ARE REQUIRED AT VENTS FOR INSULATION.
3. VENT DRYER TO OUTSIDE OF BUILDING (NOT TO UNDER FLOOR AREA). VENT LENGTH SHALL BE 14' MAXIMUM OR INCREASE VENT SIZE (CMC 504.3.2.2).
4. VENTING TERMINALS SHALL TERMINATE NOT LESS THAN 4 FEET BELOW, OR 4 FEET HORIZONTALLY FROM, AND NOT LESS THAN 4 FEET ABOVE A DOOR, AN OPEN-ABLE WINDOW OR GRAVITY AIR INLET INTO A BUILDING. (CMC SEC 806.6) VENTING SYSTEMS SHALL TERMINATE AT LEAST 3 FEET ABOVE AN OUTSIDE OR MAKEUP-AIR INLET LOCATED WITHIN 10 FEET. AND AT LEAST 4 FEET FROM A PROPERTY LINE, EXCEPT A PUBLIC WAY.
5. PROVIDE MECHANICAL VENTILATION IN UTILITY ROOM LAUNDRY AND AS REQUIRED IN BATHROOMS, TO SUPPLY A MINIMUM OF 5 AIR CHANGES PER HOUR.
6. FUEL BURNING APPLIANCES: FUEL BURNING APPLIANCES SUCH AS WATER HEATERS AND FURNACES REQUIRE COMBUSTION AIR DUCTS AND EXHAUST VENTS THAT MUST EXTEND TO THE OUTSIDE. THOUGHT MUST BE GIVEN TO ROUTING. IT IS ADVISABLE TO LOCATE FUEL BURNING APPLIANCES ADJACENT TO AN OUTSIDE WALL FOR EASE IN PROVIDING COMBUSTION AIR. CONSULT THE 2007 CALIFORNIA MECHANICAL CODE AND 2007 CALIFORNIA ENERGY CODE.
7. CLOTHES DRYERS: VENT DRYER TO OUTSIDE OF BUILDING 4" DIAMETER. VENT LENGTH SHALL BE 14' MAXIMUM OR INCREASE VENT SIZE WITH 2 ELBOWS (UNLESS EQUIPPED WITH A BACK-PANT DAMPER). (CMC 504.3.2). ALL LAUNDRY FACILIT

2019 CALIFORNIA GREEN CODE FOR BUILDING STRUCTURE (NOTE: FOR SITE ITEMS OUTSIDE BUILDING STRUCTURE SHALL MEET 2022 CALIFORNIA GREEN CODE FOR SITE WORK ITEMS

B

CALGREEN - RESIDENTIAL MINIMUM REQUIREMENTS

Scope

1. 2019 California Green Building Standards Code (CG) is applicable to all new residential buildings, including but not limited to, dwellings, apartment houses, condominiums, hotels, and other types of dwellings containing sleeping accommodations with or without common toilets or cooking facilities regulated by the Department of Housing and Community Development (HCD-1). (NBMC 15.11.010, CG Section 101.3.1).
2. 2019 California Green Building Standards Code (CG) is applicable to additions or alterations of existing residential buildings where the addition or alteration increases the building's conditioned area, volume, or size. The requirements shall apply only to and/or within the specific area of the addition or alteration. (301.1.1)

Energy Efficiency

3. New one and two family dwellings and townhouses with attached private garages shall install a listed nominal 1 inch inside diameter raceway to accommodate a dedicated 208/240 volt branch circuit. (4.106.4.1)
   a. The raceway shall originate at the main service or subpanel and terminate into a listed cabinet, box, or enclosure in close proximity to the proposed location of an EV charger.
   b. The service panel or subpanel shall provide capacity to install a minimum 40 ampere dedicated branch circuit and space reserved for installation of a branch circuit overcurrent protective device.
   c. The service panel or subpanel circuit directory shall identify the overcurrent protective devices space reserved for future EV charging as "EV CAPABLE."
   d. The raceway termination location shall be permanently and visibly marked as "EV CAPABLE."

Material Conservation and Resources Efficiency

4. Annular spaces around pipes, electric cables, conduits or other openings in sole/bottom plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or other similar method. (4.406.1)
5. Utilize one of the city's approved franchise hauler to recycle and/or salvage a minimum of 65% of the nonhazardous construction and demolition waste. (4.408.1, 4.408.3)

Water Efficiency and Conservation

6. New residential developments with an aggregate landscape area equal to or greater than 500 square feet shall comply with City's water efficient landscape ordinance. (4.304.1, NBMC 14.17)
7. Plumbing fixtures and fittings shall comply with the following (4.303.1):

FIXTURE TYPE	MAXIMUM FLOW RATE
Single Showerheads	1.8 gpm @ 80 psi
Multiple Showerheads	Combine flow rate of 2.0 gpm @80 psi
Residential Lavatory Faucets	1.2 gpm @ 60 psi[2] maximum
Common and Public use Lavatory Faucets	0.5 gpm @60 psi
Kitchen Faucets	1.8 gpm @ 60 psi
Metering Faucets	0.25 gallons per cycle maximum
Water Closets	1.28 gallons/flush[1]
Wall Mounted Urinal	0.125 gallons/flush
All Other Types of Urinal	0.5 gallons/flush

1. Includes single and dual flush water closets with an effective flush rate of 1.28 gallons or less when tested per ASME A122.19.233.2 for single flush and ASME A112.19.14 for dual flush toilets.
2. Lavatory faucets shall not have a flow rate less than 0.8 gpm at 20 psi.

Environmental Quality

8. Moisture content of building materials used in wall and floor framing is checked before enclosure according to one of the following (4.505.3):
   a. Moisture content shall be determined with either a probe-type or contact-type moisture meter. Equivalent moisture verification methods may be approved by the enforcing agency and shall satisfy requirements found in Section 101.8 of this code.
   b. Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219 mm) from the grade stamped end of each piece to be verified.
   c. At least three random moisture readings shall be performed on wall and floor framing with documentation acceptable to the enforcing agency provided at the time of approval to enclose the wall and floor framing.
9. Aerosol paints and coatings shall meet the Product-weighted MIR Limits for ROC in Section 94522(a)(2) and other toxic requirements in Sections 94522(e)(1) and (f)(1) of the California Code of Regulations, Title 17, commencing with Section 94520. (4.504.2.3)
10. Carpet and carpet systems shall be compliant with of the following (4.504.3):
    a. Carpet and Rug Institute's Green Label Plus Program.
    b. California Department of Public Health Specification 01350.
    c. NSF/ANSI 140 at the Gold level.
    d. Scientific Certifications Systems Indoor Advantage™ Gold
11. Minimum 80% of floor area receiving resilient flooring shall comply with one of the following (4.504.4):
    a. VOC emission limits defined in the Collaborative for High Performance Schools (CHPS) High Performance Product Database.
    b. Products certified under UL GREENGUARD Gold.
    c. Certified under the Resilient Floor Covering Institute (RFCI) FloorScore program.
    d. California Department of Public Health Specification 01350.

NOTE: CGC FOR BUILDING DEPT & GC USE AS MANY ITEMS MAY NOT APPLY TO THIS PROJECT

12. Adhesives, sealants and caulks shall be compliant with volatile organic compound (VOC) limits set forth in Table 4.504.1 or Table 4.504.2. (4.504.2.1)

ADHESIVE VOC LIMIT[1,2] (Less Water and Less Exempt Compounds in Grams per Liter)	
ARCHITECTURAL APPLICATIONS	**VOC LIMIT**
Indoor carpet adhesives	50
Carpet pad adhesives	50
Outdoor carpet adhesives	150
Wood flooring adhesive	100
Rubber floor adhesives	60
Subfloor adhesives	50
Ceramic tile adhesives	65
VCT and asphalt tile adhesives	50
Drywall and panel adhesives	50
Cove base adhesives	50
Multipurpose construction adhesives	70
Structural glazing adhesives	100
Single-ply roof membrane adhesives	250
Other adhesives not specifically listed	50
SPECIALTY APPLICATIONS	
PVC welding	510
CPVC welding	490
ABS welding	325
Plastic cement welding	250
Adhesive primer for plastic	550
Contact adhesive	80
Special purpose contact adhesive	250
Structural wood member adhesive	140
Top and trim adhesive	250
SUBSTRATE SPECIFIC APPLICATIONS	
Metal to metal	30
Plastic foams	50
Porous material (except wood)	50
Wood	30
Fiberglass	80

1. If an adhesive is used to bond dissimilar substrates together, the adhesive with the highest VOC content shall be allowed.
2. For additional information regarding methods to measure VOC content specified in table, see South Coast Air Quality Management District Rule 1168.

SEALANT VOC LIMIT (Less Water and Less Exempt Compounds in Grams per Liter)	
SEALANTS	**VOC LIMIT**
Architectural	250
Marine deck	760
Nonmembrane roof	300
Roadway	250
Single-ply roof membrane	450
Other	420
SEALANT PRIMERS	
Architectural Nonporous Porous	 250 775
Modified bituminous	500
Marine deck	760
Other	750

13. Paints, stains, and other coatings shall be compliant with VOC and other toxic compound limits set forth in Table 4.504.3. (4.504.2.2)

VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS[2,3] (Grams of VOC per Liter of Coating, Less Water and Less Exempt Compounds)	
COATING CATEGORY	**VOC LIMIT**
Flat coatings	50
Nonflat coatings	100
Nonflat-high gloss coatings	150
Specialty Coatings	
Aluminum roof coatings	400
Basement specialty coatings	400
Bituminous roof coatings	50
Bituminous roof primers	350
Bond breakers	350
Concrete curing compounds	350
Concrete/masonry sealers	100
Driveway sealers	50
Dry fog coatings	150
Faux finishing coatings	350
Fire resistive coatings	350
Floor coatings	100
Form-release compounds	250
Graphic arts coatings (sign paints)	500
High temperature coatings	420
Industrial maintenance coatings	250
Low solids coatings[1]	120
Magnesite cement coatings	450
Mastic texture coatings	100
Metallic pigmented coatings	500
Multicolor coatings	250
Pretreatment wash primers	420
Primers, sealers, and undercoaters	100
Reactive penetrating sealers	350
Recycled coatings	250
Roof coatings	50
Rust preventative coatings	250
Shellacs Clear Opaque	 730 550
Specialty primers, sealers and undercoaters	100
Stains	250
Stone consolidants	450
Swimming pool coatings	340
Traffic marking coatings	100
Tub and tile refinish coatings	420
Waterproofing membranes	250
Wood coatings	275
Wood preservatives	350
Zinc-rich primers	340

1. Grams of VOC per liter of coating, including water and including exempt compounds.
2. The specified limits remain in effect unless revised limits are listed in subsequent columns in the table.
3. Values in this table are derived from those specified by the California Air Resources Board, Architectural Coatings Suggested Control Measure, February 1, 2008. More information is available from the Air Resources Board.

14. Particleboard, medium density fiberboard (MDF) and hardwood plywood used in interior or exterior of the building shall comply with low formaldehyde emission standards as set forth in Table 4.504.5 below (4.504.5):

FORMALDEHYDE LIMITS[1] (Maximum formaldehyde Emissions in Parts per Million)	
PRODUCT	**LIMIT**
Hardwood plywood veneer core	0.05
Hardwood plywood composite core	0.05
Particleboard	0.09
Medium density fiberboard	0.11
Thin medium density fiberboard[2]	0.13

1. Values in this table are derived from those specified by the California Air Resources Board, Air Toxics Control Measure for Composite Wood as tested in accordance with ASTM E 1333-96(2002). For additional information, see *California Code of Regulations*, Title 17, Sections 93120 through 93120.12.
2. Thin medium density fiberboard has a maximum thickness of 5/16 inch (8 mm).

15. All duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the building inspector to reduce the amount of water, dust and debris, which may enter the system until final startup of the HVAC equipment. (4.504.1)
16. Bathroom exhaust fans shall be ENERGY STAR compliant and be ducted to terminate outside the building. Unless functioning as a component of whole house ventilation system, fans must be controlled by a humidity control capable of adjustment between a relative humidity rage of less than or equal to 50% to maximum 80%. (4.506.1)
17. Duct systems are sized, designed and equipment is selected using the following methods (4.507.2):
    a. Establish heat loss and heat gain values according to ANSI/ACCA 2 Manual J-2011 (Residential Load Calculation), ASHRAE handbooks or equivalent design methods.
    b. Size duct systems according to ANSI/ACCA 1 Manual D-2014 (Residential Duct Systems), ASHRAE handbooks or other equivalent design software or methods.
    c. Select heating and cooling equipment according to ANSI/ACCA 3 Manual S-2014 (Residential Equipment Selection) or other equivalent design software or methods

Installer and Special Inspector Qualifications

18. HVAC system installers shall be trained and certified or work under direct supervision of trained and certified installers in the proper installation of HVAC systems. (702.1)
19. HVAC special inspectors must be qualified and able to demonstrate competence in the discipline they are inspecting. (702.2)

Documentations

20. An operation and maintenance manual, CD, web-based reference or other approved media shall be provided by the builder to the building occupant or owner at the final inspection. It shall include operation and maintenance instruction of the equipment and appliances. (4.410.1)
21. Documentation shall be provided to verify that finish materials used comply with VOC limits as set forth in Tables 4.504.1, 4.504.2, & 4.504.3. (4.504.2.4)
22. Documentation shall be provided to verify that composite wood products used comply with formaldehyde limits as set forth in Tables 4.504.5. (4.504.5.1)
23. Documentation which shows compliance with CAL Green code including construction documents, plans, specifications, builder or installer certification, and inspection reports and verification shall be available at the final inspection. (703.1)
24. CAL Green Documentation Compliance Certification form (City form) is required to be submitted to the Building Inspector prior to final building inspection. (Section 703.1)

A

OC PublicWorks

NPDES Notes

B

Notes must be shown as worded, on the title sheet of the plan.

1. In the case of emergency, call Alexander Tchourbanov
   at Work Phone # 520-909-0869
   or Home Phone # 520-909-0869
2. Sediment from areas disturbed by construction shall be retained on site using structural controls to the maximum extent practicable.
3. Stockpiles of soil shall be properly contained to minimize sediment transport from the site to streets, drainage facilities or adjacent properties via runoff, vehicle tracking, or wind.
4. Appropriate BMP's for construction-related materials, wastes, spills shall be implemented to minimize transport from the site to streets, drainage facilities, or adjoining properties by wind or runoff.
5. Runoff from equipment and vehicle washing shall be contained at construction sites unless treated to reduce or remove sediment and other pollutants.
6. All construction contractor and subcontractor personnel are to be made aware or the required best management practices and good housekeeping measures for the project site and any associated construction staging areas.
7. At the end of each day of construction activity all construction debris and waste materials shall be collected and properly disposed in trash or recycle bins.
8. Construction sites shall be maintained in such a condition that an anticipated storm does not carry wastes or pollutants off the site. Discharges of material other than stormwater only when necessary for performance and completion of construction practices and where they do not: cause or contribute to a violation of any water quality standard; cause or threaten to cause pollution, contamination, or nuisance; or contain a hazardous substance in a quantity reportable under Federal Regulations 40 CFR Parts 117 and 302.
9. Potential pollutants include but are not limited to: solid or liquid chemical spills; wastes from paints, stains, sealants, glues, limes, pesticides, herbicides, wood preservatives and solvents; asbestos fibers, paint flakes or stucco fragments; fuels, oils, lubricants, and hydraulic, radiator or battery fluids; fertilizers, vehicle/equipment wash water and concrete wash water; concrete, detergent or floatable wastes; wastes from any engine/equipment steam cleaning or chemical degreasing and super chlorinated potable water line flushing. During construction, permittee shall dispose of such materials in a specified and controlled temporary area on-site, physically separated from potential stormwater runoff, with ultimate disposal in accordance with local, state and federal requirements.
10. Dewatering of contaminated groundwater, or discharging contaminated soils via surface erosion is prohibited. Dewatering of non-contaminated groundwater requires a National Pollutant Discharge Elimination System Permit from the respective State Regional Water Quality Control Board.
11. Graded areas on the permitted area perimeter must drain away from the face of slopes at the conclusion of each working day. Drainage is to be directed toward desilting facilities.
12. The permittee and contractor shall be responsible and shall take necessary precautions to prevent public trespass onto areas where impounded water creates a hazardous condition.
13. The permittee and contractor shall inspect the erosion control work and insure that the work is in accordance with the approved plans.
14. The permittee shall notify all general contractors, subcontractors, material suppliers, lessees, and property owners: that dumping of chemicals into the storm drain system or the watershed is prohibited.
15. Equipment and workers for emergency work shall be made available at all times during the rainy season. Necessary materials shall be available on site and stockpiled at convenient locations to facilitate rapid construction of temporary devices when rain is imminent.
16. All removable erosion protective devices shall be in place at the end of each working day when the 5-Day Rain Probability Forecast exceeds 40%.
17. Sediments from areas disturbed by construction shall be retained on site using an effective combination of erosion and sediment controls to the maximum extent practicable, and stockpiles of soil shall be properly contained to minimize sediment transport from the site to streets, drainage facilities or adjacent properties via runoff, vehicle tracking, or wind.
18. Appropriate BMPs for construction-related materials, wastes, spills or residues shall be implemented and retained on site to minimize transport from the site to streets, drainage facilities, or adjoining property by wind or runoff.

NPDES

NOTE: SEE BOTTOM RIGHT PAGE FOR NPDES NOTES

Contractor shall exercise the responsibility with architect in securing latest approved drwgs. prior to actually executing work

REVISIONS NO.

D BUILDING DEPT SUBMITTAL 3-19-25

JOHN A. SALAT ARCHITECTS
22386 Woodgrove Road, Lake Forest, CA 92630
PH 949-235-4847 email: freeingwinds@earthlink.net
z e n a r c h i t e c t . c o m

architect

THOURBANOV RESIDENCE
NEW DWELLING
CALIFORNIA GREEN CODE
& NPDES FORM

OWNER/SITE ADDRESS:
CONTACT: Alexander Tchourbanov
20601 Trabuco Oaks Dr,
Trabuco Canyon, CA 92678
Ph 520.909.0869 Email: actturbanov@gmail.com

REGISTERED PROFESSIONAL ARCHITECT JOHN A. SALAT No. C-24445 EXP. 10-29-26 STATE OF CALIFORNIA

DRAWN JS
CHECKED JS
DATE SEE REVISION BOX
SCALE AS NOTED ON PLANS
JOB NO.
SHEET

GN-5

1 OF (PER INDEX) SHEETS

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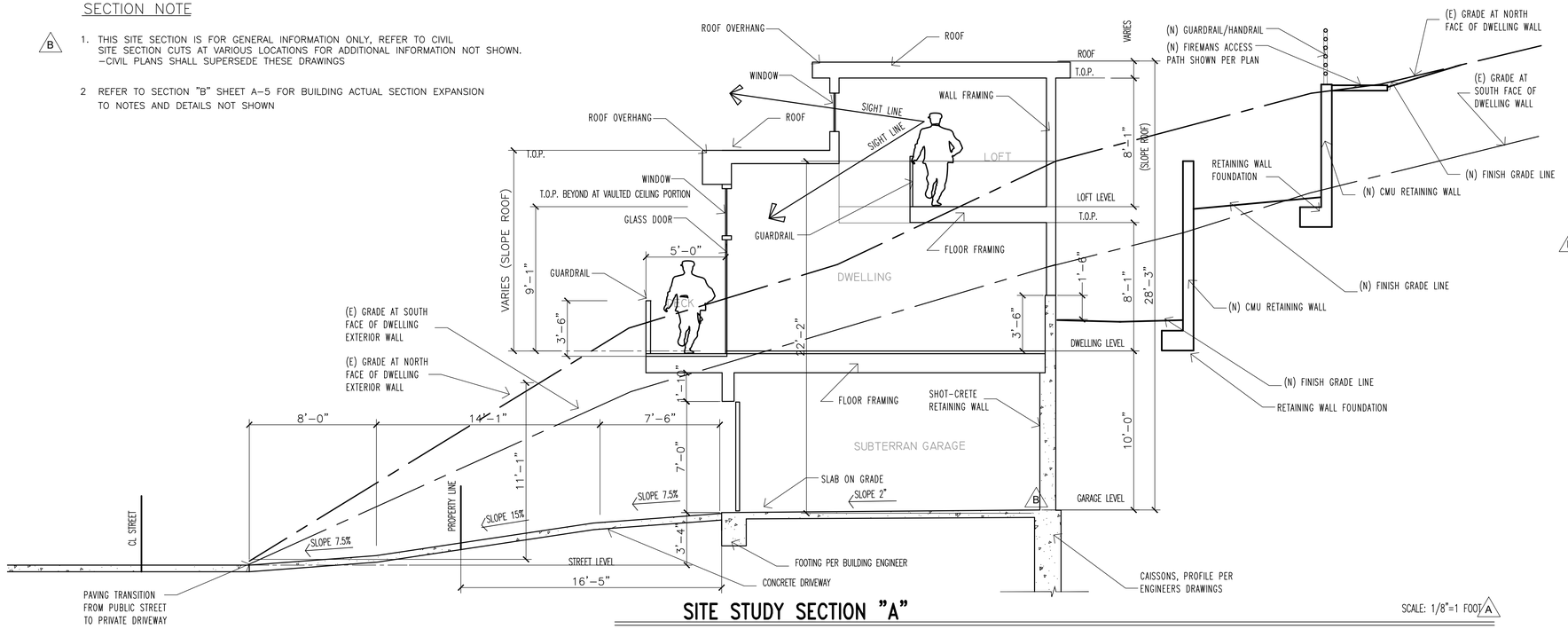
SECTION NOTE

B

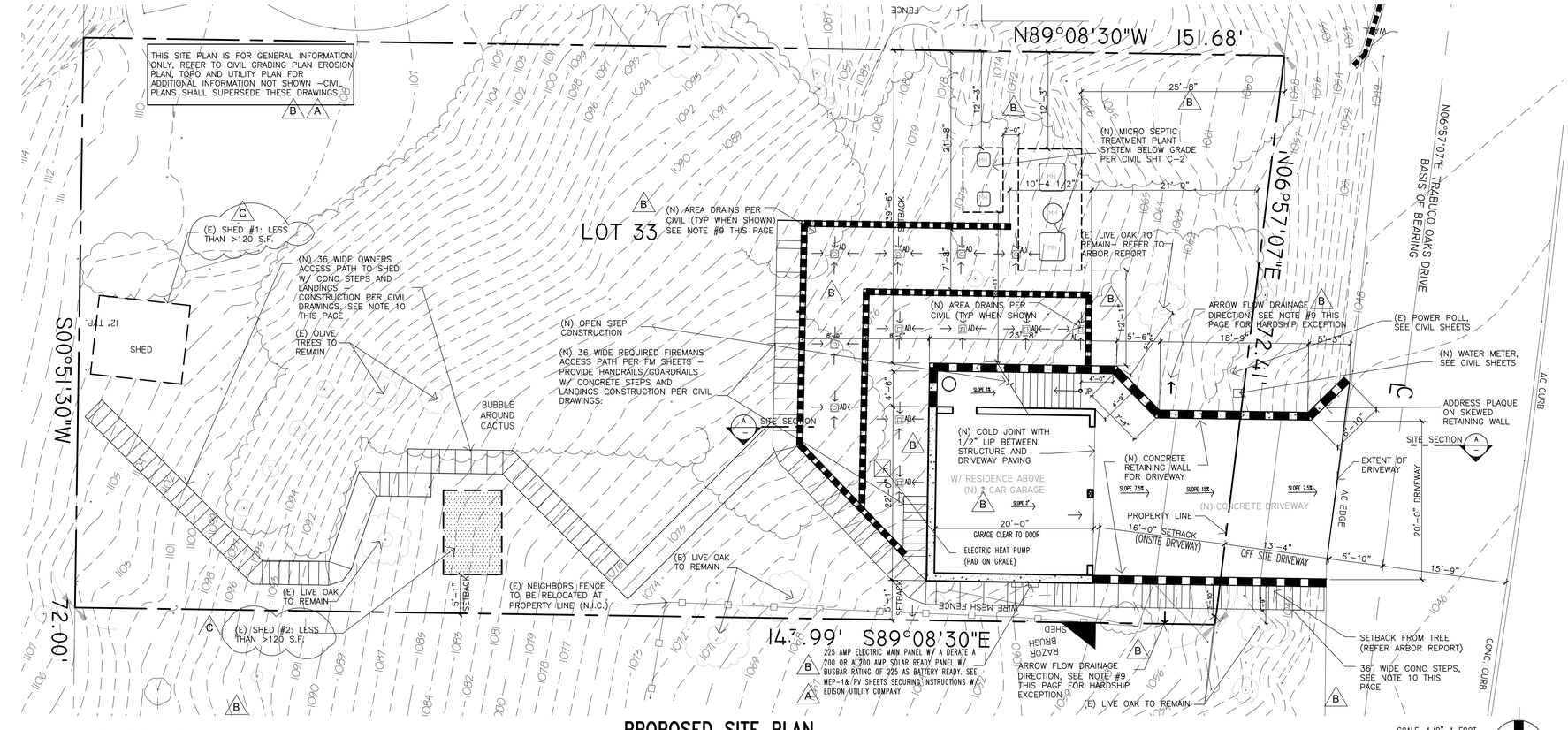
1. THIS SITE SECTION IS FOR GENERAL INFORMATION ONLY, REFER TO CIVIL SITE SECTION CUTS AT VARIOUS LOCATIONS FOR ADDITIONAL INFORMATION NOT SHOWN. –CIVIL PLANS SHALL SUPERSEDE THESE DRAWINGS

2 REFER TO SECTION "B" SHEET A–5 FOR BUILDING ACTUAL SECTION EXPANSION TO NOTES AND DETAILS NOT SHOWN



SITE STUDY SECTION "A"

SCALE: 1/8"=1 FOOT A



PROPOSED SITE PLAN

SCALE: 1/8"=1 FOOT

FIRE DEPT NOTE:

THIS PROJECT IS LOCATED IN A VERY HIGH FIRE SEVERITY ZONE "SRA" WITHIN STATE RESPONSIBILITY AND REQUIRES ALL WORK TO COMPLY NOTED PER COVER PAGE

B SITE PLAN WALL LEGEND

- SHOTCRETE RETAINING WALL PER CIVIL DRAWINGS– PROVIDE GUARDRAIL LOCATIONS SHOWN PER CIVIL DRAWINGS AND DETAILS PER CIVIL DRAWINGS WHERE ALL GUARDRAILS SHALL CONFORMED TO CODES MENTIONED TO NOTE #12 OF THIS PAGE
- MASONRY RETAINING WALL PER CIVIL DRAWINGS– PROVIDE GUARDRAIL LOCATIONS SHOWN PER CIVIL DRAWINGS AND DETAILS PER CIVIL DRAWINGS WHERE ALL GUARDRAILS SHALL CONFORMED TO CODES MENTIONED TO NOTE #12 OF THIS PAGE
- ENCLOSED BUILDING STRUCTURE WALL (SHOTCRETE RETAINING) PER CIVIL SHEETS AND ENLARGED ARCHITECTURAL DRAWINGS FOR DETAILS
- ENCLOSED BUILDING STRUCTURE DIVIDING STUD WALL PER ENLARGED ARCHITECTURAL PLANS AND DETAILS

SITE PLAN NOTES

B

1. THIS SITE PLAN IS FOR GENERAL INFORMATION ONLY, REFER TO CIVIL GRADING PLAN EROSION PLAN, TOPO AND UTILITY PLAN FOR ADDITIONAL INFORMATION NOT SHOWN –CIVIL PLANS SHALL SUPERSEDE THESE DRAWINGS AS THIS IS FOR BUILDING DEPT USE ONLY
2. SEE A–1, LANDSCAPE & GN–1 SHTS FOR TYP. FIRE PREVENTION NOTES/REFERENCES
3. FOR SITE ITEMS UNDER SEPARATE PERMIT, SEE NOTE #10 OF SHEET A–1 UNDER HEADING "GENERAL AGENCY NOTES" AND SCOPE OF WORK PORTION OF COVER PAGE

A

4. PROTECT EXISTING POWER, WATER, SEWER AND GAS LINES – FIELD VERIFY LOCATION AND P.O.C. INSTRUCTIONS WITH UTILITY COMPANIES (CONTRACTOR SHALL FIELD ASSESS (E) WATER LINE FOR CONDITIONS FOR REUSE OR REPLACEMENT AS NOTED ON MEP SHTS & CIVIL SHTS FOR INSTRUCTIONS)
5. THE CONTRACTOR SHALL LAY OUT ALL WORK AND ESTABLISH ALL NECESSARY MARKERS AND GRADING STAKES AS REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURACY OF ALL LAYOUT & SURVEYING AND REPORT TO THE CIVIL OF SETBACK DISCREPANCIES.
6. ALL SITE AND BUILDING RETAINING WALLS PER CIVIL AND STRUCTURAL SHTS
7. ROOF AND OVERFLOW DRAINS, DOWN SPOUTS AND ROOF GUTTERS SHALL COMPLY WITH (CBC 11). ALL ROOF DRAINS AND DOWN SPOUTS SHALL DISCHARGE TO AN APPROVED LOCATION. WATER MUST DRAIN OVER A NON–ERODIBLE SURFACE WHERE WATER WHICH ACCUMULATES ON A ROOF SHALL BE EFFECTIVELY DRAINED AND CONVEYED FROM THE ROOF TO A STORM DRAIN, STREET GUTTER, OR OTHER LOCATIONS APPROVED BY THE BUILDING OFFICIAL. SUCH WATER SHALL BE CONVEYED THROUGH GUTTERS, LEADERS, ASSOCIATED PIPING OR OTHER NON–ERODIBLE SURFACE DRAINAGE DEVICES AS APPROVED BY THE BUILDING OFFICIAL. "15.08.020 HH). THIS PROJECT SHALL HAVE SHEET FLOW OF WATER SPILLING UNIFORMLY AT 12–INCH OVERHANG OVER PLANTED AS APPROVED NON ERODIABLE SURFACE. THE LANDSCAPE DRAINAGE AREAS SHALL EXTEND FROM BUILDING EDGE TO AREA DRAINS AT MINIMUM 2% SLOPE TO EOW POINT OF DRAINS AS SHOWN PER CIVIL PRECISE GRADING PLANS. ALL THESE AREAS WHERE LANDSCAPE DOES NOT EXIST, THE WATER SHALL BE COLLECTED ON MINIMUM 36" WIDE CONCRETE SURFACE SLOPED 1/4" TO FOOT SLOPE TO LOW POINTS OF AREAS DRAINS AS NOTED PER CIVIL DRAWINGS

A

8. MAIN UTILITY PANEL, METER AND SOLAR MAIN EQUIPMENT ARE SHOWN DIAGRAMMATICALLY ON SITE PLAN– REFER TO CIVIL PLAN AND MEP–1 SHT FOR EXPANDED INFO FOR UTILITIES ON SIZES AND SPECIFICATIONS NOT SHOWN ON THESE PLANS:

B

9. FOR SITE DRAINAGE PROVIDE 5% MINIMUM SLOPE AWAY FROM BUILDING & 2% MINIMUM SLOPE TO DRAIN TO PUBLIC STREET FOR ALL OTHER LOCATIONS. SEE CIVIL GRADING PLANS FOR ACTUAL SLOPES DIRETIONS AND SPOT ELEVATIONS NOT SHOWN ON THIS PAGE. WHERE SLOPES MAY NOT BE EASILY ACHIEVED TO FLOW 5% AWAY FROM 90 DEGREES OF BUILDING WHERE CUTS INTO HILLSIDE PORTIONS, REFER TO CIVIL PLANS FOR HARDSHIP EXCEPTIONS AND DEVIATIONS AS CIVIL PLANS SHALL SUPERSEDE THESE DRAWINGS WHERE IN CONFLICT.

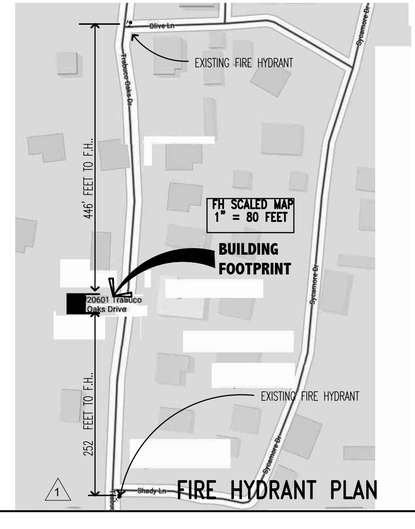
NOTE: AD = AREA DRAIN GRATE AT SURFACE LOCATION AS SLOPE ADJACENT AREAS 2% MIN TOWARDS AD (LOW POINT) EXCEPT WHERE DRAINS OCCUR AT BUILDING STRUCTURE PERIMETERS SIDE SHALL BE MIN 5%, SEE CIVIL SHEETS FOR ADDITIONAL INFO (LEGEND EXAMPLE BELOW)

WHERE DRAINS OCCUR AT BUILDING STRUCTURE PERIMETERS SIDE SHALL BE MIN 5% AND 2% MIN AT ALL OTHER LOCATIONS

10. FOR OUTDOOR CONCRETE STAIRWAYS, TREADS MUST BE SLIGHTLY SLOPED SO WATER WILL NOT ACCUMULATE ON THE STAIRS. INSTALL A 1% SLOPE (1/8 INCH PER FOOT) TO ENSURE WATER RUNOFF BUT DO NOT EXCEED THE MAXIMUM ALLOWABLE SLOPE OF 2% (1/4 INCH PER FOOT) IN ANY DIRECTION– SEE CIVIL DRAWINGS FOR DETAILS.
11. FOR HOSE BIB AND SHUT–OFF VALVES AT BUILDING PEROIMITER, SEE SHT MEP–1. FOR ALL OTHER IRRIGATIONS OR PIPING OUTSIDE OF BUILDING TOR EFER TO LANDSCAPE DRAWINGS AND CIVIL PLANS
12. ALL RAILING BARRIERS SHALL COMPLY WITH SECTION R312 RELATING TO ALONG OF ANY OPEN–SIDED WALKING SURFACES, MEZZANINES, DECKS/PLATFORMS, STAIRWAYS/RAMPS LANDINGS THAT ARE LOCATED MORE THAN 30 INCHES ABOVE THE FLOOR OR GRADE BELOW. SUCH PROTECTIVE BARRIERS SHALL NOT BE LESS THAN 42 INCHES HIGH EXCEPT FOR STAIR RAILINGS THAT SERVES AS A HANDRAIL SHALL HAVE A HEIGHT NOT LESS THAN 34 INCHES AND NOT MORE THAN 38 INCHES MEASURED VERTICALLY FROM THE LEADING EDGE OF THE STAIR TREAD NOSING. OPEN GUARDS SHALL HAVE BALUSTERS OR ORNAMENTAL PATTERNS SUCH THAT A 4–INCH–DIAMETER SPHERE CANNOT PASS THROUGH ANY OPENING (NO EXCEPTIONS) FOR GUARDRAIL LOCATIONS OUTSIDE OF BUILDING THAT IS OCCURRING ON SITE–REFER TO CIVIL DRAWINGS AND FOR BUILDING PORTION SUCH AS STAIRS, REFER TO BUILDING PLANS, SHEET A–6. (NOTE, FOR ALL STRUCTURAL ATTACHMENT REQUIREMENTS TO GUARDRAILS SHALL MEET THE MIN. LOADS PERPENDICULAR TO THE RAILINGS SHALL MEET 1607.8.1, AS NOTED ON CIVIL AND STRUCTURAL PLANS)

UTILITY INFO

WATER: TRABUCO CANYON WATER DISTRICT https://www.tcwd.ca.gov/home
32003 Dove Canyon Drive, Trabuco Canyon, CA 92679
Phone: (949) 858–0277 Fax: (949) 858–3025



FIRE HYDRANT PLAN

Contractor shall exercise the responsibility with architect in securing latest approved drwgs. prior to actually executing work

NO./REVISION/DATE

D BUILDING DEPT SUBMITTAL 3–19–25

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22386 Woodgrove Road, Lake Forest, CA 92630
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z e n a r c h i t e c t . c o m

architect

THOURBANOV RESIDENCE
NEW DWELLING
SITE STUDY PLAN

OWNER/SITE ADDRESS:
CONTACT: Alexander Tchourbanov
20601 Trabuco Oaks Dr,
Trabuco Canyon, CA 92678
Ph. 520.909.0869 Email: achurbanov@gmail.com

REGISTERED PROFESSIONAL ARCHITECT JOHN A. SALAT No. C–24445 EXP. 10–29–25 STATE OF CALIFORNIA

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A-2

1 OF (PER INDEX) SHEETS

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ROOF NOTES

1. REFER TO SHT GN-1 & GN-2 FOR GENERAL FIRE NOTES NOT SHOWN AND SHEET A-1 FOR STANDARD COVER PAGE NOTES FOR FIRE PROTECTION AND MISCELLANEOUS CODE PROFESSIONS.
2. ALL SLOPES AND OVERHANGS ARE AS NOTED ON PLANS (FIELD VERIFY TO MATCH EXISTING)
3. FOR TYPICAL SYMBOLS, ABBREVIATIONS AND NOTES, SEE COVER PAGE AND GN-1 SHEET FOR FIRE CODE NOTES NOT SHOWN
4. CONTRACTOR SHALL PROVIDE ADEQUATE ATTIC VENTILATION PER BUILDING CODES THROUGH CONTINUOUS SOFFIT VENTS AND EAVE AND DORMER VENTS PER CBC SECTIONS 705A THROUGH 706A.
5. ROOF WEIGHT PER POUND 300 lb A SQUARE
6. EXPOSED ROOF PIPES, VENTS, AND FLASHING TO (M) ROOF COLOR.
7. VENTING: VAULTED CEILINGS WITH 100% CLOSED CELL IN-FILL ARE NOT REQUIRED TO BE VENTED. FOR ALL OTHER EXTERIOR PROJECTED SOFFITS, ROOF VENTILATION SHALL BE PER SECTION 706A.1, 706A.2 AND 706A.3 OF SHEET GN-1 & GN-2 W/ VENT AREA RATIO OF 1/150 FOR ATTIC EAVE VENTS. OPENINGS SHALL HAVE AMBER PROOF CORROSION RESISTANT METAL MESH COVERING AND SIZED ABOVE FREE AREA REQUIREMENT PER MANUFACTURE SPECIFICATIONS PER SECTION 1505.3 AND EACH VENT SHALL NOT EXCEED 144" SQ INCHES -SEE LOCATION & SIZE OF SOFFIT VENTS PER "LOFT LEVEL PLAN" OF THIS PAGE
8. ASPHALT SINGLE ROOF SHALL MEET SECTION 705A OF SHT GN-1 & GN-2. MFGR TO BE "Premium, Landmark" UL CLASS "A" ROOF SYSTEM W/ INSTALLATION PER MFGR STANDARDS FOR BOTH UNDERLAYMENT AND FLASHING SPECED FROM MFGR STANDARDS https://www.certainteed.com AS MFGR COLOR "MOHAVE TAN" (Cool Roof maximum 0.25 Aged Solar reflectance, and minimum 0.88 thermal emittance.
9. ROOF UNDERLAYMENT SHALL COMPLY WITH ASTM D 3909 FOR UNDERLAYMENTS INSTALLED OVER THE COMBUSTIBLE PLYWOOD SUBSTRATE DECKING PER SECTION 705A.2 SECTIONS OF SHT GN-1 & GN-2.
10. ROOF FLASHING SHALL CONFORMED TO 705A.3 AND GUTTERS SHALL CONFORM TO SECTION 705A.4 OF SHT GN-1 & GN-2
11. SOLAR PANEL, ACCESSORIES WITH ATTACHMENT ASSEMBLY SHALL HAVE THE SAME CLASS "A" RATING AS ROOF. REFER TO SOLAR SHOP DRAWINGS INCLUSIVE IN THIS SET.
12. PER R324.6 ROOF ACCESS/PATHWAYS: NOT FEWER THAN TWO PATHWAYS, ON SEPARATE ROOF PLANS FROM LOWEST ROOF EDGE TO RIDGE AND NOT LESS THAN 36 INCHES WIDE SHALL BE PROVIDED CLEAR TO PHOTOVOLTAIC ARRAY AS A PATHWAY FROM THE LOWEST ROOF EDGE TO RIDGE ON THE SAME ROOF PLANE TO SUPPORTING FIRE FIGHTERS ACCESSING THE ROOF. PATHWAYS SHALL BE LOCATED IN AREAS WITH MINIMAL OBSTRUCTIONS SUCH AS VENT PIPES, CONDUIT, OR MECHANICAL EQUIPMENT. FOR 36" WIDE PATHWAY DIAGRAM, SEE PV-4 FOR LAYOUT

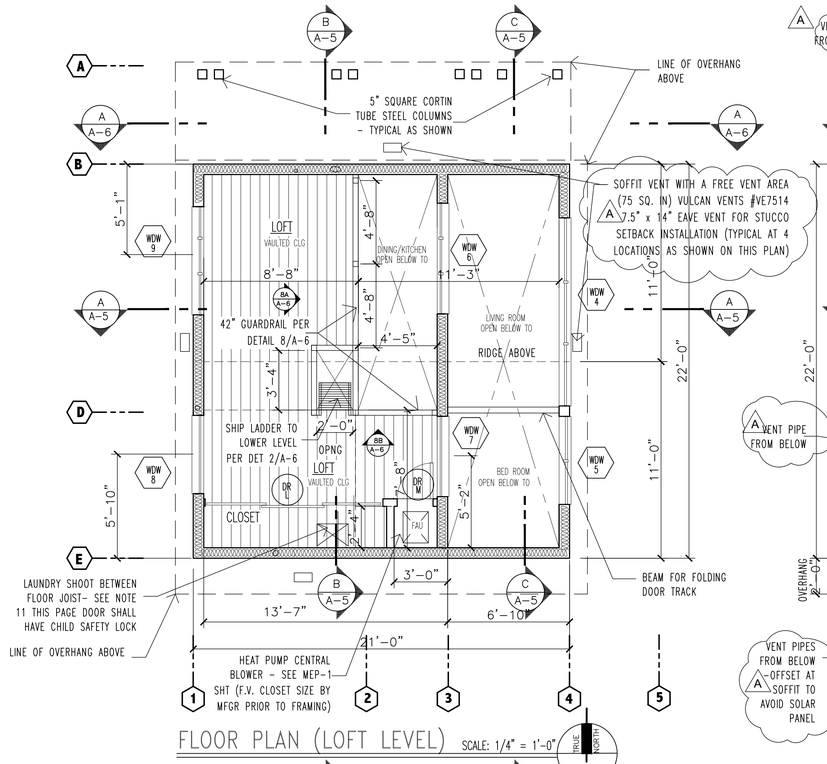
FLOOR PLAN NOTES

1. REFER TO COVER SHEET FOR ADDITIONAL INFORMATION NOT SHOWN
2. REFER TO SHT GN-1 FOR GENERAL FIRE NOTES NOT SHOWN
3. SMOKE DETECTORS PER 2019 C.B.C., SEE SHEET MEP-2 PER NOTE 5, 6 & 7 OF SECTION 16 ELECTRICAL
4. CONTRACTOR SHALL FIELD VERIFY BOTH HORIZONTAL AND VERTICAL DIMENSIONS TO ENDURE PROPER FIT FOR ALL DETAILS-REPORT TO THE ARCHITECT IMMEDIATELY TO SECURE INSTRUCTIONS SHOULD INFORMATION BE INCORRECTLY NOTED
5. INTERIOR PAINT FINISHES, MATERIALS/TEXTURES AND INTERIOR COLORS PER OWNERS DIRECTIONS (PROVIDE 3/4" RADIUS CORNERS AT GYP BOARD WALLS
6. REFER TO MEP SHEETS FOR ELECTRICAL, MECHANICAL AND PLUMBING HVAC AND FRAMING CONTRACTOR TO HAVE PRE-CONSTRUCTION MEETING FOR DUCT ROUTES AND POSSIBLE DROPPED FRAMED SOFFITS WHERE DUCT CHASE WAYS MAY NOT BE ACCESSIBLE TO REACH GRILLS FROM UNIT
7. VERIFY ALL ALL FINISHES W/ OWNER PRIOR TO INSTALL OF SUBTRATES. REFER TO CABINET SHOP, DRAWINGS FOR INTERIOR ELEVATIONS AND INTERIOR DETAILS NOT SHOWN
8. BEDROOMS, BASEMENTS OR ROOMS USED FOR SLEEPING SHALL HAVE EMERGENCY WINDOWS OR DOORS THAT MUST MEET CODE SECTION 310.4 FOR FIRE ESCAPE OR RESCUE NET DIMENSIONS: MIN 20" WIDE X 24" HIGH SIZE FOR OPERATIVE CLEARANCE SIZE OF 5.7. S.F. W/ SILL AT 44" MAX FROM FINISH FLOOR PER CRC R310.2. -REFER TO WINDOW SCHEDULE OF SHEET D-4 UNDER "REMARKS" COLUMN FOR COMMENTS THAT IDENTIFY THE LOCATIONS KEYED ON THIS PLAN
9. SOFFIT CLEARANCE HEIGHTS ARE SUGGESTIVE AS THE HVAC AND FRAMING CONTRACTOR ARE TO STRATEGIZE A METHOD TO MAKE COMPACT THE SOFFIT HEIGHTS AT DROPPED CEILING CHASE-WAY AREAS TO HUG AS CLOSE AS POSSIBLE TO UNDERSIDE WHILE ALSO KEEPING OVERHEAD FAU UNIT CLEARANCE TO MINIMUM CODE
10. SHOWER STALL
    (N) SHOWER STALL-FINISH PER INTERIOR DRAWINGS (N) FRAMELESS GLASS SHOWER DOOR AND ENCLOSURE TO BE SAFETY OR TEMPERED GLAZING (CRC R308.4) SHOWER FLOORS AND WALLS ABOVE SHOWER COMPARTMENTS SHALL BE FINISHED WITH A NONABSORBENT SURFACE TO A HEIGHT OF FULL HT OF 8' ABOVE THE FLOOR. (R307.2 CRC) CEMENT, FIBER-CEMENT, FIBER-MAT REINFORCED CEMENT, GLASS MAT GYPSUM OR FIBER-REINFORCED GYPSUM BACKERS SHALL BE USED AS A BASE FOR WALL TILE IN TUB AND SHOWER AREAS AND WALL AND CEILING PANELS IN SHOWER AREAS. (R702.4.2 CRC)- SEE MEP SHEET FOR PLUMBING LAYOUT
11. LAUNDRY SHOOT
    PROVIDE LAUNDRY SHOOT BETWEEN FLOOR JOIST WITH SHEET METAL DUCT- FIELD FABRICATE BOX 16" SQ X 18"HIGH INSIDE DIMENSIONS WITH SIDE PREFAB METAL DOOR- DOOR HARDWARE SHALL HAVE MEANS FOR RETROFIT CHILD SAFETY LOCK MECHANISM

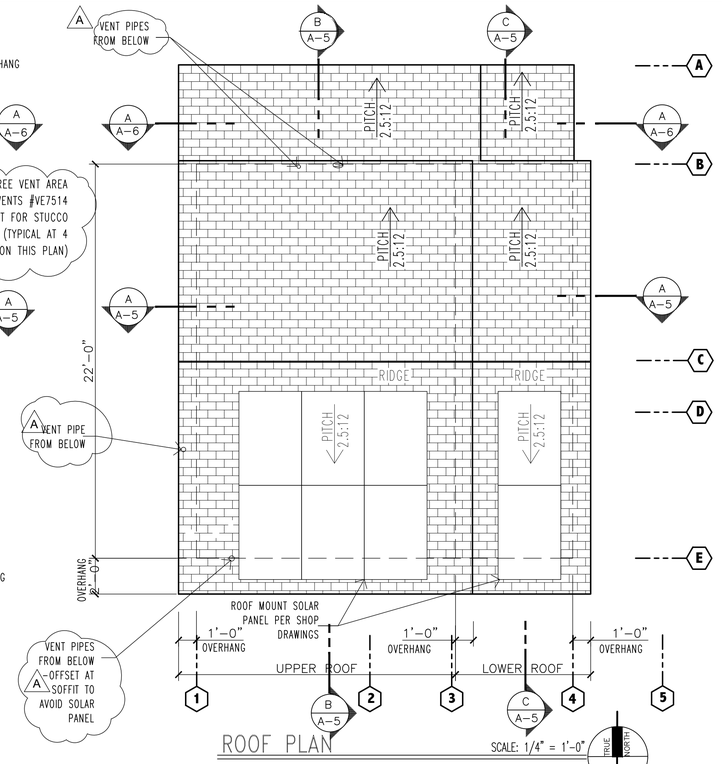
ARCHITECTURAL WALL SYMBOLS

NOTE: STRUCTURAL DRAWIMNGS SHALL SUPERCEED WHERE IN CONFLICT, SEE "S" SHTS FOR POST NOT SHOWN

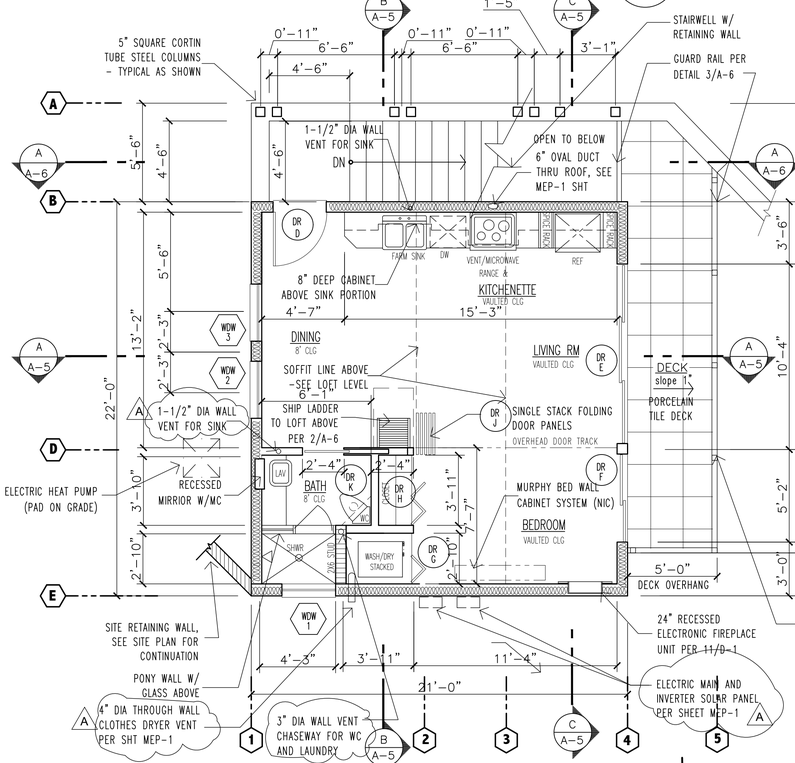
- 2X6 (UNO) STUD WALLS W/ 5/8" TYPE 'X' AT INT & EXT SIDE W/ 7/8" EXTERIOR PLASTER W/ R-21 WALL BATT INSULATION, SEE "S" DWGS WHERE PLYWOOD SHEAR WALLS OCCUR EXTERIOR WALLS SHALL COMPLY W/ 707A.2 , 707A.3 & 705A.3.2 PER SHT GN-1 & GN-2 -NOTE: 2X6 IS MINIMAL STUD SIZE AS FEILD CONDITIONS MAY VARY FOR WIDER CLEARANCES AS WALL SHALL BE FLUSH FROM FLOOR TO CEILING W/ NO SHELVES OR BUMP-OUTS PER DETAIL 14 OFD SHEET D-2 WHERE CONCRETE TO STUD TRANSITIONS OCCUR
- 2X4 STUD WALLS W/ 5/8" GYPSUM BOARD EACH SIDE-SEE "S" DWGS WHERE POST OCCUR
- 2X6 STUD PLUMBING WALLS W/ 5/8" AT BOTH SIDES
- 8" MASONRY RETAINING WALL, SEE CIVIL
- 12" SHOTCRETE RETAINING WALL, SEE "S" SHEETS FOR DETAILS
- 2 x 6 OR WIDER NON-INSULATED WOOD STUD WALL, SEE "S" SHEETS AS CLEARANCE FOR FRAMING



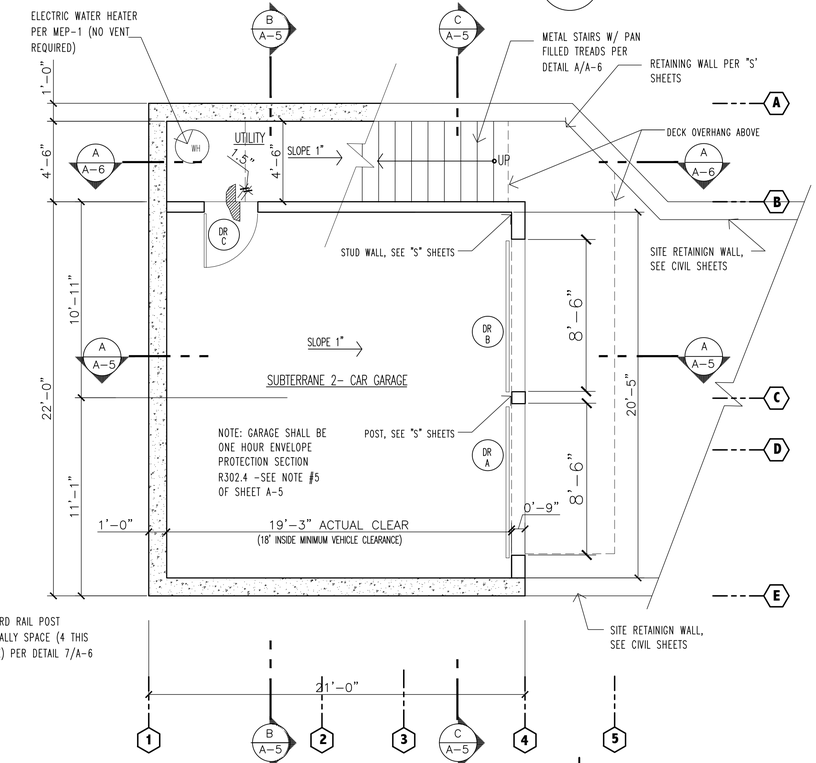
FLOOR PLAN (LOFT LEVEL) SCALE: 1/4" = 1'-0"



ROOF PLAN SCALE: 1/4" = 1'-0"



FLOOR PLAN (DWELLING LEVEL) SCALE: 1/4" = 1'-0"



FLOOR PLAN (SUBTERRANE LEVEL) SCALE: 1/4" = 1'-0"

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architect

THOURBANOV RESIDENCE
NEW DWELLING
PLAN VIEW

OWNER/SITE ADDRESS:
CONTACT: Alexander Tchourbanov
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REGISTERED PROFESSIONAL ARCHITECT JOHN A. SALAT NO. C-24445 EXP. 10-29-25 STATE OF CALIFORNIA

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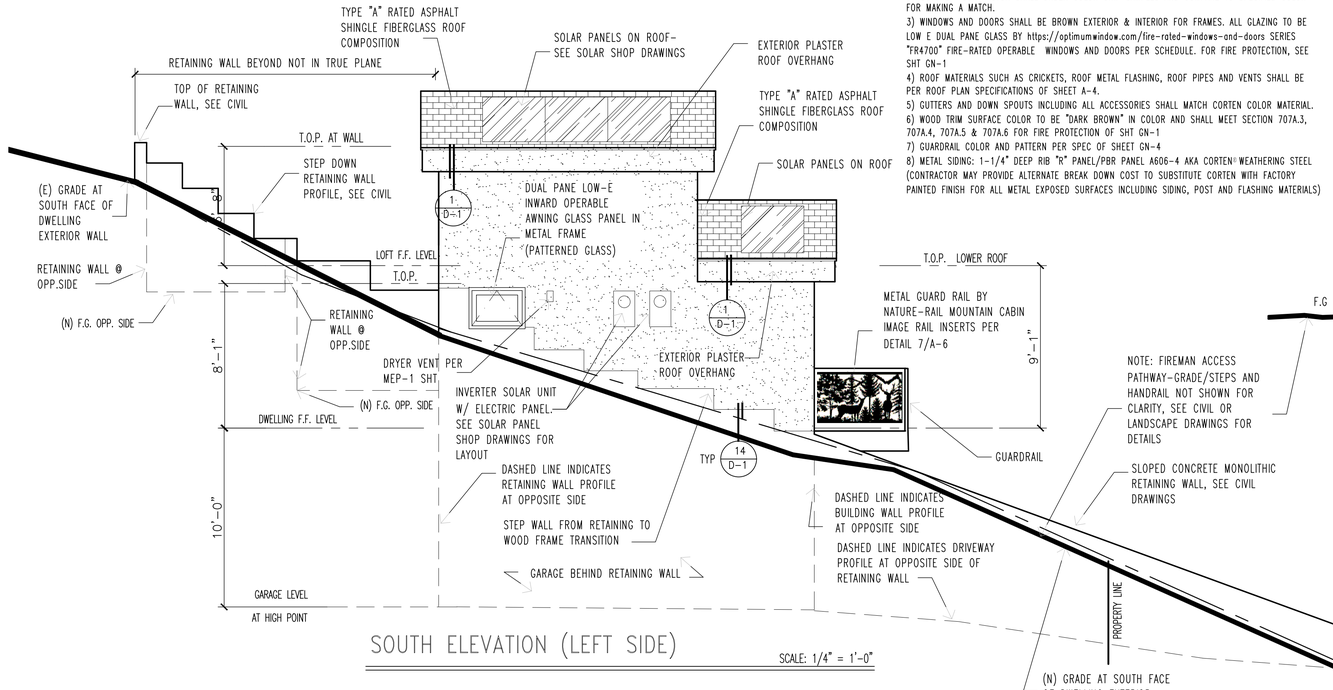
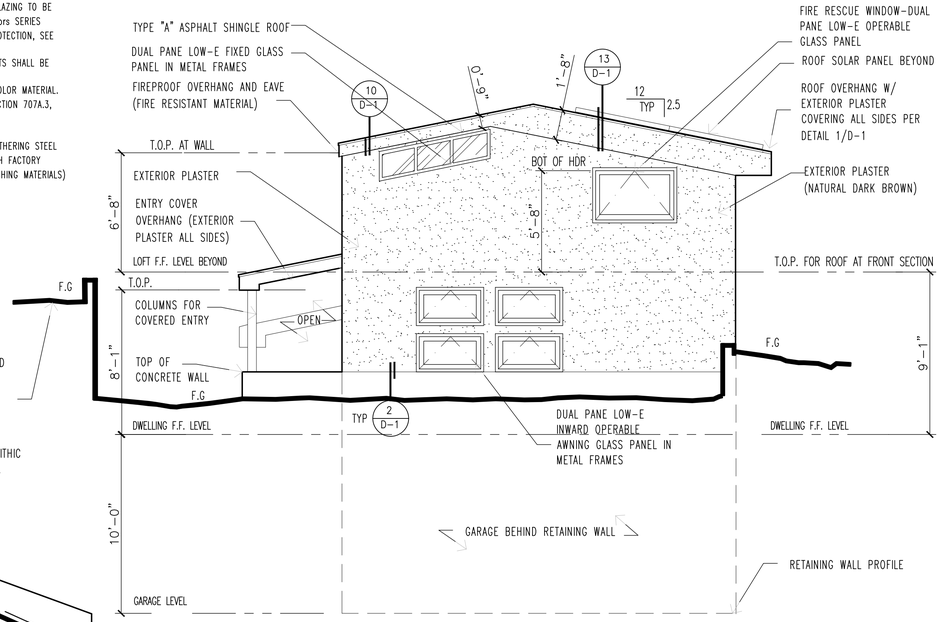
TYPICAL EXTERIOR NOTES

1) REFER TO SHT GN-1 AND GN-2 FOR GENERAL FIRE NOTES NOT SHOWN AND SHEET A-1 FOR STANDARD COVER PAGE NOTES FOR FIRE PROTECTION AND MISCELLANEOUS CODE PROFESSIONS.
2) REFER TO 8-1/2 X 11 ARCHITECTS DESIGN BROCHURE FOR EXTERIOR SURFACES OF ENTIRE STRUCTURE: CONTRACTOR SHALL ORDER COLOR CHIP SAMPLES AND COMPARE TO SPECIFIED COLOR FOR MAKING A MATCH.
3) WINDOWS AND DOORS SHALL BE BROWN EXTERIOR & INTERIOR FOR FRAMES. ALL GLAZING TO BE LOW E DUAL PANE GLASS BY https://optimumwindow.com/fire-rated-windows-and-doors SERIES "FR4700" FIRE-RATED OPERABLE WINDOWS AND DOORS PER SCHEDULE. FOR FIRE PROTECTION, SEE SHT GN-1
4) ROOF MATERIALS SUCH AS CRICKETS, ROOF METAL FLASHING, ROOF PIPES AND VENTS SHALL BE PER ROOF PLAN SPECIFICATIONS OF SHEET A-4.
5) GUTTERS AND DOWN SPOUTS INCLUDING ALL ACCESSORIES SHALL MATCH CORTEN COLOR MATERIAL.
6) WOOD TRIM SURFACE COLOR TO BE "DARK BROWN" IN COLOR AND SHALL MEET SECTION 707A.3, 707A.4, 707A.5 & 707A.6 FOR FIRE PROTECTION OF SHT GN-1
7) GUARDRAIL COLOR AND PATTERN PER SPEC OF SHEET GN-4
8) METAL SIDING: 1-1/4" DEEP RIB "R" PANEL/PBR PANEL A606-4 AKA CORTEN® WEATHERING STEEL (CONTRACTOR MAY PROVIDE ALTERNATE BREAK DOWN COST TO SUBSTITUTE CORTEN WITH FACTORY PAINTED FINISH FOR ALL METAL EXPOSED SURFACES INCLUDING SIDING, POST AND FLASHING MATERIALS)



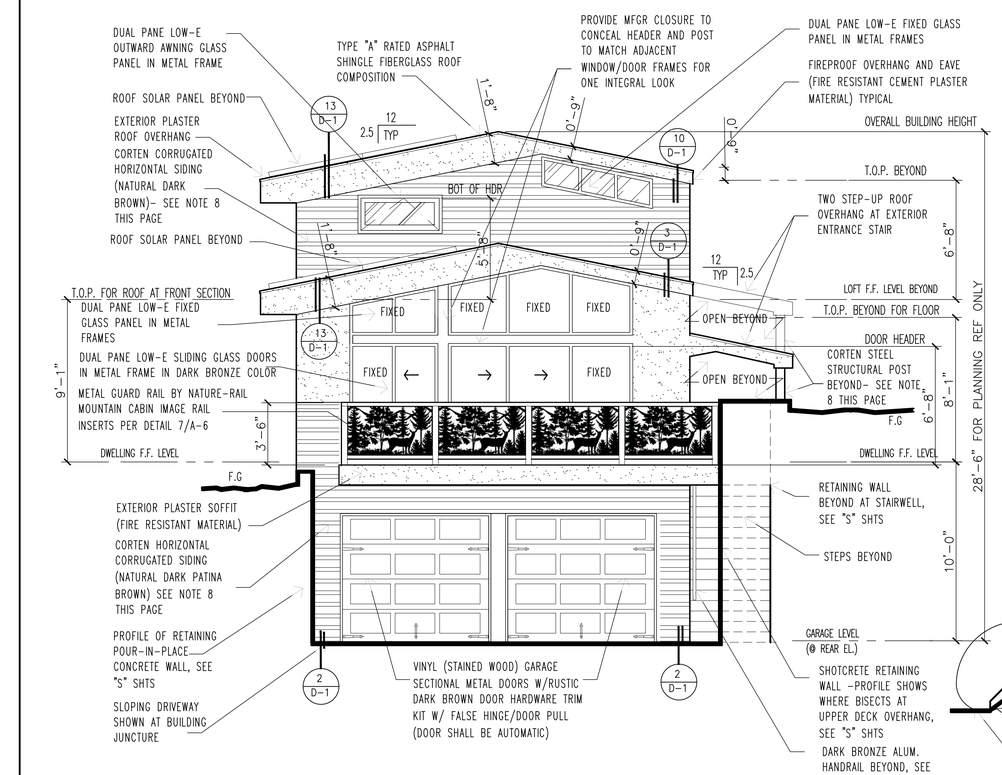
SOUTH ELEVATION (LEFT SIDE)

SCALE: 1/4" = 1'-0"



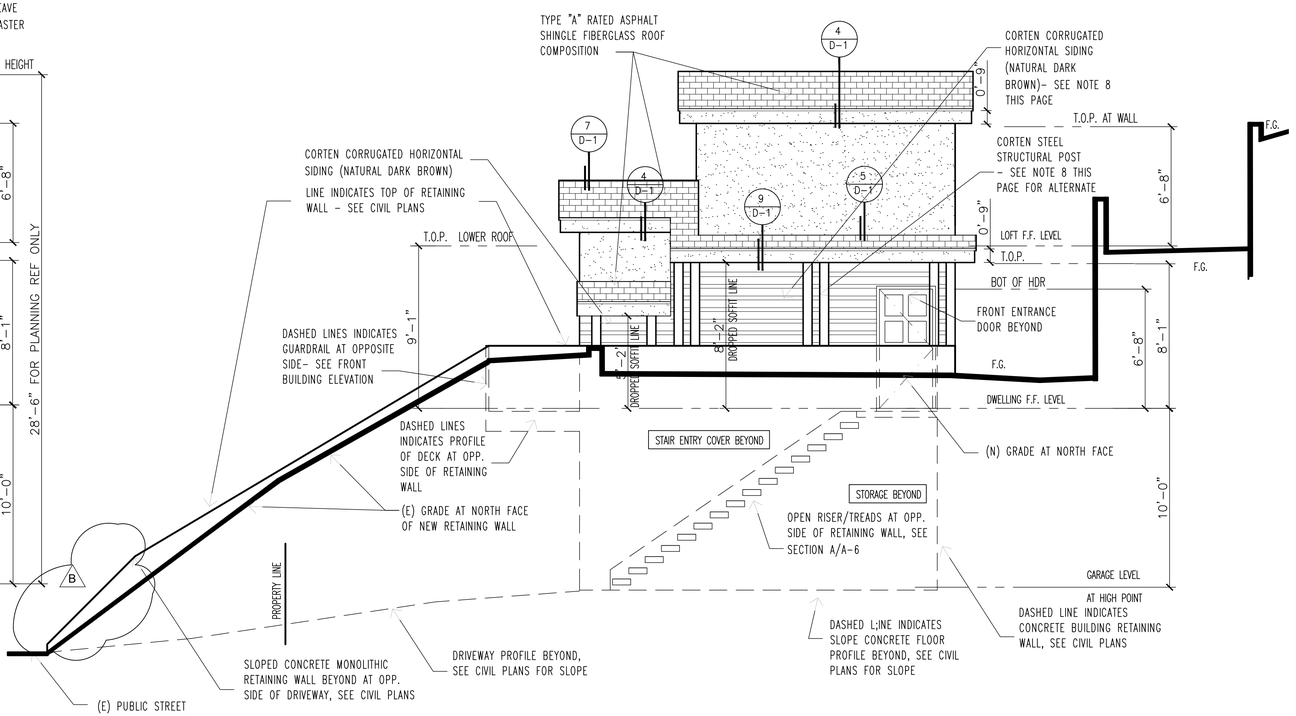
WEST ELEVATION (REAR)

SCALE: 1/4" = 1'-0"



FRONT ELEVATION (EAST SIDE)

SCALE: 1/4" = 1'-0"



NORTH ELEVATION (RIGHT SIDE)

SCALE: 1/4" = 1'-0"

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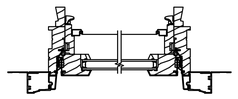
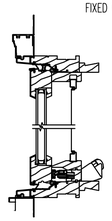


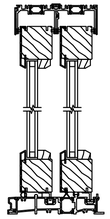
1 AWNING WINDOW JAMB

FIXED WINDOW SIMILAR

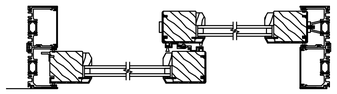


2 AWNING WINDOW HEAD/SILL

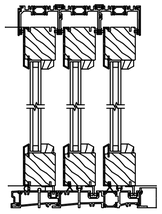
FIXED WINDOW SIMILAR



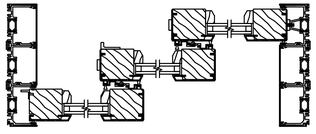
3 SINGLE-SLIDER HEAD/SILL



4 SINGLE-SLIDER JAMB



5 MULTI-SLIDER HEAD/SILL



6 MULTI-SLIDER JAMB

GENERAL NOTES TO ABOVE

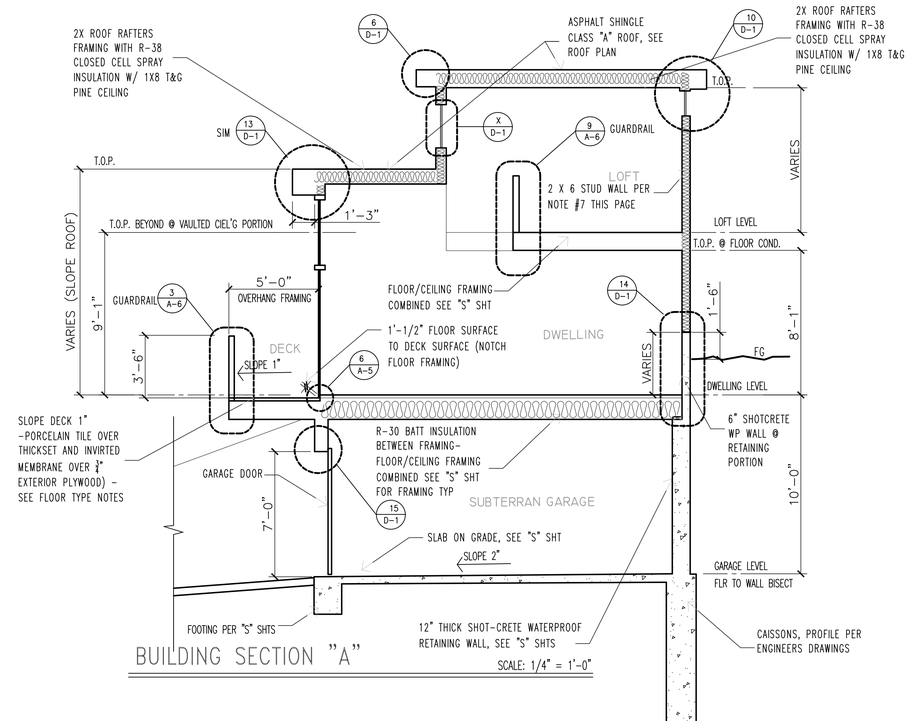
1) MFGR SHALL FEILD VERIFY OPENINGS AND PROVIDE DIMENSION SHOP DRAWING TO SCALE
2) MFGR SHALL PROVIDE ALL SHOPE DRAWING ACCESORIES FITTING TO EXTERIOR FINISHES
3) REFER TO ADDITIONAL NOTES AND INFO ON DOOR/WINDOW SCHJEDULE SHT OF A-7

WINDOWS/DOORS MFGR DETAILS

NO SCALE
REFER TO MFGR SHOP DRAWINGS FOR SCALE AND INTERFACE

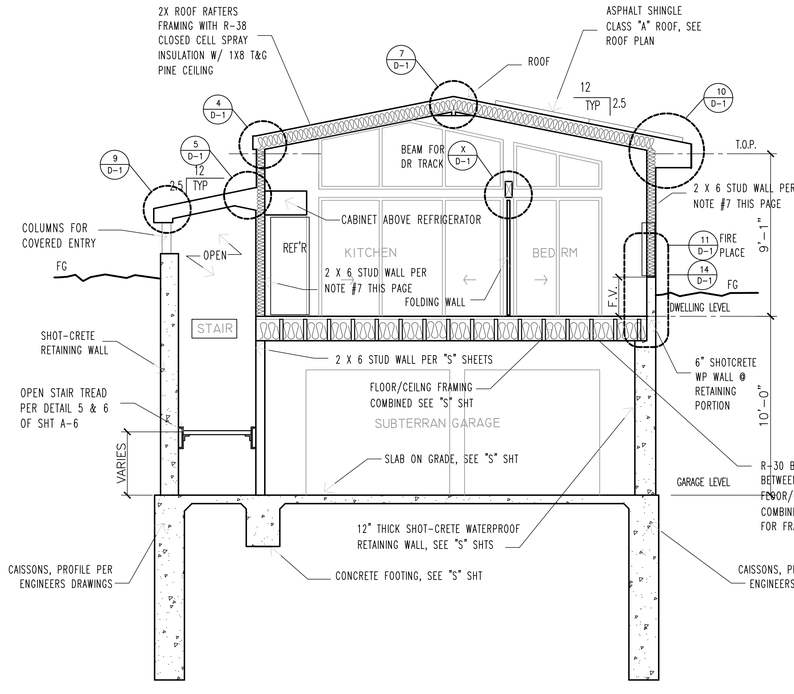
GENERAL NOTES

1. REFER TO SHT GN-1 AND GN-2 FOR GENERAL FIRE NOTES NOT SHOWN AND SEE SHT A-1 FOR STANDARD COVER PAGE NOTES FOR FIRE PROTECTION AND MISCELLANEOUS CODE PROFESSIONS.
2. ROOF RAFTERS JOIST TO BE 2 X WOOD FRAMING WITH R-38 CLOSED CELL INSULATION FOAM BOARD) ALLOW FOR EVERY 1" TO R-5 (7-1/2" TOTAL THICKNESS) SEE STRUCTURAL DRAWINGS FOR FRAMING INFORMATION AND DEPTHS WITH FOAM MFGR TO ACHIVE ALL CLEARANCES REQ'D
3. CEILING JOIST TO BE 2 X WOOD FRAMING CEILING LID WITH R-30 BAT INSULATION WHERE ATTIC OCCURS - SEE STRUCTURAL DRAWINGS FOR FRAMING INFORMATION NOT SHOWN
4. PROVIDE ATTIC VENTING PER ROOF PLAN
5. THE FOLLOWING APPLIES FOR ATTACHED GARAGE FOR ONE HOUR ENVELOPE PROTECTION SECTION R302.4:
   A. PROVIDE 1-HR FIRE RESISTANCE CONSTRUCTION ON THE GARAGE SIDE FOR WALLS, CEILING, POST, AND BEAMS OF GARAGE WITH MINIMUM OF 5/8" TYPE "X" GYPSUM BOARD @ 2X FRAMING OR 2-LAYERS OF 5/8" TYPE "X" GYPSUM BOARD @ MANUFACTURED TRUSS WHERE OCCURS PER CBC 302.4 AND TABLE 3-B.
   B. ALL ELEMENTS INSIDE OF GARAGE SUPPORTING STORIES SHALL HAVE 1-HR FIRE RESISTANCE PROTECTION (CBC 302.4)
   C. SELF-CLOSING TIGHT FITTING, SOLID WOOD 1-3/8" THICK DOOR OR A 20 MINUTE DOOR AT OPENING TO DWELLING (CBC 302.4)
   D. DOORS FROM GARAGE NOT PERMITTED TO OPEN INTO ROOM USED FOR SLEEPING (CBC 312.4)
   E. PROVIDE 26 GAGE STEEL DUCT IN GARAGE, IF IT PENETRATES 1-HR SEPARATION (CBC 302.4)
   F. ASSEMBLIES REQUIRED TO BE FIRE-RESISTANT RATED IN ACCORDANCE WITH SECTION R302.2 OR R302.3 SHALL BE PROTECTED IN ACCORDANCE WITH THIS SECTION. R302.4.1 THROUGH PENETRATIONS. THROUGH PENETRATIONS OF FIRE-RESISTANCE-RATED WALL OR FLOOR ASSEMBLIES SHALL COMPLY WITH SECTION R302.4.1.1 OR 302.4.1.2. EXCEPTION: WHERE THE PENETRATING ITEMS ARE STEEL, FERROUS OR COPPER PIPES, TUBES OR CONDUITS, THE ANNULAR SPACE SHALL BE PROTECTED AS FOLLOWS: 1. IN CONCRETE OR MASONRY WALL OR FLOOR ASSEMBLIES, CONCRETE, GROUT OR MORTAR SHALL BE PENNITTED WHERE INSTALLED TO THE FULL THICKNESS OF THE WALL OR FLOOR ASSEMBLY OR THE THICKNESS REQUIRED TO MAINTAIN THE FIRE-RESISTANT RATING, PROVIDED: THE NOMINAL DIAMETER OF THE PENETRATING ITEM IS A MAXIMUM OF 6 INCHES AND 1.2. THE AREA OF THE OPENING THROUGH THE WALL DOES NOT EXCEED 144 SQUARE INCHES. 2. THE MATERIAL USED TO FILL THE ANNULAR SPACE SHALL PREVENT THE PASSAGE OF FLAME AND HOT GASES SUFFICIENT TO IGNITE COTTON WASTE WHERE SUBJECTED TO ASTM E 119 OR UL 263 TIME TEMPERATURE FIRE CONDITIONS UNDER A MINIMUM POSITIVE PRESSURE DIFFERENTIAL OF 0.01 INCH OF WATER (3 PA) AT THE LOCATION OF THE PENETRATION FOR THE TIME PERIOD EQUI VALENT TO THE FIRE-RESISTANT RATING OF THE CONSTRUCTION PENETRATED. R302.4.1.1 FIRE-RESISTANCE-RATED ASSEMBLY. PENETRATIONS SHALL BE INSTALLED AS TESTED IN THE APPROVED FIRE-RESISTANCE-RATED ASSEMBLY.
6. REFER TO STRUCTURAL FOR DETAILED INFORMATION FOR SLAB AND GRADE PREP. SOILS AND DETAILS THAT MAY SUPERSEDE ARCHITECTURAL DRAWINGS
7. TYPICAL EXTERIOR STUD WALL ASSEMBLY: 2X STUD WALLS @ 16" O.C. W/ 5/8" TYPE 'X' AT BOTH INTERIOR & WP EXTERIOR SIDE W/ EITHER CORREGATED STEEL SIDING OR 7/8" EXTERIOR PLASTER AT OUTSIDE PER LOCATIONS OF EXTERIOR ELEVATION. PROVIDE R-21 WALL BATT INSULATION AT ENVELOPE, SEE "S" DWGS WHERE PLYWOOD SHEAR WALLS OCCUR EXTERIOR WALLS SHALL COMPLY W/ 707A.2 , 707A.3 & 705A.3.2 PER SHT GN-1 & GN-2



BUILDING SECTION "A"

SCALE: 1/4" = 1'-0"



BUILDING SECTION "C"

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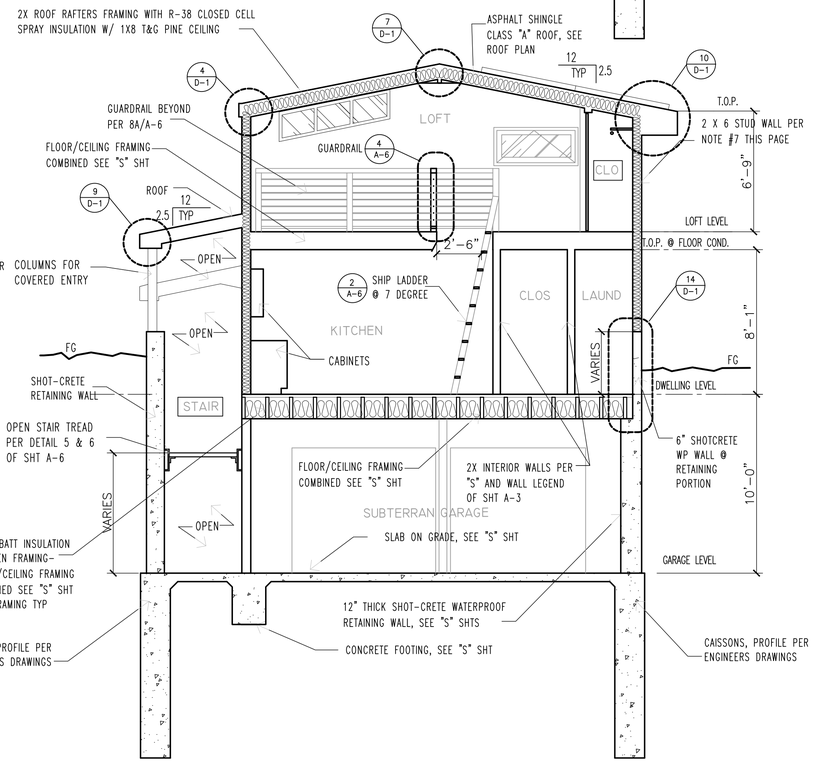

BUILDING SECTION "B"

SCALE: 1/4" = 1'-0"

Contractor shall exercise the responsibility with architect in securing latest approved drwgs. prior to actually executing work

NO./REVISION/DATE

D BUILDING DEPT SUBMITTAL 3-19-25

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THOURBANOV RESIDENCE

NEW DWELLING
MISC SECTIONS
AND DETAILS

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REGISTERED PROFESSIONAL ARCHITECT JOHN A. SAIAT NO. C-24445 EXP. 10-29-25 STATE OF CALIFORNIA

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DATE SEE REVISION BOX ABOVE FOR DATE
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JOB NO.
SHEET

A-5

1 OF (PER INDEX) SHEETS

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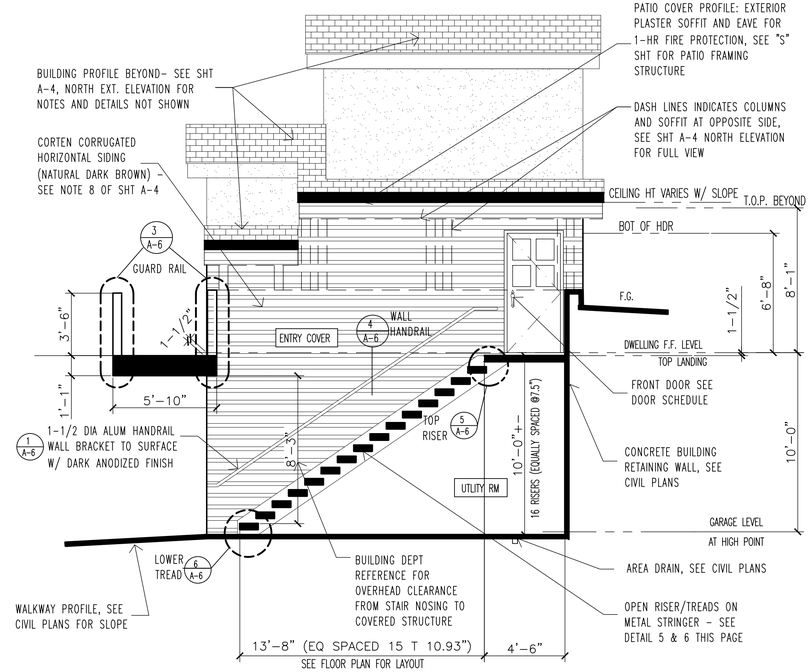
GENERAL STAIR NOTES

NOTE: ALL DIMENSIONS SHALL COMPLY W/ 2019 CBC OF CODE SECTIONS 1009.7, 1012.2

1. RESIDENTIAL STAIRS SHALL COMPLY W/ CODE SECTION R311
2. COLOR AND MATERIALS SELECTED BY OWNER FROM STAIR MANUFACTURER STANDARD PALETTE
3. STAIR ADEQUATE TO SUPPORT LOADS PER LINEAL FOOT AT A RIGHT ANGLE TO THE TOP RAIL. (16-B)
4. METAL PICKETS, BARS AND SUPPORTS SPACED SO THAT 4 IN. SPHERE CANNOT PASS THROUGH.
5. NOSING AT 3/4" MINIMUM OFFSET
6. HANDRAILS SHALL SATISFY THE FOLLOWING TO SECTION 1003.3.6:
   a. PROVIDE CONTINUOUS HANDRAILS ON BOTH SIDES FOR STAIRWAYS W/ 4 OR MORE RISERS.
   b. HANDRAILS SHALL BE 34" TO 38" ABOVE THE NOSING OF THE TREAD & SHALL MEET 200 LBS POINT LOAD PER. CBC 1012.2, SEE DET 1/ A-6
   c. OPENINGS BETWEEN INTERMEDIATE BALUSTERS SHALL PRECLUDE THE PASSAGE OF MAXIMUM 4-INCH DIA SPHERE
   d. THE HAND GRIP PORTION OF THE HANDRAIL SHALL NOT BE LESS THAN 1-1/4" OR MORE THAN 2" DIAMETER SPHERE SMOOTH SURFACE WITH NO SHARP CORNERS.
   e. RETURN HANDRAILS TO NEWEL POST OR WALL
7. STAIRS SHALL SATISFY THE FOLLOWING PER CBC SECTION 1009.7, SEE ALL DETAILS THIS PAGE
   MAXIMUM STAIR RISE OF 7.75" AND A MINIMUM OF 10" STAIR TREAD
   STAIRWAYS W/ 4 OR MORE RISERS.
   MINIMUM WIDTH OF STAIR TO ANY PORTION SHALL NOT BE LESS THAN 36"
   MINIMUM HEADROOM SHALL NOT BE LESS THAN 6'-8"
   ENCLOSED USABLE CONSTRUCTION UNDER STAIRWAY REQUIRES TO FIRE BE 1-HR RESISTIVE CONSTRUCTION ON ENCLOSED SIDE
8. SEE PLANS AND SECTIONS FOR RISERS & RUN LAYOUT
9. THE LARGEST RISE OR RUN IN A FLIGHT OF STAIRS MAY NOT EXCEED THE SMALLEST BY 3/8".
10. STAIR RISERS SHALL NOT EXCEED 7-3/4" HEIGHT

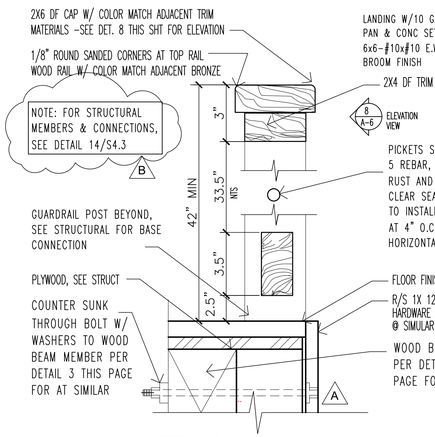


A STAIR SECTION "A"

1/4" = 1'-0"

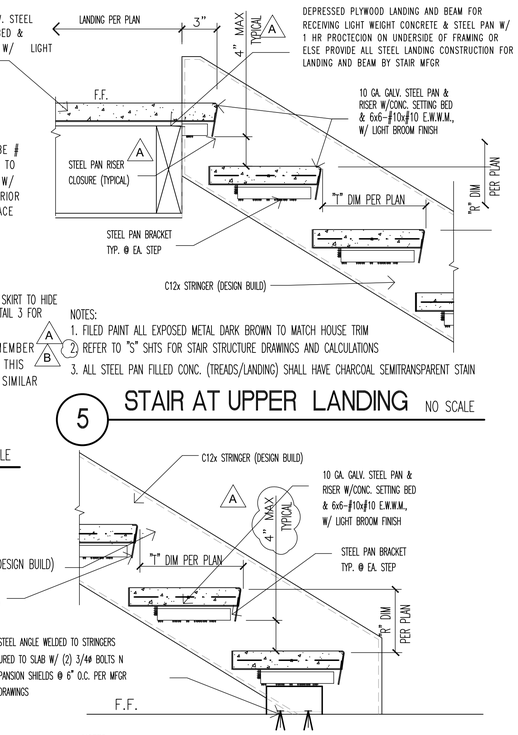
9 INTERIOR GUARDRAIL

NO SCALE



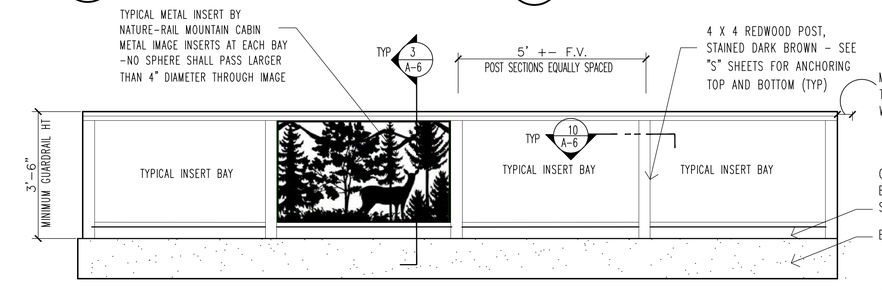
5 STAIR AT UPPER LANDING

NO SCALE



10 GUARDRAIL SUPPORT

NO SCALE

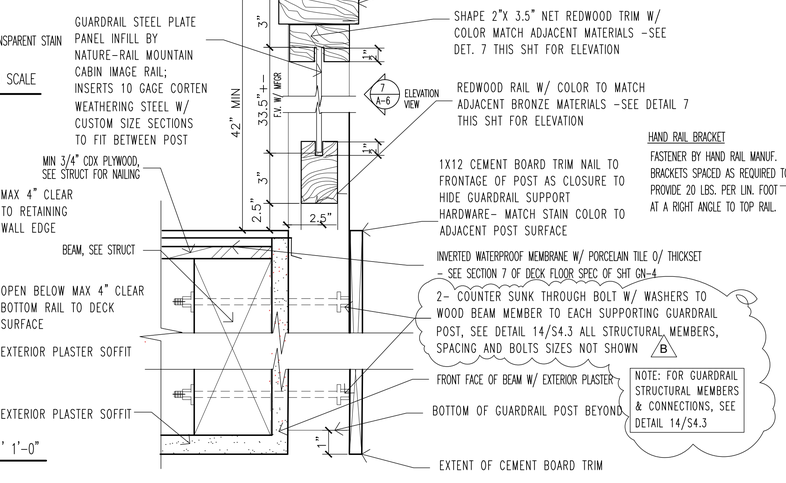


7 EXTERIOR GUARDRAIL ELEVATION

SCALE: 1/2" ' 1'-0"

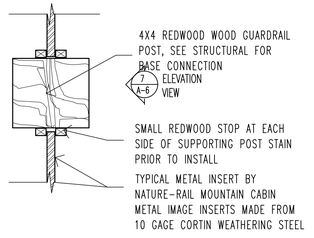
6 STAIR AT LOWER LANDING

NO SCALE



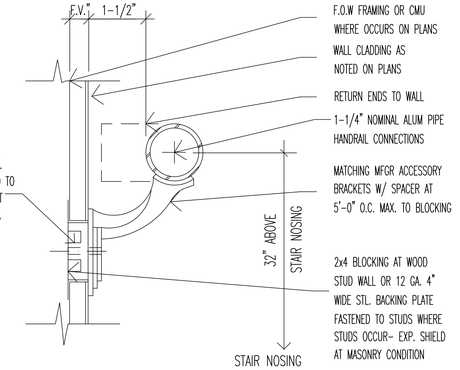
3 EXTERIOR GUARDRAIL

NO SCALE



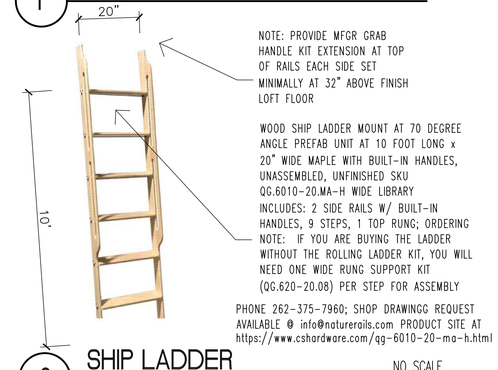
4 GUARDRAIL SUPPORT

NO SCALE



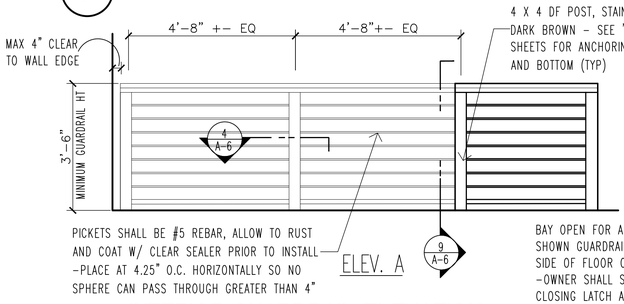
1 HANDRAIL TO WALL

NO SCALE



2 SHIP LADDER

NO SCALE



8 INTERIOR GUARDRAIL ELEVATION

SCALE: 1/2" ' 1'-0"

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D BUILDING DEPT SUBMITTAL 3-19-25

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NEW DWELLING
STAIR NOTES & DETAILS

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1 OF (PER INDEX) SHEETS

Contractor shall exercise the responsibility with architect in securing latest approved drwgs. prior to actually executing work

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WINDOW SCHEDULE

WDW NO.	SIZE W	SIZE H	ELEV. TYPE	TYPE	FRAME MAT'L	FRAME FINISH	GLAZING TYPE	GLAZING THICK	GLAZING INSUL	GLAZING TEMP	MIN T-24 RATING U-FACT	MIN T-24 RATING SHGC	REMARKS
1 S T	L E V E L												
WDW 1	3'-0"	2'-0"	4	FIXED	VINYL	FF	POG	3/4"	DBL	OP	0.27	0.37	OBSCURE PATERN GLASS PANEL AT INSIDE
WDW 2	3'-5"	1'-10"	1	AWNING	VINYL	FF	LOW-E	3/4"	DBL	OP	0.27	0.18	2 UNITS STACKED BETWEEN FEILD FAB TRANSOM
WDW 3	3'-5"	1'-10"	1	AWNING	VINYL	FF	LOW-E	3/4"	DBL	OP	0.27	0.18	2 UNITS STACKED BETWEEN FEILD FAB TRANSOM
WDW 4	**	10'-4"	6	FIXED	VINYL	FF	LOW-E	3/4"	DBL	OP	0.27	0.18	** SEE WDW EL/TYPE FOR PROFILE SIZE
WDW 5	**	5'-0"	5	FIXED	VINYL	FF	POG	3/4"	DBL	OP	0.27	0.37	** SEE WDW EL/TYPE FOR PROFILE SIZE
WDW 6	*1'-8"	*6'-4"	8	FIXED	VINYL	FF	POG	3/4"	DBL	OP	0.27	0.37	* SEE WDW EL/TYPE FOR PROFILE SIZE
WDW 7	1'-6"	5'-0"	2	AWNING	VINYL	FF	LOW-E	3/4"	DBL	OP	0.27	0.18	–
WDW 8	1'-6"	5'-0"	3	AWNING	VINYL	FF	LOW-E	3/4"	DBL	OP	0.27	0.18	FIRE RESCUE/ESCAPE PER NOTE 7 THIS PAGE
WDW 9	*1'-8"	*6'-4"	7	FIXED	VINYL	FF	LOW-E	3/4"	DBL	OP	0.27	0.37	* SEE WDW EL/TYPE FOR EXACT PROFILE SIZE

WINDOW LEGEND

ABBREVIATIONS:

VNL	= VINYL
T	= TEMPERED GLAZING PER CBC (SEC 2406.4)
SL	= SLIDING
FG	= FIXED GLASS
TINT	= TINT GLASS (FACTORY LOW-E 360 PER T-24)
DBL	= DOUBLE GLASS PANE
CLR	= CLEAR
SP	= SINGLE PANE CLEAR TEMPERED GLASS)
3/4"	= OVERALL THICKNESS FOR DUAL PANE INSULATED GLASS
POG	= PATTERN OBSCURE GLASS W/LOW-E AT EXTERIOR
FF	= FACTORY FINISH PER NOTE #1
OP	= OUTSIDE PANE TO BE TEMPERED GLASS PER NOTE #8

WINDOW NOTES

1) MANUFACTURE:
PROVIDE JELDWIN FOR WINDOWS WITH ALL MATCHING STYLE FOR DESIGN OF PROFILES AND COLORS WITH ADJACENT DOORS. ALL WINDOW DESIGN TO HAVE MATCHING PROFILES AND COLORS TO ADJACENT WINDOWS. ALL WINDOWS TO BE ALUMINUM CLAD AT EXTERIOR W/ FACTORY COLOR "DARK CHOCOLATE" AND INSIDE "EXPOSED PINE" WITH FACTORY CLEAR SEAL." THE ENTIRE ASSEMBLY SHALL MEET THE MINIMUM REQUIREMENTS PER SHEETS T-24 AND FIRE USE CHAPTER 7A REQUIREMENTS WITH RATINGS INDICATING ENERGY STAR LAB PERFORMANCE LOW "E" 366 DUAL SYSTEM FOR GLAZING AND FOR FIRE RESISTANCE REQUIREMENTS SEE NOTE 8.

2) WINDOW SPECS:
A) FIXED EXTERIOR WINDOWS: SITELINE SERIES BY JELDWIN
https://www.jeld-wen.com/en-us/products/windows/siteline-clad-wood
B) OPERABLE CASEMENT EXTERIOR WINDOWS: V-4500 SERIES BY JELDWIN
https://www.jeld-wen.com/en-us/products/windows/siteline-clad-wood

3) CONTRACTOR TO F.V. ALL DOOR AND WINDOW SIZES PRIOR TO ORDERS/INSTALLATION FOR ALL ACTUAL FIELD R.O. OPENINGS

4) SUBMIT LOCK AND HARDWARE SPECIFICATIONS, TYPE AND FUNCTION TO OWNER FOR REVIEW W/ VENDORS GUIDANCE PRIOR TO ORDERING ALL WINDOWS AND DOORS. INTERIOR HARDWARE SHALL MATCH INTERIOR FRAME COLOR OF WHITE. (COORDINATE INTERIOR HARDWARE FINISH WITH OWNER INTERIORS DESIGNER IF DIFFERENT).

5) PROVIDE SCREENS FOR ALL WINDOWS ON OPERABLE SIDE

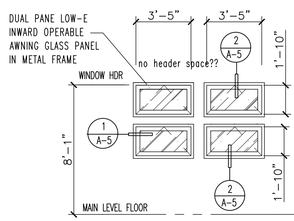
6) ALL GLAZING AND TINT PER T-24 ENERGY REQUIREMENTS AS DOUBLE GLAZE. "T" DESIGNATION ON ELEVATIONS INDICATES TEMPERED GLASS PER CBC (SEC 2406.4). Per OCFA SR#296203 ALL WINDOWS ALONG SOUTHERN SIDE SHALL BE DUAL PANE-EACH PANE TEMPERED. (A)

7) BEDROOM WINDOWS MUST MEET CODE SECTION 310.4 FOR FIRE ESCAPE OR RESCUE NET DIMENSIONS: MIN 20" WIDE X 24" HIGH SIZE FOR OPERATIVE CLEARANCE SIZE OF 5.7. S.F. W/ SILL AT 44" MAX FROM FINISH FLOOR SLIDERS AS SCHEDULED ON PLANS.

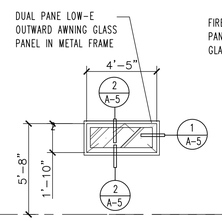
8) ALL EXTERIOR WINDOWS SHALL MEET CHAPTER 7A [SFM] MATERIALS AND CONSTRUCTION METHODS FOR EXTERIOR WILDFIRE EXPOSURE-SEE SHEET GN-2 FOR MINIMUM TESTING REQUIEMENTS. WINDOW SYSTEMS SHALL HAVE ADDITIONAL REINFORCED STEEL FRAMES AND TEMPERED GLASS AT EXTERIOR SIDE TO MEET THE FIRE RESISTANCE CODE REQUIREMENTS OF CHAPTER 7A

WINDOW ELEVATION/TYPES

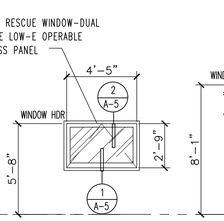
SCALE: 1/4" = 1'-0" NOTE: SCHEDULE BELOW IS DIAGRAMMATIC WHERE SWING DIRECTIONS AND SCALE SHALL BE SUPERSEDED BY PLANS



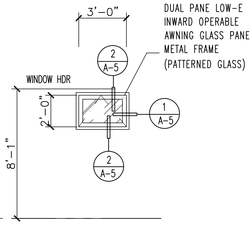
ELEVATION "1" AWNING



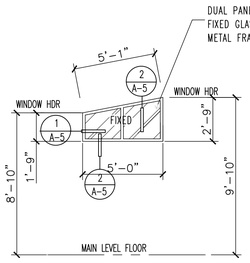
ELEVATION "2" AWNING



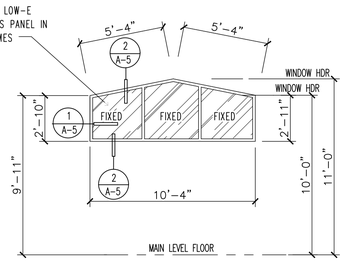
ELEVATION "3" AWNING



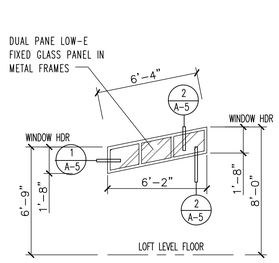
ELEVATION "4" AWNING



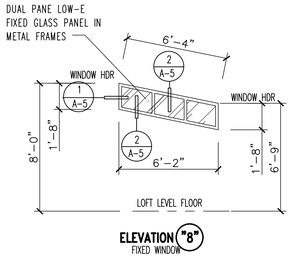
ELEVATION "5" FIXED WINDOW



ELEVATION "6" FIXED WINDOW



ELEVATION "7" FIXED WINDOW



ELEVATION "8" FIXED WINDOW

DOOR SCHEDULE

DR NO.	DOOR W	DOOR H	DOOR T	DOOR ELEV.	DOOR TYPE	DOOR MATERIAL	DOOR FINISH	DOOR GLASS	FRAME MAT'L	FRAME FINISH	FRAME THRESHOLD	MIN T-24 RATING U-FACT	MIN T-24 RATING SHGC	REMARKS
1 S T	L E V E L													
DR A	8'-6"	7'-0"	--	AA	SECTIONAL	METAL	FF	---	METAL	FF	DRIP KIT	---	---	ENTRY DOOR EXTERIOR GRADE (WEATHER STRIP)
DR B	8'-6"	7'-0"	--	AA	SECTIONAL	METAL	FF	---	METAL	FF	TR	---	---	UNDERCUT DOOR BOTTOM FOR EXHAUST FLOW
DR C	3'-0"	6'-8"	1 3/4"	BB	SWING	HC	FF	---	METAL	FF	---	---	---	20 MINUTE ASSEMBLY
DR D	3'-0"	6'-8"	3/4" GL	DD	SWING	FIBERGLASS	FF	T	FIBERGLASS	FF	---	.29	.19	1/2" TEMP GLASS CLEAR- SEE DOOR NOTES BELOW
DR E	10'-0"	6'-8"	3/4" GL	HH	SLIDE	GL LOW-E	FF	T	FIBERGLASS	FF	---	.32	.22	SEE DOOR NOTES BELOW
DR F	5'-0"	6'-8"	3/4" GL	GG	SLIDE	GL LOW-E	FF	T	FIBERGLASS	FF	---	.32	.22	FIRE RESCUE/ESCAPE PER NOTE 7 THIS PAGE
DR G	2'-10"	6'-8"	1 3/8"	KK	BI-FOLD	VINYL	FF	---	WD	FF	---	---	---	SEE DOOR NOTES BELOW
DR H	3'-10"	6'-8"	1 3/8"	LL	BI-FOLD	VINYL	FF	---	WD	FF	——	---	---	SEE DOOR NOTES BELOW
DR J	11'-4"	6'-8"	1 3/8"	JJ	FW	VINYL	FF	---	WD	FF	——	---	---	SEE DOOR TYPE
DR K	2'-6"	6'-8"	1 3/8"	FF	PD	HC	FF	---	WD	FF	---	---	---	VERIFY MFGR POCKET CAGE DEPTH AND FLUSH HARDWARE
DR L	10'-0"	6'-8"	1 3/8"	EE	SLIDE	HC	FF	---	WD	FF	---	---	---	WARDROBE DOOR
DR M	2'-0"	5'-0	1 3/4"	CC	SWING	WD	FF	---	WD	FF	---	---	---	FLUSH EXTERIOR GRADE

DOOR LEGEND

ABBREVIATIONS:

FP	= FIELD PAINT
SL	= FOLDING WALL
CLR	= CLEAR
FG	= FIXED GLASS
DBL	= DOUBLE GLASS PANE
UC	= UNDERCUT DOOR FOR EXHAUST FAN
TINT	= FACTORY TINT (LOW-E PER T-24 SPECS)
T	= TEMPERED GLAZING PER CBC (SEC 2406.4)
POG	= PATTERN OBSCURE GLASS AT INTERIOR SIDE (MISLITE OR EQ)
3/4"	= OVERALL THICKNESS FOR DUAL PANE INSULATED GLASS SYSTEMS
SC	= SOLID CORE
HC	= HOLLOW CORE
FF	= FACTORY FINISH PER NOTE #1
PD	= POCKET DOOR
FD	= FOLDING COLLAPSIBLE DOOR

DOOR NOTES

1) MANUFACTURE:
Jeld-wen FOR DOORS WITH ALL MATCHING STYLE FOR DESIGN OF PROFILES AND COLORS TO ADJACENT WINDOWS. ALL DOORS TO BE ALUMINUM CLAD AT EXTERIOR W/ FACTORY COLOR "DARK CHOCOLATE" AND INSIDE "EXPOSED PINE" WITH Factory CLEAR SEAL." THE ENTIRE ASSEMBLY SHALL MEET THE MINIMUM REQUIREMENTS PER SHEETS T-24 SHEETS AND CALIFORNIA FIRE RURAL REQUIREMENTS FOR RATINGS W/ ATTACHED LABELS INDICATING ENERGY STAR LAB PERFORMANCE LOW "E" DUAL 366 SYSTEM GLAZING AND FIRE LABELS FOR DOORS.

2) DOOR SPECS:
A) MULTI-GLASS SLIDER EXTERIOR DOORS: SITELINE SERIES BY JELDWIN
https://www.jeld-wen.com/en-us/featured/siteline-wood-windows-and-patio-doors
B) EXTERIOR ENTRANCE SWING DOOR: "AURORA" EXTERIOR DOORS BY JELDWIN
https://professionals.jeld-wen.com/products/exterior-doors/iwp-aurora-fiberglass
C) GARAGE SECTIONAL DOORS: TBD
D) GARAGE STORAGE DOOR: HOLLOW METAL 20 MINUTE LABEL

3) CONTRACTOR TO F.V. ALL DOOR AND WINDOW OPENING SIZES PRIOR TO ORDERS/INSTALLATION FOR ALL ACTUAL FIELD R.O. OPENINGS

4) SUBMIT LOCK AND HARDWARE SPECIFICATIONS, TYPE AND FUNCTION TO OWNER FOR REVIEW W/ VENDORS GUIDANCE PRIOR TO ORDERING ALL DOORS. INTERIOR HARDWARE SHALL MATCH INTERIOR FRAME COLOR OF WHITE. (COORDINATE INTERIOR HARDWARE FINISH WITH OWNER INTERIORS DESIGNER IF DIFFERENT).

5) ALL GLAZING AND TINT PER T-24 ENERGY REQUIREMENTS AS DOUBLE GLAZE. "T" DESIGNATION ON ELEVATIONS INDICATES TEMPERED GLASS PER CBC (SEC 2406.4).

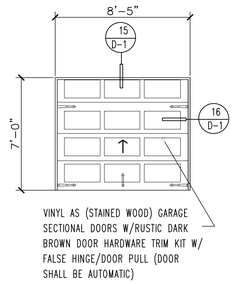
6) PROVIDE SCREENS FOR ALL EXTERIOR GLASS DOORS

7) EXTERIOR BEDROOM DOOR MUST MEET CODE SECTION 310.4 FOR FIRE ESCAPE OR RESCUE NET DIMENSIONS: MIN 20" WIDE X 24" HIGH SIZE FOR OPERATIVE CLEARANCE SIZE OF 5.7. S.F. W/ SILL AT 44" MAX FROM FINISH FLOOR SLIDERS AS SCHEDULED ON PLANS.

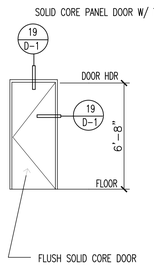
8) ALL EXTERIOR DOORS SHALL MEET CHAPTER 7A [SFM] MATERIALS AND CONSTRUCTION METHODS FOR EXTERIOR WILDFIRE EXPOSURE-SEE SHEET GN-2 FOR TESTING. DOORS SYSTEMS SHALL HAVE ADDITIONAL REINFORCED STEEL FRAMES AND TEMPERED GLASS WHERE GLASS OCCURS AT BOTH SIDES TO MEET THE FIRE RESISTANCE CODE REQUIREMENTS OF CHAPTER 7A AND SAFETY IMPACT PER CRC R308

DOOR ELEVATION/TYPES

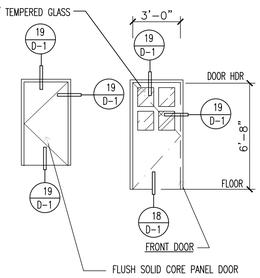
SCALE: 1/4" = 1'-0" NOTE: SCHEDULE BELOW IS DIAGRAMMATIC WHERE SWING DIRECTIONS AND SCALE SHALL BE SUPERSEDED BY PLANS



ELEVATION AA SWING

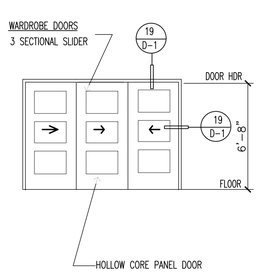


ELEVATION BB SWING (NTS)

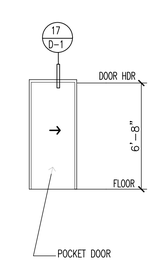


ELEVATION CC SWING

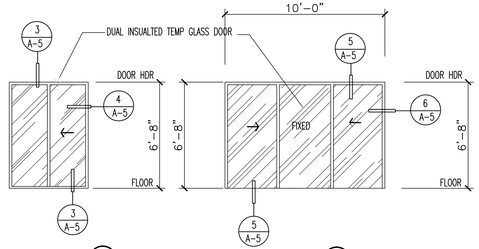
ELEVATION DD SWING



ELEVATION EE SLIDER

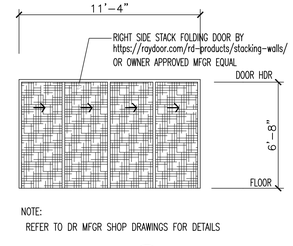


ELEVATION FF POCKET SLIDE

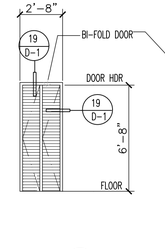


ELEVATION GG SLIDE

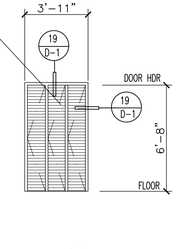
ELEVATION HH SLIDE



ELEVATION JJ SIDE STACK FOLDING WALL



ELEVATION KK BI-FOLD DOOR



ELEVATION LL BI-FOLD DOOR

Contractor shall exercise the responsibility with architect in securing latest approved drwgs. prior to actually executing work

REVISIONS NO.
1 BUILDING DEPT. SUBMITTAL 3-19-25

JOHN A. SALAT ARCHITECTS
22386 Woodgrove Road, Lake Forest, CA 92630
PH 949-235-4847 email: freeingwinds@earthlink.net
z e n a r c h i t e c t . c o m

architect

THOURBANOV RESIDENCE
NEW DWELLING
door/window schedule

OWNER/SITE ADDRESS:
CONTACT: Alexander Tchourbanov
20601 Trabuco Oaks Dr,
Trabuco Canyon, CA 92678
Ph. 520.909.0869 Email: achurbanov@gmail.com

REGISTERED PROFESSIONAL ARCHITECT JOHN A. SALAT NO. C-24445 EXP. 10-29-25 STATE OF CALIFORNIA

DRAWN JS
CHECKED JS
DATE SEE REVISION BOX ABOVE FOR DATE
SCALE AS NOTED ON PLANS
JOB NO.
SHEET

A-7

1 OF (PER INDEX) SHEETS

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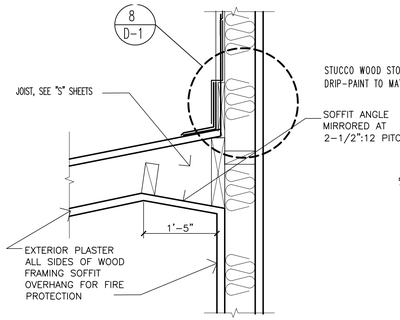
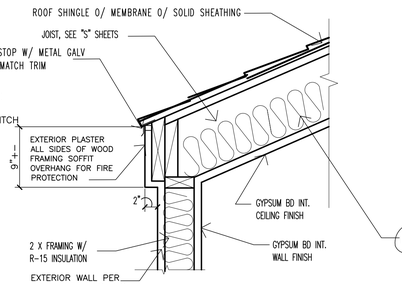
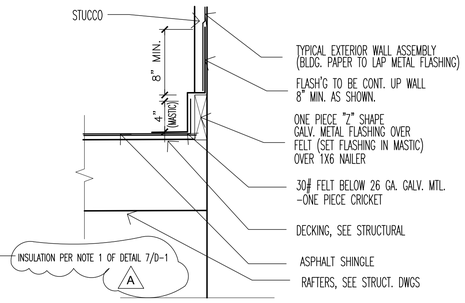


5 ROOF ABOVE COVERED ENTRY NO SCALE



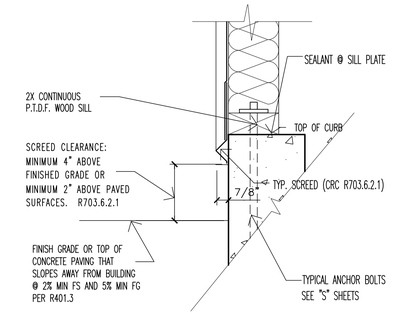
4 ROOF @ SMALL OVERHANG NO SCALE

NOTE: DETAILS ARE DRAWN DIAGRAMMATIC – INSTALL PER ASPHALT ROOF MANUFACTURER'S REQUIREMENTS

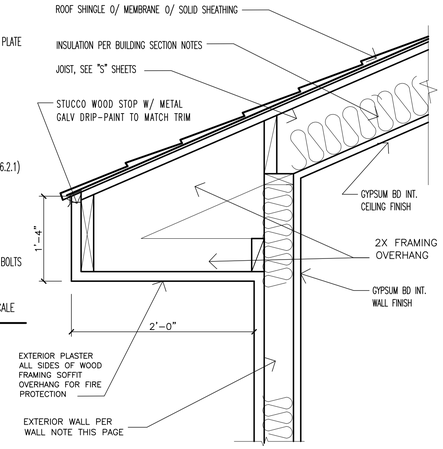


3 WALL TO ROOF NO SCALE

NOTE: DETAILS ARE DRAWN DIAGRAMMATIC – INSTALL PER ASPHALT ROOF MANUFACTURER'S REQUIREMENTS

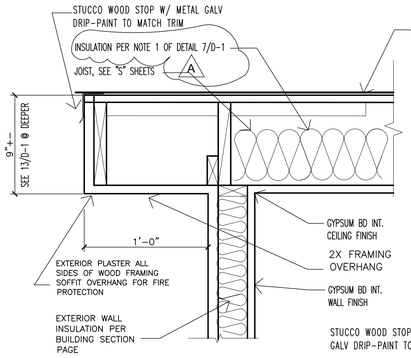


2 FOUNDATION SCREED NO SCALE



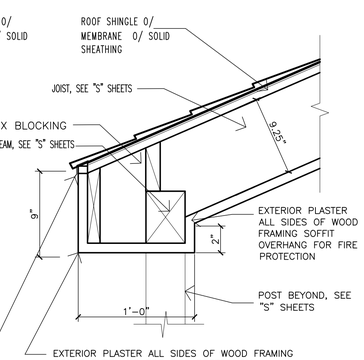
1 ROOF @ LARGE OVERHANG NO SCALE

NOTE: DETAILS ARE DRAWN DIAGRAMMATIC – INSTALL PER ASPHALT ROOF MANUFACTURER'S REQUIREMENTS



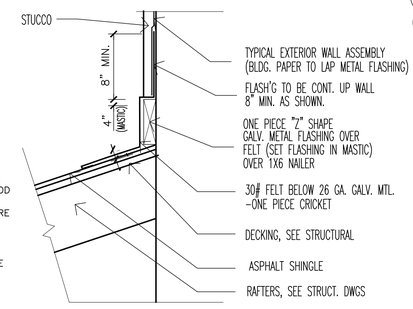
10 ROOF @ BARGE OVERHANG NO SCALE

NOTE: DETAILS ARE DRAWN DIAGRAMMATIC – INSTALL PER ASPHALT ROOF MANUFACTURER'S REQUIREMENTS



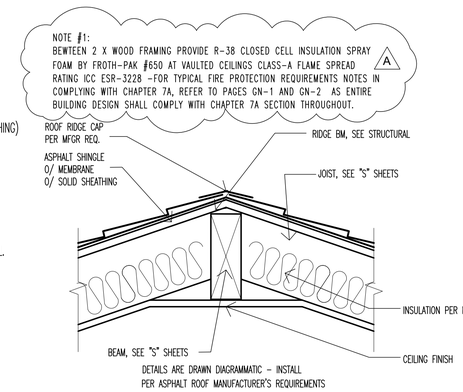
9 ROOF ABOVE COVERED ENTRY NO SCALE

NOTE: DETAILS ARE DRAWN DIAGRAMMATIC – INSTALL PER ASPHALT ROOF MANUFACTURER'S REQUIREMENTS



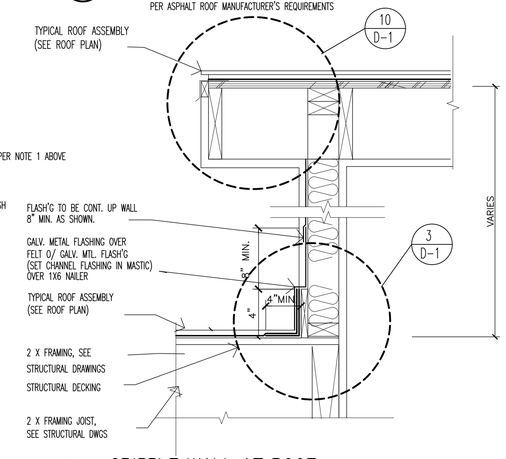
8 WALL TO ROOF NO SCALE

NOTE: DETAILS ARE DRAWN DIAGRAMMATIC – INSTALL PER ASPHALT ROOF MANUFACTURER'S REQUIREMENTS



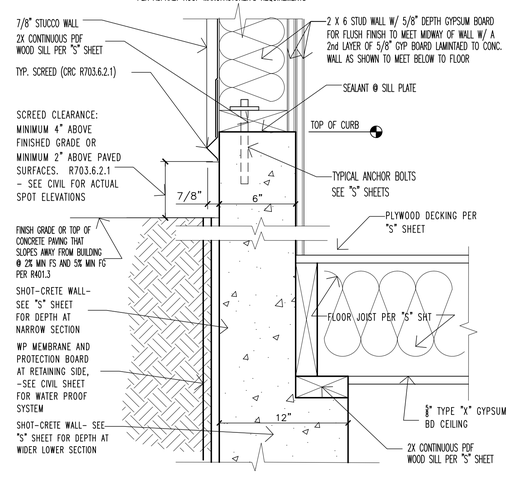
7 ROOF RIDGE NO SCALE

NOTE: DETAILS ARE DRAWN DIAGRAMMATIC – INSTALL PER ASPHALT ROOF MANUFACTURER'S REQUIREMENTS



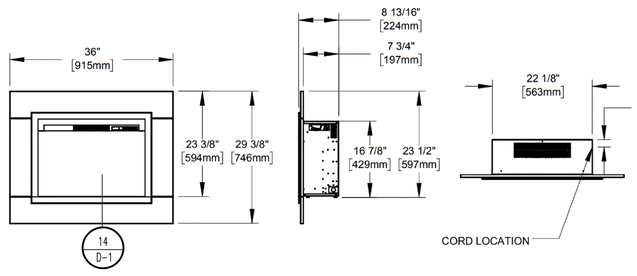
6 CRIPPLE WALL AT ROOF NO SCALE

NOTE: DETAILS ARE DRAWN DIAGRAMMATIC – INSTALL PER ASPHALT ROOF MANUFACTURER'S REQUIREMENTS



14 RETAINING WALL TRANSITION NO SCALE

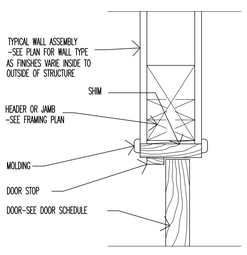
FRONT VIEW RIGHT SIDE VIEW TOP VIEW



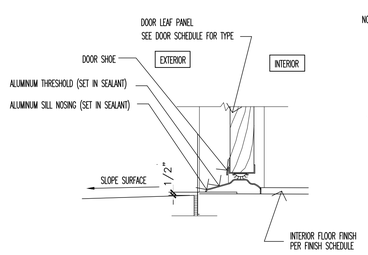
ELECTRIC WALL RECESSED FIREPLACE 26' – NEFB24H MODEL CINEMA SERTIES BY NAPOLEON FIREPLACES CONTACT 1-866-820-8686
ADHERE TO THE MINIMUM CLEARANCE TO COMBUSTIBLES FOR YOUR APPLIANCE, REFER TO YOUR INSTALLATION MANUAL FOR INFORMATION.

11 ELECTRIC RECESSED WALL FIREPLACE NO SCALE

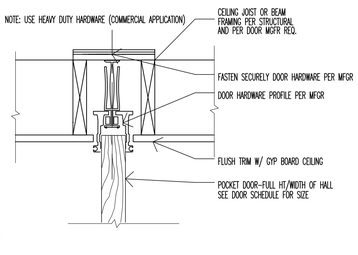
NOTE: DETAILS ARE SHOWN DIAGRAMMATIC – INSTALL PER MANUFACTURER'S REQUIREMENTS



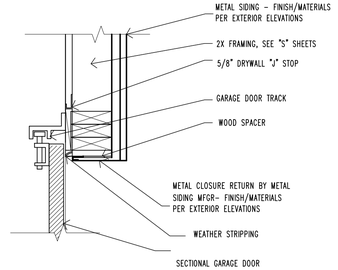
19 DOOR JAMB AND HEAD NO SCALE



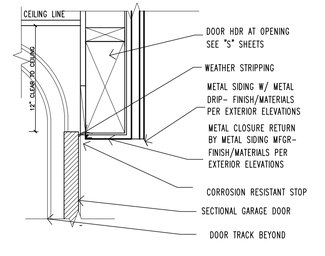
18 DOOR SILL NO SCALE



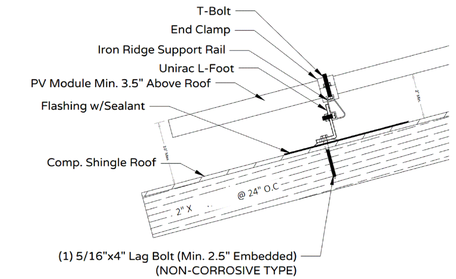
17 POCKET DOOR AT HEAD NO SCALE



16 GARAGE DOOR JAMB NO SCALE



15 GARAGE DOOR HEAD NO SCALE



12 SOLAR PANEL ROOF MOUNT NO SCALE

NOTE: DETAILS ARE DRAWN DIAGRAMMATIC – REFER TO MANUFACTURER'S SHOP DRAWINGS

Contractor shall exercise the responsibility with architect in securing latest approved dwgs. prior to actually executing work

NO./REVISION/DATE

D BUILDING DEPT SUBMITTAL 3-19-25

JOHN A. SALAT ARCHITECTS
22386 Woodgrove Road, Lake Forest, CA 92630
PH 949-235-4847 email: freeingwinds@earthlink.net
z e n a r c h i t e c t . c o m

architect

THOURBANOV RESIDENCE
NEW DWELLING
MISC DETAILS

OWNER/SITE ADDRESS:
CONTACT: Alexander Tchourbanov
20601 Trabuco Oaks Dr,
Trabuco Canyon, CA 92678
Ph 520.909.0869 Email: acthurbanov@gmail.com

REGISTERED PROFESSIONAL ARCHITECT JOHN A. SALAT NO. C-24445 EXP. 10-23-25 STATE OF CALIFORNIA

DRAWN JS
CHECKED JS
DATE SEE REVISION BOX ABOVE FOR DATE
SCALE AS NOTED ON PLANS
JOB NO.
SHEET
D-1
1 OF (PER INDEX) SHEETS

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MECHANICAL, ELECTRICAL AND MECHANICAL NOTES

1. SEE SHT GN-4 FOR DETAILED SPECS FOR MECHANICAL, ELECTRICAL AND PLUMBING INFO NOT SHOWN ON THIS PAGE
2. REFER TO SHEET MEP-2 FOR ALL MEP DIVISIONS, SPECS AND NOTES NOT SHOWN ON THIS PAGE
3. SMOKE DETECTORS PER 2019 C.B.C., SEE SHEET MEP-2 SECTION 16 ELECTRICAL
4. FRAMING CONTRACTOR TO HAVE PRE-CONSTRUCTION MEETING FOR DUCT ROUTES AND POSSIBLE ADJUST FRAMED SOFFITS WHERE DUCT CHASE WAYS MAY NOT BE ACCESSIBLE TO REACH GRILLS FROM UNIT
5. VERIFY ALL ALL NEW FIXTURE SELECTION/TYPES W/ OWNER PRIOR TO INSTALL
6. FOR EXPANDED TECHNICAL DATA, REFER TO T-24-1 & T-24-2 SHEETS FOR INFORMATION NOT SHOWN ON THIS PAGE
7. REFER TO CIVIL SHEETS FOR SEWER AND WATER SITE CONNECTIONS NOT SHOWN ON THIS PAGE
8. FOR SIMPLICITY OF THESE PLAN, THE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC TO THE EXTENT THAT THE CONTRACTOR IS RESPONSIBLE FOR ALL INSTALLATIONS TO MEETING PLUMBING AND MECHANICAL CODES AND VERIFYING OF ALL PIPE/DUCT SIZES, LOCATIONS ARE NOT TRULY LOCATED/SCALED AS THE CONTRACTOR SHALL ADJUST ACCORDINGLY TO BALANCE THE AIR/WATER DISTRIBUTION FOR ENTIRE BUILDING. CONTRACTOR SHALL ASSURE THAT ALL MAIN RUNS, FITTINGS, ELBOWS AND TRANSITION PIECES MEET INDUSTRY STANDARDS FOR SIZES, MEANS, METHODS, AND TECHNIQUES AS ARCHITECT'S DRAWINGS ARE DIAGRAMMATIC AND NOT NECESSARILY ENGINEERED TO FIT ON FIELD. THE CONTRACTOR SHALL CAREFULLY VERIFY AND INVENTORY MATERIALS AND METHOD PRIOR TO ORDER AND INSTALLATION. CHANGES TO ACCOMMODATE INSTALLATION OF THIS WORK WITH OTHER WORK OR IN ORDER TO MEET ARCHITECTURAL OR STRUCTURAL IMPEDIMENTS CONDITIONS, AND SHALL BE MADE WITHOUT ADDITIONAL COST TO CLIENT OR HOLD TO ARCHITECT AS A LIABILITY.
9. RULES AND REGULATIONS: ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH THE LATEST AMERICAN SOCIETY OF HEATING, REFRIGERATION STANDARDS, AND THE LATEST FEDERAL, STATE, AND AIR-CONDITIONING ENGINEER, COUNTY, CITY OR GOVERNING AGENCIES' UPC/UMC CODES, RULES, REGULATIONS OR AMENDMENTS. NOTHING IN THESE DRAWINGS OR NOTES SHALL BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.
10. CENTRAL VAC VENDOR SHALL SUPPLY SHOP DRAWINGS OF LOCATION OF INLET RECEPTACLE AND SHOWN ON PLANS W/ SUGGESTIVE ROUT TO EACH DESTINATION FROM CENTRAL CANISTER UNIT SHOWN IN GARAGE, SEE DET 2/MEP-2 EXAMPLE
11. REFER TO SOLAR PANEL SHOP DRWGS IN THIS SET FOR ADDITIONAL ELECTRIC INTERFACE NOT SHOWN ON THIS SHEET
12. SMOKE AND CARBON MONOXIDE ALARM CERTIFICATION FORM SHALL BE FILLED OUT PRIOR TO ISSUEING FINAL PERMIT

PIPE SIZE SCHEDULE

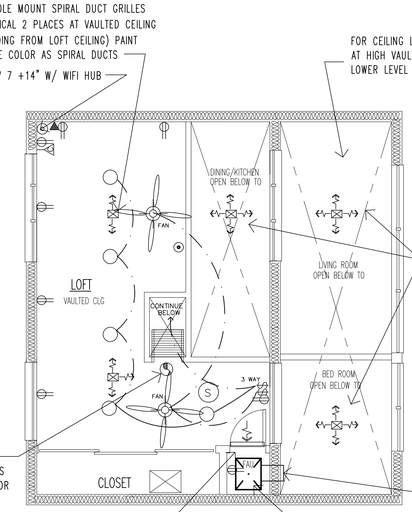
DRAINAGE:
- 1.5" DIA FOR SINKS
- 1.5" DIA FOR LAVATORY
- 2" DIA FOR LAUNDRY, SHOWERS & TUB
- 3" DIA FOR WATER CLOSET
- 4" DIA FOR MAIN BRANCH LINE

WATER STUB-OUT AT WALL:
- 1/2" DIA FOR SINKS
- 1/2" DIA FOR LAVATORY
- 1/2" DIA FOR LAUNDRY, SHOWERS & TUB
- 1/2" DIA FOR WATER CLOSET

WATER INSIDE DWELLING:
- 3/4" HOT
- 3/4" COLD

PIPE VENT: Drain-waste-vent (DWV)
- 1.5" DIA FOR REVENT/LOOP VENT/STACK VENT TO ROOF

SEWER/WATER OUTSIDE DWELLING
- SEE CIVIL PLAN FOR NOTES AND SPECS



SADDLE MOUNT SPIRAL DUCT GRILLES (TYPICAL 2 PLACES AT VAULTED CEILING FEEDING FROM LOFT CEILING) PAINT SAME COLOR AS SPIRAL DUCTS

CATV 7 +14" W/ WIFI HUB

FOR CEILING LIGHTING NOT SHOWN AT HIGH VAULTED CEILING, SEE LOWER LEVEL PLAN FOR LAYOUT

4-WAY AIR CEILING GRILLE WITH DROPPED SPIRAL DUCT TO 8" A.F.F. (TYPICAL 3 PLACES AT VAULTED CEILING FEEDING TO LOWER SPACES BELOW) PAINT SAME COLOR AS SPIRAL DUCTS

1-1/2" ROOF VENTS FROM ALL PLUMBING FIXTURES BELOW, PER LOWER PLAN

HOUSE FAN INSIDE LOFT ROOM: SEE NOTE #5, 6, 7 & 8 OF DIVISION #15 MECHANICAL SPECS OF SHT MEP-2 FOR 40 CFM FOR AIR INTAKE

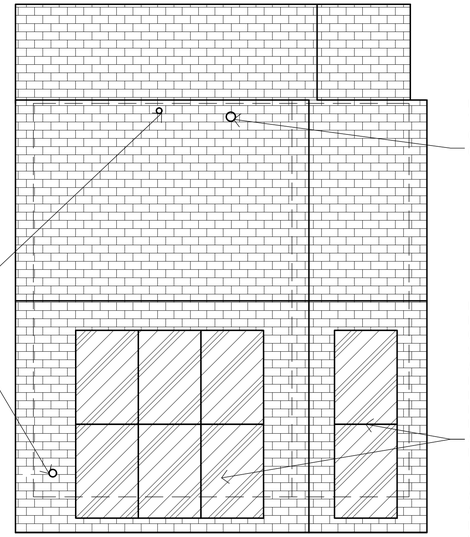
PAINTED SHEET METAL PLENUM SUPPLY DUCT TO ROUND DUCT JUNCTURE TRANSITION FOR SPIRAL PAINTED DUCT DISTRIBUTION THROUGHOUT OPEN CEILING SPACE

SHALLOW RETURN AIR WALL GRILL UNDER RAISED PLYWOOD PLATFORM- VERIFY ALL VERTICAL CLEARANCES FOR FAU UNIT AND RETURN AIR PLENUM TO FIT IN NARROW SPACE PRIOR TO FRAMING AND INSTALLATION

VERTICAL ELECTRIC SPLIT FAU UNIT IN CLOSET SHOWN- SEE T-24 REPORT FOR SIZE & ENERGY RATING

MEP (LOFT LEVEL)

SCALE: 1/4" = 1'-0"



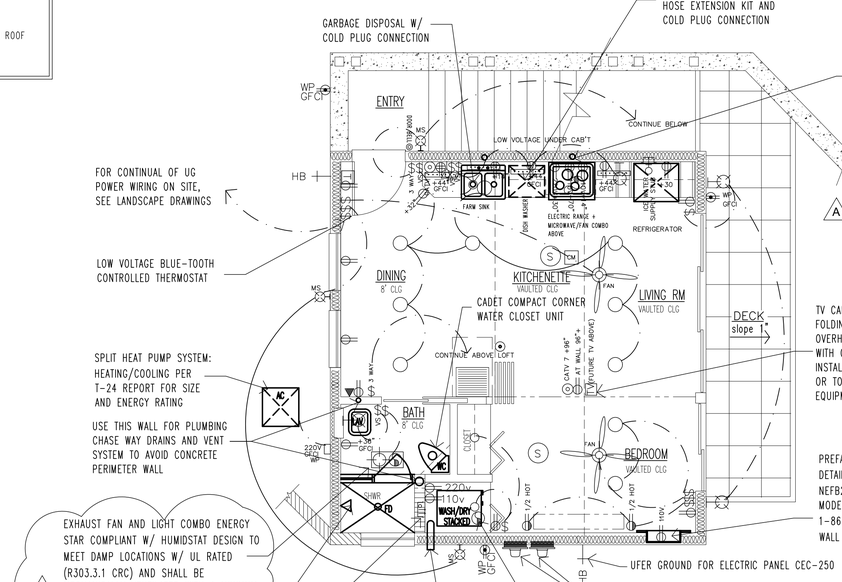
KITCHEN EXHAUST DUCT TYPE "B" FROM HOOD BELOW AT COOKTOP W/ RAIN GUARD/FLASHING KIT

A

ROOF MOUNT SOLAR PANEL SHOWN DIAGRAMMATICALLY - REFER TO SOLAR COMPANY SHOP DRAWINGS & SHT PV-1 AS SHALL COMPOLEY W/ RJ24.6 FOR ROOF ACCESS/PATHWAYS: NOT FEWER THAN TWO PATHWAYS, ON SEPARATE ROOF PLANS FROM LOWEST ROOF EDGE TO RIDGE AND NOT LESS THAN 36 INCHES WIDE SHALL BE PROVIDED CLEAR TO PHOTOVOLTAIC ARRAY AS A PATHWAY FROM THE LOWEST ROOF EDGE TO RIDGE ON THE SAME ROOF PLANE TO SUPPORTING FIRE FIGHTERS ACCESSING THE ROOF. PATHWAYS SHALL BE LOCATED IN AREAS WITH MINIMAL OBSTRUCTIONS SUCH AS VENT PIPES, CONDUIT, OR MECHANICAL EQUIPMENT. FOR 36" WIDE PATHWAY DIAGRAM, SEE PV-4 FOR LAYOUT

MEP ROOF PLAN

SCALE: 1/4" = 1'-0"



GARBAGE DISPOSAL W/ COLD PLUG CONNECTION

DISHWASHER W/ DRAIN HOSE EXTENSION KIT AND COLD PLUG CONNECTION

FOR CONTINUAL OF UG POWER WIRING ON SITE, SEE LANDSCAPE DRAWINGS

LOW VOLTAGE BLUE-TOOTH CONTROLLED THERMOSTAT

SPLIT HEAT PUMP SYSTEM: HEATING/COOLING PER T-24 REPORT FOR SIZE AND ENERGY RATING

USE THIS WALL FOR PLUMBING CHASE WAY DRAINS AND VENT SYSTEM TO AVOID CONCRETE PERIMETER WALL

EXHAUST FAN AND LIGHT COMBO ENERGY STAR COMPLIANT W/ HUMIDSTAT DESIGN TO MEET DAMP LOCATIONS W/ UL RATED (R303.3.1 CRC) AND SHALL BE MECHANICALLY VENTILATED WITH A MINIMUM 50 CFM INTERMITTENT OR 20 CFM CONTINUOUS EXHAUST FAN [CRC R303.3.1, CMC TABLE 403.7]. THE FAN MUST BE CONTROLLED BY A HUMIDITY CONTROL. [CALGREEN 4.506.1]

SHOWER KIT/MIXER HOT/COLD

LAUNDRY RECESSED WALL BOX FOR HOT/COLD

CLOTHES DRYER MOISTURE EXHAUST DUCT (MIN. 4 INCH DIA.) TO THE OUTSIDE AND EQUIP WITH A BACK-DRAFT DAMPER. EXHAUST DUCT LENGTH IS LIMITED TO 14 FT. WITH 2 ELBOWS. [CMC 504.3.1]

EXHAUST KITCHEN HOOD SHALL BE A MINIMUM OF 100 CFM WITH A MAX SOUND RATING OF 3 SONE OF INTERMITTENT OPERATION. KITCHEN HOOD SHALL BE DUCTED TO OUTSIDE AIR (SUGGEST 400 CFM OR HIGHER) AND SHALL MEET MINIMUM T-24 REPORT REQUIREMENTS. LOCATE IN WALL AS 6" OVAL DUCT PIPE THROUGH ROOF ABOVE

TV CABLE AND POWER CHASE WAY ABOVE FOLDING WALL BEAM FOR FUTURE OVERHEAD ENTERTAINMENT SYSTEM; VERIFY WITH OWNER FINAL EQUIPMENT INSTALLATIONS FACING TOWARDS BEDROOM OR TOWARDS LIVING SPACE OR BOTH FOR EQUIPMENT LOCATION

PREFAB ELECTRIC FIREPLACE WALL UNIT PER DETAIL 11/D-1 RECESSED FIREPLACE 24' - NEFB26HT-HD 110V/15AMP, CINEVIEW SERIES MODEL BY NAPOLEON FIREPLACES CONTACT 1-866-820-8686 (MOUNT ABOVE SHOTCRETE WALL INSIDE STUDS)

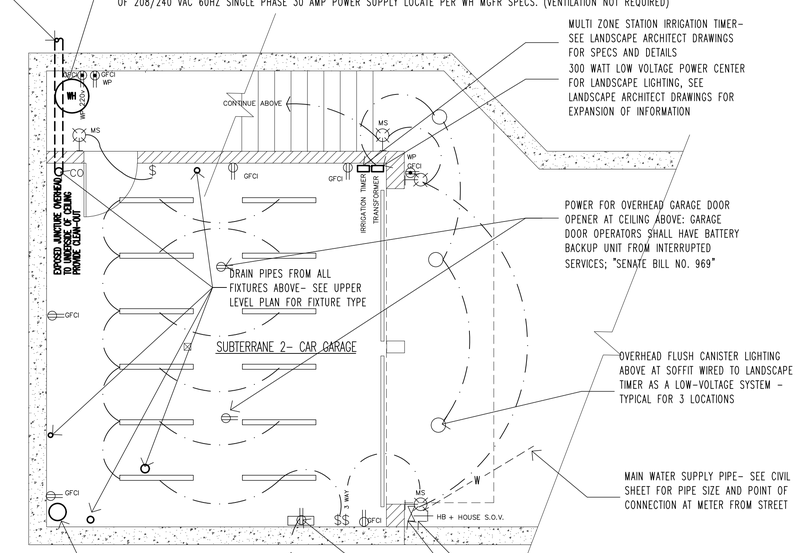
UFER GROUND FOR ELECTRIC PANEL CEC-250

ELECTRIC MAIN PANEL AT 225 AMP W/ A DERATE TO A 200 OR A 200 AMP SOLAR READY PANEL THAT HAS A BUSBAR RATING OF 225 AS PROJECT WILL HAVE INVERTER W/ BATTERY-READY INSTALLATION AVAILABLE- SEE PV SHTS (SOLAR PANEL SHOP DRAWINGS) FOR WIRE SIZE BETWEEN PANELS AND INSTALL PER SOLAR COMPANY & PER MUNICIPAL CODE THROUGH SECURING ALL INSTRUCTIONS W/ EDISON UTILITY COMPANY & SOLAR COMPANY- REFER TO EDISON AND/OR SECURE WITH CIVIL FOR STREET POINT OF CONNECTION- SOLAR SYSTEMS SHALL BE COMPLETE W/ BATTERY READY HOOKUPS OF INSTALLED WIRE CHASE WAY ALL IN-PLACE FOR BATTERY AS 3,320 WATT PV 5KW 13.5KWH AS TOTAL BATTERY STORAGE SYSTEM)

HOUSE FAN INSIDE LAUNDRY ROOM: SEE NOTE #5, 6, 7 & 8 OF DIVISION #15 MECHANICAL SPECS OF SHT MEP-2 AS PROVIDE 1" UNDERCUT AT DOOR FOR 46 CFM FOR AIR INTAKE

MEP PLAN (DWELLING LEVEL)

SCALE: 1/4" = 1'-0"



TANK WATER HEATER ON STAND PER DETAIL 1 MEP-2: WH SPEC SHALL BE ELECTRIC WATER HEATER NEEA: AO SMITH 50 GALLON #FPTU50-120 W/ WATERTIGHT PAN OF CORROSION RESISTANT MATERIALS SHALL BE INSTALLED BENEATH THE WATER HEATER WITH A MINIMUM THREE-QUARTER (3/4) INCH (20 MM) DIAMETER DRAIN TO AN APPROVED EXTERIOR DISCHARGE LOCATION. [CPC 507.4] W/ POWER SUPPLY OF 208/240 VAC 60HZ SINGLE PHASE 30 AMP POWER SUPPLY LOCATE PER WH MGFR SPECS. (VENTILATION NOT REQUIRED)

4" CAST-IRON MAIN SEWER PIPE COLLECTING FROM ALL FIXTURES ABOVE- SEE CIVIL SHEETS C-2 FOR POINT OF CONNECTION FOR PERCENTAGE FALL TOWARDS ON SITE SEPTIC TANK

MULTI ZONE STATION IRRIGATION TIMER- SEE LANDSCAPE ARCHITECT DRAWINGS FOR SPECS AND DETAILS

300 WATT LOW VOLTAGE POWER CENTER FOR LANDSCAPE LIGHTING, SEE LANDSCAPE ARCHITECT DRAWINGS FOR EXPANSION OF INFORMATION

POWER FOR OVERHEAD GARAGE DOOR OPENER AT CEILING ABOVE: GARAGE DOOR OPERATORS SHALL HAVE BATTERY BACKUP UNIT FROM INTERRUPTED SERVICES; "SENATE BILL NO. 969"

DRAIN PIPES FROM ALL FIXTURES ABOVE- SEE UPPER LEVEL PLAN FOR FIXTURE TYPE

OVERHEAD FLUSH CANISTER LIGHTING ABOVE AT SOFFIT WIRED TO LANDSCAPE TIMER AS A LOW-VOLTAGE SYSTEM - TYPICAL FOR 3 LOCATIONS

MAIN WATER SUPPLY PIPE- SEE CIVIL SHEET FOR PIPE SIZE AND POINT OF CONNECTION AT METER FROM STREET

TO MAIN METER AT GROUND LEVEL

DOMESTIC COLD WATER; 3/4" COPPER TO DWELLING

SHUT-OFF VALVE W/ PRESSURE REGULATOR

CENTRAL VACUUM CANISTER UNIT; LOCATE BASE 40" AFF SEE NOTE #10 THIS PAGE FOR DISTRIBUTION INTO HOME

1-CAR CHARGER UNIT W/ 40-AMP SERVICE, ROUTE TO MAIN METER CIRCUIT WITH 8 GUAGE COPPER WIRE. OUTLET SHALL BE NEMA 14-50 FOR CABLE CONNECTION AS REQUIRED. PROVIDE CHARGER CABLE LENGTH OF 7.5 FEET (F.V. LENGTH W/ OWNER)

MEP PLAN (SUBTERRANE LEVEL)

SCALE: 1/4" = 1'-0"

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Contractor shall exercise the responsibility with architect in securing latest approved drwgs. prior to actually executing work

NO./REVISION/DATE

D BUILDING DEPT SUBMITTAL 3-19-25

JOHN A. SALAT ARCHITECTS
22386 Woodgrove Road, Lake Forest, CA 92630
PH 949-235-4847 email: freeingwinds@earthlink.net
z e n a r c h i t e c t . c o m

architect

THOURBANOV RESIDENCE
NEW DWELLING
MECHANICAL, ELECTRICAL
AND PLUMBING

OWNER/SITE ADDRESS:
CONTACT: Alexander Tchourbanov
20601 Trabuco Oaks Dr,
Trabuco Canyon, CA 92678
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REGISTERED PROFESSIONAL ARCHITECT JOHN A. SALAT NO. C-24445 EXP 10-29-25 STATE OF CALIFORNIA

DRAWN JS
CHECKED JS
DATE SEE REVISION BOX ABOVE FOR DATE
SCALE AS NOTED ON PLANS
JOB NO.
SHEET

MEP-1

1 OF (PER INDEX) SHEETS

DIVISION 15 – MECHANICAL/PLUMBING

ALL GOVERNING CODES FOR THIS PROJECT ARE AS FOLLOWS:
2019 CALIFORNIA RESIDENTIAL (CRC), ELECTRICAL (CEC), MECHANICAL (CMC), CODE (EES) & PLUMBING (CPC),2019 CALIF. ENERGY EFFICIENCY STANDARDS CODES WITH LOCAL AMENDMENTS INCLUDING CALIFORNIA GREEN CODE 2019 AND 2019 ENERGY CODE (T-24)

EQUIPMENT/APPLIANCE LIST

REFER TO T-24 AND OWNERS SEPARATE LIST FOR FIXTURES

DIVISION 15 – PLUMBING

ALL EXISTING PLUMBING FIXTURES MUST BE UPGRADED PURSUANT TO CALIFORNIA CIVIL CODE, SECTIONS 1101.1 – 1101.8 TO COMPLY WITH THE FOLLOWING CONSUMPTION LIMITS:

A. ANY TOILET MANUFACTURED TO USE MORE THAN 1.6 GALLONS OF WATER PER FLUSH.
B. ANY URINAL MANUFACTURED TO USE MORE THAN ONE GALLON OF WATER PER FLUSH.
C. ANY SHOWER HEAD MANUFACTURED TO HAVE A FLOW CAPACITY OF MORE THAN 2.5 GALLONS OF WATER PER MINUTE.
D. ANY INTERIOR FAUCET THAT EMITS MORE THAN 2.2 GALLONS OF WATER PER MINUTE

NOTE TO CONTRACTOR: A COMPLETED AFFIDAVIT MAY BE PROVIDED TO THE BUILDING INSPECTOR AT OR BEFORE FINAL IN LIEU OF INSPECTIONS OF THESE FIXTURES AS NEW AND EXISTING BOTH MUST COMPLY TO CHART BELOW.

MAXIMUM FLOW RATE STANDARDS INDOOR WATER USE -GBSG 4.303 RATE TO TABLE 4.303.2:

TABLE – MAXIMUM FIXTURE WATER USE	
FIXTURE TYPE	**FLOWRATE**
SHOWER HEADS (SINGLE)	1.8 GMP @ 80 PSI
MULTI-SHOWER HEAD TO OPERATE ONE HEAD AT A TIME SO THAT THE COMBINED FLOW RATE IS STILL THE SAME AS SINGLE HEAD IN SHOWER STALL AREA	1.8 GMP @ 80 PSI
LAVATORY FAUCETS	MAX. 1.2 GPM @ 60 PSI MIN. 0.8 GPM @ 20 PSI
LAVATORY FAUCETS IN COMMON & PUBLIC USE AREAS	0.5 GPM @ 60 PSI
KITCHEN FAUCETS	1.8 GPM @ 60 PSI
METERING FAUCETS	0.2 GAL/CYCLE
WATER CLOSET	1.28 GAL/FLUSH

1. ALL WATER INLET SUPPLY HOSE WITH TOP GRADE STAINLESS STEEL BRAIDED FLEXIBLE METAL HOSES AND ALL SHUT-OFF VALVES TO BE 1/4 TURN -NO EXCEPTIONS (TYPICAL THROUGHOUT HOUSE)
2. NO GAS PIPING SHALL BE INSTALLED IN OR ON THE GROUND UNDER ANY BUILDING OR STRUCTURE. ALL EXPOSED GAS PIPING SHALL BE KEPT AT LEAST 6" ABOVE GRADE OR STRUCTURE. (CPC 1211)
3. PROVIDE BONDING FROM COLD TO HOT WATER PIPING TO COMPLY WITH NEC SECTION 250-80.
4. PROVIDE SOLID WASTE CONNECTORS IN LIEU OF ACCESS PANELS. (CPC 405)
5. PROVIDE DEVICES TO ABSORB HIGH PRESSURES RESULTING FROM THE QUICK CLOSING OF THE QUICK-ACTING VALVES FROM THE WASHER AND DISHWASHER, ETC. (CPC)
6. AT BATHTUBS AND TUB/SHOWER COMBINATIONS, CONTROL VALVES SHALL BE PRESSURE BALANCED OR MIXING. VALVES SHALL BE THERMOSTATICALLY CONTROLLED PER THE CPC SEC 410.7. 18.

DIVISION 15 – MECHANICAL

1. BATHROOMS, WATER CLOSET COMPARTMENTS AND SIMILAR ROOMS SHALL BE PROVIDED WITH MECHANICAL VENTILATION PER SECTION R303.3 UNLESS WINDOWS MEET OPEN VENTILATION REQUIREMENTS.
2. FUEL BURNING APPLIANCES: FUEL BURNING APPLIANCES SUCH AS WATER HEATERS AND FURNACES REQUIRE COMBUSTION AIR DUCTS AND EXHAUST VENTS THAT MUST EXTEND TO THE OUTSIDE. THOUGHT MUST BE GIVEN TO ROUTING. IT IS ADVISABLE TO LOCATE FUEL BURNING APPLIANCES ADJACENT TO AN OUTSIDE WALL FOR EASE IN PROVIDING COMBUSTION AIR. CONSULT THE 2019 CALIFORNIA MECHANICAL CODE AND 2019 CALIFORNIA ENERGY CODE. R402.4.4/N1102.4.4,
3. ROOMS CONTAINING BATHTUBS, SHOWERS, SPAS AND SIMILAR BATHING FIXTURES SHALL BE MECHANICALLY VENTILATED BY EXHAUST FAN WHICH EXHAUSTS DIRECTLY -DUCTED TO TERMINATE OUTSIDE THE BUILDING CBC 1203.4.2.1 .BATHROOM FANS MUST BE ENERGY STAR COMPLIANT AND SHALL HAVE AN EXHAUST FAN THAT IS MIN. 50 CFM, A MAX SOUND RATING OR 3 SONE FOR INTERMITTENT OPERATION FOR CONTROLLED BY HUMIDITY CONTROL UNLESS EXEMPTED ELSEWHERE,
4. KITCHEN EXHAUST HOOD SHALL BE A MINIMUM OF 100 CFM WITH A MAX SOUND RATING OF 3 SONE OF INTERMITTENT OPERATION. KITCHEN HOOD SHALL BE DUCTED TO OUTSIDE AIR REGARDLESS OF FUEL TYPE OR HOOD TYPE SUCH AS MICROWAVE (SUGGEST 400 CFM OR HIGHER)

HERS TESTING REQUIRED PER T-24

5. This building requires H.E.R.S verification.
All energy docucmentations forms must be registered H.E.R.S. provider.

DIVISION 16 – ELECTRICAL

1. ALL GOVERNING CODES FOR THIS PROJECT ARE AS FOLLOWS: 2019 CALIFORNIA RESIDENTIAL (CRC), ELECTRICAL (CEC), MECHANICAL (CMC), CODE (EES) & PLUMBING (CPC),2019 CALIF. ENERGY EFFICIENCY STANDARDS CODES WITH LOCAL AMENDMENTS INCLUDING CALIFORNIA GREEN CODE 2019 AND 2019 ENERGY CODE (T-24)
2. ALL ELECTRICAL WORK SHALL COMPLY WITH STATE CALIFORNIA ENERGY REGULATIONS (2019 ENERGY EFFICIENCY STANDARDS)
3. ALL 120-VOLT, SINGLE PHASE, 15 AND 20 AMP BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN DWELLING UNIT KITCHENS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY A LISTED ARC-FAULT CIRCUIT INTERRUPTER, COMBINATION-TYPE, INSTALLED TO PROVIDE PROTECTION OF THE BRANCH CIRCUIT. (CEC 210.12(A)) EXCEPTION (212.12(D)): AFCI PROTECTION SHALL NOT BE REQUIRED WHERE THE EXTENSION OF THE EXISTING CONDUCTORS IS NOT MORE THAN 6-FT AND DOES NOT INCLUDE ANY ADDITIONAL OUTLETS OR DEVICES.
4. NEW DWELLING, SMOKE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS PER SECTION FOR R314 UL 217 SMOKE ALARMS
   A. IN EACH SLEEPING ROOM CONTAINING A FUEL-BURNING APPLIANCE
   B. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE VICINITY OF THE BEDROOMS.
   C. IN EACH STORY, INCLUDING BASEMENTS AND HABITABLE ATTICS.
   D. AND IN DWELLING UNITS THAT HAVE AN ATTACHED GARAGE. ICRC R315
   E. WHEN ONE OR MORE SMOKE ALARM IS REQUIRED THE ALARM DEVICE SHALL BE INTERCONNECTED IN SUCH MANNER THAT THE ACTUATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT.

continue DIVISION 16 – ELECTRICAL

5. AN APPROVED CARBON MONOXIDE ALARM SHALL BE INSTALLED IN DWELLING UNITS AND IN SLEEPING UNITS WITHIN WHICH FUEL-BURNING APPLIANCES ARE INSTALLED AND IN DWELLING UNITS THAT HAVE ATTACHED GARAGES IN ACCORDANCE WITH R31 UL 2034/2075. CARBON MONOXIDE ALARMS SHALL ONLY BE REQUIRED IN SPECIFIC DWELLING UNITS OR SLEEPING UNITS FOR WHICH THE PERMIT WAS OBTAINED. THE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS: A. OUTSIDE EACH SEPARATE DWELLING UNIT SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOM(S). B. ON EVERY LEVEL OF A DWELLING UNIT INCLUDING BASEMENTS. C WHERE MORE THAN ONE ALARM IS REQUIRED TO BE INSTALLED WITHIN THE DWELLING UNIT OR WITHIN A SLEEPING UNIT THE ALARM SHALL BE INTERCONNECTED IN A MANNER THAT ACTIVATION OF ONE ALARM SHALL ACTIVATE ALL THE ALARMS IN THE INDIVIDUAL UNIT.
6. RECESSED LUMINARIES INSTALLED IN INSULATED CEILING SHALL BE IC RATED (ZERO CLEARANCE) AND AT RATED (AIR TIGHT) AND SHALL BE SEALED AND/OR GASKETED BETWEEN CEILING AND HOUSING. IN COMPLIANCE WITH SECTION 150 (K)4.
7. INTERIOR LIGHTING SWITCHING DEVICES AND CONTROLS:
   A. All forward phase cut dimmers used with LED light sources shall comply with NEMA SSL 7A.
   B. Exhaust fans shall be controlled separately from lighting systems. SECTION 150.0 – MANDATORY FEATURES AND DEVICES
   EXCEPTION to Section 150.0(k)2B: Lighting integral to an exhaust fan may be on the same control as the fan provided the lighting can be turned OFF in accordance with the applicable provisions in Section 150.0(k)2 while allowing the fan to continue to operate.
   C. Lighting shall have readily accessible wall-mounted controls that allow the lighting to be manually turned ON and OFF.
   EXCEPTION to Section 150.0(k)2C: Ceiling fans may provide control of integrated lighting via a remote control.
   D. Lighting controls and equipment shall be installed in accordance with the manufacturer's instructions.
   E. No controls shall bypass a dimmer, occupant sensor or vacancy sensor function where that dimmer or sensor has been installed to comply with Section 150.0(k).
   F. Lighting controls shall comply with the applicable requirements of Section 110.9.
   G. An Energy Management Control System (EMCS) may be used to comply with control requirements in Section 150.0(k) if at a minimum it provides the functionality of the specified controls in accordance with Section 110.9, meets the installation certificate requirements in Section 130.4, meets the EMCS requirements in Section 130.0(e), and complies with all other applicable requirements in Section 150.0(k)2.
   H. A multiscene programmable controller may be used to comply with dimmer requirements in Section 150.0(k) if at a minimum it provides the functionality of a dimmer in accordance with Section 110.9, and complies with all other applicable requirements in Section 150.0(k)2.
   I. In bathrooms, garages, laundry rooms, and utility rooms, at least one luminaire in each of these spaces shall be controlled by an occupant or vacancy sensor providing automatic-off functionality. If an occupant sensor is installed, it shall be initially configured to manual-on operation using the manual control required under Section 150.0(k)2C.
   J. Luminaires that are or contain light sources that meet Reference Joint Appendix JA8 requirements for dimming, and that are not controlled by occupancy or vacancy sensors, shall have dimming controls.
   EXCEPTION 1 to Section 150.0(k)2J: Luminaires in closets less than 70 square ff
8. ANY FIXED APPLIANCE SUCH AS DISPOSAL, DISHWASHER, CLOTHES WASHER, DRYER, BUILT-IN HEATERS, OR ANY OTHER FIXED APPLIANCE WITH 1/4 H.P. MOTOR OR LARGER, SHALL BE ON A SEPARATE #12 AWG WIRE BRANCH CIRCUIT. EACH DWELLING UNIT SHALL HAVE INSTALLED THEREIN AN INDIVIDUAL DISPOSAL CIRCUIT SUPPLIED WITH MINIMUM #12 AWG WIRE AND A 15 AMP INDICATING-TYPE SWITCH. [CEC 210.23 &220]
9. LUMINARIAS PROVIDING RESIDENTIAL OUTDOOR LIGHTING SHALL MEET THE FOLLOWING REQUIREMENTS AS APPLICABLE: OUTDOOR LIGHTING PERMANENTLY MOUNTED TO A RESIDENTIAL BUILDING OR, TO OTHER BUILDINGS ON THE SAME LOT SHALL MEET THE REQUIREMENT IN ITEM #a) AND THE REQUIREMENTS INITEM #a) SHALL MEET THAT EITHER ITEM TO #b) OR #c) AS FOLLOWS:
   a). CONTROLLED BY MANUAL ON AND OFF SWITCH THAT DOES NOT GO OVERIDE TO ON THE AUTOMATIC ACTIONS OF THE ITEM #2 OR #3: AND
   b). CONTROLLED BY PHOTOCELL AND MOTION SENSOR CONTROLS THAT OVERRIDE TO ON SHALL NOT BE ALLOWED UNLESS THE OVERRIDE AUTOMATICALLY REACTIVATES THE MOTION SENSOR WITHIN 6 HOURS OR,
   c). CONTROL BY ONE OF THE FOLLOWING METHODS:
      aa) PHOTOCONTROL AND AUTOMATIC TIME SWITCH CONTROL. CONTROLS THAT OVERRIDE TO ON SHALL NOT BE ALLOWED UNLESS THE OVERRIDE SHALL AUTOMATICALLY RETURN THE PHOTOCONTROL AND AUTOMATICALLY TIME SWITCH CONTROL TO ITS NORMAL OPERATION WITHIN 6 HOURS. OR
      bb) ASTRONOMICAL TIME CLOCK, CONTROLS THAT OVERRIDES TO ON SHALL NOT BE ALLOWED UNLESS YOU OVERRIDE SHALL AUTOMATICALLY RETURN THE ASTRONOMICAL CLOCK TO ITS NORMAL OPERATION WITHIN 6 HOURS AND WHICH IS PROGRAM TO AUTOMATICALLY TURN THE OUTDOOR SWITCH OFF DURING DAYLIGHT HOURS.

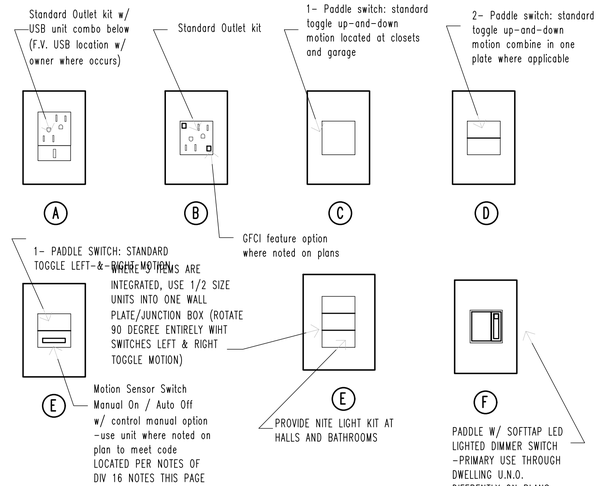
SMART HOME SYSTEMS

SMART HOME TECHNOLOGY INVOLVES ALL HOME PROJECTS AS THE POSSIBILITIES OF OPTIONS WIDELY VARY. THE DRAWINGS DO NOT COVER THESE OPTIONS. FOR AN EVER CHANGING WORLD OF MOVING TECHNOLOGY, THE CONTRACTOR SHALL COORDINATE THE GAPS WITH SMART HOME TECHNOLOGIES, UTILIZING A SURVEY TO OUTLINE ALL OPTIONS WITH OWNER PRIOR TO COVER-UP. CONTRACTOR SHALL OBTAINED A SMART HOME QUESTIONER LIST THAT INCLUDES ALL MEDIUMS TO ASCERTAIN THE BEST FIT FOR OWNERS NEEDS BY SECURING AN SINGLE SOURCE INDEPENDENT SMART HOME PROFESSIONAL. SUCH INDEPENDENT CONSULTANT SHALL HAVE 5 YEARS MIN EXPERIENCE TO SETUP AND INTEGRATE ALL COMPONENTS TO ASSURE COMPATIBILITY, WARRANTIES AND PRIVACY SECURITY SOLUTIONS FROM POTENTIAL HACKING. AT PROJECT CLOSE-OUT A FINAL WALK THROUGH MEETING SHALL BE SCHEDULED WITH OWNER/SMART HOME CONSULTANT TO INCLUDE A MANUAL OF INSTRUCTIONS AND HELP LINE TO ASSURE ALL INTERFACE FUNCTIONS AND ALL SMART DEVICES ARE TESTED AND UNDERSTOOD BY USER(S) FROM THERE SELECTED PROVIDERS.

STANDARD ELECTRICAL WALL PLATE NOTES

1. The Adorne Collection by Legrand, includes everything from light switches and outlets to under-cabinet lighting and a Blue tooth sound system. Specifications may not include all scenarios for home entertainment as shall be coordinate with owner and entertainment consultant for future blue tooth, WIFI, USB, network hub, timers and other possible features not mentioned prior to order and install
2. Refer to plans for total functions as electrical contractor shall coordinate the combinations in options limited to below. always combined factions into one single plate by going half size units stacked as shown below. For more than two combo's, rotate plate 90 degree to vertically stacked unit combo's
3. Color Scheme: All units, accessories and plate to be monolithic in color of factory "white" throughout U.N.O. on the interior designers drawings
4. Use compatible ceiling lighting with Adorn series to set up hue filtering and other network wifi accessory options
5. Provide qualified installers familiar with adorn series as. Follow manufactures instructions for detailed combo kit options, schematic and other installation specifications at https://www.legrand.us/adorne/products/ (no substitutes allowed)
6. To integrating all smart systems into one central network hub, wifi circuits, and other smart components, refer to electrical notes this page o under heading "SMART HOME" for additional instructions

NOTE: BELOW LEGEND PROVIDE MANUFACTURES OPTIONS FOR OUTLETS AND SWITCHES. FOR LIGHT SWITCHES THAT ARE NOT MOTIONS SENSOR OR TIMERS, PROVIDE PROVIDE THE "SOFTAP" LED LIGHTED DIMMER SWITCH, 700W TRU-UNIVERSAL THROUGOUT



SYMBOL STANDARDS

abbreviations

AFCI = ARC FAULT CIRCUIT INTERRUPTER SEE THIS SHEET DIV-16 ELECTRIC

MOS= MOTION OCCUPANCE SENSOR – SEE NOTE #2 THIS SHEET DIV-16 ELECTRIC

MSIPC= MOTION SENSOR W/ INTEGRATED PHOTO CELL UNIT–SEE NOTE #2 THIS SHEET DIV-16 ELECTRIC

WL = WET LOCATION RECESSED LIGHT FIXTURE PER NEC 410

(E) = EXISTING

(N) = NEW

electrical

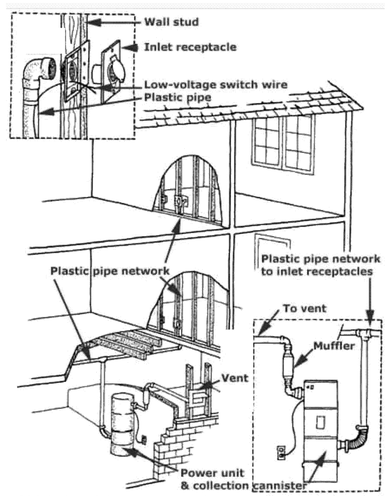
- TELEPHONE JACK
- COMPUTER OUTLET
- DOUBLE RECEPTACLE OUTLET (TAMPER-RESISTANT)
- FOURPLEX OUTLET (TAMPER-RESISTANT)
- GFI — GROUND FAULT INTERRUPT OUTLET PER (CEC 210.8A) (TAMPER-RESISTANT)
- DUPLEX OUTLET (1/2 HOT OUTLET) TAMPER-RESISTANT
- RECEPTACLE OUTLET (TAMPER-RESISTANT)
- 220v — 220 VOLT OUTLET
- WP GFI — WATERPROOF GROUND FAULT INTERRUPT OUTLET OUTDOOR EXTERIOR USE PER (CEC 210-52e)
- FLOOR OUTLET
- TV — CABLE TELEVISION OUTLET
- ELECTRIC METER
- D — LIGHT SWITCH WITH DIMMER
- SINGLE POLE LIGHT SWITCH
- 3 WAY — DOUBLE POLE LIGHT SWITCH 3 WAY SWITCH
- 4 WAY — 4 WAY SWITCH
- VS — VACANCY SENSOR PER NOTE #1 ELECTRICAL DIVISION
- MOS — MOTION OCCUP. SENSOR PER NOTE #2 ELECTRICAL DIVISION
- LED WALL MOUNTED LIGHT FIXTURE
- 4" SQUARE RECESSED LED CAN LIGHT FIXTURE CEILING MOUNTED
- J — 'J' BOX FOR FIXTURE IN ALLOWANCE
- EXHAUST FAN (CONTROLLED BY HUMIDISTAT)
- LED LIGHT & FAN COMBINATION (CONTROLLED BY HUMIDISTAT)
- RECESSED MR LOW VOLTAGE DOWN LIGHT
- RECESSED LOW VOLTAGE 'MR' LAMP DIRECTIONAL
- S — ELEC. SMOKE DETECTOR w/BATT. BACKUP
- LED TRACT LIGHT & LENGTH
- LED STRIP LT. X 4' LENGTH SECTIONS CHAIN HUNG SHOP LAMP
- WALL SCONCE LIGHTING
- LED UNDER COUNTER LIGHTING STRIP WITH NON CONCEALED WIRING -COORDINATE W/ CAB'T MFGR FOR HIDING LOW VOLTAGE WIRING FROM CENTRAL TRANSFORMER NETWORK
- MULTI-SPEED CEILING FAN W/ POLE DOWNRODE EXTENDER @ VAULTED CEILINGS AND FLUSH MOUNT AT LOW CEILINGS (VERIFY W/ OWNER TYPE, STYLE AND MOUNT)

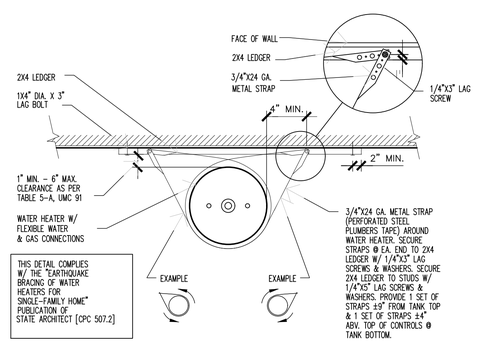
electrical (cont)

- LED PENDANT LIGHTING FIXTURE (HUNG CEILING MOUNTED ON CORD)
- SURFACE CEILING MOUNT LIGHT FIXTURE
- S / CM — SMOKE DETECTOR- HARD WIRED W/ BATTERY BACKUP SEE NOTE 5 THIS PAGE "DIV 16- ELECT. CARBON MONOXIDE DETECTOR HARD WIRED W/ BATTERY BACKUP PER CODE SECTION 315 –SEE NOTE 6 THIS PAGE OF "DIVISION 16- ELECT.
- CATV 7 (CABLE NETWORK)
- 4" RECESSED LED CAN LIGHT FIXTURE CEILING MOUNTED
- 6" RECESSED LED CAN LIGHT FIXTURE CEILING MOUNTED
- 6" LED TYPE CAN HIGH EFFICACY CEILING MOUNT LIGHTS FIXTURE, (SWITCHED SEPARATELY AT KITCHEN) SEE THIS SHT DIV-16 ELECTRIC
- LOW VOLTAGE LIGHT- HANG 6' FROM F.F. MINI PENDANT LAMPS
- MS — LED EXTERIOR LAMP SECURITY NIGHT LIGHT W/ MOTION CENSORED PHOTO CELL

mechanical

- CEILING MOUNTED SUPPLY AIR DIFFUSER
- CEILING MOUNTED RETURN AIR DIFFUSER
- WALL MOUNTED SUPPLY AIR DIFFUSER
- WALL MOUNTED RETURN AIR DIFFUSER
- T — THERMOSTAT
- ICE MAKER WATER SUPPLY
- RECESSED ICE MAKER CONNECTION w/VALVE
- RECESSED WASH MACHINE WATER & DRAIN
- HB — HOSE BIBB
- HB W/ S.O.V. — HOSE BIBB w/SHUT OFF VALVE
- FUEL GAS
- KEY GAS CHECK VALVE — GAS LOG LIGHTER KEY
- GAS CHECK VALVE
- DRYER VENT
- GAS — GAS SUPPLY
- WC — WATER CLOSET





SMOKE/CM FORMWORK NO SCALE 3

CENTRAL VAC DETAIL NO SCALE 2
REFER TO MFGR INSTRUCTIONS (SHOWN DIAGRAMMATIC)

WATER HEATER SUPPORT DETAIL NO SCALE 1

Missing or invalid reference
File: F:\1 CURRENT PROJECTS\2019 TC Trabuco Oaks\8th County Building\incoming\subfiles\OC STD - Smoke Carbon Monoxide Alarm.pdf
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Contractor shall exercise the responsibility with architect in securing latest approved drwgs. prior to actually executing work

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THOURBANOV RESIDENCE
NEW DWELLING
MECHANCIAL, ELECTRICA AND PLUMBING

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Residential Bathroom Remodel Requirements

INTRODUCTION

Bathroom remodels generally require permits. The following information can be used as a guideline for the bathroom requirements. Bathroom remodels require compliance with the following:

- 2019 California Residential Code (CRC)
- 2019 California Plumbing Code (CPC)
- 2019 California Mechanical Code (CMC)
- 2019 California Electric Code (CEC)
- 2019 California Energy Code (CEnC)
- 2019 California Green Building Standards Code (CalGreen)

A bathroom remodel includes the removal and replacement and/or relocation of vanity cabinets, toilets, sinks, tubs & showers, replacement/changes to the lighting or removal & replacement of the wallboard. The replacement of the towel bars, mirrors, paint, and floor coverings where no other work is included is considered a maintenance item and no permit is required for these items.
The following details the minimum requirements of the bathroom electrical, mechanical and plumbing systems:

ELECTRICAL

- Provide a 20 AMP GFCI protected electrical outlet within 36" of the outside edge of each bathroom sink basin. Outlet shall be located on a wall or partition that is adjacent to the basin or installed on the side or face of the basin cabinet not more than 12" below the countertop. [CEC 210.52(D)]
- Receptacles shall be listed as tamper-resistant.
- A minimum of one (1) 20-amp circuit is required for bathrooms. Such circuits shall have no other outlets. This circuit may serve more than one bathroom. [CEC 210.52(D)]
- No pendant light fixtures in zone, 3 ft. away and 8 ft. above the bathtub or shower. [CEC 410.10(D)]
- Luminaries located within the actual outside dimensions of the tub, shower, and ceiling suspended paddle fans, up to 8 feet vertically from the top of the bathtub rim or shower threshold, shall be marked as suitable for damp locations, provided with a solid lens and be GFCI protected. [CEC 410.10(D)]
- Bathroom lighting shall be high efficacy luminaries in accordance with Table 150.0-A of 2019 California Energy Code and have at least one luminaire in each space controlled by a vacancy sensor 150.0(K)2C.
- Recessed luminaries installed in an insulated ceiling shall be IC rated (zero clearance) and AT rated (air tight) and shall be sealed and/or gasket between ceiling and housing. For occupancies with a horizontal (floor/ceiling assembly) rated separation, the recessed fixtures shall be protected to the rating of the separation (1 hour) or be listed for the required protection. This generally applied to residential condominium construction where units are above or below other units.
- Hydro-massage tubs (i.e. Jacuzzi tubs) shall have access to the motor, be supplied by a GFCI protected dedicated circuit, and listed by a recognized testing agency. All piping, fitting, metal cables or other metal surfaces, within 5 feet of the inside wall of the Hydro-massage tub shall be properly bonded. Hydro-massage tubs shall be bonded with a minimum #8 AWG bare copper wire and the bonding shall be accessible. [CEC 680.60]

All recessed downlight luminaries shall be in accordance with Reference Joint Appendix JA8 and be marked as meeting JA8.

MECHANICAL

- A bath exhaust fan w/back draft damper is required regardless of the presence of a window. Exhaust must vent to outdoors in an approved duct. Terminate the outlet a minimum of 3 ft from an opening or property line. [CMC 502.2.1] A minimum rate of 50 cfm is required. Fan shall meet ASHRA standard 62.2. A maximum of 3 one rating is required.

PLUMBING

- Provide tempered glass at tub/shower doors and at windows less than 60" from tub/shower drain.
- Shower and tub/shower control valves shall be pressure balancing set at a maximum 120 degrees F. The water-filler valve in bathtub/whirlpools shall have a temperature limiting device set a maximum of 120 degrees F. The water heater thermostat cannot be used to meet these provisions. [CPC 408.3, 409.4]
- Fixtures shall meet the following maximum flow rates: [CPC 407.0 ,408.2 & 411.0]
  Water Closets = 1.28 gallons/flush — Shower Heads = 1.8 GPM — Sink Faucets = 1.2 GPM
- Minimum shower size is 1024 square inches (30" circle). [CPC 408.6] Shower without threshold shall be considered a wet location and shall comply with California Building, Residential, and Electrical Codes.

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Residential Kitchen Remodel Requirements

INTRODUCTION

Kitchen additions, alterations or renovations require Building permits. The following information can be used as a guideline for the minimum requirements for a kitchen renovation project. Additions, alterations or renovations require compliance with the following:

- 2019 California Residential Code (CRC)
- 2019California Plumbing Code (CPC)
- 2019 California Mechanical Code (CMC)
- 2019 California Electric Code (CEC)
- 2019 California Energy Code (CEnC)
- 2019 California Green Building Standards Code (CalGreen)

A kitchen renovation includes, but is not limited to, the removal and/or relocation of base cabinets, countertops, sinks, dishwasher, garbage disposal, installed appliances, changes to the lighting, removal and replacement of any wallboard, modifications to the structural elements of the dwelling and changes to the electrical, mechanical and plumbing systems. Removal and replacement of the base cabinets and countertop will require compliance with the electrical outlet location requirements of the code.
The following details the minimum requirements for the kitchen electrical, mechanical, and plumbing systems:

ELECTRICAL

- All kitchen countertop outlets shall be GFCI protected. [CEC 210.8(A)(6)]
- Receptacles shall be listed as tamper resistant.
- 12" or wider countertops require an outlet. [CEC 210.52(C)(1)]
- Outlets are required within 24" of any location along the countertop. [CEC 210.52(C)(2)]
- Kitchen outlets positioned a maximum 20" above countertop. [CEC 210.52(C)(5)]
- Appliance garage outlets are not counted as a required countertop outlet. [CEC 210.52(C)(5)]
- Appliances and sinks break up the countertop run, requirement each side to comply individually.
- [CEC 210.52 (C)(4)]
- The electrical outlet requirements include islands, peninsulas, kitchen desktops, wet bars, and serving bars. A large window across the back of a sink or lack of a backsplash does not exempt the countertop from the outlet requirements. These outlets may be in a drop front cabinet face, under cabinet plug strip, pop up or tombstone- type receptacle. [CEC 210.52(C)(2),(3),(4)]
- Two small appliance outlet circuits, 20 amps each, are required for kitchens. Circuits shall be balanced and have no other outlets. (CEC 210.52(B)(1),(2)]
- Individual dedicated circuits are required for all major appliances. The rating of an individual branch circuit shall not be less than the marked rating of the appliance or the marked rating of an appliance having combined loads as provided in 422.62. [210.11 (C) & 422.10 (A)]
- Garbage disposal cord and plug connected 18" to 36" long. [CEC 422.16(B)(1)]
- Dishwasher cord 36" to 78" long. Romex installed with a plug is not an approved flexible cord. [CEC 422.16(B)(3)]
- Minimum 15-amp circuit for the dishwasher and a 15 amp circuit for the disposal [CEC 210.23(A)]
- If using a split outlet (two circuits on the same yoke) for dishwasher/disposal, provide a listed handle tie at the two circuit breakers at the panel. [CEC 210.7]
- Residential Kitchen Lighting is required to meet the energy efficiency standards. [CEnC 150(K)(1)]
- IC (direct contact) and AT (air tight) rated cans are required for recessed lighting if installed in an insulated ceiling. [CEnC 150(K)(C)]
- Fluorescent recessed lighting, when used to comply with the lighting requirements, must be of a pin base type design. **Incandescent screw type base is not approved**.
- AFCI Protection is required to kitchen by any of the means described in 210.12(A)(1) – through (6). [CEC 210.12 (A)].
- GFI protection for Laundry Area. [CEC 210.8 (A)(10)]
- GFI protection for Dishwasher. [CEC 210.8(D)].
- All recessed downlight luminaries shall be in accordance with Reference Joint Appendix JA8 and be marked as meeting JA8.

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Residential Bathroom Remodel Requirements

- Site built shower stalls shall comply with CPC 408.7.
- Stall shower door to provide a min. of 22" wide unobstructed opening. [CPC 408.5].
- Toilet and/or Bidet require a total minimum 30" clear space, 15" from the center of the fixture to the wall, and a minimum of 24" clear space in front of the fixture. [CPC 402.5]
- When additional water closets (toilets) are installed, a maximum of 4 water closets are allowed on a 3" waste line. [Table 703.2, Note 4]
- The hot water valve shall be installed on the left side. [CPC 417.5]
- A minimum 12" x 12" access panel is required when a slip joint p-trap waste & overflow is provided. [402.10]
- Where plumbing features (water closets, tubs, etc.) comes into contact with the wall or floor, the joint shall be caulked and sealed to be watertight. [CPC 402.2]

WHIRLPOOL/SPA TUBS

- Whirlpool (spa) bathtubs shall have a readily accessible access panel. [CPC 409.6]
- The circulation pump shall be located above the crown weir of the trap. [CPC 409.6]
- The pump and the circulation piping shall be self-draining to minimize water retention. [CPC 409.6]
- Suction fittings on whirlpool bathtubs shall comply with the listed standards. [CPC 409.6]
- The maximum hot water temperature discharging from a bidet is limited to 110 degrees by a device that conforms to ASSE 1070, *Standard for Water Temperature Limiting Devices*, or CSA B125..70, *Standard for Plumbing Fittings*. The water heater thermostat shall not be considered a control for meeting this provision. [CPC 410.3]

Flexible PVC hoses and tubing for whirlpool bathtubs must comply with IAPMOZ1033. [409.6.1].

BIDETS

- The water supply shall be protected with air gap or vacuum breaker. [CPC 410.2]
- The maximum hot water temperature discharging from a bidet is limited to 110 degrees by a device that conforms to ASSE 1070, *Standard for Water Temperature Limiting Devices*, or CSA B125..70, *Standard for Plumbing Fittings*. The water heater thermostat shall not be considered a control for meeting this provision.

PLUMBING FIXTURE REPLACEMENT:

Effective January 1, 2014, Senate Bill (SB) 407 and California Civil Code Section 1101.1-1101.8 requires all noncompliant plumbing fixtures to be replaced with water-conserving plumbing fixtures when building is undergoing alterations or improvements if the residential property was built and available for use on or before January 1, 1994. Please refer to "Plumbing Fixture Replacement (SB407) Requirements and Policy" to determine if the project requires compliance.

SMOKE ALARMS & CARBON MONOXIDE ALARMS:

Bathroom remodels will require the smoke and carbon monoxide alarms for the dwelling to meet the current code prior to the final inspection as follows: [CRC R314 & R315]

- o Smoke alarms are required in all sleeping rooms, outside each sleeping area in the immediate vicinity of the bedrooms, on each floor level including basements and habitable attics, but not including crawl spaces and uninhabitable attics.
- o Carbon Monoxide alarms are required in dwelling units and sleeping units when fuel-burning appliances are installed, and/or dwelling units have attached garages. Either condition requires alarms.
- o When more than one alarm of either type is required to be installed within an individual dwelling unit, the alarm devices shall be interconnected in such a manner that activation of one alarm will activate all the other alarms.
- o In existing conditions, alarms may be battery operated when the repairs or alterations do not result in the removal of the wall and ceiling finishes or there is no access by means of an attic, basement or crawlspace.
- o Multipurpose alarms that combine both a smoke alarm and carbon monoxide alarm shall comply with all applicable standards of both CRC Sections R314 and R315 and be listed by the Office of the State Fire Marshal.
- o Smoke alarms shall be listed in accordance with UL217. Combination smoke and carbon monoxide alarms shall be listed in accordance with UL217and UL2034.
- o Smoke alarm shall not be installed less than 3 feet horizontally from the door or opening of a bathroom that contains a bathtub or shower. [R314.3]

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Residential Kitchen Remodel Requirements

MECHANICAL

- A ducted residential exhaust hood is required. A metal, smooth interior surface duct required on vent hood or down draft exhaust vent. Aluminum flex duct not approved. Provide back draft damper [504.3]
- Minimum 30" vertical clearance to combustibles from cook top surface.
- Kitchen local exhaust ventilation requires a minimum rate of 100cfm meeting the requirements of ASHRA 62.2.

This includes a maximum sound rating of 3 sones @ 100cfm.

PLUMBING

- A gas test is required on piping modifications (10 psi for 15 minutes). A maximum 15 psi gauge is required for the gas test. A lower gas pressure test may be performed when using a recording test gauge per Section 1213.3 of the CPC.
- Gas lines that run under a slab shall run through an approved, vented, gas tight conduit. Gas line shall be encased in an approved conduit designed to withstand the imposed loads and installed in accordance with Sect. 1210.1.6.1 or 1210.1.6.2. Or encasement system that is listed for installation beneath building.
- An accessible shutoff valve shall be installed outside each appliance and ahead of the union connected thereto and in addition to any valve on the appliance [CPC 1210.09]
- Provide maximum 6-ft- long listed gas flexible connector and shut off to freestanding range.
- A listed air gap is required for the dishwasher drain. [CPC 807.3]
- The maximum flow rate standards for the sink faucets are 1.8 GPM at 60psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 GPM at 60psi, and must default to a maximum flow rate of 1.8 GPM. [CPC 420.21]

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-Multipurpose alarms that combine both a smoke alarm and carbon monoxide alarm shall comply with all applicable standards of both CRC Sections R314 and R315 and be listed by the Office of the State Fire Marshal.
-Smoke alarms shall be listed in accordance with UL217. Combination smoke and carbon monoxide alarms shall be listed in accordance with UL217 and UL2034.

Smoke alarms or smoke detectors shall be installed a minimum of 20 feet horizontal distance from a permanently install cooking appliance. [R314.3.1]

Contractor shall exercise the responsibility with architect in securing latest approved dwgs. prior to actually executing work

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THOURBANOV RESIDENCE
NEW DWELLING
KITCHEN AND BATH
CODE STANDARDS

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2019 Low-Rise Residential Mandatory Measures Summary

*NOTE: Low-rise residential buildings subject to the Energy Standards must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective section for more information. *Exceptions may apply.* (01/2020)

Building Envelope Measures:	
§ 110.6(a)1:	**Air Leakage.** Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-400, ASTM E283 or AAMA/WDMA/CSA 101/I.S.2/A440-2011.*
§ 110.6(a)5:	**Labeling.** Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a).
§ 110.6(b):	**Field fabricated exterior doors and fenestration** products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6-A, 110.6-B, or JA4.5 for exterior doors. They must be caulked and/or weather-stripped.*
§ 110.7:	**Air Leakage.** All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
§ 110.8(a):	**Insulation Certification by Manufacturers.** Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8(g):	**Insulation Requirements for Heated Slab Floors.** Heated slab floors must be insulated per the requirements of § 110.8(g).
§ 110.8(i):	**Roofing Products Solar Reflectance and Thermal Emittance.** The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) and be labeled per §10-113 when the installation of a cool roof is specified on the CF1R.
§ 110.8(j):	**Radiant Barrier.** When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 150.0(a):	**Ceiling and Rafter Roof Insulation.** Minimum R-22 insulation in wood-frame ceiling; or the weighted average U-factor must not exceed 0.043. Minimum R-19 or weighted average U-factor of 0.054 or less in a rafter roof alteration. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a continuous roof or ceiling which is sealed to limit infiltration and exfiltration as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a drywall ceiling.*
§ 150.0(b):	**Loose-fill Insulation.** Loose fill insulation must meet the manufacturer's required density for the labeled R-value.
§ 150.0(c):	**Wall Insulation.** Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less, or R-20 in 2x6 inch wood framing or have a U-factor of 0.071 or less. Opaque non-framed assemblies must have an overall assembly U-factor not exceeding 0.102. Masonry walls must meet Tables 150.1-A or B.*
§ 150.0(d):	**Raised-floor Insulation.** Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor.*
§ 150.0(f):	**Slab Edge Insulation.** Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation material alone without facings, no greater than 0.3 percent; have a water vapor permeance no greater than 2.0 perm per inch; be protected from physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(g)1:	**Vapor Retarder.** In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to § 150.0(d).
§ 150.0(g)2:	**Vapor Retarder.** In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation.
§ 150.0(q):	**Fenestration Products.** Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.58; or the weighted average U-factor of all fenestration must not exceed 0.58.*
Fireplaces, Decorative Gas Appliances, and Gas Log Measures:	
§ 110.5(e)	**Pilot Light.** Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0(e)1:	**Closable Doors.** Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.
§ 150.0(e)2:	**Combustion Intake.** Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and tight-fitting damper or combustion-air control device.*
§ 150.0(e)3:	**Flue Damper.** Masonry or factory-built fireplaces must have a flue damper with a readily accessible control.*
Space Conditioning, Water Heating, and Plumbing System Measures:	
§ 110.0-§ 110.3:	**Certification.** Heating, ventilation and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other regulated appliances must be certified by the manufacturer to the California Energy Commission.*
§ 110.2(a):	**HVAC Efficiency.** Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-K.*
§ 110.2(b):	**Controls for Heat Pumps with Supplementary Electric Resistance Heaters.** Heat pumps with supplementary electric resistance heaters must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alone; and in which the cut-on temperature for compression heating is higher than the cut-on temperature for supplementary heating, and the cut-off temperature for compression heating is higher than the cut-off temperature for supplementary heating.*
§ 110.2(c):	**Thermostats.** All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat.*
§ 110.3(c)4:	**Water Heating Recirculation Loops Serving Multiple Dwelling Units.** Water heating recirculation loops serving multiple dwelling units must meet the air release valve, backflow prevention, pump priming, pump isolation valve, and recirculation loop connection requirements of § 110.3(c)4.
§ 110.3(c)6:	**Isolation Valves.** Instantaneous water heaters with an input rating greater than 6.8 kBtu per hour (2 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.
§ 110.5:	**Pilot Lights.** Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances (except appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu per hour); and pool and spa heaters.*
§ 150.0(h)1:	**Building Cooling and Heating Loads.** Heating and/or cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume; the SMACNA Residential Comfort System Installation Standards Manual; or the ACCA Manual J using design conditions specified in § 150.0(h)2.
§ 150.0(h)3A:	**Clearances.** Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from the outlet of any dryer
§ 150.0(h)3B:	**Liquid Line Drier.** Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.
§ 150.0(j)1:	**Storage Tank Insulation.** Unfired hot water tanks, such as storage tanks and backup storage tanks for solar water-heating systems, must have a minimum of R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank.
§ 150.0(j)2A:	**Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation.** All domestic hot water piping must be insulated as specified in Section 609.11 of the California Plumbing Code. In addition, the following piping conditions must have a minimum insulation wall thickness of one inch or a minimum insulation R-value of 7.7: the first five feet of cold water pipes from the storage tank; all hot water piping with a nominal diameter equal to or greater than 3/4 inch and less than one inch; all hot water piping with a nominal diameter less than 3/4 inch that is: associated with a domestic hot water recirculation system, from the heating source to storage tank or between tanks, buried below grade, and from the heating source to kitchen fixtures.*
§ 150.0(j)3:	**Insulation Protection.** Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by Section 120.3(b). Insulation exposed to weather must be water retardant and protected from UV light (no adhesive tapes). Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by, a Class I or Class II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-crushable casing or sleeve.
§ 150.0(n)1:	**Gas or Propane Water Heating Systems.** Systems using gas or propane water heaters to serve individual dwelling units must include all of the following: A dedicated 125 volt, 20 amp electrical receptacle connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit, within three feet of the water heater without obstruction. Both ends of the unused conductor must be labeled with the word "spare" and be electrically isolated. Have a reserved single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled with the words "Future 240V Use"; a Category III or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed; a condensate drain that is no more than two inches higher than the base of the water heater, and allows natural draining without pump assistance; and a gas supply line with a capacity of at least 200,000 Btu per hour.
§ 150.0(n)2:	**Recirculating Loops.** Recirculating loops serving multiple dwelling units must meet the requirements of § 110.3(c)5.
§ 150.0(n)3:	**Solar Water-heating Systems.** Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing agency that is approved by the Executive Director.
Ducts and Fans Measures:	
§ 110.8(d)3:	**Ducts.** Insulation installed on an existing space-conditioning duct must comply with § 604.0 of the California Mechanical Code (CMC). If a contractor installs the insulation, the contractor must certify to the customer, in writing, that the insulation meets this requirement.
§ 150.0(m)1:	**CMC Compliance.** All air-distribution system ducts and plenums must meet the requirements of the CMC §§ 601.0, 602.0, 603.0, 604.0, 605.0 and ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to a minimum installed level of R-6.0 or a minimum installed level of R-4.2 when ducts are entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8). Portions of the duct system completely exposed and surrounded by directly conditioned space are not required to be insulated. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets the applicable requirements of UL 181, UL 181A, or UL 181B or aerosol sealant that meets the requirements of UL 723. If mastic or tape is used to seal openings greater than ¼ inch, the combination of mastic and either mesh or tape must be used. Building cavities, support platforms for air handlers, and plenums designed or constructed with materials other than sealed sheet metal, duct board or flexible duct must not be used to convey conditioned air. Building cavities and support platforms may contain ducts. Ducts installed in cavities and support platforms must not be compressed to cause reductions in the cross-sectional area.*
§ 150.0(m)2:	**Factory-Fabricated Duct Systems.** Factory-fabricated duct systems must comply with applicable requirements for duct construction, connections, and closures; joints and seams of duct systems and their components must not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.
§ 150.0(m)3:	**Field-Fabricated Duct Systems.** Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction.
§ 150.0(m)7:	**Backdraft Damper.** Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.
§ 150.0(m)8:	**Gravity Ventilation Dampers.** Gravity ventilating systems serving conditioned space must have either automatic or readily accessible, manually operated dampers in all openings to the outside, except combustion inlet and outlet air openings and elevator shaft vents.
§ 150.0(m)9:	**Protection of Insulation.** Insulation must be protected from damage, sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service. For example, protected by aluminum, sheet metal, painted canvas, or plastic cover. Cellular foam insulation must be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation.
§ 150.0(m)10:	**Porous Inner Core Flex Duct.** Porous inner core flex ducts must have a non-porous layer between the inner core and outer vapor barrier.
§ 150.0(m)11:	**Duct System Sealing and Leakage Test.** When space conditioning systems use forced air duct systems to supply conditioned air to an occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with § 150.0(m)11 and Reference Residential Appendix RA3.
§ 150.0(m)12:	**Air Filtration.** Space conditioning systems with ducts exceeding 10 feet and the supply side of ventilation systems must have MERV 13 or equivalent filters. Fillers for space conditioning systems must have a two inch depth or can be one inch if sized per Equation 150.0-A. Pressure drops and labeling must meet the requirements in §150.0(m)12. Filters must be accessible for regular service.*
§ 150.0(m)13:	**Space Conditioning System Airflow Rate and Fan Efficacy.** Space conditioning systems that use ducts to supply cooling must have a hole for the placement of a static pressure probe, or a permanently installed static pressure probe in the supply plenum. Airflow must be ≥ 350 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.45 watts per CFM for gas furnace air handlers and ≤ 0.58 watts per CFM for all others. Small duct high velocity systems must provide an airflow ≥ 250 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3.*
Requirements for Ventilation and Indoor Air Quality:	
§ 150.0(o)1:	**Requirements for Ventilation and Indoor Air Quality**. All dwelling units must meet the requirements of ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Residential Buildings subject to the amendments specified in § 150.0(o)1.
§ 150.0(o)1C:	**Single Family Detached Dwelling Units.** Single family detached dwelling units, and attached dwelling units not sharing ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow provided at rates determined by ASHRAE 62.2 Sections 4.1.1 and 4.1.2 and as specified in § 150.0(o)1C.
§ 150.0(o)1E:	**Multifamily Attached Dwelling Units.** Multifamily attached dwelling units must have mechanical ventilation airflow provided at rates in accordance with Equation 150.0-B and must be either a balanced system or continuous supply or continuous exhaust system. If a balanced system is not used, all units in the building must use the same system type and the dwelling-unit envelope leakage must be ≤ 0.3 CFM at 50 Pa (0.2 inch water) per square foot of dwelling unit envelope surface area and verified in accordance with Reference Residential Appendix RA3.8.
§ 150.0(o)1F:	**Multifamily Building Central Ventilation Systems.** Central ventilation systems that serve multiple dwelling units must be balanced to provide ventilation airflow for each dwelling unit served at a rate equal to or greater than the rate specified by Equation 150.0-B. All unit airflows must be within 20 percent of the unit with the lowest airflow rate as it relates to the individual unit's minimum required airflow rate needed for compliance.
§ 150.0(o)1G:	**Kitchen Range Hoods.** Kitchen range hoods must be rated for sound in accordance with Section 7.2 of ASHRAE 62.2.
§ 150.0(o)2:	**Field Verification and Diagnostic Testing.** Dwelling unit ventilation airflow must be verified in accordance with Reference Residential Appendix RA3.7. A kitchen range hood must be verified in accordance with Reference Residential Appendix RA3.7.4.3 to confirm it is rated by HVI to comply with the airflow rates and sound requirements as specified in Section 5 and 7.2 of ASHRAE 62.2.
Pool and Spa Systems and Equipment Measures:	
§ 110.4(a):	**Certification by Manufacturers.** Any pool or spa heating system or equipment must be certified to have all of the following: a thermal efficiency that complies with the Appliance Efficiency Regulations; an on-off switch mounted outside of the heater that allows shutting off the heater without adjusting the thermostat setting; a permanent weatherproof plate or card with operating instructions; and must not use electric resistance heating.*
§ 110.4(b)1:	**Piping.** Any pool or spa heating system or equipment must be installed with at least 36 inches of pipe between the filter and the heater, or dedicated suction and return lines, or built-in or built-up connections to allow for future solar heating.
§ 110.4(b)2:	**Covers.** Outdoor pools or spas that have a heat pump or gas heater must have a cover.
§ 110.4(b)3:	**Directional Inlets and Time Switches for Pools.** Pools must have directional inlets that adequately mix the pool water, and a time switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods.
§ 110.5:	**Pilot Light.** Natural gas pool and spa heaters must not have a continuously burning pilot light.
§ 150.0(p):	**Pool Systems and Equipment Installation.** Residential pool systems or equipment must meet the specified requirements for pump sizing, flow rate ,piping, filters ,and valves.*
Lighting Measures:	
§ 110.9:	**Lighting Controls and Components.** All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*
§ 150.0(k)1A:	**Luminaire Efficacy.** All installed luminaires must meet the requirements in Table 150.0-A.
§ 150.0(k)1B:	**Blank Electrical Boxes.** The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.
§ 150.0(k)1C:	**Recessed Downlight Luminaires in Ceilings.** Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC) labeling; air leakage; sealing; maintenance; and socket and light source as described in § 150.0(k)1C.
§ 150.0(k)1D:	**Electronic Ballasts for Fluorescent Lamps.** Ballasts for fluorescent lamps rated 13 watts or greater must be electronic and must have an output frequency no less than 20 kHz.
§ 150.0(k)1E:	**Night Lights, Step Lights, and Path Lights.** Night lights, step lights and path lights are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided they are rated to consume no more than 5 watts of power and emit no more than 150 lumens.
§ 150.0(k)1F:	**Lighting Integral to Exhaust Fans.** Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0(k).*
§ 150.0(k)1G:	**Screw based luminaires.** Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8.*
§ 150.0(k)1H:	**Light Sources in Enclosed or Recessed Luminaires.** Lamps and other separable light sources that are not compliant with the JA8 elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(k)1I:	**Light Sources in Drawers, Cabinets, and Linen Closets.** Light sources internal to drawers, cabinetry or linen closets are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided that they are rated to consume no more than 5 watts of power, emit no more than 150 lumens, and are equipped with controls that automatically turn the lighting off when the drawer, cabinet or linen closet is closed.
§ 150.0(k)2A:	**Interior Switches and Controls.** All forward phase cut dimmers used with LED light sources must comply with NEMA SSL 7A.
§ 150.0(k)2B:	**Interior Switches and Controls.** Exhaust fans must be controlled separately from lighting systems.*
§ 150.0(k)2C:	**Interior Switches and Controls.** Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned ON and OFF.*
§ 150.0(k)2D:	**Interior Switches and Controls.** Controls and equipment must be installed in accordance with manufacturer's instructions.
§ 150.0(k)2E:	**Interior Switches and Controls.** Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the control is installed to comply with § 150.0(k).
§ 150.0(k)2F:	**Interior Switches and Controls.** Lighting controls must comply with the applicable requirements of § 110.9.
§ 150.0(k)2G:	**Interior Switches and Controls.** An energy management control system (EMCS) may be used to comply with control requirements if it: provides functionality of the specified control according to § 110.9; meets the Installation Certificate requirements of § 130.4; meets the EMCS requirements of § 130.0(e); and meets all other requirements in § 150.0(k)2.
§ 150.0(k)2H:	**Interior Switches and Controls.** A multiscene programmable controller may be used to comply with dimmer requirements in § 150.0(k) if it provides the functionality of a dimmer according to § 110.9, and complies with all other applicable requirements in § 150.0(k)2.
§ 150.0(k)2I:	**Interior Switches and Controls. In** bathrooms, garages, laundry rooms, and utility rooms, at least one luminaire in each of these spaces must be controlled by an occupant sensor or a vacancy sensor providing automatic-off functionality. If an occupant sensor is installed, it must be initially configured to manual-on operation using the manual control required under Section 150.0(k)2C.
§ 150.0(k)2J:	**Interior Switches and Controls.** Luminaires that are or contain light sources that meet Reference Joint Appendix JA8 requirements for dimming, and that are not controlled by occupancy or vacancy sensors, must have dimming controls.*
§ 150.0(k)2K:	**Interior Switches and Controls.** Under cabinet lighting must be controlled separately from ceiling-installed lighting systems.
§ 150.0(k)3A:	**Residential Outdoor Lighting.** For single-family residential buildings, outdoor lighting permanently mounted to a residential building, or to other buildings on the same lot, must meet the requirement in item § 150.0(k)3Ai (ON and OFF switch) and the requirements in either § 150.0(k)3Aii (photocell and either a motion sensor or automatic time switch control) or § 150.0(k)3Aiii (astronomical time clock), or an EMCS.
§ 150.0(k)3B:	**Residential Outdoor Lighting.** For low-rise residential buildings with four or more dwelling units, outdoor lighting for private patios, entrances, balconies, and porches; and residential parking lots and carports with less than eight vehicles per site must comply with either § 150.0(k)3A or with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)3C:	**Residential Outdoor Lighting.** For low-rise residential buildings with four or more dwelling units, any outdoor lighting for residential parking lots or carports with a total of eight or more vehicles per site and any outdoor lighting not regulated by § 150.0(k)3B or § 150.0(k)3D must comply with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)4:	**Internally illuminated address signs.** Internally illuminated address signs must comply with § 140.8; or must consume no more than 5 watts of power as determined according to § 130.0(c).
§ 150.0(k)5:	**Residential Garages for Eight or More Vehicles.** Lighting for residential parking garages for eight or more vehicles must comply with the applicable requirements for nonresidential garages in Sections 110.9, 130.0, 130.1, 130.4, 140.8, and 141.0.
§ 150.0(k)6A:	**Interior Common Areas of Low-rise Multifamily Residential Buildings.** In a low-rise multifamily residential building where the total interior common area in a single building equals 20 percent or less of the floor area, permanently installed lighting for the interior common areas in that building must be comply with Table 150.0-A and be controlled by an occupant sensor.
§ 150.0(k)6B:	**Interior Common Areas of Low-rise Multifamily Residential Buildings.** In a low-rise multifamily residential building where the total interior common area in a single building equals more than 20 percent of the floor area, permanently installed lighting for the interior common areas in that building must: i. Comply with the applicable requirements in Sections 110.9, 130.0, 130.1, 140.6 and 141.0; and ii. Lighting installed in corridors and stairwells must be controlled by occupant sensors that reduce the lighting power in each space by at least 50 percent. The occupant sensors must be capable of turning the light fully on and off from all designed paths of ingress and egress.
Solar Ready Buildings:	
§ 110.10(a)1:	**Single Family Residences.** Single family residences located in subdivisions with 10 or more single family residences and where the application for a tentative subdivision map for the residences has been deemed complete and approved by the enforcement agency, which do not have a photovoltaic system installed, must comply with the requirements of § 110.10(b) through § 110.10(e).
§ 110.10(a)2:	**Low-rise Multifamily Buildings.** Low-rise multi-family buildings that do not have a photovoltaic system installed must comply with the requirements of § 110.10(b) through § 110.10(d).
§ 110.10(b)1:	**Minimum Solar Zone Area.** The solar zone must have a minimum total area as described below. The solar zone must comply with access, pathway, smoke ventilation, and spacing requirements as specified in Title 24, Part 9 or other parts of Title 24 or in any requirements adopted by a local jurisdiction. The solar zone total area must be comprised of areas that have no dimension less than 5 feet and are no less than 80 square feet each for buildings with roof areas less than or equal to 10,000 square feet or no less than 160 square feet each for buildings with roof areas greater than 10,000 square feet. For single family residences, the solar zone must be located on the roof or overhang of the building and have a total area no less than 250 square feet. For low-rise multi-family buildings the solar zone must be located on the roof or overhang of the building, or on the roof or overhang of another structure located within 250 feet of the building, or on covered parking installed with the building project, and have a total area no less than 15 percent of the total roof area of the building excluding any skylight area. The solar zone requirement is applicable to the entire building, including mixed occupancy.*
§ 110.10(b)2:	**Azimuth.** All sections of the solar zone located on steep-sloped roofs must be oriented between 90 degrees and 300 degrees of true north.
§ 110.10(b)3A:	**Shading.** The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof mounted equipment.*
§ 110.10(b)3B:	**Shading.** Any obstruction located on the roof or any other part of the building that projects above a solar zone must be located at least twice the distance, measured in the horizontal plane, of the height difference between the highest point of the obstruction and the horizontal projection of the nearest point of the solar zone, measured in the vertical plane.*
§ 110.10(b)4:	**Structural Design Loads on Construction Documents.** For areas of the roof designated as a solar zone, the structural design loads for roof dead load and roof live load must be clearly indicated on the construction documents.
§ 110.10(c):	**Interconnection Pathways.** The construction documents must indicate: a location reserved for inverters and metering equipment and a pathway reserved for routing of conduit from the solar zone to the point of interconnection with the electrical service; and for single family residences and central water-heating systems, a pathway reserved for routing plumbing from the solar zone to the water-heating system.
§ 110.10(d):	**Documentation.** A copy of the construction documents or a comparable document indicating the information from § 110.10(b) through § 110.10(c) must be provided to the occupant.
§ 110.10(e)1:	**Main Electrical Service Panel.** The main electrical service panel must have a minimum busbar rating of 200 amps.
§ 110.10(e)2:	**Main Electrical Service Panel.** The main electrical service panel must have a reserved space to allow for the installation of a double pole circuit breaker for a future solar electric installation. The reserved space must be permanently marked as "For Future Solar Electric".

CERTIFICATE OF COMPLIANCE — CF1R-PRF-01E (Page 1 of 10)

Project Name: Thourbanov Residence — Calculation Date/Time: 2022-02-04T12:03:19-08:00

Calculation Description: Title 24 Analysis — Input File Name: 20601TrabucoThourbanov.ribd19

GENERAL INFORMATION					
01	Project Name	Thourbanov Residence			
02	Run Title	Title 24 Analysis			
03	Project Location	20601 Trabuco Oaks Dr			
04	City	Trabuco Canyon	05	Standards Version	2019
06	Zipcode	92678	07	Software Version	CBECC-Res 2019.2.0
08	Climate Zone	8	09	Front Orientation (deg/Cardinal)	90
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	NewConstruction	13	Number of Bedrooms	1
14	Addition Cond. Floor Area (ft²)	0	15	Number of Stories	2
16	Existing Cond. Floor Area (ft²)	n/a	17	Fenestration Average U-factor	0.29
18	Total Cond. Floor Area (ft²)	698	19	Glazing Percentage (%)	30.42%
20	ADU Bedroom Count	n/a	21	ADU Conditioned Floor Area	n/a
22	Is Natural Gas Available?	Yes			

COMPLIANCE RESULTS	
01	Building Complies with Computer Performance.
02	This building incorporates features that require field testing and/or verification by a certified HERS rater under the supervision of a CEC-approved HERS provider.
03	This building incorporates one or more Special Features shown below.

CHEERS

Registration Number: 422-P2103169214-000-000-0000000-0000 — Registration Date/Time: 02/04/2022 13:26 — HERS Provider: CHEERS

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Contractor shall exercise the responsibility with architect in securing latest approved drwgs. prior to actually executing work

REVISIONS NO.
D BUILDING DEPT SUBMITTAL 3-19-25

JOHN A. SALAT ARCHITECTS
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PH 949-235-4847 email: freeingwinds@earthlink.net
z e n a r c h i t e c t . c o m

architect

THOURBANOV RESIDENCE
NEW DWELLING
T-24 SPECIFICATION

OWNER/SITE ADDRESS:
CONTACT: Alexander Tchourbanov
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Trabuco Canyon, CA 92678
Ph 520.909.0869 Email: ochurbanov@gmail.com

REGISTERED PROFESSIONAL ARCHITECT JOHN A. SALAT No. C-24445 RENEWAL 10-29-25 STATE OF CALIFORNIA

DRAWN JS
CHECKED JS
DATE SEE REVISION BOX ABOVE FOR DATE
SCALE AS NOTED ON PLANS
JOB NO.
SHEET

T-24.1

1 OF (PER INDEX) SHEETS

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NOTE: FOR PAGE 1 OF 10 SEE SHEET T-24.1

T-24 ENERGY SPEC (sht 2 of 2)

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Project Name: Thourbanov Residence — Calculation Date/Time: 2022-02-04T12:03:19-08:00 — (Page 2 of 10)
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ENERGY DESIGN RATING				
	Energy Design Ratings		Compliance Margins	
	Efficiency[1] (EDR)	Total[2] (EDR)	Efficiency[1] (EDR)	Total[2] (EDR)
Standard Design	55.1	247		
Proposed Design	54.9	233	0.2	1.4
RESULT: [3] COMPLIES				

1: Efficiency EDR includes improvements to the building envelope and more efficient equipment
2: Total EDR includes efficiency and demand response measures such as photovoltaic (PV) systems and batteries
3: Building complies when efficiency and total compliance margins are greater than or equal to zero

- Standard Design PV Capacity: 1.83 kWdc
- PV System resized to 1.83 kWdc (a factor of 0.913) to achieve Standard Design PV Pvsizing

ENERGY USE SUMMARY				
Energy Use (kTDV/ft²-yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	2.83	6.27	-3.44	-138.4
Space Cooling	29.6	30.2	-0.6	-2
IAQ Ventilation	4.18	4.18	0	0
Water Heating	26.57	21.83	4.74	17.8
Self Utilization/Flexibility Credit	n/a	0	0	n/a
Compliance Energy Total	62.68	62.46	0.5	0.8

REQUIRED PV SYSTEMS - SIMPLIFIED											
01	02	03	04	05	06	07	08	09	10	11	12
DC System Size (kWdc)	Exception	Module Type	Array Type	Power Electronics	CFI	Azimuth (deg)	Tilt Input	Array Angle (deg)	Tilt: (x in 12)	Inverter Eff. (%)	Annual Solar Access (%)
1.83	NA	Standard	Fixed	none	true	150-270	n/a	n/a	<=7:12	96	100

Registration Number: 422-P010016624A-000-000-0000000-0000 — Registration Date/Time: 02/04/2022 13:25 — HERS Provider: CHEERS
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REQUIRED SPECIAL FEATURES
The following are features that must be installed as a condition for meeting the modeled energy performance for this computer analysis.
• PV System: 1.83 kWdc • Non-ducted duct location (any location other than attic) • Northwest Energy Efficiency Alliance (NEEA) rated heat pump water heater; specific brand/model, or equivalent, must be installed

HERS FEATURES SUMMARY
The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry
Building-level Verifications: • Indoor air quality ventilation • Kitchen range hood Cooling System Verifications: • Minimum Airflow • Verified SEER • Verified Refrigerant Charge • Fan Efficacy Watts/CFM Heating System Verifications: • Verified HSPF • Verified heat pump rated heating capacity HVAC Distribution System Verifications: • Duct leakage testing • Ducts located entirely in conditioned space confirmed by duct leakage testing Domestic Hot Water System Verifications: • -- None --

BUILDING - FEATURES INFORMATION						
01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft²)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
Thourbanov Residence	668	1	1	1	0	1

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ZONE INFORMATION						
01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft²)	Avg. Ceiling Height	Water Heating System 1	Water Heating System 2
House	Conditioned	Split Heat Pump	668	9	DHW System 1	N/A

OPAQUE SURFACES							
01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft²)	Window and Door Area (ft2)	Tilt (deg)
Front Wall	House	R-21 Wall	90	Front	330	165.9	90
Left Wall	House	R-21 Wall	180	Left	190	6	90
Back Wall	House	R-21 Wall	270	Back	250	42.8	90
Right Wall	House	R-21 Wall	0	Right	280	20	90
Retaining Walls	House	R-0 Ret Wall	n/a	n/a	170	n/a	n/a
Floor over Garage	House	R-30 Interior Floor	n/a	n/a	462	n/a	n/a
Garage Front	Garage	R-0 Wall	90	Front	220	0	90
Garage Left	Garage	R-0 Wall	180	Left	210	0	90
Garage Back	Garage	R-0 Wall	270	Back	220	0	90
Garage Right	Garage	R-0 Wall	0	Right	210	0	90

OPAQUE SURFACES - CATHEDRAL CEILINGS											
01	02	03	04	05	06	07	08	09	10	11	
Name	Zone	Construction	Azimuth	Orientation	Area (ft²)	Skylight Area (ft²)	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Cool Roof	
Roof 1	House	R-38 Roof	180	Left	231	0	2.5	0.1	0.85	No	
Roof 2	House	R-38 Roof	0	Right	231	0	2.5	0.1	0.85	No	

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FENESTRATION / GLAZING													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
Door E	Window	Front Wall	Front	90			1	66.7	0.32	NFRC	0.22	NFRC	Bug Screen
Door F	Window	Front Wall	Front	90			1	33.3	0.32	NFRC	0.22	NFRC	Bug Screen
Window 4	Window	Front Wall	Front	90			1	34.8	0.27	NFRC	0.18	NFRC	Bug Screen
Window 5	Window	Front Wall	Front	90			1	11.3	0.27	NFRC	0.37	NFRC	Bug Screen
Window 6	Window	Front Wall	Front	90			1	10.3	0.27	NFRC	0.37	NFRC	Bug Screen
Window 7	Window	Front Wall	Front	90			1	7.5	0.27	NFRC	0.18	NFRC	Bug Screen
Window 1	Window	Left Wall	Left	180			1	6	0.27	NFRC	0.37	NFRC	Bug Screen
Window 2	Window	Back Wall	Back	270			1	12.5	0.27	NFRC	0.18	NFRC	Bug Screen
Window 3	Window	Back Wall	Back	270			1	12.5	0.27	NFRC	0.18	NFRC	Bug Screen
Window 8	Window	Back Wall	Back	270			1	7.5	0.27	NFRC	0.18	NFRC	Bug Screen
Window 9	Window	Back Wall	Back	270			1	10.3	0.27	NFRC	0.37	NFRC	Bug Screen

OPAQUE DOORS			
01	02	03	04
Name	Side of Building	Area (ft²)	U-factor
Door D	Right Wall	20	0.2

SLAB FLOORS							
01	02	03	04	05	06	07	08
Name	Zone	Area (ft²)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
Slab	Garage	462	116	none	0	0%	No

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OPAQUE SURFACE CONSTRUCTIONS							
01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly layers
R-0 Wall	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O.C.	R-0	None / None	0.347	Inside Finish: Gypsum Board Cavity / Frame: no insul. / 2x6 Exterior Finish: 3 Coat Stucco
R-21 Wall	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O.C.	R-21	None / None	0.055	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Sheathing / Insulation: Wood Siding/sheathing/decking Exterior Finish: 3 Coat Stucco
R-38 Roof	Cathedral Ceilings	Wood Framed Ceiling	2x8 @ 24 in. O.C.	R-38	None / None	0.031	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-38 / 2x8 Inside Finish: Gypsum Board
R-30 Interior Floor	Interior Floors	Wood Framed Floor	2x12 @ 16 in. O.C.	R-30	None / None	0.032	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-30 / 2x12 Ceiling Below Finish: Gypsum Board
R-0 Ret Wall	Underground Walls	Concrete / ICF / Brick	None	n/a	None / None	1.048	Inside Finish: Gypsum Board Mass Layer: 6 in. Concrete

BUILDING ENVELOPE - HERS VERIFICATION			
01	02	03	04
Quality Insulation Installation (QII)	High R-value Spray Foam Insulation	Building Envelope Air Leakage	CFM50
Not Required	Not Required	Not Required	n/a

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WATER HEATING SYSTEMS							
01	02	03	04	05	06	07	
Name	System Type	Distribution Type	Water Heater Name (#)	Solar Heating System	Compact Distribution	HERS Verification	
DHW System 1	Domestic Hot Water (DHW)	Standard Distribution System	Water Heater 1 (1)	n/a	None	n/a	

WATER HEATERS												
01	02	03	04	05	06	07	08	09	10	11	12	
Name	Heating Element Type	Tank Type	# of Units	Tank Vol. (gal)	Energy Factor or Efficiency	Input Rating or Pilot	Tank Insulation R-value (Int/Ext)	Standby Loss or Recovery Eff	1st Hr. Rating or Flow Rate	NEEA Heat Pump Brand or Model	Tank Location or Ambient Condition	
Water Heater 1	Heat Pump	n/a	1	50	NEEA Rated	or 12 kW	n/a	n/a	n/a	A.O. Smith VPTU 50 120 (50gal)	Garage	

WATER HEATING - HERS VERIFICATION							
01	02	03	04	05	06	07	08
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Compact Distribution Type	Recirculation Control	Central DHW Distribution	Shower Drain Water Heat Recovery
DHW System 1 - 1/1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required

SPACE CONDITIONING SYSTEMS											
01	02	03	04	05	06	07	08	09	10	11	
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count	
Split Heat Pump	Heat pump heating cooling	Split HP	Split HP	HVAC Fan System 1	Distribution System 1	Setback	New	NA	1	1	

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01	02	03	04	05	06	07	08	09	10	11	
HVAC - HEAT PUMPS											
Name	System Type	Number of Units	Heating			Cooling		Zonally Controlled	Compressor Type	HERS Verification	
			HSPF/COP	Cap47	Cap17	SEER	EER/CEER				
Split HP	Central split HP	1	8.5	30000	25000	15.5	12.73	Not Zonal	Single Speed	Split HP-hers-htpump	

HVAC HEAT PUMPS - HERS VERIFICATION								
01	02	03	04	05	06	07	08	09
Name	Verified Airflow	Airflow Target	Verified EER	Verified SEER	Verified Refrigerant Charge	Verified HSPF	Verified Heating Cap47	Verified Heating Cap17
Split HP-hers-htpump	Required	350	Not Required	Required	Yes	Yes	Yes	Yes

HVAC - DISTRIBUTION SYSTEMS											
01	02	03	04	05	06	07	08	09	10	11	12
			Duct Ins. R-value		Duct Location		Surface Area				
Name	Type	Design Type	Supply	Return	Supply	Return	Supply	Return	Bypass Duct	Duct Leakage	HERS Verification
Distribution System 1	Conditioned space-entirely	Non-Verified	R-4.2	R-4.2	Conditioned Zone	Conditioned Zone	n/a	n/a	No Bypass Duct	Sealed at Test	Distribution System 1-hers-dist

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HVAC DISTRIBUTION - HERS VERIFICATION								
01	02	03	04	05	06	07	08	09
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler	Low Leakage Ducts Entirely in Conditioned Space
Distribution System 1-hers-dist	Yes	5.0	Required	Not Required	Not Required	Credit not taken	Not Required	No

HVAC - FAN SYSTEMS				
01	02	03	04	
Name	Type	Fan Power (Watts/CFM)	Name	
HVAC Fan System 1	HVAC Fan	0.45	HVAC Fan System 1-hers-fan	

HVAC FAN SYSTEMS - HERS VERIFICATION			
01	02	03	
Name	Verified Fan Watt Draw	Required Fan Efficacy (Watts/CFM)	
HVAC Fan System 1-hers-fan	Required	0.45	

IAQ (INDOOR AIR QUALITY) FANS						
01	02	03	04	05	06	07
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness - SRE	IAQ Recovery Effectiveness - ADRE	HERS Verification
1 Sfam IAQ Vent Fpt	36	0.35	Exhaust	n/a	n/a	Yes

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Denise Kowal	Documentation Author Signature: Denise Kowal
Company: Hummingbird Energy Services	Signature Date: 02/04/2022
Address: 14811 Slalom Way	CEA/HERS Certification Identification (if applicable):
City/State/Zip: Truckee, CA 96161	Phone: 530-448-1053
RESPONSIBLE PERSON'S DECLARATION STATEMENT	
I certify the following under penalty of perjury, under the laws of the State of California: 1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance. 2. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations. 3. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.	
Responsible Designer Name: John Salat	Responsible Designer Signature: John Salat
Company: John A Salat Architects	Date Signed: 02/04/2022
Address: 22386W oodgrove Rd Woodgrove Rd	License:
City/State/Zip: Lake Forest, CA 92630	Phone: 9492354847

Digitally signed by CenCal Home Energy Efficiency Rating System Services, Inc. (CHEERS). This digital signature is provided in order to secure the content of this registered document, and in no way implies Registration Provider responsibility for the accuracy of the information.

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Contractor shall exercise the responsibility with architect in securing latest approved drwgs. prior to actually executing work

REVISIONS NO.
D BUILDING DEPT SUBMITTAL 3-19-25

JOHN A. SALAT ARCHITECTS
22386 Woodgrove Road, Lake Forest, CA 92630
PH 949-235-4847 email: freeingwinds@earthlink.net
z e n a r c h i t e c t . c o m

architect

THOURBANOV RESIDENCE
NEW DWELLING
T-24 SPECIFICATION

OWNER/SITE ADDRESS:
CONTACT: Alexander Tchourbanov
20601 Trabuco Oaks Dr,
Trabuco Canyon, CA 92678
Ph 520.909.0869 Email: actturbanov@gmail.com

REGISTERED PROFESSIONAL ENGINEER JOHN A. SALAT NO. C-24445 EXP. 10-29-25 STATE OF CALIFORNIA

DRAWN JS
CHECKED JS
DATE SEE REVISION BOX ABOVE FOR DATE
SCALE AS NOTED ON PLANS
JOB NO.
SHEET

T-24.2

1 OF (PER INDEX) SHEETS

(N) PV SYSTEM FOR TCHOURBANOV RESIDENCE | 20601 TRABUCO OAKS DR, TRABUCO CANYON, CA 92679

SYSTEM SIZE: 3.680 kW DC (STC-DC) | 3.388 kW (CEC-AC) | 3.040 kW AC (INVERTER)

APPLICABLE CODES & STANDARDS

2022 CALIFORNIA BUILDING CODE
2022 CALIFORNIA RESIDENTIAL CODE
2022 CALIFORNIA ELECTRICAL CODE
2022 CALIFORNIA FIRE CODE
2022 CALIFORNIA MECHANICAL CODE
2022 CALIFORNIA GREEN CODE
2022 CALIFORNIA PLUMBING CODE
2022 CALIFORNIA ENERGY CODE
ANY ORANGE COUNTY MUNICIPAL CODES & AMENDMENTS

GENERAL NOTES

A. THIS PHOTOVOLTAIC (PV) SYSTEM SHALL COMPLY WITH THE CALIFORNIA ELECTRICAL CODE (NEC) ARTICLE 690, ALL MANUFACTURERS'S LISTING AND INSTALLATION INSTRUCTIONS, AND THE RELEVANT CODES AS SPECIFIED BY THE AUTHORITY HAVING JURISDICTION'S (AHJ) APPLICABLE CODES.

B. ALL EQUIPMENT SHALL BE LISTED AND LABELED BY A NATIONALLY RECOGNIZED ELECTRICAL TESTING LABORATORY AND SHALL BE INSTALLED PER ITS LISTING REQUIREMENTS AND MANUFACTURER'S INSTRUCTIONS.

C. THE PV SYSTEM WILL BE INTERCONNECTED AND OPERATED IN PARALLEL WITH THE UTILITY ELECTRICAL GRID PER THE REQUIREMENTS OF THE UTILITY AND APPLICABLE CODES.

D. CONTRACTORS SHALL BE PRESENT DURING ALL INSPECTIONS.

E. A LADDER SHALL BE PROVIDED AND SECURED TO THE STRUCTURE AT THE APPROVED ROOF ACCESS POINT WITH A CAL OSHA APPROVED DEVICE DURING ALL INSPECTIONS.

F. THE ROOF ACCESS POINT REQUIRING A LADDER SHALL NOT BE LOCATED OVER A WINDOW, DOOR OR LOCATED WHERE IT CONFLICTS WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRES OR SIGNS [CRC 324.7.1].

G. THE PV SYSTEM IS DESIGNED IN COMPLIANCE WITH CEC 690.12 (RAPID SHUTDOWN); IDENTIFICATION OF POWER SOURCE RAPID SHUTDOWN AND LABELING SHALL BE IN ACCORDANCE WITH CEC 690.56(C).

H. PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED [CEC 110.26].

I. POWER PRODUCTION SYSTEMS, AND ALL ASSOCIATED WIRING AND INTERCONNECTIONS OPERATING IN PARALLEL WITH A PRIMARY POWER SOURCE SHALL BE PERFORMED ONLY BY QUALIFIED PERSONS [CEC 690.4(C), 705.8].

SMOKE AND CARBON MONOXIDE

A. SMOKE ALARMS AND CARBON MONOXIDE ALARMS ARE REQUIRED TO BE RETROFITTED ONTO THE EXISTING DWELLING AS PER THE 2022 CRC. THESE SMOKE ALARMS ARE REQUIRED TO BE IN ALL BEDROOMS, OUTSIDE EACH BEDROOM, AND AT LEAST ONE ON EACH FLOOR OF THE HOUSE. CARBON MONOXIDE ALARMS ARE REQUIRED TO BE RETROFITTED OUTSIDE EACH BEDROOM AND AT LEAST ONE ON EACH FLOOR OF THE HOUSE. (CRC 314,315)

B. SMOKE ALARMS AND CARBON MONOXIDE ALARMS ARE REQUIRED PER CRC SECTIONS 314 AND 315 TO BE VERIFIED AND INSPECTED BY THE INSPECTOR IN THE FIELD.

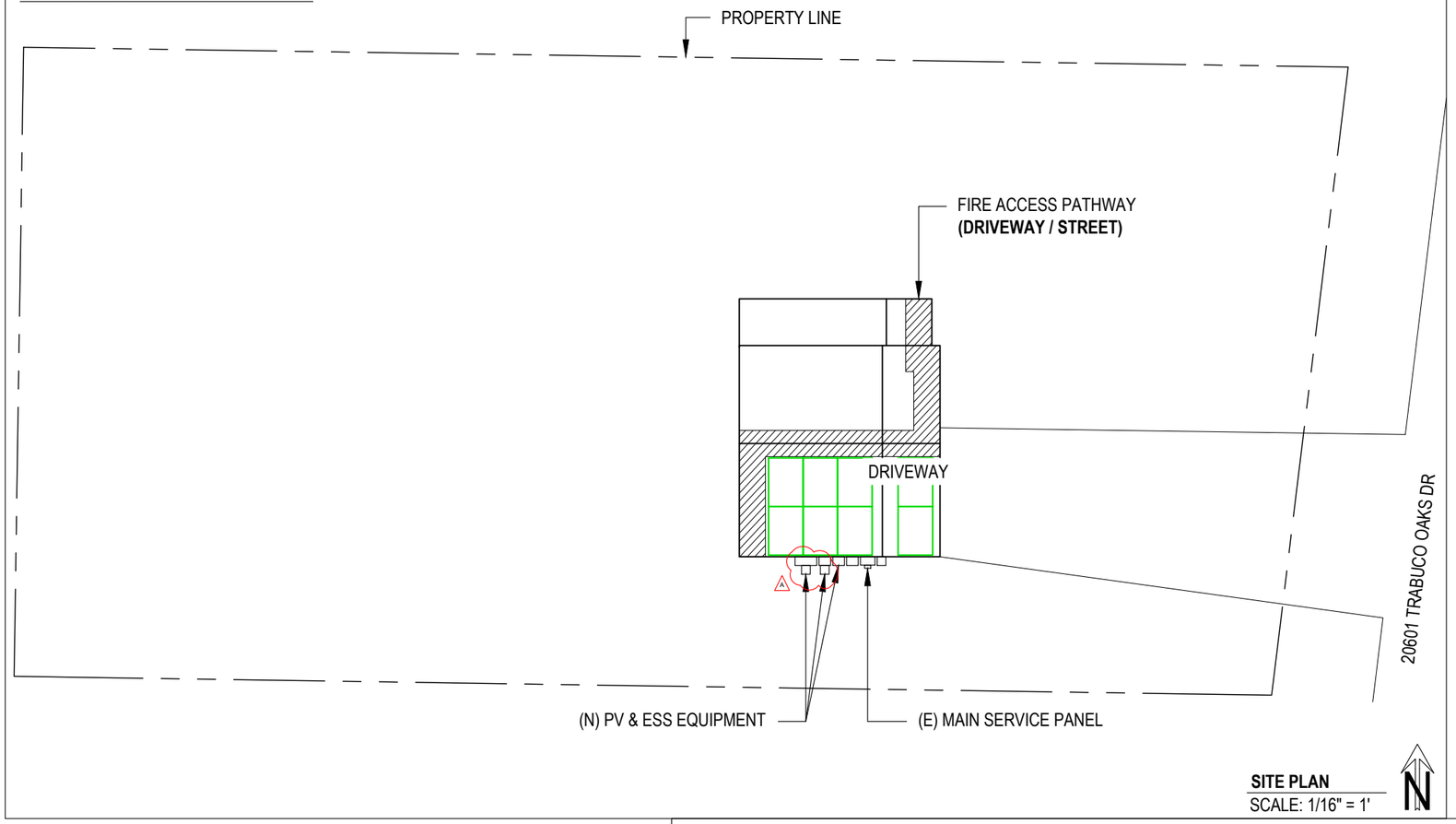
NOTES TO INSTALLER

A. NOTIFY SERVING UTILITY PRIOR TO ACTIVATION OF PV SYSTEM; APPROVAL FROM BOTH THE LOCAL JURISDICTION AND THE UTILITY IS REQUIRED PRIOR TO INTERCONNECTION.

B. DIG ALERT (811) IS TO BE CONTACTED AND COMPLIANCE WITH EXCAVATION SAFETY IN ACCORDANCE WITH GOVERNMENT CODE 4216 WILL BE FOLLOWED PRIOR TO ANY EXCAVATION TAKING PLACE.

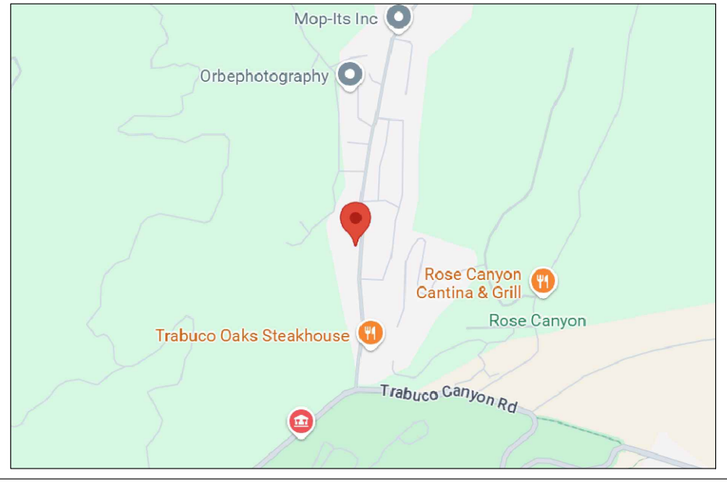
C. MINIMUM 4-1/4" LAG BOLTS WITH 3-1/4" EMBEDMENT REQUIRED.

SEE PV.02 FOR ADDITIONAL DETAILS



SITE PLAN
SCALE: 1/16" = 1'

AERIAL IMAGE



SCOPE OF WORK:

INSTALLATION OF NEW PV SYSTEM: ***3.680 kW DC (STC-DC) | 3.388 kW (CEC-AC) | 3.040 kW AC (INVERTER)***
INSTALLATION OF NEW BATTERY BACKUP: ***(1) APOWER 2 [240V] (13.6 kWH)***

SYSTEM COMPONENTS

MODULE:	(8) REC SOLAR REC460AA PURE-RX
OPTIMIZER/RSD:	MICROINVERTER INTEGRATED
INVERTER:	(8) ENPHASE IQ8X-80-M-US [240V]
MOUNT:	(20) EVERFLASH ECOMP KIT
RAILING:	EVEREST RACKING-48-X RAILS
MSP UPGRADE:	NO

BATTERY BACKUP DETAILS

(1) APOWER 2 [240V] (AC COUPLED)

ESS UNIT CAPACITY (KWH/UNIT):	13.6 KWH / UNIT
TOTAL ENERGY CAPACITY IN KWH:	13.60 KWH
LOCATION OF ALL ESS UNITS:	OUTDOOR WALLS
BATTERY BACKUP TYPE:	FULL HOUSE

ADDITIONAL NOTES

PROJECT INFORMATION

AUTHORITIES HAVING JURISDICTION

AHJ:	ORANGE COUNTY
UTILITY:	SCE

DESIGN SPECIFICATIONS

OCCUPANCY:	R-3/U
CONSTRUCTION:	V-B
ZONING:	RESIDENTIAL
SNOW LOAD:	0
WIND EXPOSURE:	C
WIND SPEED:	95 MPH
ROOF SURFACE:	676
PV COVERAGE:	179.30
OF STORIES:	TWO
FIRE SPRINKLERS:	NO

ALL WORK SHALL COMPLY WITH APPLICABLE, LOCAL, MUNICIPAL CODES, AND TO MANUFACTURERS' LISTINGS AND INSTALLATION INSTRUCTIONS.

SHEET LIST TABLE

PV.01	COVER SHEET
PV.01A	BATTERY NOTES
PV.02	ROOF & FIRE PLAN
PV.03	STRUCTURAL DETAILS
PV.04	THREE LINE DIAGRAM
PV.05	ELECTRICAL CALCULATIONS
PV.06	LABELS
PV.07	PLACARD MAP
MM	MICROINVERTER MAP
SPEC	SPECIFICATION SHEETS

SITE PLAN LEGEND KEY

MAIN ELECTRICAL PANEL
PV & ESS EQUIPMENT
PROPERTY LINE
FENCE
FIRE SETBACKS & PROPOSED PATHWAYS

REVISIONS

SEE RESPONSE LETTER FOR DETAILS

A	05.30.25	AHJ CORRECTIONS

ENGINEER OF RECORD

infinity
pure. simple. economical sustainable.
INFINITY SOLAR
TLP ELECTRIC INTEGRATIONS, INC.
749 N MAIN ST.
ORANGE, CA 92868
PHONE: (714) 880-8089
LIC NO.: C10 - 824287
TIM POLUJANCEWICZ

NEW PV SYSTEM
3.680 kW DC (STC-DC) | 3.388 kW (CEC-AC)
ALEXANDER TCHOURBANOV
20601 TRABUCO OAKS DR,
TRABUCO CANYON, CA 92679
APN: 84210206

DESIGNED BY **SOLAR DEPLOYED, LLC.**
931 10TH ST #114, MODESTO, CA 95354
209-671-2001 | HELLO@SOLARDEPLOYED.COM

DESIGN LEAD:	A.R.	SIGNATURE:	AR
DRAWN BY:	CB	CHECKED BY:	AB
PAPER:	11X17 (ANSI B)	DATE:	5/30/2025

SHEET NAME:	SHEET NO.:
COVER SHEET	PV.01

BATTERY INSTALLATION REQUIREMENTS

[R328.2] EQUIPMENT LISTINGS. ENERGY STORAGE SYSTEMS (ESS) SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 9540.

[R328.3] INSTALLATION. ESS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND THEIR LISTING.

[R328.3.1] SPACING. INDIVIDUAL UNITS SHALL BE SEPARATED FROM EACH OTHER BY NOT LESS THAN 3 FEET (914 MM) EXCEPT WHERE SMALLER SEPARATION DISTANCES ARE DOCUMENTED TO BE ADEQUATE BASED ON LARGE-SCALE FIRE TESTING COMPLYING WITH SECTION 1207.1.5 OF THE CALIFORNIA FIRE CODE.

[R328.4] LOCATIONS. ESS SHALL BE INSTALLED ONLY IN THE FOLLOWING LOCATIONS:

1. DETACHED GARAGES AND DETACHED ACCESSORY STRUCTURES.
2. ATTACHED GARAGES SEPARATED FROM THE DWELLING UNIT LIVING SPACE IN ACCORDANCE WITH SECTION R302.6.
3. OUTDOORS OR ON THE EXTERIOR SIDE OF EXTERIOR WALLS LOCATED NOT LESS THAN 3 FEET (914 MM) FROM DOORS AND WINDOWS DIRECTLY ENTERING THE DWELLING UNIT.
4. ENCLOSED UTILITY CLOSETS, BASEMENTS, STORAGE OR UTILITY SPACES WITHIN DWELLING UNITS WITH FINISHED OR NONCOMBUSTIBLE WALLS AND CEILINGS. WALLS AND CEILINGS OF UNFINISHED WOOD-FRAMED CONSTRUCTION SHALL BE PROVIDED WITH NOT LESS THAN 5/8-INCH (15.9 MM) TYPE X GYPSUM WALLBOARD.

ESS SHALL NOT BE INSTALLED IN SLEEPING ROOMS, OR CLOSETS OR SPACES OPENING DIRECTLY INTO SLEEPING ROOMS OR IN HABITABLE SPACES OF DWELLING UNITS.

R328.6 ELECTRICAL INSTALLATION. ESS SHALL BE INSTALLED IN ACCORDANCE WITH THE CEC AND LOCAL ELECTRICAL CODE REQUIREMENTS. INVERTERS SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 1741 OR PROVIDED AS PART OF THE UL 9540 LISTING. SYSTEMS CONNECTED TO THE UTILITY GRID SHALL USE INVERTERS LISTED FOR UTILITY INTERACTION.

R328.7 FIRE DETECTION. ROOMS AND AREAS WITHIN DWELLING UNITS, BASEMENTS AND ATTACHED GARAGES IN WHICH ESS ARE INSTALLED SHALL BE PROTECTED BY SMOKE ALARMS IN ACCORDANCE WITH SECTION R314. A HEAT DETECTOR, LISTED AND INTERCONNECTED TO THE SMOKE ALARMS, SHALL BE INSTALLED IN LOCATIONS WITHIN DWELLING UNITS AND ATTACHED GARAGES WHERE SMOKE ALARMS CANNOT BE INSTALLED BASED ON THEIR LISTING.

[SFM] ESS INSTALLED IN GROUP R-3 AND TOWNHOMES SHALL COMPLY WITH THE FOLLOWING:

1. ROOMS AND AREAS WITHIN DWELLINGS UNITS, SLEEPING UNITS, BASEMENTS AND ATTACHED GARAGES IN WHICH ESS ARE INSTALLED SHALL BE PROTECTED BY SMOKE ALARMS IN ACCORDANCE WITH SECTION R314.
2. A LISTED HEAT ALARM INTERCONNECTED TO THE SMOKE ALARMS SHALL BE INSTALLED IN LOCATIONS WITHIN DWELLING UNITS, SLEEPING UNITS AND ATTACHED GARAGES WHERE SMOKE ALARMS CANNOT BE INSTALLED BASED ON THEIR LISTING.

R328.8 PROTECTION FROM IMPACT. ESS INSTALLED IN A LOCATION SUBJECT TO VEHICLE DAMAGE IN ACCORDANCE WITH SECTION R328.8.1 OR R328.8.2 SHALL BE PROVIDED WITH IMPACT PROTECTION IN ACCORDANCE WITH SECTION R328.8.3.

R328.8.1 GARAGES. WHERE AN ESS IS INSTALLED IN THE NORMAL DRIVING PATH OF VEHICLE TRAVEL WITHIN A GARAGE, IMPACT PROTECTION COMPLYING WITH SECTION 1207.11.7.3 SHALL BE PROVIDED. THE NORMAL DRIVING PATH IS A SPACE BETWEEN THE GARAGE VEHICLE OPENING AND THE INTERIOR FACE OF THE BACK WALL TO A HEIGHT OF 48 INCHES (1219 MM) ABOVE THE FINISHED FLOOR. THE WIDTH OF THE NORMAL DRIVING PATH SHALL BE EQUAL TO THE WIDTH OF THE GARAGE DOOR OPENING. IMPACT PROTECTION SHALL ALSO BE PROVIDED FOR ESS INSTALLED AT EITHER OF THE FOLLOWING LOCATIONS **(SEE FIGURE R328.8.1)**:

1. ON THE INTERIOR FACE OF THE BACK WALL AND LOCATED WITHIN 36 INCHES (914 MM) TO THE LEFT OR TO THE RIGHT OF THE NORMAL DRIVING PATH.
2. ON THE INTERIOR FACE OF A SIDE WALL AND LOCATED WITHIN 24 INCHES (609 MM) FROM THE BACK WALL AND 36 INCHES (914 MM) OF THE NORMAL DRIVING PATH.

EXCEPTION: WHERE THE CLEAR HEIGHT OF THE VEHICLE GARAGE OPENING IS 7 FEET 6 INCHES (2286 MM) OR LESS, ESS INSTALLED NOT LESS THAN 36 INCHES (914 MM) ABOVE FINISHED FLOOR ARE NOT SUBJECT TO VEHICLE IMPACT PROTECTION REQUIREMENTS.

R328.8.2 OTHER LOCATIONS SUBJECT TO VEHICLE IMPACT. WHERE AN ESS IS INSTALLED IN A LOCATION OTHER THAN AS DEFINED IN SECTION R328.8.1, AND IS SUBJECT TO VEHICLE DAMAGE, IMPACT PROTECTION SHALL BE PROVIDED IN ACCORDANCE WITH SECTION R328.8.3.

R328.8.3 IMPACT PROTECTION OPTIONS. WHERE ESS IS REQUIRED TO BE PROTECTED FROM IMPACT IN ACCORDANCE WITH SECTION R328.8.1 OR R328.8.2, SUCH PROTECTION SHALL COMPLY WITH ONE OF THE FOLLOWING:

1. BOLLARDS CONSTRUCTED IN ACCORDANCE WITH ONE OF THE FOLLOWING:
   - 1.1. MINIMUM 48 INCHES (1219 MM) IN LENGTH BY 3 INCHES (76 MM) IN DIAMETER SCHEDULE 80 STEEL PIPE EMBEDDED IN A CONCRETE PIER NOT LESS THAN 12 INCHES (304 MM) DEEP AND 6 INCHES (152 MM) IN DIAMETER, WITH AT LEAST 36 INCHES (914 MM) OF PIPE EXPOSED, FILLED WITH CONCRETE AND SPACED AT A MAXIMUM INTERVAL OF 5 FEET (1524 MM). EACH BOLLARD SHALL BE LOCATED NOT LESS THAN 6 INCHES (152 MM) FROM AN ESS.
   - 1.2. MINIMUM 36 INCHES (914 MM) IN HEIGHT BY 3 INCHES (76 MM) IN DIAMETER SCHEDULE 80 STEEL PIPE FULLY WELDED TO A MINIMUM 8-INCH (203 MM) BY 1/4-INCH (6.4 MM) THICK STEEL PLATE AND BOLTED TO A CONCRETE FLOOR BY MEANS OF 41/2 INCH (13 MM) CONCRETE ANCHORS WITH 3-INCH (76 MM) MINIMUM EMBEDMENT. SPACING SHALL BE NOT GREATER THAN 60 INCHES (1524 MM), AND EACH BOLLARD SHALL BE LOCATED NOT LESS THAN 6 INCHES (152 MM) FROM THE ESS.
   - 1.3. PRE-MANUFACTURED STEEL PIPE BOLLARDS SHALL BE FILLED WITH CONCRETE AND ANCHORED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, WITH SPACING NOT GREATER THAN 60 INCHES (1524 MM), AND EACH BOLLARD SHALL BE LOCATED NOT LESS THAN 6 INCHES (152 MM) FROM THE ESS.
2. WHEEL BARRIERS CONSTRUCTED IN ACCORDANCE WITH ONE OF THE FOLLOWING:
   - 2.1. FOUR INCHES (102 MM) IN HEIGHT BY 5 INCHES (127 MM) IN WIDTH BY 70 INCHES (1778 MM) IN LENGTH WHEEL BARRIER MADE OF CONCRETE OR POLYMER, ANCHORED TO THE CONCRETE FLOOR NOT LESS THAN EVERY 36 INCHES (914 MM) AND LOCATED NOT LESS THAN 54 INCHES (1372 MM) FROM THE ESS. MINIMUM 31/2-INCH (89 MM) DIAMETER CONCRETE ANCHORS WITH A 3-INCH (76 MM) EMBEDMENT PER BARRIER SHALL BE USED. SPACING BETWEEN BARRIERS SHALL BE NO GREATER THAN 36 INCHES (914 MM).
   - 2.2. PRE-MANUFACTURED WHEEL BARRIERS SHALL BE ANCHORED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. APPROVED METHOD DESIGNED TO RESIST A 2000-LB. (8899 NEWTONS) IMPACT IN THE DIRECTION OF TRAVEL AT 24 INCHES (608 MM) ABOVE GRADE.

ADDITIONAL NOTES

ENGINEER OF RECORD

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TIM POLUJANCEWICZ

NEW PV SYSTEM
3.680 kW DC (STC-DC) | 3.388 kW (CEC-AC)

ALEXANDER TCHOURBANOV
20601 TRABUCO OAKS DR,
TRABUCO CANYON, CA 92679

APN: 84210206

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PAPER:	**11X17 (ANSI B)**	DATE:	**5/30/2025**

SHEET NAME: **BATTERY NOTES**
SHEET NO.: **PV.01A**

SITE PLAN NOTES

A. ALL WORK SHALL COMPLY WITH APPLICABLE, LOCAL, MUNICIPAL CODES, AND TO MANUFACTURERS' LISTINGS AND INSTALLATION INSTRUCTIONS.

B. THE ROOF ACCESS POINT REQUIRING A LADDER SHALL NOT BE LOCATED OVER A WINDOW, DOOR OR LOCATED WHERE IT CONFLICTS WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRES OR SIGNS [R324.7.1].

C. PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED [CEC 110.26].

D. THE DEPICTED CONDUIT RUN ON PLANS IS A PROPOSED CONDUIT ROUTE. THE CONDUIT RUN MAY BE ALTERED AT INSTALLATION AS REQUIRED, AS LONG AS ALTERATIONS ADHERE TO ALL AHJ AND HOA REQUIREMENTS.

E. INSTALLATION OF NEW PV SYSTEM SHALL NOT OBSTRUCT EXISTING PLUMBING VENTS, SKYLIGHTS, EXHAUST OUTLETS, OR VENTILATION INTAKE AIR OPENINGS; ANY RELOCATED PLUMBING VENTS MUST BE THROUGH THE ATTIC SPACE AND TERMINATED A MIN. 6 INCHES ABOVE THE ROOF LINE.

F. ALL EQUIPMENT SHALL BE LISTED AND ALL OUTDOOR EQUIPMENT SHALL BE NEMA 3R RATED, INCLUDING ROOF MOUNTED TRANSITION BOXES AND SWITCHES.

G. **EQUIPMENT LISTINGS AND CERTIFICATIONS ARE AS FOLLOWS:**
- I. MODULES ARE LISTED UNDER UL61370-1 & UL61370-2
- II. INVERTER IS LISTED UNDER UL1741
- III. RACKING IS LISTED UNDER UL2703
- IV. RACKING SYSTEMS IN COMBINATION WITH TYPE 1 OR 2 MODULES, ARE CLASS A FIRE RATED.

FIRE PATHWAY NOTES

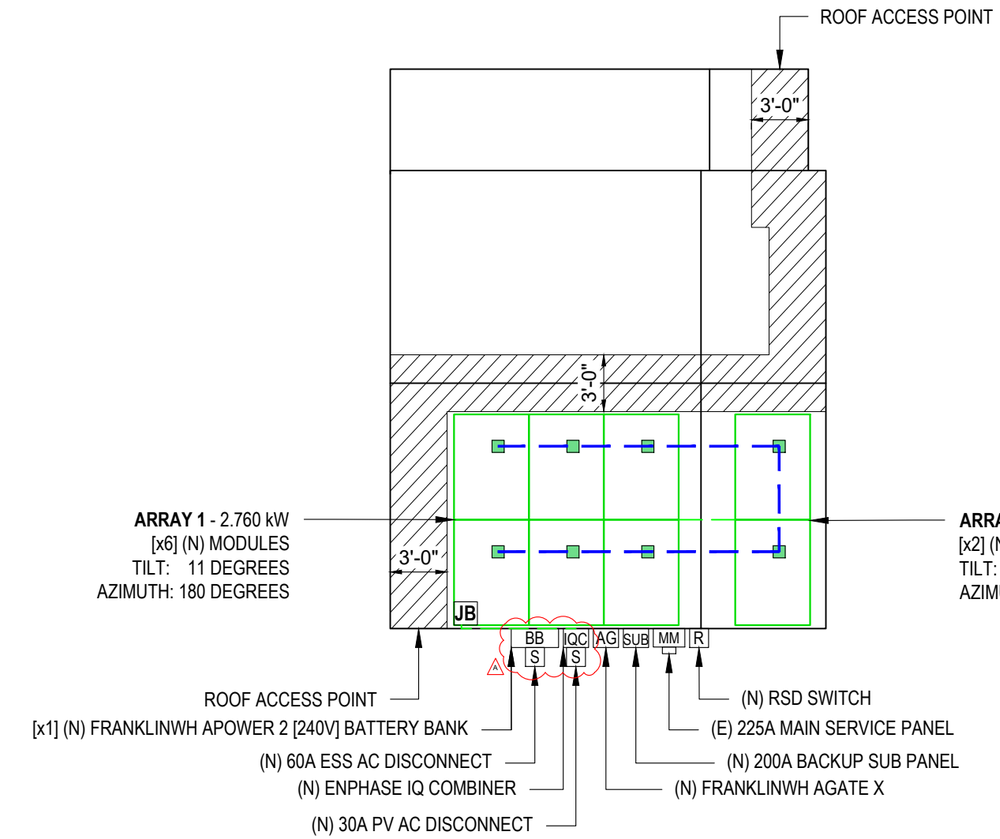
R324.6.1: PATHWAYS TO RIDGE.
- I. NOT LESS THAN TWO MINIMUM 36-INCH WIDE (914 MM) PATHWAYS ON SEPARATE ROOF PLANES, FROM LOWEST ROOF EDGE TO RIDGE, SHALL BE PROVIDED ON ALL BUILDINGS. AT LEAST ONE PATHWAY SHALL BE PROVIDED ON THE STREET OR DRIVEWAY SIDE OF THE ROOF.
- II. FOR EACH ROOF PLANE WITH A PHOTOVOLTAIC ARRAY, A MINIMUM 36-INCH-WIDE PATHWAY FROM THE LOWEST ROOF EDGE TO RIDGE SHALL BE PROVIDED ON THE SAME ROOF PLANE AS THE PHOTOVOLTAIC ARRAY, ON AN ADJACENT ROOF PLANE, OR STRADDLING THE SAME AND ADJACENT ROOF PLANES.
- III. PATHWAYS SHALL BE OVER AREAS CAPABLE OF SUPPORTING FIRE FIGHTERS ACCESSING THE ROOF. PATHWAYS SHALL BE LOCATED IN AREAS WITH MINIMAL OBSTRUCTIONS SUCH AS VENT PIPES, CONDUIT, OR MECHANICAL EQUIPMENT.

R324.6.2 SETBACKS AT RIDGE.
FOR PHOTOVOLTAIC ARRAYS OCCUPYING 33 PERCENT OR LESS OF THE PLAN VIEW TOTAL ROOF AREA, A MINIMUM 18 IN. SETBACK IS REQUIRED ON BOTH SIDES OF A HORIZONTAL RIDGE. FOR PHOTOVOLTAIC ARRAYS OCCUPYING MORE THAN 33 PERCENT OF THE PLANVIEW TOTAL ROOF AREA, A MINIMUM 36 IN. WIDE SETBACK IS REQUIRED ON BOTH SIDES OF A HORIZONTAL RIDGE.

R324.7.2.6 EMERGENCY ESCAPE AND RESCUE OPENING.
PANELS AND MODULES INSTALLED ON DWELLINGS SHALL NOT BE PLACED ON THE PORTION OF A ROOF THAT IS BELOW AN EMERGENCY ESCAPE AND RESCUE OPENING. A 36 IN. WIDE PATHWAY SHALL BE PROVIDED TO THE EMERGENCY ESCAPE AND RESCUE OPENING.

FIRE PATHWAY REQUIREMENT EXCEPTIONS.
- **I.** DETACHED, NONHABITABLE STRUCTURES SHALL NOT BE REQUIRED TO PROVIDE ROOF ACCESS.
- **II.** FIRE ACCESS PATHWAYS NOT REQUIRED FOR ROOFS WITH SLOPES OF 2:12 (11 DEGREE PITCH) OR LESS.

ADDITIONAL FIRE NOTES.
- I. FIRE PATHWAYS TO RIDGE ARE PROPOSED PATHWAYS AND ARE NOT INTENDED TO LIMIT ALTERNATIVE PATHWAYS TO ROOF AT INSTALLATION IF SITE CONDITIONS REQUIRE. ALTERNATIVE PATHWAYS MUST COMPLY WITH ALL AHJ AND CODE REQUIREMENTS FOR FIRE PATHWAYS.
- II. SEE **ADDITIONAL NOTES** SECTION FOR ROOF COVERAGE CALCULATIONS



ROOF & FIRE PLAN
SCALE: 1/8" = 1'

LEGEND KEY

MM COMBO METER/MAIN	AG FRANKLINWH AGATE	R RSD SWITCH	JB NEMA 3R JBOX	CHIMNEY	SATELLITE DISH	A/C ROOFTOP A/C UNIT
INV INVERTER	SUB SUB PANEL	BB BATTERY BANK	OPTIMIZER/RSD/ MICROINVERTER	SKY LIGHT	PLUMBING VENT	
S AC DISCONNECT	ACL AC LOADCENTER	EV EV CHARGER	PROPOSED CONDUIT	ATTIC VENT	ELECTRICAL MAST	
	IQC IQ COMBINER	PV PRODUCTION METER	PROPOSED STRINGING			

ADDITIONAL NOTES

PV MODULE DETAILS
REC SOLAR
REC460AA PURE-RX
460 WATTS
68.03" H X 47.44" L X 1.2" D
WEIGHT: 51.59 LBS

ROOF AREA PV COVERAGE

NEW AND EXISTING PV MODULES

ROOF SURFACE:	676 SQ. FT.
PV COVERAGE:	604.53 SQ. FT
ROOF AREA COVERED:	17.51%

FIRE SETBACKS & PATHWAYS
3' FIRE CODE PATHWAY
18" RIDGE FIRE SETBACK

*FIRE SETBACKS AND PATHWAYS DESIGNED IN COMPLIANCE WITH R324.6.2 AND ASSUMES **NO AUTOMATIC FIRE SPRINKLERS** ARE ON THE PROPERTY UNLESS CONFIRMED BY THE INSTALLER.*

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NEW PV SYSTEM
3.680 kW DC (STC-DC) | 3.388 kW (CEC-AC)
ALEXANDER TCHOURBANOV
20601 TRABUCO OAKS DR,
TRABUCO CANYON, CA 92679
APN: 84210206

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ELECTRICAL & FIRE PLAN	**PV.02**

ROOF INFORMATION

1. ROOF MATERIAL:	COMP SHINGLE
2. ROOF SLOPE:	11 DEGREES
3. ROOF STRUCTURE:	SINGLE SPAN RAFTERS
4. RAFTER SIZE:	2X4
5. RAFTER SPACING:	24" O.C.
6. RAFTER SPAN (S):	4'-8"

MODULE INFORMATION

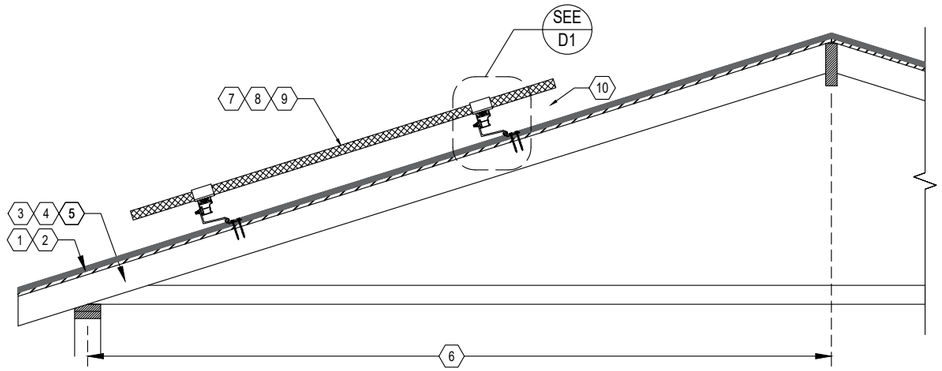
7. PV MODULE: REC SOLAR
REC460AA PURE-RX
8. DIMENSION: 68.03" H X 47.44" W X 1.2" D
9. WEIGHT 51.59 LBS
10. MODULE CLEARANCE: 3IN. MIN / 6 IN. MAX

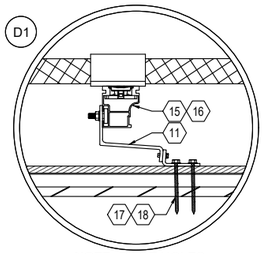
ATTACHMENT & RAILING

11. ATTACHMENT:	(20) EVERFLASH ECOMP KIT
12. MAX. HORIZONTAL STANDOFF:	72 IN.
13. STANDOFF STAGGERING:	YES
14. MAX. VERTICAL STANDOFF:	*PER INSTALLATION INSTRUCTIONS*
15. RAILING:	EVEREST RACKING-48-X RAILS
16. MAX RAIL CANTILEVER:	*PER INSTALLATION INSTRUCTIONS*
17. LAG BOLT SIZE:	3-1/2 IN. X 5/16 IN. DIA
18. LAG BOLT EMBEDMENT:	3-1/4 IN. A

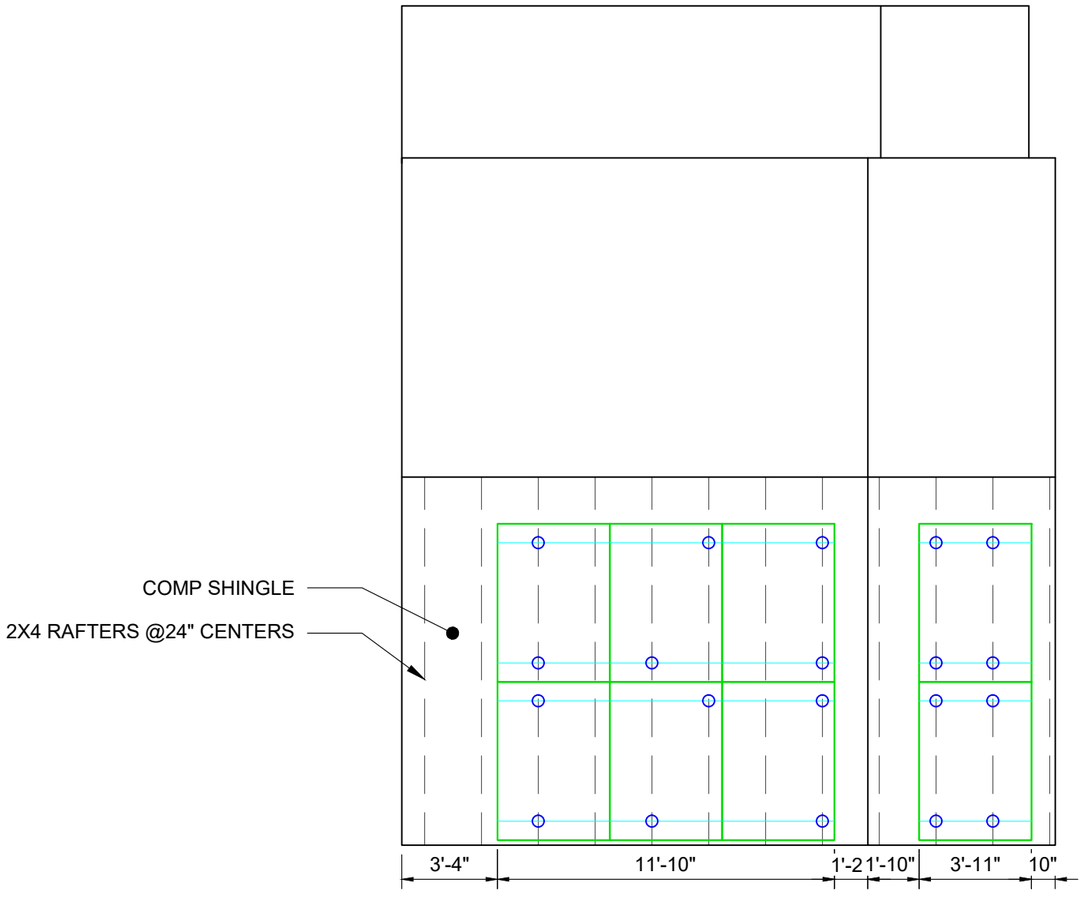
LOAD CALCULATIONS

APPROX. INSTALLATION AREA:	179.30 SQ. FT.
TOTAL SYSTEM WEIGHT:	450.32 LBS.
DISTRIBUTED WEIGHT OF ARRAY:	2.51 PSF.
WEIGHT PER MOUNT:	22.52 LBS





NOTE: PILOT HOLES REQUIRED FOR 5/16" DIA. LAG BOLTS



ATTACHMENT DETAIL
SCALE: 3/16" = 1'-0"

A

STRUCTURAL NOTES

A. ALL HARDWARE, INCLUDING MOUNTING AND RACKING, TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS.

B. ALL PV RELATED RACKING ATTACHMENTS WILL BE SPACED NO GREATER THAN THE SPAN DISTANCE SPECIFIED BY THE RACKING MANUFACTURER; FINAL ATTACHMENT LOCATIONS MAY BE ADJUSTED IN THE FIELD AS NECESSARY.

C. ROOFTOP PENETRATIONS PERTAINING TO SOLAR RACKING WILL BE COMPLETED AND SEALED W/ APPROVED CHEMICAL SEALNT PER CODE BY A LICENSED CONTRACTOR.

D. MAXIMUM VERTICAL STANDOFF BETWEEN RAILS & MAXIMUM RAIL CANTILEVER PER MANUFACTURER'S INSTALLATION INSTRUCTIONS

ENGINEER OF RECORD

REGISTERED PROFESSIONAL ENGINEER
RYAN J. McPHERSON
No. 82088
Exp. 3/31/26
CIVIL
STATE OF CALIFORNIA

This item has been digitally signed and sealed on Jun 02, 2025

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NEW PV SYSTEM
3.680 kW DC (STC-DC) | 3.388 kW (CEC-AC)

ALEXANDER TCHOURBANOV
20601 TRABUCO OAKS DR,
TRABUCO CANYON, CA 92679

APN: 84210206

DESIGNED BY **SOLAR DEPLOYED, LLC.**
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SHEET NAME: **STRUCTURAL PLAN**	SHEET NO.: **PV.03**

20601 TRABUCO OAKS DR, TRABUCO CANYON, CA 92679

PV SYSTEM ELECTRICAL SPECIFICATIONS AND CALCULATIONS

SYSTEM SUMMARY

SYSTEM SIZE (STC-DC):	**3.680 kW**
SYSTEM SIZE (CEC-AC):	**3.388 kW**
INVERTER RATED POWER (AC):	**3.04 kW**
MAX PV CURRENT (125%):	**15.80A**

OVERCURRENT CALCULATION

COMBINED INVERTER OUTPUT:	**12.64A**
MAX PV CURRENT (125%):	**15.80A**

MODULE SPECS

(8) REC SOLAR
REC460AA PURE-RX

RATED POWER (PMAX) (W)	460W
RATED POWER (PTC) (W)	438.8W
SHORT CIRCUIT CURRENT (ISC) (A)	8.88A
MAXIMUM POWER CURRENT (IMP) (A)	8.38A
OPEN CIRCUIT VOLTAGE (VOC) (V)	65.3V
MAXIMUM POWER VOLATGE (VMP) (V)	54.9V
TEMP. COEFF. OF VOC (%/C)	-0.24 %/C

MICROINVERTER SPECS

(8) ENPHASE IQ8X-80-M-US
[240V] [240V] [SI1-SB]

RATED POWER (W)	380W
MAX INPUT (A)	16A
MAX INPUT (V)	80V
MAX OUTPUT (A)	1.58A
MAX OUTPUT 125% (A)	1.98A
MAX OCPD (A)	20A
EFFICIENCY (CEC)	0.965%

MAX. BRANCH CALC

MAX OCPD (A) / (MAX OUTPUT X 1.25)

20A / 1.98A = 10.13 (ROUND DOWN)

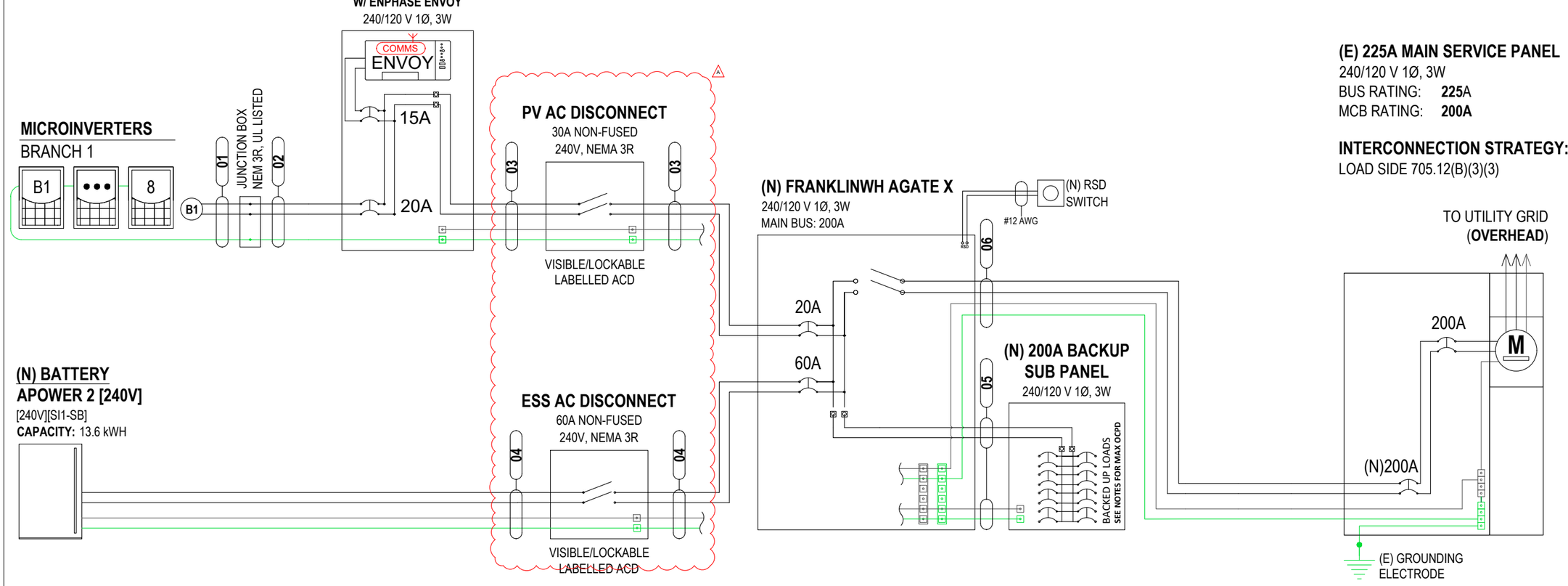
MICROINVERTERS *PROVIDE MODULE-LEVEL RAPID SHUTDOWN & ARE 690.12 COMPLIANT.*

CONDUIT AND WIRE SCHEDULE

ID	CONDUCTOR	GROUND	CONDUIT	CURRENT CARRYING CONDUCTORS IN CONDUIT	CONT. CURRENT	125% MAX. CURRENT	MIN. OCPD	TEMP. CORR. FACTOR	CONDUIT FILL FACTOR	BASE AMP. @ 90°C	DERATED 90°C AMP.	TERMINAL TEMP. RATING	TERMINAL AMP RATING
01	12 AWG PV WIRE, Cu	6 AWG BARE, Cu	FREE AIR	N/A	20A PER BRANCH		N/A	0.94 (31°C)	1	40A	37.60A	90°C	40A
02	10 AWG THWN-2, Cu	8 AWG, THWN-2, Cu	0.75" EMT	2 (2 PER BRANCH)	20A PER BRANCH		N/A	0.94 (31°C)	1	40A	37.60A	75°C	35A
03	10 AWG THWN-2, Cu	8 AWG, THWN-2, Cu	0.75" EMT	3	12.64A	15.80A	20A	0.94 (31°C)	1	40A	26.32A	75°C	35A
04	6 AWG THWN-2, Cu	8 AWG, THWN-2, Cu	0.75" EMT	3	48A	60A	60A	0.94 (31°C)	1	75A	70.50A	75°C	65A
05	3/0 AWG THWN-2, Cu	4 AWG, THWN-2, Cu	2" EMT	3	-	-	200A	0.94 (31°C)	1	225A	211.50A	75°C	200A
06	3/0 AWG THWN-2, Cu	4 AWG, THWN-2, Cu	2" EMT	3	-	-	200A	0.94 (31°C)	1	225A	211.50A	75°C	200A

BATTERY BACKUP NOTES

A. PRODUCERS STORAGE DEVICE(S) WILL NOT CAUSE THE HOST LOAD TO EXCEED ITS NORMAL PEAK DEMAND. NORMAL PEAK DEMAND IS DEFINED AS THE HIGHEST AMOUNT OF POWER REQUIRED FROM THE DISTRIBUTION SYSTEM BY PRODUCERS COMPLETE FACILITIES WITHOUT THE INFLUENCE OR USE OF THE ENERGY STORAGE DEVICE(S).



WEATHER STATION

EL TORO MCAS
EXTREME LOW TEMP.:3°C
2% HIGH TEMP. 31°C

TEMP. DERATE FACTOR: 0.94

WIRE TABLE AND CONDUIT NOTES

A. ROOFTOP TEMPERATURE CORRECTION FACTOR REFLECTS REQUIRED MIN. 7/8" CONDUIT HEIGHT FROM ROOF.
B. ALL CONDUCTORS SHALL BE COPPER AND RATED A MINIMUM OF 90°C; ALL TERMINALS SHALL BE RATED A MINIMUM OF 75°C.
C. ALL NEW WIRES ARE THWN-2 COPPER UNLESS OTHERWISE NOTED.
D. NEUTRAL WIRE SIZE TO MATCH CONDUCTOR RATING WHERE NEUTRAL IS APPLICABLE.

SEE DESIGN CALCULATIONS PAGE FOR ADDITIONAL NOTES AND DETAILS

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SHEET NO.: **PV.04**

20601 TRABUCO OAKS DR, TRABUCO CANYON, CA 92679

PV SYSTEM ELECTRICAL SPECIFICATIONS AND CALCULATIONS

SYSTEM SUMMARY

SYSTEM SIZE (STC-DC):	**3.680 kW**
SYSTEM SIZE (CEC-AC):	**3.388 kW**
INVERTER RATED POWER (AC):	**3.04 kW**
MAX PV CURRENT (125%):	**15.80A**

OVERCURRENT CALCULATION

COMBINED INVERTER OUTPUT:	**12.64A**
MAX PV CURRENT (125%):	**15.80A**

MODULE SPECS

(8) REC SOLAR
REC460AA PURE-RX

RATED POWER (PMAX) (W)	460W
RATED POWER (PTC) (W)	438.8W
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MAXIMUM POWER VOLATGE (VMP) (V)	54.9V
TEMP. COEFF. OF VOC (%/C)	-0.24 %/C

MICROINVERTER SPECS

(8) ENPHASE IQ8X-80-M-US
[240V] [240V] [SI1-SB]

RATED POWER (W)	380W
MAX INPUT (A)	16A
MAX INPUT (V)	80V
MAX OUTPUT (A)	1.58A
MAX OUTPUT 125% (A)	1.98A
MAX OCPD (A)	20A
EFFICIENCY (CEC)	0.965%

MAX. BRANCH CALC

MAX OCPD (A) / (MAX OUTPUT X 1.25)

20A / 1.98A = 10.13 (ROUND DOWN)

MICROINVERTERS *PROVIDE MODULE-LEVEL RAPID SHUTDOWN & ARE 690.12 COMPLIANT.*

CONDUIT AND WIRE SCHEDULE

***WEATHER STATION:* EL TORO MCAS [ASHRAE EXTREME LOW TEMP.:3°C | ASHRAE 2% HIGH TEMP. 31°C]**
ROOFTOP TEMPERATURE CORRECTION FACTOR REFLECTS REQUIRED MIN. 7/8" CONDUIT HEIGHT FROM ROOF
ALL CONDUCTORS SHALL BE COPPER AND RATED A MINIMUM OF 90°C; ALL TERMINALS SHALL BE RATED A MINIMUM OF 75°C.

ID	CONDUCTOR	GROUND	CONDUIT	CURRENT CARRYING CONDUCTORS IN CONDUIT	CONT. CURRENT	125% MAX. CURRENT	MIN. OCPD	TEMP. CORR. FACTOR	CONDUIT FILL FACTOR	BASE AMP. @ 90°C	DERATED 90°C AMP.	TERMINAL TEMP. RATING	TERMINAL AMP RATING
01	12 AWG PV WIRE, Cu	6 AWG BARE, Cu	FREE AIR	N/A	20A PER BRANCH		N/A	0.94 (31°C)	1	40A	37.60A	90°C	40A
02	10 AWG THWN-2, Cu	8 AWG, THWN-2, Cu	0.75" EMT	2 (2 PER BRANCH)	20A PER BRANCH		N/A	0.94 (31°C)	1	40A	37.60A	75°C	35A
03	10 AWG THWN-2, Cu	8 AWG, THWN-2, Cu	0.75" EMT	3	12.64A	15.80A	20A	0.94 (31°C)	1	40A	26.32A	75°C	35A
04	6 AWG THWN-2, Cu	8 AWG, THWN-2, Cu	0.75" EMT	3	48A	60A	60A	0.94 (31°C)	1	75A	70.50A	75°C	65A
05	3/0 AWG THWN-2, Cu	4 AWG, THWN-2, Cu	2" EMT	3	-	-	200A	0.94 (31°C)	1	225A	211.50A	75°C	200A
06	3/0 AWG THWN-2, Cu	4 AWG, THWN-2, Cu	2" EMT	3	-	-	200A	0.94 (31°C)	1	225A	211.50A	75°C	200A

ELECTRICAL & CONDUIT NOTES

A. MAIN PANEL UPGRADES. A TYPE 1 OR TYPE 2 SURGE PROTECTION DEVICE SHALL BE INSTALLED FOR THE NEW MSP EITHER AS AN INTEGRAL PART OF THE SERVICE EQUIPMENT OR LOCATED IMMEDIATELY ADJACENT THERETO. [CEC 230.67]

B. ALL CONDUIT AND WIRE WILL BE LISTED AND APPROVED FOR THEIR PURPOSE. CONDUIT AND CONDUCTOR SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENT AND ARE NOT MEANT TO LIMIT UP-SIZING AS REQUIRED BY FIELD CONDITIONS.

C. CONDUIT RACEWAYS SHALL BE PROVIDED WITH EXPANSION FITTINGS TO COMPENSATE FOR THERMAL EXPANSION AND CONTRACTION. [CEC 110 (B) AND 110.14 (D)]

D. PROVIDE PULL BOXES AND/OR EXPANSION OR DEFLECTION FITTINGS FOR THE ROOFTOP CONDUITS TO ACCOMMODATE THERMAL EXPANSION AND CONTRACTION. [CEC 300.7(B)]

E. ALL CONDUCTORS AND CONDUITS ON THE ROOF SHALL BE INSTALLED A MINIMUM DISTANCE ABOVE THE ROOF TO THE BOTTOM OF THE RACEWAY OR CABLE OF 7/8" IN. (INCLUDING CABLES UNDERNEATH MODULES AND RACKING).

F. ALL CONDUCTORS IN EXPOSED OUTDOOR LOCATIONS SHALL BE LISTED AND IDENTIFIED FOR USE IN DIRECT SUNLIGHT AND FOR THE APPLICATION. [CEC 690.31(C) THROUGH (F), 310.10(D)]

G. EXPOSED CONDUCTORS WITHIN THE PV ARRAY SHALL BE PV WIRE/CABLE, OR TYPE USE-2, OR TYPE RHW-2 (UL 4703 & 854 LISTED) [CEC 690.31(C)(1)]

H. ALL EXTERIOR CONDUIT, FITTINGS, AND BOXES SHALL BE RAIN TIGHT AND APPROVED FOR USE IN WET LOCATIONS. (CEC 314.15)

I. DC WIRING INSIDE A BUILDING MUST BE IN METAL RACEWAYS, METAL-CLAD CABLE, OR METAL ENCLOSURES. [CEC 690.31(D)]

J. EQUIPMENT GROUNDING CONDUCTOR (EGC) SMALLER THAN #6-AWG SHALL BE PROTECTED FROM PHYSICAL DAMAGE BY AN IDENTIFIED RACEWAY OR CABLE ARMOR, UNLESS INSTALLED WITHIN HOLLOW SPACES OF THE FRAMING MEMBERS OF BUILDINGS OR STRUCTURES AND WHERE NOT SUBJECT TO PHYSICAL DAMAGE. [CEC 250.120(C)]

K. CABLES/WIRES THAT ARE SUBJECT TO PHYSICAL DAMAGE, SUCH AS THOSE NOT LOCATED UNDER THE MODULES, MUST BE PROTECTED. [CEC 300.4]

L. CONDUIT AND WIRE SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING AS REQUIRED BY FIELD CONDITIONS.

M. PROVIDE A 5/8" DIAMETER GROUND ROD THAT EMBEDS MINIMUM OF 8 FEET TO THE GROUND AT A MINIMUM OF 6 FEET FROM EQUIPMENT GROUND CONDUCTOR UNLESS THERE IS AN EXISTING UFER GROUND.

N. IF UFER IS EXISTING, THE UFER GROUND SHALL BE INSPECTED BY CONTRACTOR TO SEE IF FIRM AND IN PLACE.

ADDITIONAL BATTERY STORAGE NOTES

PRODUCERS STORAGE DEVICE(S) WILL NOT CAUSE THE HOST LOAD TO EXCEED ITS NORMAL PEAK DEMAND. NORMAL PEAK DEMAND IS DEFINED AS THE HIGHEST AMOUNT OF POWER REQUIRED FROM THE DISTRIBUTION SYSTEM BY PRODUCERS COMPLETE FACILITIES WITHOUT THE INFLUENCE OR USE OF THE ENERGY STORAGE DEVICE(S).

ADDITIONAL NOTES

ENGINEER OF RECORD

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ORANGE, CA 92868
PHONE: (714) 880-8089
LIC NO.: C10 - 824287
TIM POLUJANCEWICZ

NEW PV SYSTEM
3.680 kW DC (STC-DC) | 3.388 kW (CEC-AC)

ALEXANDER TCHOURBANOV
20601 TRABUCO OAKS DR,
TRABUCO CANYON, CA 92679

APN: 84210206

DESIGNED BY **SOLAR DEPLOYED, LLC.**
931 10TH ST #114, MODESTO, CA 95354
209-671-2001 | HELLO@SOLARDEPLOYED.COM

DESIGN LEAD:	A.R.	SIGNATURE:	AR
DRAWN BY:	CB	CHECKED BY:	AB
PAPER:	**11X17 (ANSI B)**	DATE:	**5/30/2025**

SHEET NAME: **DESIGN CALCULATIONS**
SHEET NO.: **PV.05**

01

WARNING

ELECTRIC SHOCK HAZARD

TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

CODE REFERENCE: CEC 690.13(B)
LOCATION: PLACE ON **ALL** DISCONNECTING MEANS WHERE ENERGIZED IN AN OPEN POSITION

02

WARNING

POWER SOURCE OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE

CODE REFERENCE: CEC 705.12(B)(3)(2)
LOCATION: AT P.O.C. TO SERVICE DISTRIBUTION EQUIPMENT (I.E. MAIN PANEL **AND** SUB PANEL IF APPLICABLE)

03

WARNING

THIS EQUIPMENT FED BY MULTIPLE SOURCES: TOTAL RATING OF ALL OVERCURRRENT DEVICES, EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE, SHALL NOT EXCEED AMPACITY OF BUSBAR

CODE REFERENCE: CEC 705.12(B)(3)(3)
LOCATION: AT P.O.C. TO SERVICE DISTRIBUTION EQUIPMENT (I.E. MAIN PANEL **AND** SUB PANEL IF APPLICABLE)

04

WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

CODE REFERENCE: CEC 705.10
LOCATION: ALL EQUIPMENT CONTAINING OVERCURRENT DEVICES IN CIRCUITS SUPPLYING POWER TO A BUSBAR OR CONDUCTORS SUPPLIED FROM MULTIPLE SOURCES

05

PHOTOVOLTAIC POWER SOURCE

CODE REFERENCE: CEC 690.31(D)(2)
LOCATION: AT EXPOSED RACEWAYS, CABLE TRAYS, AND OTHER WIRING METHODS; SPACED A MAX. 10 FT SECTIONS OR WHERE SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS.

FORMAT
1. WHITE LETTERING ON A RED BACKGROUND
2. MINIMUM 3/8 INCHES LETTER HEIGHT
3. ALL LETTERS SHALL BE CAPITALIZED
4. ARIAL OR SIMILAR FONT (NON-BOLD)

MATERIAL
REFLECTIVE, WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT (USE UL-969 AS STANDARD FOR WEATHER RATING). DURABLE ADHESIVE MATERIALS.

06

AC DISCONNECT
AC PHOTOVOLTAIC POWER SOURCE

MAX AC OPERATING CURRENT:	12.64A MAX
AC OPERATING VOLTAGE:	240 VAC

CODE REFERENCE: CEC 690.54
LOCATION: AT P.O.C. TO SERVICE DISTRIBUTION EQUIPMENT (I.E. MAIN PANEL **AND** SUB PANEL IF APPLICABLE)

07

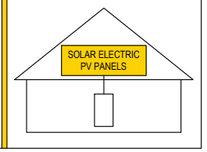
PHOTOVOLTAIC AC DISCONNECT

CODE REFERENCE: CEC 690.13(B)
LOCATION: AT P.O.C. TO SERVICE DISTRIBUTION EQUIPMENT / AC DISCONNECTS / BREAKERS

08

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY



CODE REFERENCE: CEC 690.56
LOCATION: SIGN TO BE LOCATED ON OR NO MORE THAN 3 FT AWAY FROM SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATION OF ALL IDENTIFIED RAPID SHUTDOWN SWITCHES IF NOT AT THE SAME LOCATION.

09

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

CODE REFERENCE: CEC 690.56 (C)(2)
LOCATION: TO BE LOCATED ON OR NO MORE THAN 3 FT AWAY FROM RSD INITIATION DEVICE

10

WARNING

PHOTOVOLTAIC SYSTEM COMBINER PANEL

DO NOT ADD LOADS.

LOCATION: AT PV COMBINER PANEL **(IF APPLICABLE)**

BATTERY BACKUP PLACARDS

ENERGY STORAGE SYSTEM DISCONNECT

CODE REFERENCE: CEC 706.15(C)
LOCATION: ON ACCESSIBLE ESS DISCONNECT

BACKUP LOAD CENTER

CODE REFERENCE: CEC 408.4
LOCATION: PLACE ON BACKUP LOAD CENTER

CAUTION
DO NOT ADD NEW LOADS

CODE REFERENCE: CEC 220
LOCATION: PLACE ON BACKUP LOAD CENTER

CAUTION
THIS PANEL HAS SPLICED FEED-THROUGH CONDUCTORS. LOCATION OF DISCONNECT AT ENERGY STORAGE BACK UP LOAD PANEL.

CODE REFERENCE: CEC 312.8(3)
LOCATION: PLACE ON MAIN PANEL IF POINT OF INTERCONNECTION IS SUPPLY SIDE

NOMINAL ESS AC VOLTAGE:	240 VAC
MAXIMUM ESS DC VOLTAGE:	N/A
AVAILABLE FAULT CURRENT DERIVED FROM THE ESS:	20kA
DATE CALCULATION PERFORMED:	5/30/2025

CODE REFERENCE: CEC 706.15(C)
LOCATION: ON ACCESSIBLE ESS DISCONNECT

WARNING
FUEL CELL POWER SYSTEM CONTAINS ENERGY STORAGE DEVICES

CODE REFERENCE: CEC 692.56
LOCATION: ON ACCESSIBLE ESS DISCONNECT

CAUTION
TRI POWER SOURCE.
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM
THIRD SOURCE IS ENERGY STORAGE SYSTEM

CODE REFERENCE: CEC 705.12(B)(3)
LOCATION: PLACE ON MAIN PANEL IF PV SYSTEM IS ALSO CONNECTED TO PANEL

ADDITIONAL NOTES

ENGINEER OF RECORD

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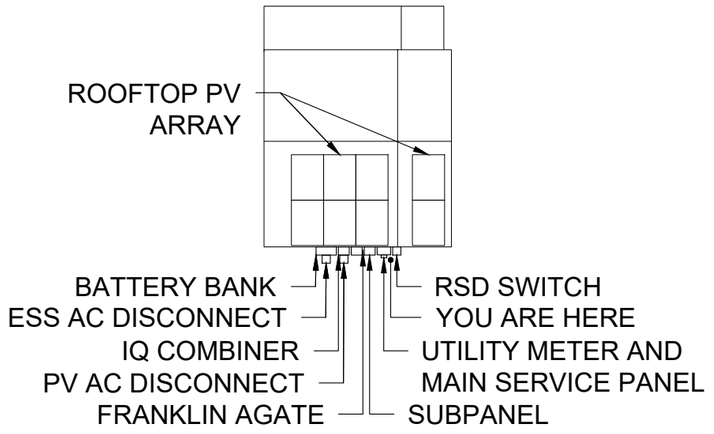
SHEET NAME: **LABELS**	SHEET NO.: **PV.06**

DISCONNECT DIRECTORY PLAQUE

INSTALL AT MAIN SERVICE PANEL

CAUTION:

POWER TO THIS BUILDING ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN



20601 TRABUCO OAKS DR,TRABUCO CANYON, CA 92679

NOTE: NEW AND EXISTING PV ARRAY ARE 690.12 RSD COMPLIANT

FORMAT

1. WHITE LETTERING ON A RED BACKGROUND
2. MINIMUM 3/8 INCHES LETTER HEIGHT
3. ALL LETTERS SHALL BE CAPITALIZED
4. ARIAL OR SIMILAR FONT (NON-BOLD)

MATERIAL

REFLECTIVE, WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT (USE UL-969 AS STANDARD FOR WEATHER RATING).
DURABLE ADHESIVE MATERIALS

A

ADDITIONAL NOTES

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SHEET NAME:	SHEET NO.:
PLACARD MAP	**PV.07**

1	2	3	4	5	6	7	8	9	10	11	12	13

14	15	16	17	18	19	20	21	22	23	24	25	26

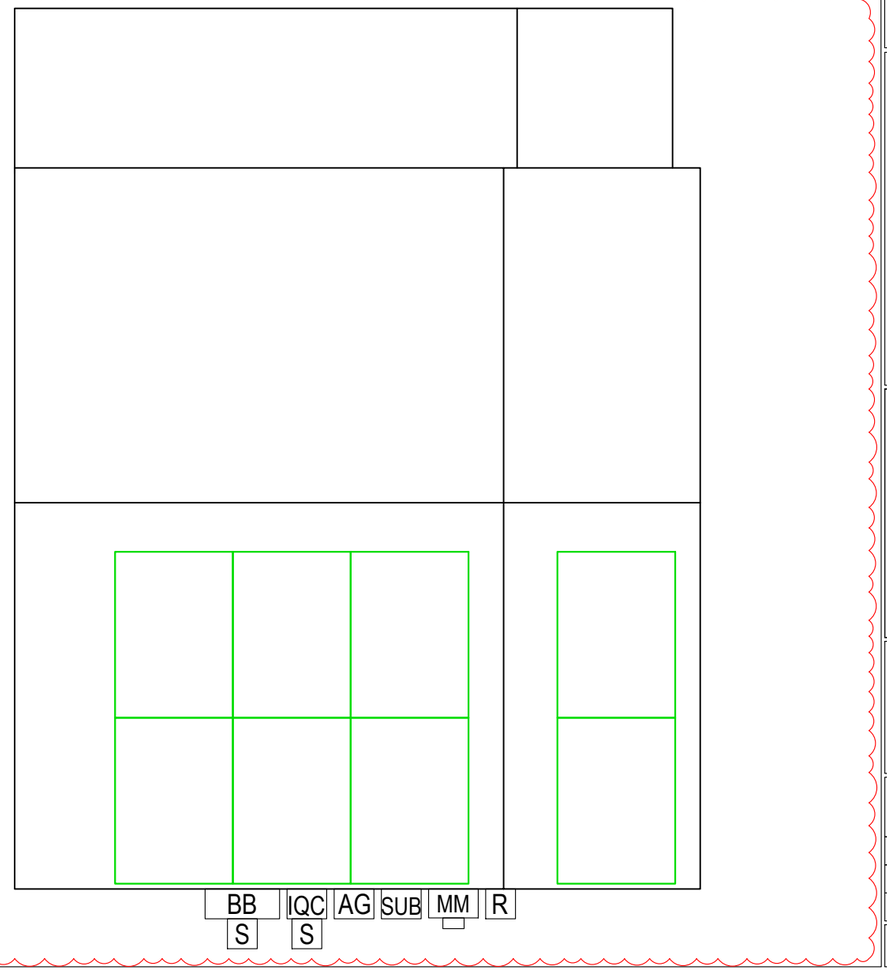
27	28	29	30	31	32	33	34	35	36	37	38	39

40	41	42	43	44	45	46

47	48	49	50	54	52	53

54	55	56	57	58	59	60

61	62	63	64	65	66	67



ADDITIONAL NOTES

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SHEET NAME:	SHEET NO.:
MICROINVERTER MAP	**MM**

SOLAR'S MOST TRUSTED

REC

REC ALPHA® PURE-RX SERIES

PRODUCT SPECIFICATIONS

470 WP

226 W/M²

COMPACT PANEL SIZE

9 A MODULE CURRENT COMPATIBLE WITH MLPE

PRODUCT REC 25 YEAR PROTRUST WARRANTY PERFORMANCE LABOR

ELIGIBLE

LEAD-FREE
ROHS COMPLIANT

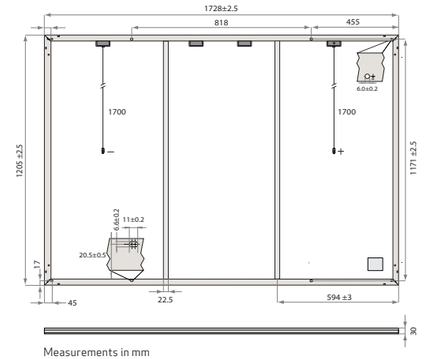
EXPERIENCE α PERFORMANCE

REC ALPHA PURE-RX SERIES

PRODUCT SPECIFICATIONS

REC
SOLAR'S MOST TRUSTED

GENERAL DATA	
Cell type:	88 half-cut REC bifacial, heterojunction cells with lead-free, gapless technology
Glass:	3.2 mm solar glass with anti-reflective surface treatment in accordance with EN 12150
Backsheet:	Highly resistant polymer
Frame:	Anodized aluminum (black)
Junction box:	4-part, 4 bypass diodes, lead-free IP68 rated, in accordance with IEC 62790
Connectors:	Stäubli MC4 PV-KBT4/KST4 (4 mm²) in accordance with IEC 62852, IP68 only when connected
Cable:	4 mm² solar cable, 1.7 + 1.7 m in accordance with EN 50618
Dimensions:	1728 x 1205 x 30 mm (2.08 m²)
Weight:	23.4 kg
Origin:	Made in Singapore



Measurements in mm

ELECTRICAL DATA		Product Code*: RECxxxAA Pure-RX	
STC			
Power Output - P_{MAX} (Wp)	450	460	470
Watt Class Sorting - (W)	0/+10	0/+10	0/+10
Nominal Power Voltage - V_{MPP} (V)	54.3	54.9	55.4
Nominal Power Current - I_{MPP} (A)	8.29	8.38	8.49
Open Circuit Voltage - V_{OC} (V)	65.1	65.3	65.6
Short Circuit Current - I_{SC} (A)	8.81	8.88	8.95
Power Density (W/m²)	216	221	226
Panel Efficiency (%)	21.6	22.1	22.6
NMOT			
Power Output - P_{MAX} (Wp)	343	350	358
Nominal Power Voltage - V_{MPP} (V)	51.2	51.7	52.2
Nominal Power Current - I_{MPP} (A)	6.70	6.77	6.86
Open Circuit Voltage - V_{OC} (V)	61.3	61.6	61.8
Short Circuit Current - I_{SC} (A)	7.11	7.17	7.23

Values at standard test conditions (STC: air mass AM 1.5, irradiance 1000 W/m², temperature 25°C), based on a production spread with a tolerance of P_{MAX}, V_{OC} & I_{SC} ±3% within one watt class. Nominal module operating temperature (NMOT: air mass AM 1.5, irradiance 800 W/m², temperature 20°C, windspeed 1 m/s). * Where xxx indicates the nominal power class (P_{MAX}) at STC above.

MAXIMUM RATINGS	
Operational temperature:	-40…+85°C
Maximum system voltage:	1000 V
Maximum test load (front):	+7000 Pa (713 kg/m²)*
Maximum test load (rear):	-4000 Pa (407 kg/m²)*
Max series fuse rating:	25 A
Max reverse current:	25 A

*See installation manual for mounting instructions. Design load = Test load / 1.5 (safety factor)

WARRANTY	Standard	REC ProTrust	
Installed by an REC Certified Solar Professional	No	Yes	Yes
System Size	All	≤25 kW	25-500 kW
Product Warranty (yrs)	20	25	25
Power Warranty (yrs)	25	25	25
Labor Warranty (yrs)	0	25	10
Power in Year 1	98%	98%	98%
Annual Degradation	0.25%	0.25%	0.25%
Power in Year 25	92%	92%	92%

The REC ProTrust Warranty is only available on panels purchased through an REC Certified Solar Professional installer. Warranty conditions apply. See www.recgroup.com for more details.

Available from:

Founded in 1996, REC Group is an international pioneering solar energy company dedicated to empowering consumers with clean, affordable solar power. As Solar's Most Trusted, REC is committed to high quality, innovation, and a low carbon footprint in the solar materials and solar panels it manufactures. Headquartered in Norway with operational headquarters in Singapore, REC also has regional hubs in North America, Europe, and Asia-Pacific.

CERTIFICATIONS	
IEC 61215:2021, IEC 61730:2016, UL 61730	
IEC 62804	PID
IEC 61701	Salt Mist
IEC 62716	Ammonia Resistance
ISO 11925-2	Ignitability (EN 13501-1 Class E)
IEC 62782	Dynamic Mechanical Load
IEC 61215-2:2016	Hailstone (35mm)
IEC 62321	Lead-free acc. to RoHS EU 863/2015
IEC 61730-2:2016	Fire Class C (as per UL 790)

ISO 14001, ISO 9001, IEC 45001, IEC 62941

Lead-Free take-e-way take-e-way WEEE-compliant recycling scheme

Declare. Living Building Challenge Compliant

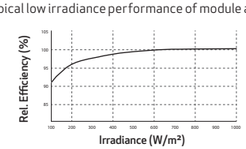
TEMPERATURE RATINGS*	
Nominal Module Operating Temperature:	44°C (±2°C)
Temperature coefficient of P_{MAX}:	-0.24 %/°C
Temperature coefficient of V_{OC}:	-0.24 %/°C
Temperature coefficient of I_{SC}:	0.04 %/°C

*The temperature coefficients stated are linear values

DELIVERY INFORMATION	
Panels per pallet:	33
Panels per 40 ft GP/high cube container:	594 (18 pallets)
Panels per 13.6 m truck:	660 (20 pallets)

LOW LIGHT BEHAVIOUR

Typical low irradiance performance of module at STC:



REC Solar PTE. LTD.
20 Tuas South Ave. 14
Singapore 637312
post@recgroup.com

REC
www.recgroup.com

Ref: PM-DS-12-06-Rev- 3.1 10.23

Specifications subject to change without notice.

DATA SHEET

IQ8X Microinverter

Our newest IQ8 Series Microinverters are the industry's first microgrid-forming*, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application-specific integrated circuit (ASIC), which enables the microinverter to operate in grid-tied or off-grid mode. This chip is built using advanced 55-nm technology with high-speed digital logic and superfast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.

IQ8X Microinverter is the latest addition to this family, designed to support PV modules with high output DC voltage and cell counts, such as 80-half-cut cells, 88-half-cut cells and 96-cells.

Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the IQ Battery, IQ Gateway, and the Enphase App monitoring and analysis software.

Enphase 25 year limited warranty

IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.

Connect PV modules quickly and easily to the IQ8 Series Microinverters with integrated MC4 connectors.

UL CERTIFIED SAFETY

IQ8 Series Microinverters are UL Listed as PV rapid shutdown equipment and conform with regulations when installed according to the manufacturer's instructions.

*Meets UL 1741 only when installed with IQ System Controller 2 or 3.

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Easy to install

- Lightweight and compact with plug-and-play connectors
- Power line communication (PLC) between components
- Faster installation with simple two-wire cabling

High productivity and reliability

- Produces power even when the grid is down*
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

Microgrid-forming

- Complies with the latest advanced grid support
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) and IEEE 1547:2018 (UL 1741-SB)

NOTE:

- IQ8 Series Microinverters cannot be mixed with previous generations of Enphase microinverters (IQ7 Series, IQ6 Series, and so on) in the same system.
- IQ Microinverters ship with default settings that meet North America's IEEE 1547 interconnection standard requirements. Region-specific adjustments may be requested by an Authority Having Jurisdiction (AHJ) or utility representative, according to the IEEE 1547 interconnection standard. An IQ Gateway is required to make these changes during installation.

IQ8X Microinverter

INPUT DATA (DC)	UNIT	IQ8X-80-M-US
Commonly used module pairings [1]	W	320–540
Module compatibility	–	To meet compatibility, PV modules must be within the following maximum input DC voltage and maximum module I_{sc} Module compatibility can be checked at https://enphase.com/installers/microinverters/calculator
MPPT voltage range	V	43–60
Operating range	V	25–79.5
Minimum and maximum start voltage	V	30–79.5
Maximum input DC voltage	V	79.5
Maximum continuous operating DC current	A	10
Maximum input DC short-circuit current	A	16
Maximum module I_{sc}	A	13
Overvoltage class DC port	–	II
DC port backfeed current	mA	0
PV array configuration	–	Ungrounded array; no additional DC side protection required; AC side protection requires a maximum of 20 A per branch circuit

OUTPUT DATA (AC)	UNIT	IQ8X-80-M-US @240 VAC	IQ8X-80-M-US @208 VAC
Peak output power	VA	384	366
Maximum continuous output power	VA	380	360
Nominal grid voltage (L-L)	V	240, split-phase (L-L), 180°	208, single-phase (L-L), 120° [4]
Minimum and maximum grid voltage [2]	V	211–264	183–229
Max. continuous output current	A	1.58	1.73
Nominal frequency	Hz	60	
Extended frequency range	Hz	47–68	
AC short circuit fault current over three cycles	Arms	2.70	
Maximum units per 20 A (L-L) branch circuit [3]	–	10	9
Total harmonic distortion	%	<5	
Overvoltage class AC port	–	III	
AC port backfeed current	mA	18	
Power factor setting	–	1.0	
Grid-tied power factor (adjustable)	–	0.85 leading ... 0.85 lagging	
Peak efficiency	%	97.3	97.0
CEC weighted efficiency	%	96.5	96.5
Nighttime power consumption	mW	26	12

MECHANICAL DATA	
Ambient temperature range	-40°C to 65°C (-40°F to 149°F)
Relative humidity range	4% to 100% (condensing)
DC connector type	Stäubli MC4
Dimensions (H × W × D); Weight	212 mm (8.3") × 175 mm (6.9") × 30.2 mm (1.2"); 1.1 kg (2.43 lb)
Cooling	Natural convection – no fans
Approved for wet locations; Pollution degree	Yes; PD3
Enclosure	Class II double-insulated, corrosion-resistant polymeric enclosure
Environmental category; UV exposure rating	NEMA Type 6; outdoor

COMPLIANCE	
Certifications	CA Rule 21 (UL 1741-SA), UL 62109-1, IEEE 1547:2018 (UL 1741-SB), FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01. This product is UL Listed as PV rapid shutdown equipment and conforms with NEC 2014, NEC 2017, NEC 2020, and NEC 2023 section 690.12 and C22.1-2018 Rule 64-218 rapid shutdown of PV systems for AC and DC conductors when installed according to the manufacturer's instructions.

(1) No enforced DC/AC ratio.
(2) Nominal voltage range can be extended beyond nominal if required by the utility.
(3) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.
(4) IQ8X is not certified for use with Enphase Three Phase Network Protection Relay (NPR-3P-208-NA) and is, therefore, designed for single-phase operation only. Check with the local utility requirements if you wish to install single-phase inverters across three phases.

IQ8X-MC4-DSH-00185-3.0-EN-US-2024-02-12

ENPHASE

DATA SHEET

X-IQ-AM1-240-5
X-IQ-AM1-240-5C

IQ Combiner 5/5C

The IQ Combiner 5/5C consolidates interconnection equipment into a single enclosure and streamlines IQ Series Microinverters and IQ Gateway installation by providing a consistent, pre-wired solution for residential applications. IQ Combiner 5/5C uses wired control communication and is compatible with IQ System Controller 3/3G and IQ Battery 5P.

The IQ Combiner 5/5C, IQ Series Microinverters, IQ System Controller 3/3G, and IQ Battery 5P provide a complete grid-agnostic Enphase Energy System.

IQ Series Microinverters
The high-powered smart grid-ready IQ Series Microinverters (IQ6, IQ7, and IQ8 Series) simplify the installation process.

IQ System Controller 3/3G
Provides microgrid interconnection device (MID) functionality by automatically detecting grid failures and seamlessly transitioning the home energy system from grid power to backup power.

IQ Battery 5P
Fully integrated AC battery system. Includes six field-replaceable IQ8D-BAT Microinverters.

IQ Load Controller
Helps prioritize essential appliances during a grid outage to optimize energy consumption and prolong battery life.

5-year limited warranty

Smart

- Includes IQ Gateway for communication and control
- Includes Enphase Mobile Connect (CELLMODEM-M1-06-SP-05), only with IQ Combiner 5C
- Supports flexible networking: Wi-Fi, Ethernet, or cellular
- Provides production metering (revenue grade) and consumption monitoring

Easy to install

- Mounts to one stud with centered brackets
- Supports bottom, back, and side conduit entries
- Supports up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80 A total PV branch circuits
- Bluetooth-based Wi-Fi provisioning for easy Wi-Fi setup

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- 5-year limited warranty
- 2-year labor reimbursement program coverage included for both the IQ Combiner SKUs*
- UL1741 Listed

*For country-specific warranty information, see the https://enphase.com/installers/resources/warranty page.

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IQ Combiner 5/5C

MODEL NUMBER	
IQ Combiner 5 (X-IQ-AM1-240-5)	IQ Combiner 5 with IQ Gateway printed circuit board for integrated revenue-grade PV production metering (ANSIC12.20 ±0.5%), consumption monitoring (±2.5%), and IQ Battery monitoring (±2.5%). Includes a silver solar shield to deflect heat.
IQ Combiner 5C (X-IQ-AM1-240-5C)	IQ Combiner 5C with IQ Gateway printed circuit board for integrated revenue-grade PV production metering (ANSI C12.20 ±0.5%), consumption monitoring (±2.5%) and IQ Battery monitoring (±2.5%). Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05)[1]. Includes a silver solar shield to deflect heat.
WHAT'S IN THE BOX	
IQ Gateway printed circuit board	IQ Gateway is the platform for total energy management for comprehensive, remote maintenance, and management of the Enphase Energy System
Busbar	80 A busbar with support for one IQ Gateway breaker and four 20 A breaker for installing IQ Series Microinverters and IQ Battery 5P
IQ Gateway breaker	Circuit breaker, 2-pole, 10 A/15 A
Production CT	Pre-wired revenue-grade solid-core CT, accurate up to ±0.5%
Consumption CT	Two consumption metering clamp CTs, shipped with the box, accurate up to ±2.5%
IQ Battery CT	One battery metering clamp CT, shipped with the box, accurate up to ±2.5%
CTRL board	Control board for wired communication with IQ System Controller 3/3G and the IQ Battery 5P
Enphase Mobile Connect (only with IQ Combiner 5C)	4G-based LTE-M1 cellular modem (CELLMODEM-M1-06-SP-05) with a 5-year T-Mobile data plan
Accessories kit	Spare control headers for the COMMS-KIT-02 board
ACCESSORIES AND REPLACEMENT PARTS (NOT INCLUDED, ORDER SEPARATELY)	
CELLMODEM-M1-06-SP-05	4G-based LTE-M1 cellular modem with a 5-year T-Mobile data plan
CELLMODEM-M1-06-AT-05	4G-based LTE-M1 cellular modem with a 5-year AT&T data plan
Circuit breakers (off-the-shelf)	Supports Eaton BR2XX, Siemens Q2XX and GE/ABB THQL21XX Series circuit breakers (XX represents 10, 15, 20, 30, 40, 50, or 60). Also supports Eaton BR220B, BR230B, and BR240B circuit breakers compatible with the hold-down kit.
Circuit breakers (provided by Enphase)	BRK-10A-2-240V, BRK-15A-2-240V, BRK-20A-2P-240V, BRK-15A-2P-240V-B, and BRK-20A-2P-240V-B (more details in the "Accessories" section)
XA-SOLARSHIELD-ES	Replacement solar shield for IQ Combiner 5/5C
XA-ENV2-PCBA-5	IQ Gateway replacement printed circuit board (PCB) for IQ Combiner 5/5C
X-IQ-NA-HD-125A	Hold-down kit compatible with Eaton BR-B Series circuit breakers (with screws)
XA-COMMS2-PCBA-5	Replacement COMMS-KIT-02 printed circuit board (PCB) for IQ Combiner 5/5C
ELECTRICAL SPECIFICATIONS	
Rating	80 A
System voltage and frequency	120/240 VAC, 60 Hz
Busbar rating	125 A
Fault current rating	10 kAIC
Maximum continuous current rating (input from PV/storage)	64 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR, Siemens Q, or GE/ABB THQL Series distributed generation (DG) breakers only (not included)
Maximum total branch circuit breaker rating (input)	80 A of distributed generation/95 A with IQ Gateway breaker included
IQ Gateway breaker	10 A or 15 A rating GE/Siemens/Eaton included
Production metering CT	200 A solid core pre-installed and wired to IQ Gateway
Consumption monitoring CT (CT-200-CLAMP)	A pair of 200 A clamp-style current transformers is included with the box
IQ Battery metering CT	200 A clamp-style current transformer for IQ Battery metering, included with the box

[1] A plug-and-play industrial-grade cell modem for systems of up to 60 microinverters. Available in the United States, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.

IQC-5-5C-DSH-00007-4.0-EN-US-2024-06-13

MECHANICAL DATA		
Dimensions (W × H × D)		37.5 cm × 49.5 cm × 16.8 cm (14.75" × 19.5" × 6.63"). Height is 53.5 cm (21.06") with mounting brackets.
Weight		7.5 kg (16.5 lb)
Ambient temperature range		-40°C to 46°C (-40°F to 115°F)
Cooling		Natural convection, plus heat shield
Enclosure environmental rating		Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction
Wire sizes		• 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors • 60 A breaker branch input: 4 to 1/0 AWG copper conductors • Main lug combined output: 10 to 2/0 AWG copper conductors • Neutral and ground: 14 to 1/0 copper conductors • Always follow local code requirements for conductor sizing
Communication (in-premise connectivity)		Built-in CTRL board for wired communication with the IQ Battery 5P and the IQ System Controller 3/3G. Integrated power line communication for IQ Series Microinverters.
Altitude		Up to 2,600 meters (8,530 feet)
COMMUNICATION INTERFACES		
Integrated Wi-Fi		802.11b/g/n (dual band 2.4 GHz/5 GHz) for connecting the Enphase Cloud through the internet.
Wi-Fi range (recommended)		10 m (32.8 feet)
Bluetooth		BLE4.2, 10 m range to configure Wi-Fi SSID
Ethernet		Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included) for connecting to the Enphase Cloud through the internet.
Cellular/Mobile Connect		CELLMODEM-M1-06-SP-05 or CELLMODEM-M1-06-AT-05 (included with the IQ Combiner 5C)
Digital I/O		Digital input/output for grid operator control
USB 2.0		Mobile Connect, COMMS-KIT-01 for IQ Battery 3/3T/10/10T, COMMS-KIT-02 for IQ Battery 5P
Access point (AP) mode		For connection between the IQ Gateway and a mobile device running the Enphase Installer App
Metering ports		Up to two Consumption CTs, one IQ Battery CT, and one Production CT
Power line communication		90–110 kHz
Web API		See https://developer-v4.enphase.com
Local API		See Guide for local API at https://enphase.com/download/accessing-iq-gateway-local-apis-or-local-ui-token-based-authentication
COMPLIANCE		
IQ Combiner with IQ Gateway		UL 1741, CAN/CSA C22.2 No. 107.1, Title 47 CFR, Part 15, Class B, ICES 003, NOM-208-SCFI-2016, UL 60601-1/CANCSA 22.2 No. 61010-1, IEEE 1547: 2018 (UL 1741-SB, 3rd Ed.), IEEE 2030.5/CSIP Compliant, Production metering: ANSI C12.20 accuracy class 0.5 (PV production)
COMPATIBILITY		
PV	Microinverters	IQ6, IQ7, and IQ8 Series Microinverters
COMMS-KIT-01 [2]	IQ System Controller	EP200G101-M240US00
	IQ System Controller 2	EP200G101-M240US01
	IQ Battery	ENCHARGE-3-1P-NA, ENCHARGE-10-1P-NA, ENCHARGE-3T-1P-NA, ENCHARGE-10T-1P-NA
COMMS-KIT-02 [3]	IQ System Controller 3	SC200D111C240US01, SC200G111C240US01
	IQ Battery	IQBATTERY-5P-1P-NA

[2] For information about IQ Combiner 5/5C compatibility with the 2nd-generation batteries, refer to the compatibility matrix at https://enphase.com/download/compatibility-matrix.
[3] IQ Combiner 5/5C comes pre-equipped with COMMS-KIT-02.

IQC-5-5C-DSH-00007-4.0-EN-US-2024-06-13

FRANKLINWH

aGate

Intelligent energy management system

The aGate serves as the controller for all home power sources by interconnecting solar, grid, batteries, and a standby generator to supply electricity to the home. It seamlessly transitions the home supply from grid power to backup power so that always-on appliances, such as the refrigerator and network router, will not be affected when the grid goes down.

The aGate can be installed at the service entrance, connected to the main load center, or used as a load center.

Robust

- Micro-grid interconnect device (MID)
- EMS Integrated PV and grid metering
- UL1741 certified PCS function & 280A busbar to avoid Main Panel Upgrades
- 12-year limited warranty

Hassle-free

- Precise control of electricity usage through Smart Circuits Module
- Standby generator integration via generator module
- Remarkable black start function ensures battery charge after a prolonged outage or extended trip
- Vehicle to loads (V2L) function to power essential home appliances during an emergency
- Commissioning through the aGate Wifi hotspot or Bluetooth

Flexible

- Compatible with micro and string solar inverter
- Indoor and outdoor / wall-mounted

Easy installation

- Built-in design Smart Circuits and Generator Modules
- Conduit entry options from the bottom, left, or right

Intertek C US

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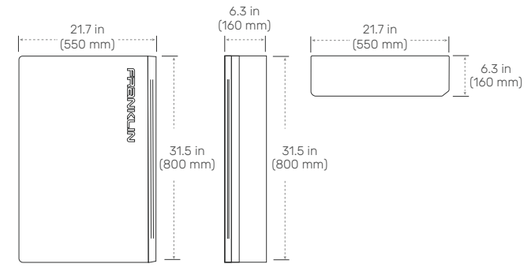
DATASHEET

PERFORMANCE SPECIFICATIONS

Model Number	aGate X
Coupling	AC-coupled
Nominal AC Voltage	120 / 208 V, 120 / 240 V, 60 Hz
Phase	2 W+N+PE
Grid Input Over Current Protection Device	200 A Max
aPower Over Current Protection Device	100 A Max
Solar Input Over Current Protection Device	80 A Max
Backup Load Port Over Current Protection Device	200 A Max
Non-backup Load Port Over Current Protection Device	200 A Max
Generator Over Current Protection Device[1]	200 A Max
Smart Circuits Over Current Protection Device[2]	Opt. a 1 × 80 A Max @ 208 V / 240 V & 1 × 50 A Max @ 208 V / 240 V Opt. b 1 × 80 A Max @ 208 V / 240 V & 2 × 50 A Max @ 120 V
Maximum Supply Fault Current	22 kA
Busbar Rating	280 A
Work Modes	Self-Consumption, Time of Use, Emergency Backup
Communications	Ethernet / 4G / Wifi /Bluetooth
User Interface	FranklinWH App
Warranty	12-year limited
IEC Protective Class	Class I
Over voltage Category	Category II
AC Meter	+/- 0.5%

MECHANICAL SPECIFICATIONS

Dimensions (H × W × D)	31.5 in × 21.7 in × 6.3 in (800 mm × 550 mm × 160 mm)
Weight	38.6 lb (17.5 kg)
Mounting	Wall mount



1. Generator Module is optional.
2. Smart Circuit Module is optional.

COMPLIANCE INFORMATION

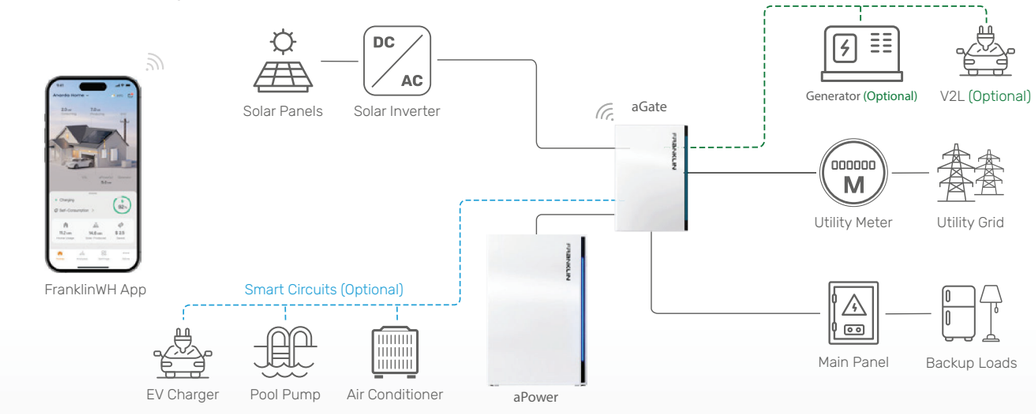
Certifications	UL 1741, UL 1741 PCS, UL 67, UL 869A, UL 916, CAN / CSA C22.2 No. 107.1-16, CSA C22.2 No. 29, CSA C22.2 No. 0.19
Seismic	AC 156, OSHPD, IEEE 693-2005 (high)
Environmental	California Proposition 65 RoHS Directive 2011 / EU
Emissions	FCC Part 15 Class B, ICES 003

ENVIRONMENTAL SPECIFICATIONS

Enclosure Type	NEMA Type 3R
Operating Temperature	-4°F to 122°F (-20°C to 50°C)
Operating Humidity (RH)	Up to 100% RH, condensing
Altitude	Maximum 9,843 ft (3,000 m)
Environment	Indoor and outdoor rated

Franklin Home Power Solution

Whole Home Backup



Address: 1731 Technology Dr., Suite 530 San Jose, CA 95110 **Telephone:** +1 888-837-2655 **Email:** info@franklinwh.com **Website:** www.franklinwh.com

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FRANKLINWH

aPower 2

AC-coupled battery

Store solar generated power while the sun is shining. Use the stored energy when needed to lower electric bills. Run heavy loads such as air conditioners and water heaters as usual even during grid outages. Provide homeowner peace of mind by fully charging before severe weather events.

The system is off-grid ready, designed to operate independently from the main power grid to deliver reliable energy in any situation.

- ✓ 10 kW continuous / 15 kW peak for 10s
- ✓ 8 kW charge power
- ✓ 15 kWh AC[1] per unit, up to 225 kWh (15 units) per aGate
- ✓ 60 MWh warranty throughput

PERFORMANCE SPECIFICATIONS

SKU					APR-10K15V2-US
Model Number					aPower 2
Nameplate /Certification					aPower X-20
CEC Listing Name					aPower Xyyy
Battery Chemistry					Lithium Iron Phosphate (LFP)
Usable System Energy					15 kWh AC[1] per unit, up to 15 units per aGate
Aggregate Throughput					60 MWh
Real Power (charge)					8 kW continuous
Nominal Output Power (AC)	2.5 kW	5 kW	6.7 kW	8.4 kW	10 kW[2]
Maximum Apparent Power	2.9 kVA	5.8 kVA	7.7 kVA	9.6 kVA	11.5 kVA
Maximum Continuous Current	12 A	24 A	32 A	40 A	48 A
Nominal AC Voltage					120 / 240 V, 120 / 208 V (single phase), 60 Hz
Coupling					AC-coupled
Phase					2 W+N+PE
Round Trip Efficiency					90%[1]
Maximum Short-Circuit Current Rating					10 kA
Load Start Capability					Up to a 5-ton air conditioner
Work Modes					Self-Consumption Time of Use Emergency Backup
Noise Emission					30 dB(A) Typical / 45 dB(A) Maximum
Flood Resistance					Up to 29" from the aPower 2 base
User Interface					FranklinWH App
Warranty					15 years[3]

COMPLIANCE INFORMATION

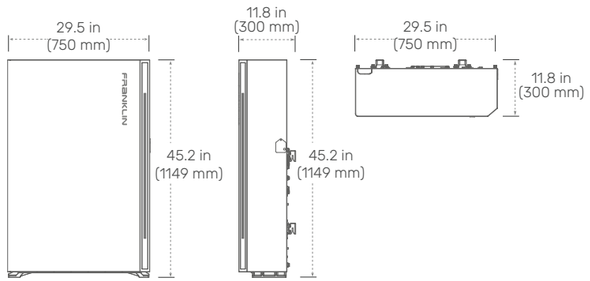
Certifications	UL 9540, UL 9540A, UL 1973, UL 1741, UL1741 SB, UL 1741 PCS, UL 60730-1, IEEE 1547, IEEE 1547.1, UN 38.3, CSA C22.2 No. 107.1
Seismic	AC 156, OSHPD, IEEE 693-2005 (high)
Environmental	California Proposition 65 RoHS Directive 2011 / EU
Emissions	FCC Part 15 Class B, ICES 003

1. At beginning of life, 3 kW charge/discharge power, 77 °F (25 °C).
2. Refer to the installation manual and commissioning guide for proper wire and OCPD sizes.
3. For more details, please refer to the FranklinWH System Limited Warranty for End Users available in the Documentation Center on the FranklinWH website.

WWW.FRANKLINWH.COM

MECHANICAL SPECIFICATIONS

Dimensions (H × W × D)	45.2 in × 29.5 in × 11.8 in (1149 mm × 750 mm × 300 mm)
Weight, aPower 2 Complete	357 lb. (162 kg)
Weight, without Cover	335 lb. (152 kg)
Weight, Cover	22 lb. (10 kg)
Mounting	Wall or floor mount
Cooling	Natural air-cooled design



ENVIRONMENTAL SPECIFICATIONS

Enclosure Type	Type 3R
Ingress Protection	IP56 (Wiring) IP67 (Battery Pack & Inverter)
Operating Temperature	-4 °F to 122 °F (-20 °C to 50 °C) Operates up to 131 °F (55 °C) at 5kW derated output
Operating Humidity (RH)	Up to 100% RH, condensing
Altitude	Maximum 9,843 ft (3,000 m)
Environment	Indoor and outdoor rated

Compatibility Notice: At launch, the aPower 2 is compatible with the aGate 1.3 only. Compatibility with earlier aGate and aPower versions is anticipated in Q2 2025.

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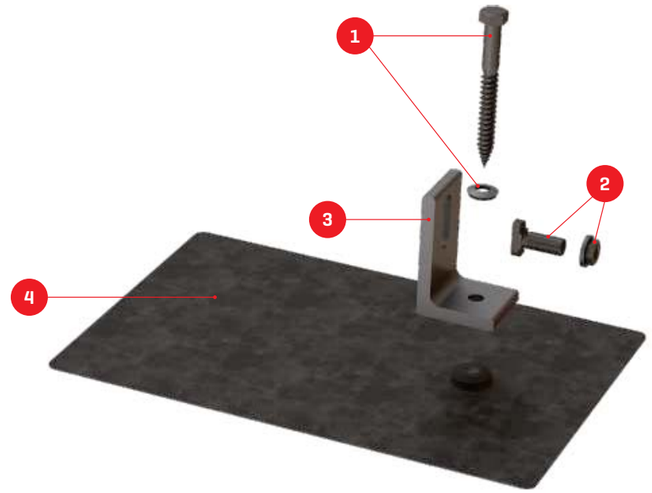
We support PV systems
Formerly Everest Solar Systems



EverFlash eComp Kit

TECHNICAL SHEET

Item Number	Description	Part Number
1	5/16" Lag Screw w/ EPDM washer	4000366 | EverFlash eComp Kit, Black
2	T-Bolt & Hex Nut	4000367 | EverFlash eComp Kit, Silver 4000679 | EverFlash eComp Kit, Mill LF, Dark Flash
3	L-Foot	
4	eComp Flashing	

Technical Data

	EverFlash eComp Kit
Roof type	Composition shingle
Material	Aluminum and stainless steel for high corrosion resistance
Finish	Mill or dark anodized
Roof connection	5/16" lag screw
Code compliance	UL 2703, IAMPO Certified
Compatibility	CrossRail 44-X, 48-X, 48-XL, 80

CrossRail Shared Rail System

PRODUCT SHEET

- High quality, German-engineered system for residential installations
- Beneficial for small 2 row arrays
- 4 rail sizes available to suit all structural conditions
- Universal components for all rail types
- MK3 technology provides highest rail engagement
- 100% code compliant, structural validation for all solar states
- Fast installation with minimal component count result in low total installed cost
- L-Foot provides adjustability and compatibility with common roof types

Components

CrossRail 44-X

Part Number	Description
4000019	CrossRail 44-X, 166", Mill
4000020	CrossRail 44-X, 166", Dark
4000021	CrossRail 44-X, 180", Mill
4000022	CrossRail 44-X, 180", Dark

CrossRail 48-X

Part Number	Description
4000662	CrossRail 48-X, 166", Mill
4000663	CrossRail 48-X, 166", Dark
4000675	CrossRail 48-X, 180", Mill
4000665	CrossRail 48-X, 180", Dark

CrossRail 48-XL

Part Number	Description
4000695	CrossRail 48-XL, 166", Mill
4000705	CrossRail 48-XL, 166", Dark

CrossRail 80

Part Number	Description
4000508	CrossRail 80, 168", Mill

CrossRail Mid Clamp

Part Number	Description
4000688-H	SR MC Silver, 30-50mm, 13mm Hex
4000689-H	SR MC Silver, 30-50mm, 13mm Hex

CrossRail End Clamp

Part Number	Description
4000429	CR EC Silver 30-50mm, SR 30-45mm
4000430	CR EC Dark 30-50mm, SR 30-45mm
4000003	SR EC Silver 46-50mm
4000004	SR EC Dark 46-50mm

Yeti Clamp

Part Number	Description
4000050-H	Yeti Hidden EC for CR, Mill, 13mm Hex

Aluminum End Clamp

Part Number	Description
4005344	CrossRail EC Silver, AL 32-33mm
4005169	CrossRail EC Silver, AL 34-36mm
4005290	CrossRail EC Silver, AL 37-38mm
4005170	CrossRail EC Silver, AL 39-41mm
4005291	CrossRail EC Silver, AL 42-44mm
4005171	CrossRail EC Silver, AL 45-47mm
4005292	CrossRail EC Silver, AL 48mm
4005172	CrossRail EC Silver, AL 49-50mm

CrossRail Rail Connector

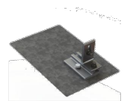
Part Number	Description
4000051	Rail Connector CR 44-X, Set, Mill
4000052	Rail Connector CR 44-X, Set, Dark
4000385	RailConn CR48-X,48-XL Struct Set, Mill
4000386	RailConn CR48-X,48-XL Struct Set, Dark

L-Foot & T-Foot

Part Number	Description
4000630	L-Foot Slotted Set, Mill
4000631	L-Foot Slotted Set, Dark
4000080	T-Foot X, Set, Mill

Standing Seam PowerClamps

Part Number	Description
4000016	Standing Seam PowerClamp, Mini
4000017	Standing Seam PowerClamp, Standard



EverFlash Flashings

Part Number	Description
4000015	EverFlash eComp +SR Slide Kit, Mill
4000027	EverFlash eComp +SR Slide Kit, Dark
4000029	EverFlash eComp + SR Slide, LF Mill, Dark Flashing Kit

Everest Ground Lug

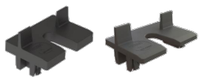
Part Number	Description
4000006-H	Everest Ground Lug Set, 13mm Hex

CR Microinverter & Opt Mounting Kit

Part Number	Description
4000629-H	CR Microinverter & Opt Mounting Kit, 13mm

Wire Management

Part Number	Description
4000069	TC Wire Management Clip
4000382	Sunrunner Cable Clip
4005394	Omega Wire Mangement Clip



Add-On

Part Number	Description
4000609	Shared Rail Clamp, Add-On, Slide In, 10mm
4000632	Shared Rail Clamp, Add-On, Slide In, 5mm

End Caps

Part Number	Description
4000067	CR 44-X End Cap
4000431	CR 48-X /48-XL Flat End Cap
4000433	CR 48-X/48-XL End Cap
4001221	CR 80 End Cap

CR 48-X/48-XL Sleeve

Part Number	Description
4000583	CR 48-X/48-XL 3" Black Sleeve

CERTIFICATE OF COMPLIANCE

Certificate Number E467724
Report Reference E467724-20140829
Date 2021-June-24

Issued to: K2 Systems LLC
2835 La Mirada Dr, Suite A
Vista CA, 92081 US

This is to certify that representative samples of MOUNTING SYSTEMS, MOUNTING DEVICES, CLAMPING DEVICES AND GROUND LUGS FOR USE WITH PHOTOVOLTAIC MODULES AND PANELS - COMPONENT

See Addendum Page for Product Designation(s).

Have been investigated by UL in accordance with the component requirements in the Standard(s) indicated on this Certificate. UL Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for installation in complete equipment submitted for investigation to UL LLC.

Standard(s) for Safety: UL 2703 Standard for Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for use with Flat-Plate Photovoltaic Modules and Panels.

Additional Information: See the UL Online Certifications Directory at https://iq.ulprospector.com for additional information

This *Certificate of Compliance* does not provide authorization to apply the UL Recognized Component Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Recognized Component Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Recognized Component Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at http://ul.com/aboutul/locations/

CERTIFICATE OF COMPLIANCE

Certificate Number E467724
Report Reference E467724-20140829
Date 2021-June-24

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements

USR – Component pieces:
-CrossRail 48
-CrossRail 80
-Rail Connector CrossRail 48
-Rail Connector CrossRail 80
-L-foot
-Bonding T-bolt
-Standard T-bolt
-CrossRail Tuk Bracket
-Climber
-44-X Climber
-Rail Connector CR48
-Slide Bracket
-Stand Off
-Shared Rail Slide Hook
-CrossRail 48-S, 48, 80 Tilt Connector
-Single Hook
-Everest Ground Lug
-Simple Tilt Knee Connector assembly
-Splice Foot X
-Splice Foot XL
-Alternate MK2 Alu Slot Nut
-MLPE Module Frame Mount

Evaluated for Bonding Only

For use only in (or with) complete equipment where the acceptability of the combination is determined by UL LLC.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at http://ul.com/aboutul/locations/

GENERAL NOTES AND SPECIFICATIONS

WOOD

1. WOOD FRAMING GENERAL:
- PROVIDE DOUBLE JOISTS UNDER AND PARALLEL TO ALL BEARINGS PARTITIONS.
- ALL BOLT HOLES SHALL DE DRILLED 1/32" TO 1/16" OVERSIZED.
- 2x12 JOISTS SHALL BE BLOCKED AT THE SUPPORTS AND AT 8 FEET o.c. (AND RAFTERS GREATER THAN 10" DEPTHS AT THE SUPPORTS AND AT 10 FEET O.C.) WITH SOLID 2x BLOCKING 2" SHALLOWER THAN JOISTS OR APPROVED METAL CROSS BRIDGING.
- WOOD FRAMING MEMBERS: DOUGLAS FIR–LARCH N°2 UNLESS OTHERWISE MARKED ON THE PLANS.
- RAFTER TIES SPACED AT 4 FEET (MAX.) ON CENTER ARE REQUIRED IMMEDIATELY ABOVE CEILING JOISTS WHICH ARE NOT PARALLEL TO THE RAFTERS.

NAILING SCHEDULE TABLE (COMMON NAILS SHALL BE USED)

JOIST TO SILL OR GIRDER, TOENAIL	3–8d
BRIDGING TO JOIST, TOENAIL EACH END	2–10d
1"x6" SUBFLOOR OR LESS TO EACH JOIST, FACE NAIL	2–8d
WIDER THAN 1"x8" SHEATHINGS TO EACH BEARING, FACE NAIL	3–8d
2" SUBFLOOR TO JOIST OR GIRDER, BLIND AND FACE NAIL	2–16d
SOLE PLATE TO JOIST OR BLOCKING, TYPICAL FACE NAIL	16d @16" o.c.
SOLE PLATE TO JOIST OR BLOCKING, AT BRACED WALL PANELS	2–16d @16"o.c.
TOP PLATE TO STUD, END NAIL	2–16d
STUD TO SOLE PLATE	4–8d TOENAIL 2–16d END NAIL
DOUBLE STUDS FACE NAIL	16d @24"o.c.
DOUBLED TOP PLATES, TYPICAL FACE NAIL	16d @16"o.c.
DOUBLE TOP PLATES, LAP SPLICE	8–16d
BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE, TOENAIL	3–8d
RIM JOIST TO TOP PLATE, TOENAIL	8d @6" o.c.
TOP PLATES, LAPS AND INTERSECTIONS, FACE NAIL	2–16d
CONTINUOUS HEADER, TWO PIECES, EACH EDGE	16d @16 o.c.
CEILING JOISTS TO PLATE, TOENAIL	3–8d
CONTINUOUS HEADER TO STUD, TOENAIL	4–8d
CEILING JOISTS, LAPS OVER PARTITIONS, FACE NAIL	3–16d
CEILING JOISTS TO PARALLEL RAFTERS, FACE NAIL	3–16d
RAFTER TO PLATE, TOENAIL	3–10d
1"x BRACE TO EACH STUD AND PLATE, FACE NAIL	2–8d
1"x6" SHEATHING OR LESS TO EACH BEARING, FACE NAIL	2–8d
WIDER THAN 1"x8" SHEATHINGS TO EACH BEARING, FACE NAIL	3–8d
BUILT IT–UP CORNER STUDS	16d @24" o.c.
BUILT–UP GIRDER & BEAMS	20d @32" o.c. AT T & B STAGGERED
2"x PLANKS	2–20d @ ENDS 2–16d @ EACH BEARING

WOOD SHEAR AND DIAPHRAGMS:

- COMMON NAILS SHALL BE USED FOR ALL DIAPHRAGMS AND SHEAR WALL NAILING.
- ROOF SHEATHING: 1/2" THICK PLYWOOD CDX WITH INDEX 32/16. 8d NAILS @ 6" o.c. AT PANELS EDGES, AND 8d NAILS @ 12" o.c. AT PANEL FIELD. ALLOW 1/8" SPACING AT PANEL EDGES, UNLESS OTHERWISE RECOMMENDED BY THE PANEL MANUFACTURER.
- FLOOR SHEATHING: 3/4" THICK PLYWOOD CDX WITH INDEX 32/16.USE 10d COMMON NAILS AT 6" o.c. AND @ PANEL EDGES AND 10"o.c. IN THE FIELD. ALLOW 1/8" SPACING AT PANEL EDGES, UNLESS OTHERWISE RECOMMENDED BY THE PANEL MANUFACTURER.
- PLYWOOD DIAPHRAGMS: PRODUCT STANDARD PS 1–19, DOUGLAS FIR–LARCH. WATERPROOFING: STUCCO OVER PLYWOOD SHEAR WALL WILL BE WATERPROOFED WITH A MINIMUM OF TWO 15# (GRADE D) UNDERLAYMENTS.
- ROOF DIAPHRAGM NAILING TO BE INSPECTED BEFORE COVERING. FACE GRAIN OF PLYWOOD SHALL BE PERPENDICULAR TO SUPPORTS. FLOOR SHALL HAVE TONGUE AND GROOVE OR BLOCKED PANELS EDGES. PLYWOOD SPANS SHALL CONFORM WITH TABLE 2304.8.(1) ON IBC 2018.

WOOD CONSTRUCTION

1. STRUCTURAL LUMBER SHALL BE GRADE–MARKED DOUGLAS FIR–LARCH

RAFTERS	2 TO 4 WIDE UP TO 6 DEEP	No. 2
	2 TO 4 WIDE, 8" OR LARGER	No. 2
JOISTS	2 TO 4 WIDE, 6 AND DEEPER	No. 2
BEAMS, PURLINS	OVER 4 WIDE	No. 1
SUB–PURLINS	2 TO 4 WIDE, 4 DEEP	No. 1
LEDGERS		No. 2
STUDS	2x4 OR 3x4	No. 2
STUDS	2x6	No. 2
POSTS		No. 2
SILLS, PLATES AND BLOCKING		No. 2

2. SILLS OR PLATES BEARING ON CONCRETE OR MASONRY WHICH IS WITHIN 48" OF EARTH SHALL BE PRESSURE TREATED, OR EQUAL, WOOD SILL PLATES SHALL BE BOLTED TO THE FOUNDATION WITH 5/8" DIAMETER x 10" BOLTS 4'–0" o.c. 12" MIN. FROM ENDS, OR 2 BOLTS MIN. PER PIECE. WHERE DIFFERENT SIZES AND/OR SPACING ARE REQUIRED, THEY SHALL GOVERN. INSTALL WITH 3"x3"x1/4" (OR 2"x2"x3/16") PLATE WASHER AT EACH ANCHOR BOLT.
3. PARALLAM/GLUE LAM BEAMS MUST BE FABRICATED IN A LADBS LICENSED SHOP.
4. JOISTS SHALL BE BLOCKED AT SUPPORTS AND BRIDGED OR BLOCKED AT INTERVALS OF 8 FT WHERE JOISTS ARE 2x12 OR DEEPER.
5. JOISTS UNDER NON–BEARING PARTITIONS SHALL BE DOUBLED, EXCEPT AS NOTED.
6. LAGBOLTS (& SCREWS) SHALL BE PRE–DRILLED TO SHANK DIAMETER AND FULL DEPTH AND SCREWED (NOT DRIVEN) INTO PLACE.
7. CUT WASHERS SHALL BE PLACED UNDER HEADS AND NUTS OF ALL BOLTS AND UNDER HEADS OF LAGBOLTS. ONE CUT WASHER SHALL BE USED FOR BOLTS CONNECTING WOOD LEDGERS TO CONCRETE OR MASONRY WALLS.
8. ALL HARDWARE USED FOR WOOD CONNECTION SHALL BE SIMPSON STRONG–TIE PRODUCTS. INSTALL PER MANUFACTURERS RECOMMENDATIONS. ALTERNATE PRODUCTS WILL ONLY BE PERMITTED IF WRITTEN APPROVAL AND ACCEPTANCE IS OBTAINED BY ENGINEER.
9. ALL LUMBER SHALL HAVE A MOISTURE CONTENT NOT TO EXCEED 19% AT THE TIME OF FABRICATION OR CONSTRUCTION.
10. PROVIDE LEAD HOLE 40%–70% OF THREADED SHANK DIA. AND FULL DIA. FOR SMOOTH SHANK PORTION.
11. PLACE 2" FIREBLOCKING IN STUD WALLS AT CEILING AND FLOOR LEVELS, AT EACH 10" HEIGHT OF STUDS, AND BETWEEN STAIR STRINGERS AT SUPPORTS.
12. ALL DIAPHRAGMS AND SHEAR NAILING SHALL UTILIZE COMMON NAILS OR GALVANIZED BOX.
13. ALL PARALLEL STRAND LUMBER (PSL)SHALL BE 2.0E, 2900Fb BYTRUS JOIST MACMILLAN.

PARAMETERS DESIGN, CBC 2019

WIND DESIGN

1. BASIC WIND SPEED (3–SECOND GUST), MILES PER HOUR = 95
2. WIND IMPORTANCE FACTOR, I=1.0 AND OCCUPANCY CATEGORY = II
3. WIND EXPOSURE CATEGORY: B (CASE 1)
4. THE APPLICABLE INTERNAL PRESSURE COEFFICIENT =0.18

SEISMIC DESIGN

1. SEISMIC IMPORTANCE FACTOR, I=1.0 , AND OCCUPANCY CATEGORY = II
2. MAPPED SPECTRA RESPONSE ACCELERATIONS, Ss=137.70%g AND S1=48.60%g
3. SITE CLASS = C
4. SPECTRA RESPONSE COEFFICIENTS, Sds=1.102g AND Sd1=0.486g
5. SEISMIC DESIGN CATEGORY=D
6. BASIC SEISMIC–FORCE–RESISTING SYSTEM(S)=BEARING WALL SYSTEM
7. DESIGN BASE SHEAR = 18.797 LBS
8. TOTAL BUILDING WEIGHT = 85.319 LBS
9. SEISMIC RESPONSE COEFFICIENT(S), Cs=0.169
10. RESPONSE MODIFICATION FACTOR(s), R =6.5
11. ANALYSIS PROCEDURE USED : EQUIVALENT LATERAL FORCE PROCEDURE
12. REDUNDANCY FACTOR USED: 1.3
13. THE DESIGN LOAD BEARING VALUE OF SOILS = 2500 PSF.

BASIS OF DESIGN

• ROOF DEAD LOAD	= 18 PSF	• ROOF LIVE LOAD	= 20 PSF
• LOFT FLOOR DEAD LOAD	= 15 PSF	• FLOOR LIVE LOAD	= 40 PSF
• DWELLING FLOOR DEAD LOAD	= 17 PSF	• DECK LIVE LOAD	= 60 PSF
• DECK DEAD LOAD	= 20.5 PSF		
• EXT. WALL W/PLASTER DEAD LOAD	= 18.5 PSF		
• EXT. WALL W/ SIDING DEAD LOAD	= 12 PSF		
• INT. WALL DEAD LOAD	= 10 PSF		

CONCRETE & REINFORCING STEEL NOTES

CONCRETE FOUNDATION, FLOOR SLABS, GRADE BEAMS AND PILES

- ALL CONCRETE SHALL ATTAIN THE FOLLOWING MINIMUM STRENGTHS AT 28 DAYS: FOOTINGS AND SLAB–ON–GRADE, GRADE BEAMS AND PILES = 4500 PSI
- BAR SPLICES IN CONCRETE SHALL BE LAP 48 BAR DIAMETERS MINIMUM, AND MAY BE WIRED TOGETHER, UNLESS OTHERWISE NOTED ON PLANS.

REINFORCING STEEL

- REINFORCING BARS SHALL CONFORM TO THE FOLLOWING ASTM RATING AND GRADE TYPE FOR BAR SIZES LISTED:

#3	ASTM A 615 GRADE 40 (MIN)
#4 AND LARGER	ASTM A 615 GRADE 60

ADDITIONAL NOTES

1) CONTRACTORS RESPONSIBLE FOR THE CONSTRUCTION OF A WIND OR SEISMIC FORCE RESISTING SYSTEM/COMPONENT LISTED IN THE "STATEMENT OF SPECIAL INSPECTION" SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE ORANGE COUNTY INSPECTORS AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON SUCH SYSTEM OR COMPONENT PER SEC. 1709.1.

2) CONTINUOUS SPECIAL INSPECTION BY A REGISTERED DEPUTY INSPECTOR IS REQUIRED FOR FIELD WELDING, CONCRETE STRENGTH f'c>2500 PSI.

3) IF ADVERSE SOIL CONDITIONS ARE ENCOUNTERED, A SOILS INVESTIGATION REPORT MAY BE REQUIRED.

4) PERIODIC SPECIAL INSPECTION IS REQUIRED FOR WOOD SHEAR WALLS, SHEAR PANELS, AND DIAPHRAGMS, INCLUDING NAILING, BOLTING, ANCHORING, AND OTHER FASTENING COMPONENTS OF THE SEISMIC FORCE RESISTING SYSTEM. SPECIAL INSPECTION BY A DEPUTY INSPECTOR IS REQUIRED WHERE THE FASTENER SPACING OF THE SHEATHING IS 4 INCHES ON CENTER OR LESS.

5) FOUNDATION SILLS SHALL BE NATURALLY DURABLE OR PRESERVATIVE–TREATED WOOD.

6) FIELD WELDING TO BE DONE BY WELDERS CERTIFIED BY THE ORANGE COUNTY FOR STRUCTURAL STEEL. CONTINUOUS INSPECTION BY A DEPUTY INSPECTOR IS REQUIRED.

7) SHOP WELDS MUST BE PERFORMED IN A ORANGE COUNTY LICENSED FABRICATOR'S SHOP.

8) ORANGE COUNTY LICENSED FABRICATOR IS REQUIRED FOR STRUCTURAL STEEL.

9) PROVIDE LEAD HOLE 40%–70% OF THREADED SHANK DIA. AND FULL DIA. FOR SMOOTH SHANK PORTION.

10) HOLD–DOWN CONNECTOR BOLTS INTO WOOD FRAMING REQUIRE APPROVED PLATE WASHERS; AND HOLD–DOWNS SHALL BE FINGER TIGHT AND ½ WRENCH TURN JUST PRIOR TO COVERING THE WALL FRAMING. CONNECTOR BOLTS INTO WOOD FRAMING REQUIRE STEEL PLATE WASHERS IN ACCORDANCE WITH TABLE 2305.5 OF THE LA BUILDING CODE.

11) ROOF DIAPHRAGM NAILING TO BE INSPECTED BEFORE COVERING. FACE GRAIN OF PLYWOOD SHALL BE PERPENDICULAR TO SUPPORTS. FLOOR SHALL HAVE TONGUE AND GROOVE OR BLOCKED PANEL EDGES. PLYWOOD SPANS SHALL CONFORM WITH TABLE 2304.8.(1) ON IBC 2018.

12) ALL DIAPHRAGM AND SHEAR WALL NAILING SHALL UTILIZE COMMON NAILS OR GALVANIZED BOX.

13) ALL BOLT HOLES SHALL BE DRILLED 1/32" TO 1/16" OVERSIZED.

14) HOLD–DOWN HARDWARE MUST BE SECURED IN PLACE PRIOR TO FOUNDATION INSPECTION.

STEEL NOTES

STEEL

1. STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING

A.	WIDE FLANGE COLUMNS:	ASTM A572 OR A992, Fy = 50 ksi
B.	OTHER STRUCTURAL STEEL:	ASTM A36, Fy = 36 ksi
C.	BOLTS, (STEEL TO STEEL):	ASTM A307
E.	HIGH–STRENGTH BOLTS (H.S.B.):	ASTM A325–SC
F.	ANCHOR BOLTS:	ASTM 307 ASTM A307/ASTM A36
G.	THREADED RODS:	ASTM A53, TYPE E OR S, GRADE B.
H.	PIPE COLUMNS:	ASTM A500, GRADE B
I.	STRUCTURAL TUBE COLUMNS:	ASTM A36 (fy = 36 ksi)
J.	OTHER SHAPES AND PLATES:	

2. ALL WELDING IS TO BE DONE PER THE AMERICAN WELDING SOCIETY "STRUCTURAL WELDING CODE STEEL (ANSI/AWS DI.I)", WITH ALL CERTIFIED WELDERS.
3. ALL WELDS SHALL BE TESTED AND INSPECTED IN ACCORDANCE WITH: THE SPECIFICATIONS; THE LATEST UNIFORM BUILDING CODE; AND AWS DI.I. THE WELDING INSPECTOR SHALL CHECK THE MATERIAL, EQUIPMENT, FIT UP AND PROCEDURES, AS WELL AS THE WELDS. THE INSPECTOR SHALL USE ALL MEANS NECESSARY TO DETERMINE THE QUALITY OF THE WELDS.
4. STEEL FRAMING, EXCEPT THOSE PORTIONS TO BE EMBEDDED IN CONCRETE OR FIELD WELDED SHALL BE SHOP–PAINTED PER THE SPECIFICATIONS. PROVIDE AS A MINIMUM, ONE COAT OF RED–OXIDE PRIMER WITH 2 MIL THICKNESS. DO NOT PAINT ANY STEEL THAT RECEIVES SPRAY APPLIED FIREPROOFING.
5. FIELD PAINT ALL EXPOSED, UNPAINTED STEEL SURFACES AFTER INSTALLATION PER THE SPECIFICATIONS.
6. SUBMIT CERTIFICATION OF COMPLIANCE FOR ALL STEEL MATERIALS.
7. ALL STRUCTURAL WELDING SHALL BE DONE IN AN APPROVED FABRICATING SHOP. IN THE ABSENCE OF AN APPROVED FABRICATING SHOP, ALL WELDING SHALL BE DONE UNDER THE SUPERVISION OF A CERTIFIED SPECIAL INSPECTOR.
8. THE WELDING INSPECTOR SHALL CHECK THE MATERIAL, EQUIPMENT, FIT UP AND PROCEDURES, AS WELL AS THE WELDS. THE INSPECTOR SHALL USE ALL MEANS NECESSARY TO DETERMINE THE QUALITY OF THE WELDS.

WELDING

- SHOP WELDS MUST BE PERFORMED IN A LA COUNTY BLDG. DEPT. LICENSED FABRICATOR'S SHOP.
- FIELD WELDING TO BE DONE BY WELDERS CERTIFIED BY THE ORANGE COUNTY FOR STRUCTURAL STEEL, REINFORCING STEEL. CONTINUOUS INSPECTION BY A DEPUTY INSPECTOR IS REQUIRED.

SOIL INFORMATION

EARTH MATERIAL PARAMETERS	FOUNDATION BEARING MATERIALS	UNDISTURBED NATURAL SOIL
	FOUNDATION BEARING PRESSURES/PILE SKIN FRICTION	2500 PSF
	COEFFICIENT OF FRICTION [1]	0.35
	PASSIVE EARTH PRESSURE (EFP)	300 PCF
	MAXIMUM PASSIVE EARTH PRESSURE	4000 PSF
CONVENTIONAL CONTINUOUS FOOTING DESIGN	MINIMUM FOUNDATION WIDTH	15 INCHES
	MIN. EMBEDMENT DEPTH INTO APPROVED BEARING MATERIAL	12 INCHES
(PAD) FOOTING DESIGN	MINIMUM FOUNDATION DIMENSIONS (WIDTHxLENGTH)	18in X 18in
	MINIMUM EMBEDMENT DEPTH INTO BEARING MATERIAL	24 INCHES

PETER AND ASSOCIATES
1519 CALLE VALLE, SAN CLEMENTE, CA 92672
(949) 492–3735; (949) 492–1891
INFO@PETERASSOC.COM

JOB NO. 19G19012
DATE:

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

PROFESSIONAL GEOLOGIST · COLIN E. CUNNINGHAM No. EG 2140 CERTIFIED ENGINEERING GEOLOGIST · STATE OF CALIFORNIA

E

RESEARCH REPORT- ICC-ES#

HDU	ESR–2330	FRAMING CLIPS	ESR–2606
CC COLUMN CAP	ESR–2604	HARDY FRAME	ESR–2089
SET–3G EPOXY	ESR–4057	PARALLAM	ESR–1387
EPOXY–TIE ET 22	ERR–3638	SHOT PINS	ESR–1799
STRAP	ESR–2105	TITEN 'HD' ANCHOR	ESR–2713
U HANGER	ESR–2549		

BUILDING PACKAGE #: PKG23-0995
BUILDING PERMIT #: BLD23-2075
SHORING & PILE PERMIT #: BLD23-2075

SHEET INDEX

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S-1.2	GENERAL NOTES AND SPECIAL INSPECTIONS
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S-4.2	FRAMING DETAILS
S-4.3	FRAMING DETAILS
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S-5.1	STEEL FRAMING DETAILS
HFX1	HARDY FRAME DETAILS
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S-6.1	WATERPROOFING NOTES
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S-6.3	SHOTCRETE WALLLS STRUCTURAL DETAILS
S-6.4	SHOTCRETE WALLLS STRUCTURAL DETAILS

SEPARATED PERMIT ITEMS

RETAINING WALL PACKAGE #:	PKG23–1037
RETAINING WALL PERMIT #:	RWP23–0104
ENCROACHMENT PERMIT #:	RE23–0550
SHORING & PILE PERMIT #:	BLD23–2075
CONCRETE STEPS PERMIT #:	BLD24–1164

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER · STEPHEN B. PETER · No. 38623 · Exp. 3/31/25 · CIVIL · STATE OF CALIFORNIA

BY	REVISION	DESCRIPTION	APPROVED	DATE
	A	PCC		20230822
	A	PCC		20231212
	A	PCC		20240419
	A	PCC		20240802
	A	PCC		20250307

SCALE: N.A.
ACAD FILE NO. –
PROJECT NO. 21SE21064

DESIGNED:	DRAWN:	CHECKED:
M.A.A.	M.A.A.	S.P

07–02–2022
DATE
STEPHEN PETER

PLANS PREPARED BY:
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WWW.PETERASSOC.COM
1519 CALLE VALLE, SAN CLEMENTE, CA. 92672
Tel: (949) 492–3735 Fax: (949) 492–1891

GENERAL NOTES AND SPECIAL INSPECTIONS

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

S-1.1

WOOD LAGGING

1. ANY LAGGING USED FOR TEMPORARY SUPPORT OF CONSTRUCTION EXCAVATIONS SHALL BE DOUGLAS–FIR–LARCH PER BELOW TABLE UNLESS OTHERWISE APPROVED BY THE ENGINEER AND BUILDING OFFICIAL.
2. WOOD LAGGING SHALL BE PRESSURE TREATED, CONFORMING TO CURRENT AMERICAN WOOD PRESERVERS ASSOCIATION (AWPA) SPECIFICATIONS FOR " GROUND CONTACT"
3. ALL TREATED WOOD SHALL BEAR THE QUALITY MARK OF AN APPROVED INDEPENDENT TESTING AGENCY. THE STAMP MUST INDICATE COMPLIANCE WITH " GROUND CONTACT" STANDARDS OF THE IDENTIFICATION OF THE APPROVED AGENCY.
4. HANDELING OF PRESSURE TREATED WOOD AND FIELD TREATMENTS OF CUT ENDS SHALL CONFORM TO AMERICAN WOOD PRESERVERS ASSOCIATION STANDARD M4–01.

EXCAVATION DEPTH	WOOD LAGGINGS SIZE
TO 0–5' FT	4X12 D.F. NO.1
TO 5–12' FT	6X12 D.F. NO.1
TO 12–18' FT	6X12 D.F. DENSE NO.1

OCPublicWorks

Special Inspection Program and Designation of Special Inspectors

SPECIAL INSPECTIONS (Only checked items are required)	
INSPECTION ITEMS	**SPECIAL INSPECTORS(S) NAME, PHONE NUMBER, REGISTRATION #**
x Concrete (Design Mix, Form Work, Placement, etc., per table 1705.3)	
□ Erection of Pre-Cast Concrete Members	
x Bolts Installed in Concrete	
x Reinforcing Steel and Pre-Stressing Steel Tendons	
x Structural Welding/Rebar Welding	
□ High-Strength Bolting/Material Verification	
□ Steel Frame Joint Details	
□ All Masonry Construction	
□ Sprayed Fire-Resistive Materials	
x Shotcrete (Curing Temperature, Design Mix, Placement, Strength etc. per table 1705.3)	
x Soils (Excavation, Fill, etc. per table 1705.6)	
□ Smoke-Control System	
□ Driven Piles per Table 1705.7	
x Cast in Place Piles per Table 1705.8	
□ Mastic and Intumescent Fire-Resistant Coatings	
□ Exterior Insulation and Finish Systems (EIFS)	
□ Wood for High-Load Diaphragms	
x Others: SHEATHING NAILING SPACING < 4" O.C. AT WOOD SHEARWALLS	
□ Others	
□ Others	
□ Others	

DECLARATION BY OWNER OR ARCHITECT/ENGINEER OF RECORD:

I, the □ Owner x Engineer or □ Architect of record, declare that the above listed Special Inspector(s) is/are hired by me.

Stephen B. Peter, PE — **Print Name**

Signature

3/7/2025 — **Date**

601 N. Ross Street, Santa Ana, CA 92701
P.O. Box 4048, Santa Ana, CA 92702-4048
www.ocpublicworks.com
714.667.8888 | myOCeServices.ocgov.com

OCPublicWorks

Structural Observation Report Form

STRUCTURAL OBSERVATION means the visual observation of the structural system, for general conformance to the approved plans and specifications, at significant construction stages and at completion of the structural system. Structural observation does not include or waive the responsibility for the inspections required by Section 110, 1704 or other sections of the Code.

Report No. _____

This report includes all construction work through_____days of _____ , 20__ Page No.____of____

PROJECT ADDRESS:		STRUCTURAL OBSERVER OF RECORD (SOR):	SOR PHONE NO.:
Building Permit No.:	Structural Observation performed by:	Observer Professional Lic./Reg. No.:	Observer Phone No.:

OBSERVED STRUCTURAL ELEMENTS AND THEIR CONNECTIONS

FOUNDATION	WALL	FRAMES	FLOOR	PORTION OBSERVED, IF NOT WHOLE
☒ Footing, Stem Walls	☐ Concrete	☐ Steel Moment Frame	☐ Concrete	
☐ Mat Foundation	☐ Masonry	☐ Steel Braced Frame	☐ Steel Deck	
☒ Caisson, Piles, Grade Beams	☐ Wood	☐ Concrete Moment Frame	☐ Wood	
☐ Retaining Foundation Hillside Special Anchors	☐ Other:	☐ Masonry Wall Frame	☐ Others:	
☐ Others:		☐ Others:		

Remarks: Bottom of 1) building foundation (pad + wall footing)
2) caisson to be verified by licensed engineer or geologist

I DECLARE THAT THE FOLLOWING ARE TRUE TO THE BEST OF MY KNOWLEDGE:

1. I am the engineer or architect retained by the owner to be in responsible charge for the structural observation in accordance with the requirements of the County of Orange.
2. I, or another Engineer or Architect who I have designated above and is under my responsible charge, has performed the required site visits at each significant construction stage to verify if the structure is in general conformance with approved plans and specifications;

REGISTERED PROFESSIONAL ENGINEER STEPHEN B. PETER No. 38623 Exp. 3/31/25 CIVIL STATE OF CALIFORNIA

Stephen B. Peter, PE — SIGNATURE

3/7/2025 — DATE

STAMP OF STRUCTURAL OBSERVER OF RECORD

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BY	REVISION	DESCRIPTION	APPROVED	DATE
	1	PCC		20230822
	2	PCC		20231212
	3	PCC		20240419
	4	PCC		20240802
	5	PCC		20250307

SCALE: N.A.

ACAD FILE NO. –

PROJECT NO. 21SE21064

DESIGNED:	DRAWN:	CHECKED:
M.A.A.	M.A.A.	S.P

07–02–2022 — DATE

STEPHEN PETER

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER — DATE

REGISTERED PROFESSIONAL ENGINEER STEPHEN B. PETER No. 38623 Exp. 3/31/25 CIVIL STATE OF CALIFORNIA

PLANS PREPARED BY:

PETER and ASSOCIATES ENGINEERS GEOLOGISTS & SURVEYORS, INC.

WWW.PETERASSOC.COM

1519 CALLE VALLE, SAN CLEMENTE, CA. 92672
Tel: (949) 492–3735 Fax: (949) 492–1891

GENERAL NOTES AND SPECIAL INSPECTIONS

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

S-1.2

LEGEND	
△	INDICATES SHEAR WALL TYPE, SEE SCHEDULE
(A)	INDICATES GRID LINE
P.A.	INDICATES POST ABOVE
⊠	INDICATES POST BELOW
	INDICATES WALL ABOVE
	INDICATES NEW WALL - 2x6 STUDS @16"O.C.
	INDICATES NEW WALL - 2x12 STUDS @16"O.C.
	INDICATES HARDY FRAME. SEE SHEET HFX1, HFX2 & HFX3 ICC-ES ESR-2089
	INDICATES CMU WALL
	INDICATES CONCRETE WALL
	FLOOR JOIST (F.J.) - SIZE AND SPACING PER PLAN
	INDICATES (N) FOOTING
ABBREVIATIONS	
HDR	DENOTES HEADER
FBM	DENOTES FLUSH BEAM

Colin E. Cunningham

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

PROFESSIONAL GEOLOGIST · COLIN E CUNNINGHAM No. EG 2140 CERTIFIED ENGINEERING GEOLOGIST · STATE OF CALIFORNIA

LOW ROOF/ FLOOR FRAMING NOTES

1. FLOOR SHALL BE 3/4" PLYWOOD CDX, PII 32/16 T & G W/10d COMMON NAILS @ 6", 12" O.C. FOR PLYWOOD SHEATHING LAYOUT SEE (3/S-4.1)
2. ALL SHEAR WALLS ARE FULL HEIGHT TO THE ROOF AND FLOOR DIAPHRAGM.
3. ALL POSTS ARE 4 x 6 MINIMUM U.N.O.
4. ALL POSTS SHALL BE CONNECTED TO SILL PLATE WITH "A35" AT EA. SIDE TYP. UNLESS HARDWARE IS NOTED ON PLAN.
5. ALL WOOD FRAMING MEMBERS U.N.O. SHALL BE:
   2x MEMBER DF #2 OR BETTER
   4x MEMBER DF #2 OR BETTER
   2x STUDS DF #2 OR BETTER
6. ALL DIAPHRAGM AND SHEAR WALL NAILING SHALL UTILIZE COMMON NAILS OR GALVANIZED BOX.
7. FASTENERS IN PRESERVATIVE TREATED WOOD OR FIRE RETARDANT TREATED WOOD SHALL BE OF HOT ZINC COATED GALVANIZED STEEL OR STAINLESS STEEL.
8. CITY LICENSED FABRICATOR REQUIRED FOR GLULAM BEAMS, VERSA LAM, TJI & STRUCTURAL STEEL.
9. PROVIDE 2 F.J. MIN. BELOW ALL BEARING / SHEAR WALLS PARALLEL TO FLOOR JOISTS.
10. FLOOR SHALL HAVE TONGUE AND GROOVE OR BLOCKED PANELS EDGES.
10. ROOF DIAPHRAGM NAILING TO BE INSPECTED BEFORE COVERING. FACE GRAIN OF PLYWOOD SHALL BE PERPENDICULAR TO SUPPORTS. FLOOR SHALL HAVE TONGUE AND GROOVE OR BLOCKED PANEL EDGES. PLYWOOD SPANS SHALL CONFORM WITH TABLE 2304.8.(1) ON IBC 2018.
11. ALL WOOD BEAM SHALL BE CONNECTED TO POST WITH COLUMN CAP. UNLESS HARDWARE IS NOTED ON PLAN. (2/S-4.2)
12. ALL WOOD HEADER SHALL BE CONNECTED TO POST OR 2-2x TRIMED STUD WITH POST CAP. UNLESS HARDWARE IS NOTED ON PLAN.

FOUNDATION NOTES

1. CONCRETE SLAB ON GRADE SHALL BE 5" THICK w/ #4 @ 12" O.C. E.W. OVER A 4-INCH THICK BASE OF 1/2 INCH CLEAN SAND OR GRAVEL OVER. A 15MIL VAPOR BARRIER SHALL BE PROVIDED IN DIRECT CONTACT WITH CONCRETE FOR THE PROPOSED SLAB ON GRADE CONSTRUCTION.
2. ALL HOLDOWNS & ANCHOR BOLTS SHALL BE SET IN PLACE BY TEMPLATE PRIOR TO FOUNDATION INSPECTION.
3. ALL POSTS SHALL BE CONNECTED TO SILL PLATE WITH "A35" AT EA. SIDE TYP. UNLESS HARDWARE IS NOTED ON PLAN.
4. ALL FOOTING SHALL HAVE F'c = 4500 PSI UNLESS NOTED OTHERWISE.
5. PLATE WASHERS ARE REQUIRED FOR ALL HOLDOWNS BRACKETS.
6. ALL BOLT HOLES SHALL BE DRILLED A MAXIMUM OF 1/16" OVERSIZED. INSPECTOR TO VERIFY.
7. ALL HOLDOWN ANCHOR NUTS SHALL BE FINGER TIGHT AND 1/2 WRENCH TURN JUST PRIOR TO COVERING THE WALL FRAMING.
8. HOLD-DOWN CONNECTOR BOLTS INTO WOOD FRAMING REQUIRE APPROVED PLATE WASHERS.
9. CONNECTOR BOLTS INTO WOOD FRAMING REQUIRE STEEL PLATE WASHERS IN ACCORDANCE AF&PA'S 2018 SPECIAL DESIGN PROVISIONS FOR WIND AND SEISMIC (SDPWS-18)
10. FOUNDATION SILL SHALL BE NATURALLY DURABLE OR PRESERVATIVE-TREATED WOOD. FIELD-CUT ENDS, NOTCHES AND DRILLED HOLES OF PRESERVATIVE-TREATED WOOD SHALL BE FIELD-TREATED PER AWPA M4.
11. CONTRACTOR TO VERIFY ALL DIMENSIONS & ELEVATIONS WITH ARCHITECTURAL PLANS PRIOR TO STARTING ANY WORK.
12. ALL STUDS OVER 10 FEET TALL AND LESS THAN 15 FEET SHALL BE 2x6 OR 3x4 @ 16" O.C.
13. FASTENERS IN PRESERVATIVE TREATED WOOD OR FIRE RETARDANT TREATED WOOD SHALL BE OF HOT ZINC COATED GALVANIZED STEEL OR STAINLESS STEEL..
14. ALL EXCAVATIONS SHALL BE APPROVED BY THE CITY SOILS ENGINEER AND/OR THE ENGINEERING GEOLOGIST PRIOR TO THE PLACEMENT OF REINFORCING STEEL. DOCUMENTATION OF THE APPROVAL SHALL BE LEFT ON SITE FOR THE BUILDING INSPECTOR AT FOUNDATION INSPECTION.
15. SOIL COMPACTION REPORT SHALL BE PROVIDED TO THE BUILDING INSPECTOR AT THE JOB SITE PRIOR TO PLACEMENT OF CONCRETE FOR THE FOUNDATION.
16. SOIL ENGINEER SHALL INSPECT FOUNDATION PRIOR TO PLACEMENT OF CONCRETE FOR THE FOUNDATION.
17. THE SOILS ENGINEER IS TO APPROVE THE KEY OR BOTTOM AND LEAVE A CERTIFICATE ON THE SITE FOR THE GRADING INSPECTOR THE GRADING INSPECTOR IS TO BE NOTIFIED BEFORE ANY GRADING BEGINS AND, FOR BOTTOM INSPECTION, BEFORE FILL IS PLACED. FILL MAY NOT BE PLACED WITHOUT APPROVAL OF THE GRADING INSPECTOR.

LRFD - Shear Wall Schedule from Table 4.3A SDPWS-2018 (values multiplied by 0.8)

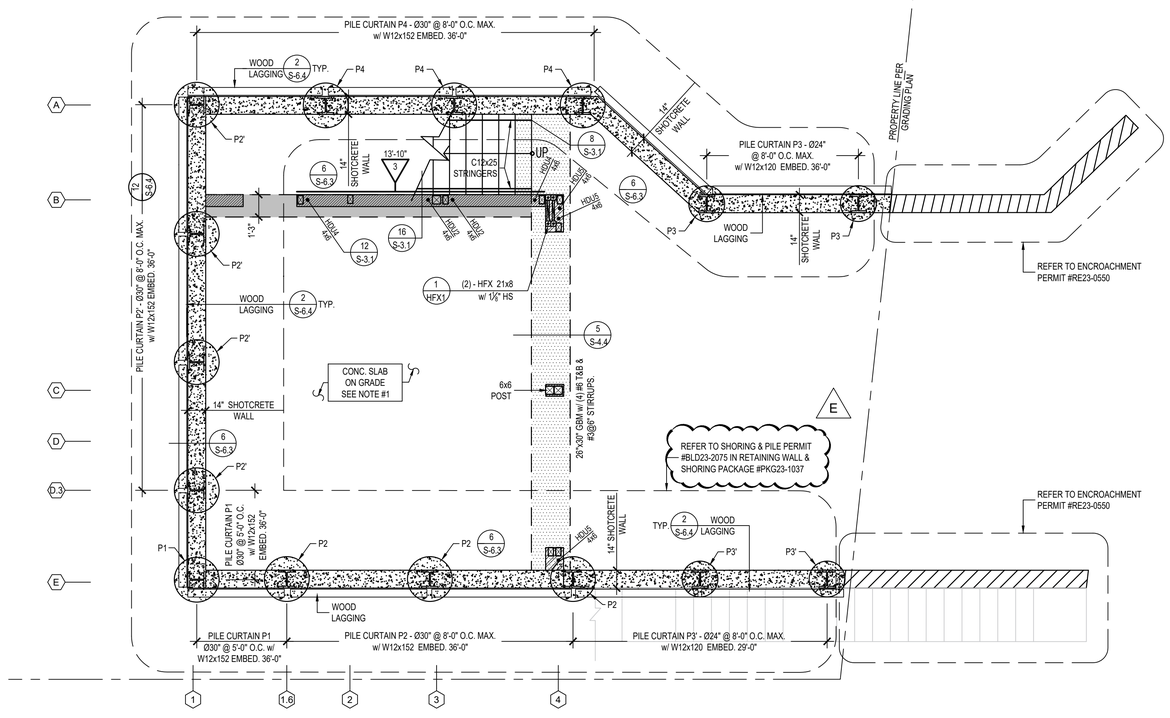
Wall ID △	Sheathing Material	Panel Nailing: Edges	Panel Nailing: Fields	Shear transfer, Bottom sill and Top Plate A35/LTP4 @	Anchor Bolt ⅝" @	Bolt Embed.	Bolt Edge Distance (N) Footing	Bolt Edge Distance (E) Footing	Shear (lbs/ft)	Sill-Plate Connection	Min. Blkg. Thk. below Sill-Plate	Special Inspection
1	15/32" Struct I	8d @ 6" o.c.	8d @ 12" o.c.	24" o.c. to Blkg.	48" o.c.	7"	1.75"	2"	448	20d common nail @ 6" o.c.	1.5"	NO
2	15/32" Struct I	10d @ 6" o.c.	10d @ 12" o.c.	16" o.c. to Blkg.	48" o.c.	7"	1.75"	2"	544	20d common nail @ 6" o.c.	1.5"	NO
3	15/32" Struct I	10d @ 4" o.c.	10d @ 12" o.c.	12" o.c. to Blkg.	32" o.c.	7"	1.75"	2"	816	3/8" Dia. x 6" long lag @ 8" o.c	3.5"	YES See note 4
4	15/32" Struct I	8d @ 3" o.c.	8d @ 12" o.c.	8" o.c. to Blkg.	24" o.c.	7"	1.75"	2"	880	3/8" Dia. x 6" long lag @ 6" o.c	3.5"	YES See note 4
5	15/32" Struct I	8d @ 2" o.c.	8d @ 12" o.c.	8" o.c. to Blkg.	24" o.c.	7"	1.75"	2"	1,168	3/8" Dia. x 6" long lag @ 6" o.c	3.5"	YES See note 4
6	15/32" Struct I*	10d @ 2" o.c.	10d @ 12" o.c.	6" o.c. to Blkg.	24" o.c.	7"	1.75"	2"	1,392	1/2" Dia. x 6" long lag @ 12" o.c.	3.5"	YES See note 4
7	15/32" Struct I* Both Sides	8d @ 2" o.c.	8d @ 12" o.c.	See note 5	16" o.c.	7"	1.75"	2"	2,336	1/2" Dia. x 6" long lag @ 8" o.c.	3.5"	YES See note 4
8	15/32" Struct I* Both Sides	10d @ 2" o.c.	10d @ 12" o.c.	See note 5.	12" o.c.	7"	1.75"	2"	2,784	1/2" Dia. x 6" long lag @ 6" o.c.	3.5"	YES See note 4

Notes:
1) This nailing schedule is for common nails only and all panels edges fastened to framing. Plywood can be installed either horizontally or vertically.
2) Shear Panels 3 to 8 requires 3X framing members at the bottom sill plate when resting on concrete, and behind vertical or horizontal panel edges. Also minimum 1/2" edge nailing distance at panel ends and edges.
3) Use square plate washers 3" x 3" x 1/4" thk. for 5/8" diameter bolts.
4) Deputy inspection required where the fastener spacing of the sheathing is 4 - inches on center or less. Applies to shear panel 3, 4, 5, 6, 7 & 8.
5) For 2x4 stud walls:
   -Use 4x blocking between joist when joist are perpendicular to wall or align a 4x continue member over the wall when joist are parallel to wall. Use LTP4 at 5" o.c. both sides.
   For 2x6 stud walls:
   -Use 4x blocking between joist when joist are perpendicular to wall or align a 4x continue member over the wall when joist are parallel to wall. Use LTP4 at 5" o.c. to connect aligned faces of wall and blocking or continue member and use A35 at 5" o.c. to connect the non aligned face of blocking or continue member with the top of top plate.

**Framing at adjoining panel edges shall be nominal 3" or wider. nails shall be staggered in two lines along panel edges when nail spacing is 2" o.c., or when 10d common nails spaced 3" o.c. penetrate framing more than 1-5/8".*

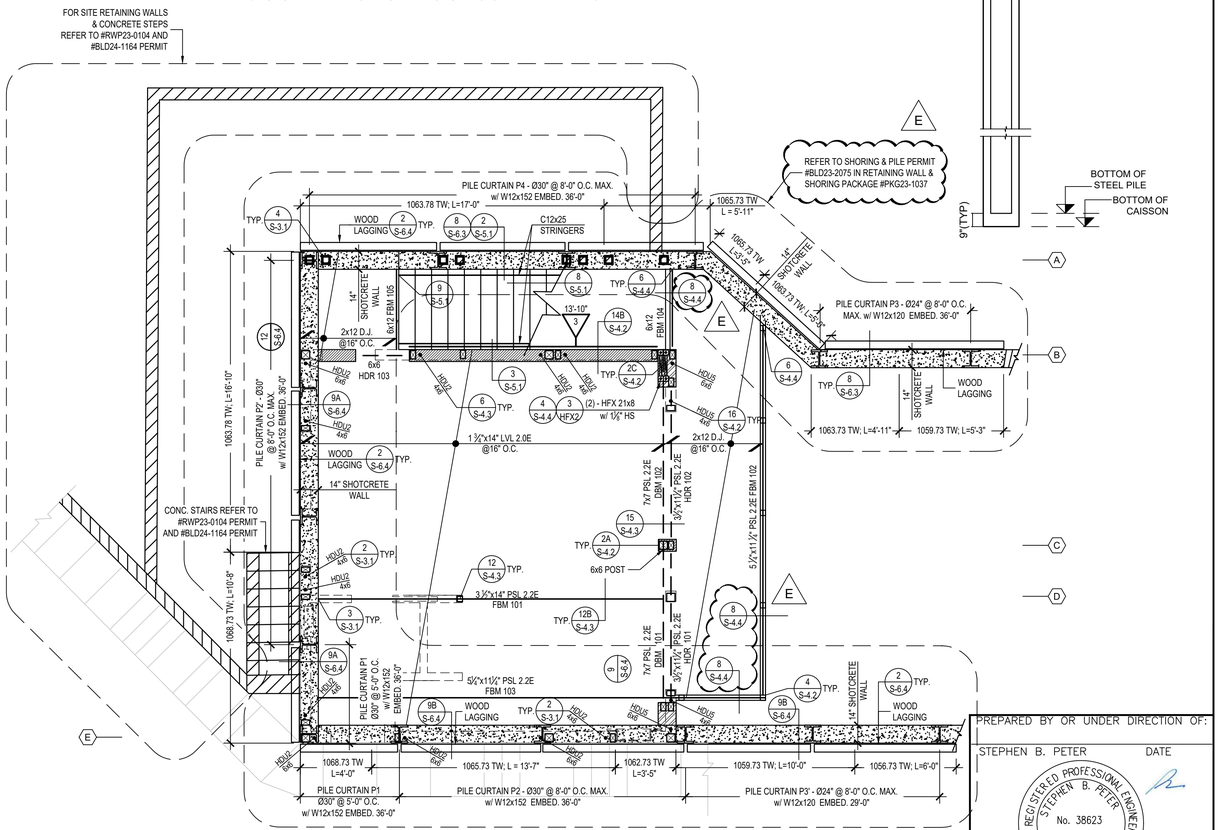
CONCRETE PILE SCHEDULE										
MARK	DIAMETER	VERTICAL STEEL REINF.	STIRRUPS REINF.	TOP OF CONCRETE WALL - MAXIMUM LEVEL	TOP OF CONCRETE WALL - MINIMUM LEVEL	TOP OF STEEL PILE MAX. LVL[1]	BOTTOM OF CONC. PILE ELEVATION[2]	ADJACENT LOWEST GRADE ELEVATION	ADJACENT HIGHEST GRADE ELEVATION	MIN. EMBED. BELOW BOTTOM OF WALL PER GRADING PLAN	NOTES (SEE BELOW)
P1	30"	W 12x152	N.A.	PER GRADING PLAN	PER GRADING PLAN	PER GRADING PLAN				36.00 Ft	-
P2	30"	W 12x152	N.A.							36.00 Ft	-
P2'	30"	W 12x152	N.A.							36.00 Ft	-
P3	24"	W 12x120	N.A.							36.00 Ft	-
P3'	24"	W 12x120	N.A.							29.00 Ft	-
P4	30"	W 12x152	N.A.							36.00 Ft	-

1. REQUIRED RESISTANCE OF CONCRETE PILES SHALL BE f'c = 4500 Psi, DEPUTY INSPECTION REQUIRED.
2. BOTTOM OF PILE ELEVATION MAY BE CHANGE ACCORDING BEDROCK ELEVATION AND FIXITY POINT ELEVATION.
3. TOP OF STEEL PILES 3" BELOW THE TOP OF SHOTCRETE WALL ELEVATION.



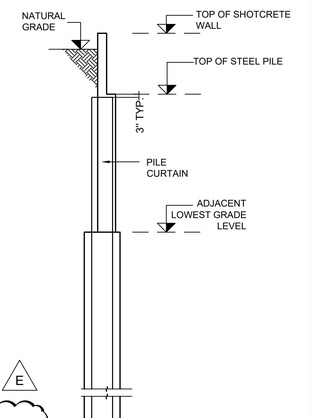
FOUNDATION PLAN

SCALE: 1/4" = 1'-0"



DWELLING FLOOR FRAMING PLAN & WALLS BELOW

SCALE: 1/4" = 1'-0"



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STEPHEN B. PETER DATE

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FOUNDATION AND DWELLING FLOOR FRAMING PLAN

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

S-2.1

ROOF/ FLOOR FRAMING NOTES

1. ROOF SHEATHING SHALL BE 1/2" PLYWOOD, CD-X P11 32/16, w/ 8d COMMON NAILS @ 6", 12" O.C. (3/S-4.1)
2. FLOOR SHALL BE 3/4" PLYWOOD CDX, PII 32/16 T & G W/10d COMMON NAILS @ 6"; 12" O.C. FOR PLYWOOD SHEATHING LAYOUT SEE (3/S-4.1)
3. ALL SHEAR WALLS ARE FULL HEIGHT TO THE ROOF AND FLOOR DIAPHRAGM.
4. ALL POSTS ARE 4 x 6 MINIMUM U.N.O.
5. ALL POSTS SHALL BE CONNECTED TO SILL PLATE WITH "A35" AT EA. SIDE TYP. UNLESS HARDWARE IS NOTED ON PLAN.
6. ALL WOOD FRAMING MEMBERS U.N.O. SHALL BE:
   - 2x MEMBER DF #2 OR BETTER
   - 4x MEMBER DF #2 OR BETTER
   - 2x STUDS DF #2 OR BETTER
7. ALL DIAPHRAGM AND SHEAR WALL NAILING SHALL UTILIZE COMMON NAILS OR GALVANIZED BOX.
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9. CITY LICENSED FABRICATOR REQUIRED FOR GLULAM BEAMS, VERSA LAM, TJI & STRUCTURAL STEEL.
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LEGEND	
△	INDICATES SHEAR WALL TYPE, SEE SCHEDULE
A	INDICATES GRID LINE
⊠	INDICATES POST BELOW
	INDICATES NEW WALL - 2x6 STUDS @16"O.C.
	INDICATES NEW WALL - 2x4 STUDS @16"O.C.
	INDICATES CMU WALL
	ROOF RAFTERS (R.R.) - SIZE AND SPACING PER PLAN
	FLOOR JOIST (F.J.) - SIZE AND SPACING PER PLAN
ABBREVIATIONS	
DBM	DENOTES DROPPED BEAM BELOW FLOOR/ROOF JOISTS.
HDR	DENOTES HEADER
RBM	DENOTES RIDGE BEAM
FBM	DENOTES FLUSH BEAM

LRFD - Shear Wall Schedule from Table 4.3A SDPWS-2018 (values multiplied by 0.8)

Wall ID △	Sheathing Material	Panel Nailing: Edges	Panel Nailing: Fields	Shear transfer, Bottom sill and Top Plate A35/LTP4 @	Anchor Bolt ⅝" @	Bolt Embed.	Bolt Edge Distance (N) Footing	Bolt Edge Distance (E) Footing	Shear (lbs/ft)	Sill-Plate Connection	Min. Blkg. Thk. below Sill-Plate	Special Inspection
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Notes:
1) This nailing schedule is for common nails only and all panels edges fastened to framing. Plywood can be installed either horizontally or vertically.
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3) Use square plate washers 3" x 3" x 1/4" thk. for 5/8" diameter bolts.
4) Deputy inspection required where the fastener spacing of the sheathing is 4 - inches on center or less. Applies to shear panel 3, 4, 5, 6, 7 & 8.
5) For 2x4 stud walls:
   -Use 4x blocking between joist when joist are perpendicular to wall or align a 4x continue member over the wall when joist are parallel to wall. Use LTP4 at 5" o.c. both sides.
   For 2x6 stud walls:
   -Use 4x blocking between joist when joist are perpendicular to wall or align a 4x continue member over the wall when joist are parallel to wall. Use LTP4 at 5" o.c. to connect aligned faces of wall and blocking or continue member and use A35 at 5" o.c. to connect the non aligned face of blocking or continue member with the top of top plate.

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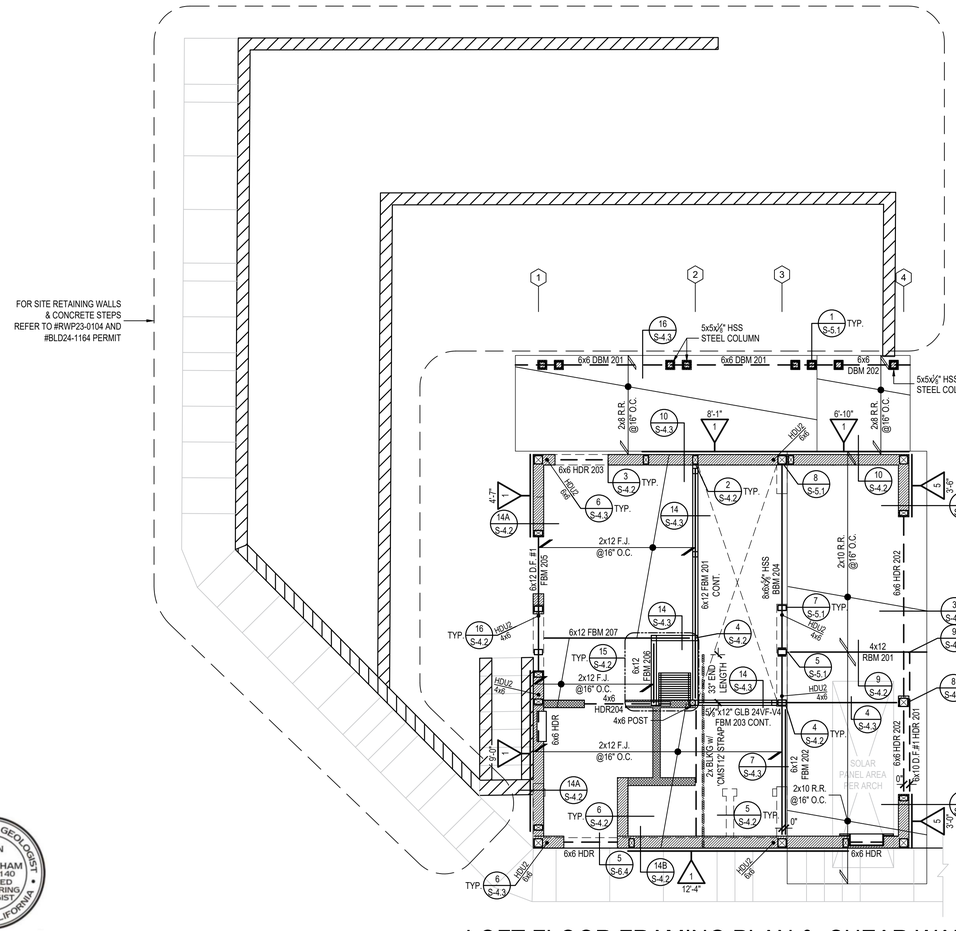
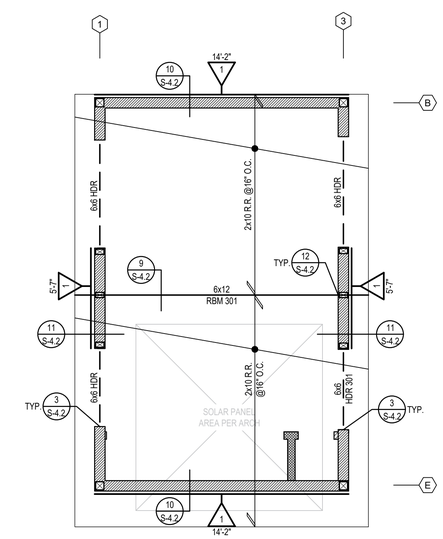


LOFT FLOOR FRAMING PLAN & SHEAR WALLS BELOW

SCALE: 1/4" = 1'-0"



ROOF FRAMING PLAN & SHEAR WALLS BELOW

SCALE: 1/4" = 1'-0"

Colin E. Cunningham

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

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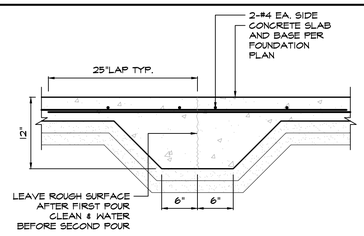
LOFT FLOOR AND ROOF FRAMING PLAN

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

S-2.2



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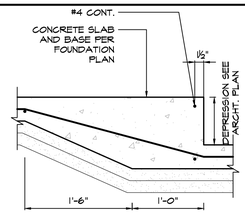

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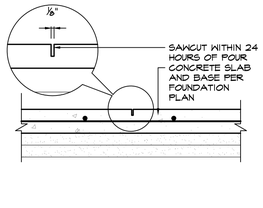
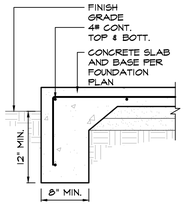


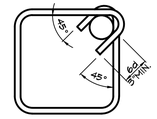
CONTROL JOINT



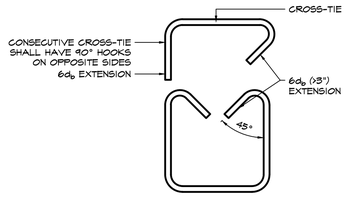
SLAB EDGE

NOTE: WEAKENED PLANE JOINTS (CONSTRUCTION OR CONTROL JOINTS) SHALL BE PROVIDED AT 10'-0" EA. WAY (MAX.). CONSTRUCTION JOINT SHALL BE PROVIDED AT END OF EA. POUR.

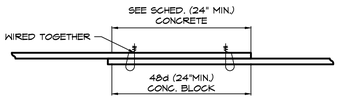
13 TYP. CONCRETE SLAB DETAIL



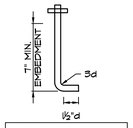
CLOSED TIE



ALTERNATE CLOSED TIE



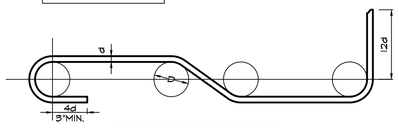
LAP SPLICE



ANCHOR BOLT

STANDARD BEND

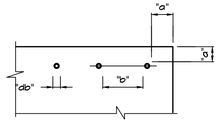
D = 6d #3 THROUGH #8
D = 8d #9 THROUGH #11
D = 10d #14 THROUGH #18



STANDARD HOOK

TENSION LAP SPLICE SCHEDULE

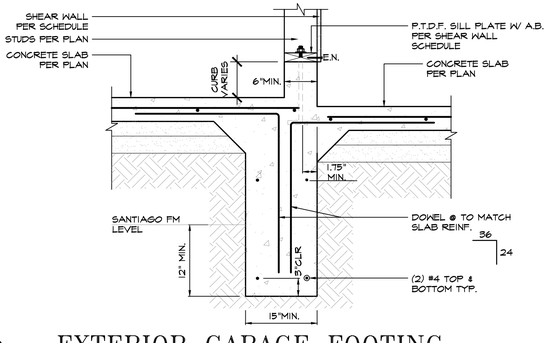
	CLASS B TENSION LAP SPLICE LENGTH						CLASS A DEVELOPMENT LENGTH (ld)						LAP SPLICE (IN)- DEFORMED BARS - NON SEISMIC TENSION
	2500 PSI CONC f'c		3000 PSI CONC f'c		4000 PSI CONC f'c		2500 PSI CONC f'c		3000 PSI CONC f'c		4000 PSI CONC f'c		
BAR SIZE	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	MANSORY f'c 1500
3"	31	24	28	22	24	19	24	19	22	17	19	15	24
4"	41	32	37	29	32	25	32	24	29	22	25	19	48
5"	52	40	47	36	40	31	39	31	36	28	31	24	60
6"	61	47	56	43	48	37	47	36	43	33	37	29	72
7"	89	69	81	63	70	54	69	53	63	48	54	42	84
8"	102	79	93	72	80	62	79	60	72	55	62	48	96
9"	115	89	105	81	91	70	89	68	81	62	70	54	108
10"	129	100	118	91	102	79	100	77	91	70	79	61	122
11"	144	111	131	101	113	87	111	85	101	78	87	67	135



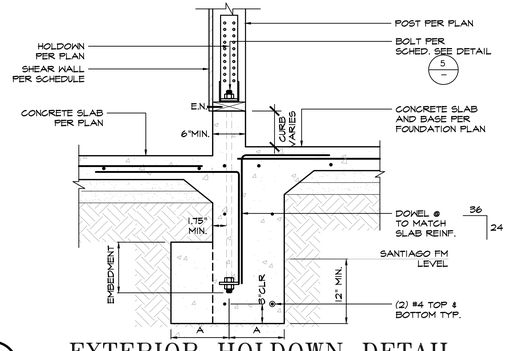
WHERE: "a" IS THE CLEAR COVER
"b" IS THE CLEAR SPACING
"db" IS THE BAR DIA.

NOTES:
1. ALL SPLICES SHALL BE CLASS B TENSION LAP SPLICES U.N.O.
2. LENGTHS SHOWN ARE FOR GRADE 60 UNCOATED BARS.
3. LENGTHS SHOWN ARE IN INCHES.
4. INCREASE LENGTHS 30% FOR LIGHT WEIGHT CONC. & AT FOUR BAR BUNDLES (WHERE 2 BARS LAP WITH 2 OTHER BARS) INDIVIDUAL BARS WITHIN A BUNDLE SHALL NOT OVERLAP.
5. TOP BARS - HORIZONTAL BARS PLACED WITH MORE THAN 12" OF FRESH CONC. CAST BELOW THEM.
6. INCREASE LENGTHS 50% WHERE a < db OR WHERE b < db FOR BEAMS & COLS OR WHERE b < 2db FOR OTHER ELEMENTS.
7. FOR #14 & #18 BARS, USE MECHANICAL SPLICE IN ACCORDANCE WITH CBC REQUIREMENTS.

15 TYP. SPLICE DETAIL



16 EXTERIOR GARAGE FOOTING



12 EXTERIOR HOLDOWN DETAIL

HOLDOWN SCHEDULE

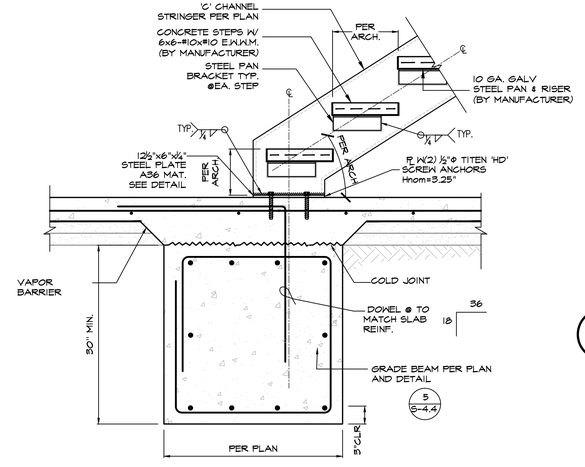
MODEL NO.	THREADED ROD DIA.	WASHER	A MIN.	EMBED.
HDU2-SDS2.5	5/8"DIA. (PAB5)	2" DIA.	10"	7"
HDU4-SDS2.5	5/8"DIA. (PAB5)	2-1/4" DIA.	10"	7"
HDU5-SDS2.5	5/8"DIA. (PAB5)	2-1/2" DIA.	10"	7"
HDU8-SDS2.5	7/8"DIA. (PAB7)	3" SQ.	14"	10"
HDU11-SDS2.5	1"DIA. (PAB8)	3" SQ.	17"	12"
HDU14-SDS2.5	1"DIA. (PAB8)	3" SQ.	17"	12"

5 HOLDOWN SCHEDULE

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

PROFESSIONAL GEOLOGIST · COLIN E. CUNNINGHAM No. EG 2140 CERTIFIED ENGINEERING GEOLOGIST · STATE OF CALIFORNIA

6 NOT USED



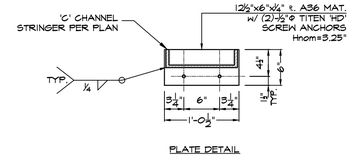
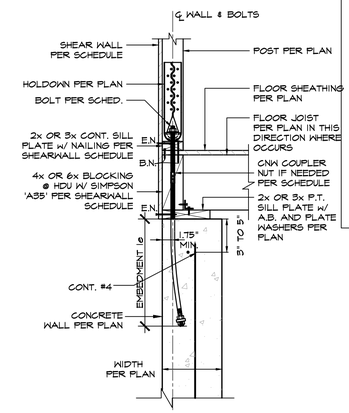


PLATE DETAIL

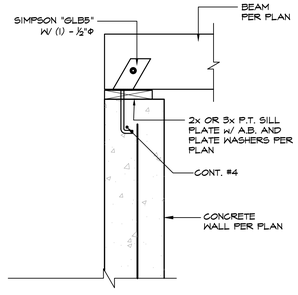
8 STRINGER AT GRADE BEAM DETAIL



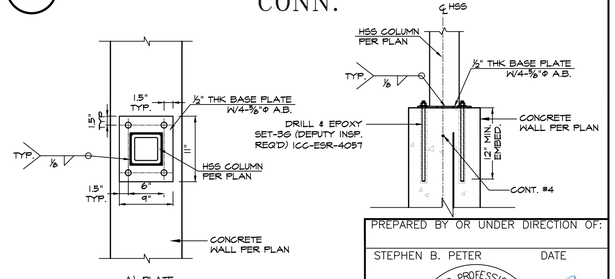
HOLDOWN SCHEDULE

MODEL NO.	THREADED ROD DIA.	WASHER	STEMWALL WIDTH MIN.
HDU2-SDS2.5	5/8" DIA. (SB5/8X24)	2" DIA.	6"
HDU4-SDS2.5	5/8" DIA. (SB5/8X24)	2¼" DIA.	6"
HDU5-SDS2.5	5/8" DIA. (SB5/8X24)	2½" DIA.	6"
HDU8-SDS2.5	7/8" DIA. (SB7/8X24)	3" SQ.	8"
HDU11-SDS2.5	1" DIA. (SBIX30)	3" SQ.	8"
HDU14-SDS2.5	1" DIA. (SBIX30)	3" SQ.	8"

2 TYP. HDU. TO (N) CONC. WALL DETAIL



3 BEAM TO CONCRETE WALL CONN.



A) PLATE

4 HSS TO CONCRETE WALL CONN.

PREPARED BY OR UNDER DIRECTION OF:
STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER · STEPHEN B. PETER · No. 38623 Exp. 3/31/25 · CIVIL · STATE OF CALIFORNIA

BY	REVISION	DESCRIPTION	APPROVED	DATE
	6	PCC		20230822
	5	PCC		20231212
	4	PCC		20240419
	3	PCC		20240802
	2	PCC		20250307

SCALE: N.A.
ACAD FILE NO. –
PROJECT NO. 21SE21064

DESIGNED:	DRAWN:	CHECKED:
M.A.A.	M.A.A.	S.P

07-02-2022 DATE
STEPHEN PETER

PLANS PREPARED BY:
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WWW.PETERASSOC.COM
1519 CALLE VALLE, SAN CLEMENTE, CA. 92672
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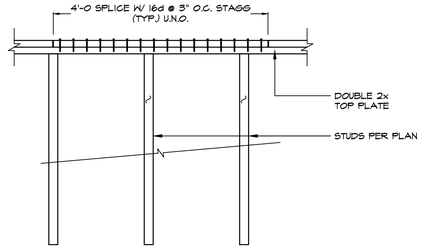
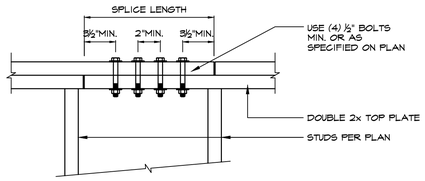
FOUNDATION DETAILS

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

S-3.1



Ⓐ TYP. NAILING CONN. AT SPLICE

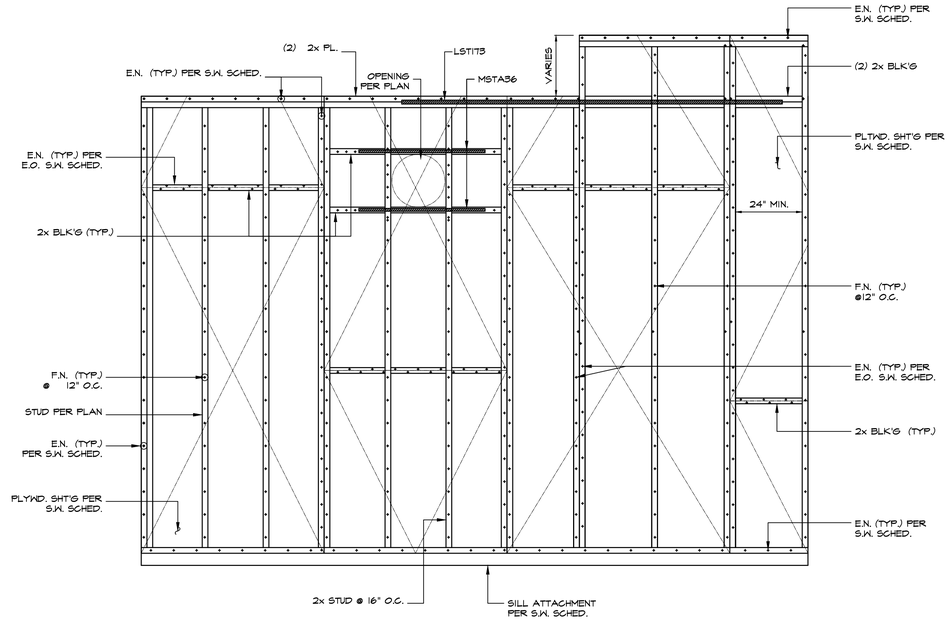


Ⓑ ALT. BOLTING CONN. AT SPLICE

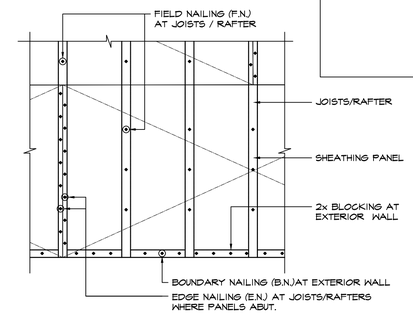
NOTE:

1. SPLICE SHOULD NOT BE WITHIN SHEAR WALL PANELS WITH EDGE NAILING CLOSER THAN 6" O.C. OR DOUBLE SIDED SHEAR WALLS. SPLICE ALSO SHOULD NOT BE WITHIN THE LENGTH OF ANY STEEL STRAPS
2. CONNECTION.
3. WHEN SPLICE OF TOP PLATES CAN NOT BE RELOCATED OUTSIDE THE AFOREMENTIONED SHEAR PANEL OR STRAP CONNECTION, OR WHERE REQUIRED PER PLAN, USE ALT. BOLTING CONNECTION "B".

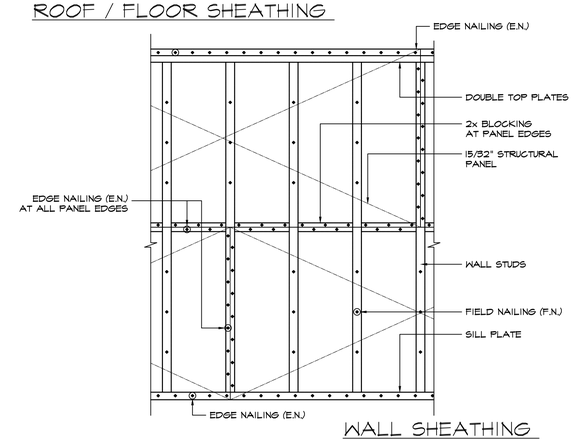
14 TYP. PLATE SPLICE



10 TYPICAL SHEAR WALL NAILING DETAIL



ROOF / FLOOR SHEATHING

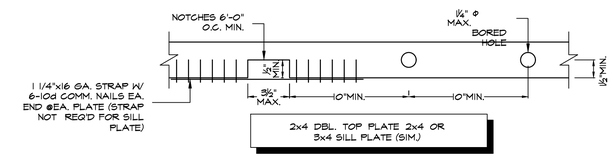


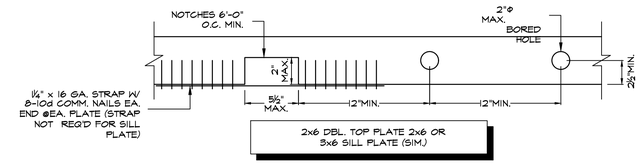
WALL SHEATHING

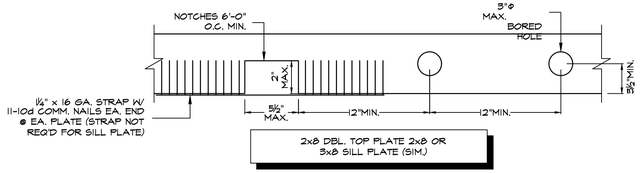
PANEL NAILING SCHEDULE				
	NAIL	B.N.	E.N.	F.N.
ROOF	8d @	6"	6"	12"
FLOOR S.	10d @	6"	6"	10"
WALLS	8d @	-	6"	12"

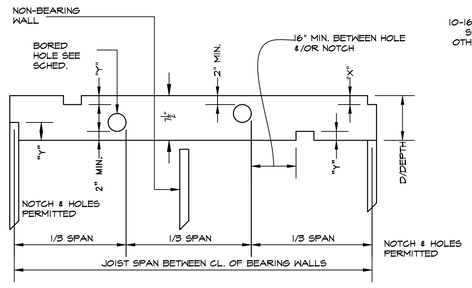
NOTES:
1. NAILS SHALL BE PLACED 3/8" FROM PANEL EDGES.
2. PROVIDE 1/8" GAP BETWEEN SHEATHING PANEL.
3. MINIMUM DIMENSION OF SHEATHING PANEL IN ANY DIRECTION SHALL BE 2'-0"
4. WALL SHEATHING PANEL MAY BE INSTALLED WITH THE LONG DIRECTION ORIENTED VERTICALLY.

3 SHEATHING NAILING







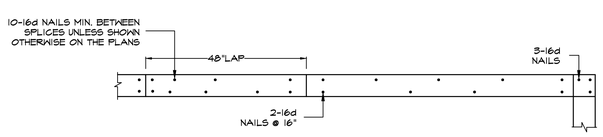


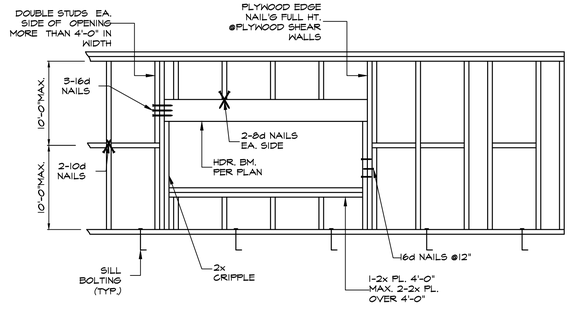
ALLOWED HOLE & NOTCH FLOOR JOIST			
SIZE OF JOIST	"X" (MAX.) NOTCH AT BEARING D/4	"Y" (MAX.) NOTCH DEPTH AS ALLOWED D/6	MAX. SIZE HOLE D/3
2X6	1 ¾"	⅞"	1 ½"ø
2X8	1 ¾"	1 ⅜"	2 ⅜"ø
2X10	2 ¼"	1 ½"	3"ø
2X12	2 ¾"	1 ⅞"	3 ½"ø
2X14	3 ¼"	2 ⅛"	4 ⅜"ø

NOTE:
-BOTH TOP & BOTTOM SURFACES NOT TO BE NOTCHED WITHIN SAME 1/3 OF SPAN
-MIN. DISTANCE BETWEEN HOLES WITHIN SAME 1/3 OF SPAN SHALL BE TWICE THE DIAMETER OF HOLES
-L = NOTCH LENGTH NOT TO BE GREATER THAN 1/3 OF THE MEMBER'S DEPTH. NO NOTCH ALLOWED IN MIDDLE 1/3 OF SPAN.

TYPICAL BORING & NOTCHING AT TYPICAL FLOOR & ROOF JOIST

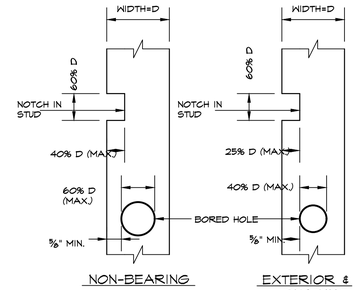
SHEAR WALL PLATE DETAIL BORING & NOTCHING DETAIL





NOTE:
-THE ABOVE DETAIL APPLIES AT BEARING & NON- BEARING STUD WALLS
-USE 2-2x CRIPPLES WHERE SPAN EXCEEDS 6'-0"

TYPICAL STUD WALL FRAMING DETAIL



NON-BEARING PARTITION

EXTERIOR & BEARING PARTITION

NOTCH/BORE OF STUD %	2x4 STUD	2x6 STUD
25%	7/8"	1 ⅜"
40%	1 ⅜"	2 ⅛"
60%	2"	3 ¼"

NOTE:
-BORING AND NOTCHING SHALL NOT OCCUR IN SAME STUDS

4 TYP. STUD WALL BORING & NOTCHING

16 TYPICAL DETAILS

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER STEPHEN B. PETER No. 38623 Exp. 3/31/25 CIVIL STATE OF CALIFORNIA

BY	REVISION	DESCRIPTION	APPROVED	DATE
	1	PCC		20230822
	2	PCC		20231212
	3	PCC		20240419
	4	PCC		20240802
	5	PCC		20250307

SCALE: N.A.
ACAD FILE NO. -
PROJECT NO. 21SE21064

DESIGNED: M.A.A. DRAWN: M.A.A. CHECKED: S.P

07-02-2022 DATE

STEPHEN PETER

PLANS PREPARED BY:
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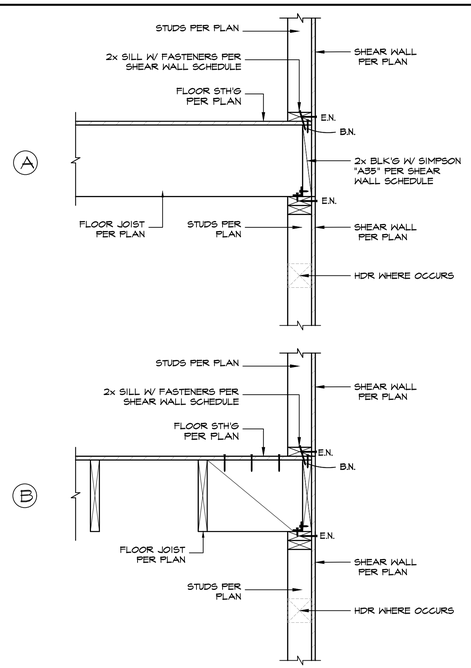
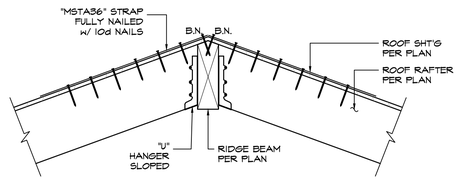
FRAMING DETAILS

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

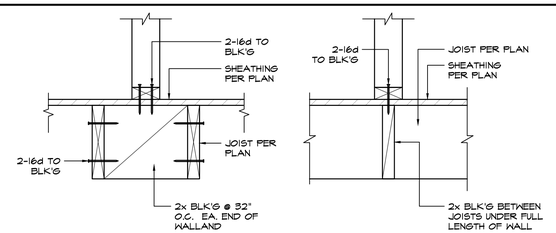
S-4.1



14 EXT. WALL TO F.J. CONN.

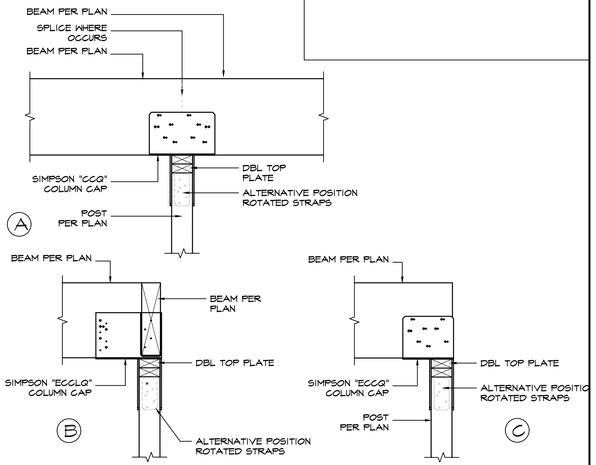


9 RIDGE BEAM CONNECTION

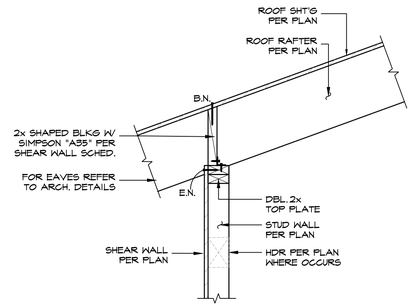


NOTES:
1) WHERE FLOOR SHEATING IS THICKER THAN 3/4", USE 1-16d WOOD SCREWS 1-7/8" MIN. INTO EA. BLK'G, NO 1 JOIST BLK'G IS ALLOWED.

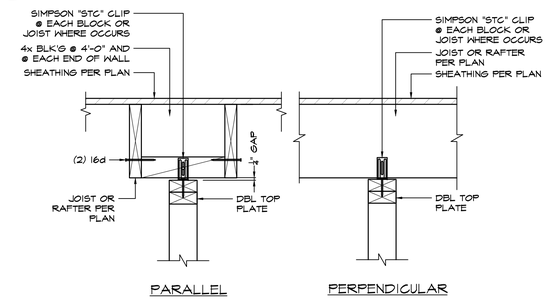
5 TYP. NON-BEARING WALL



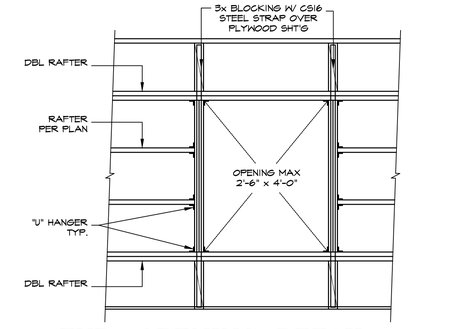
2 TYP. BEAM TO POST CONN.



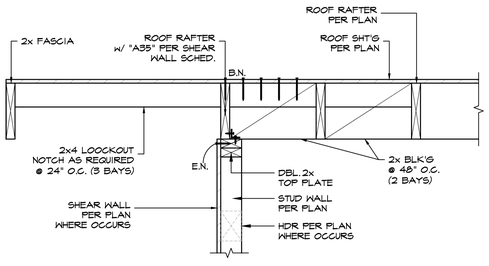
10 RAFTER TO WALL CONN. DETAIL



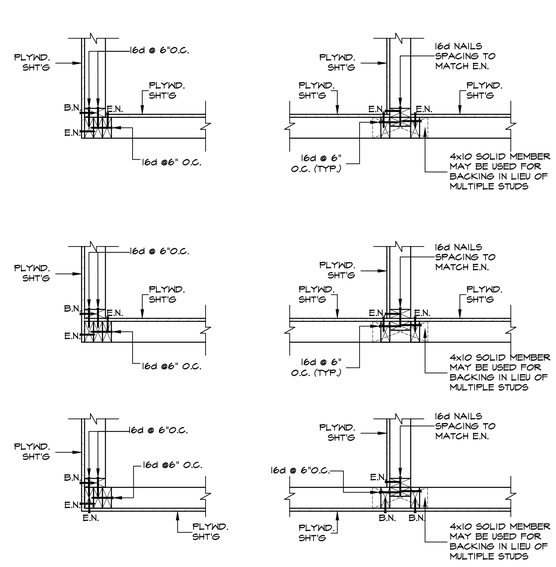
6 TYP. NON-BEARING WALL



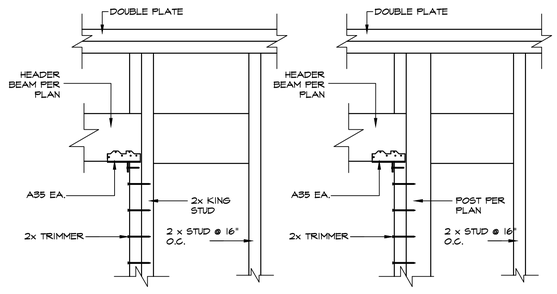
15 TYP. OPENING DETAIL



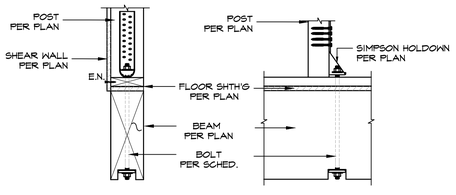
11 RAFTER TO WALL CONN. DETAIL



8 TYPICAL SHEAR WALL DETAIL

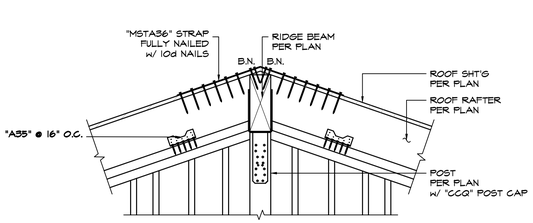


3 TYP. HEADER CONN. DETAIL

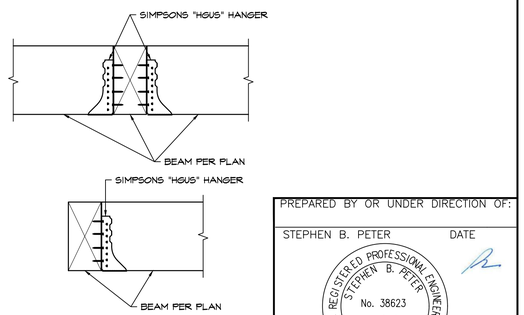


HOLDOWN SCHEDULE		
MODEL NO.	A.B.	POST FASTENERS
HDU2-SDS2.5	⅝" THR. ROD	(6)¼"x2½" SDS
HDU4-SDS2.5	⅝" THR. ROD	(10)¼"x2½" SDS
HDU5-SDS2.5	⅝" THR. ROD	(14)¼"x2½" SDS
HDU8-SDS2.5	⅞" THR. ROD	(20)¼"x2½" SDS
HDU11-SDS2.5	1" THR. ROD	(30)¼"x2½" SDS
HDU14-SDS2.5	1" THR. ROD	(36)¼"x2½" SDS

16 HDU TO BEAM DETAIL



12 RIDGE BEAM TO POST CONN.



4 BEAM TO BEAM 'HGUS' CONN.

PREPARED BY OR UNDER DIRECTION OF:
STEPHEN B. PETER DATE
REGISTERED PROFESSIONAL ENGINEER STEPHEN B. PETER No. 38623 Exp. 3/31/25 CIVIL STATE OF CALIFORNIA

BY	REVISION	DESCRIPTION	APPROVED	DATE
	1	PCC		20230822
	2	PCC		20231212
	3	PCC		20240419
	4	PCC		20240802
	5	PCC		20250307

SCALE: N.A.
ACAD FILE NO. –
PROJECT NO. 21SE21064

DESIGNED:	DRAWN:	CHECKED:
M.A.A.	M.A.A.	S.P

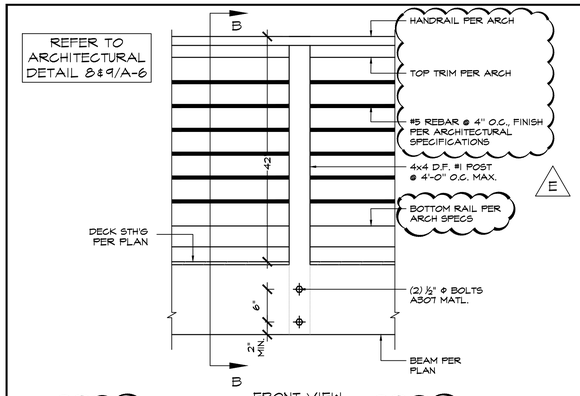
07-02-2022 DATE
STEPHEN PETER

PLANS PREPARED BY:
PETER and ASSOCIATES ENGINEERS GEOLOGISTS & SURVEYORS, INC.
WWW.PETERASSOC.COM
1519 CALLE VALLE, SAN CLEMENTE, CA. 92672
Tel: (949) 492-3735 Fax: (949) 492-1891

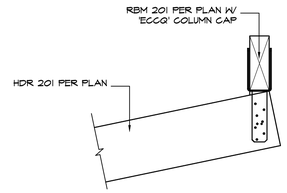
FRAMING DETAILS

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

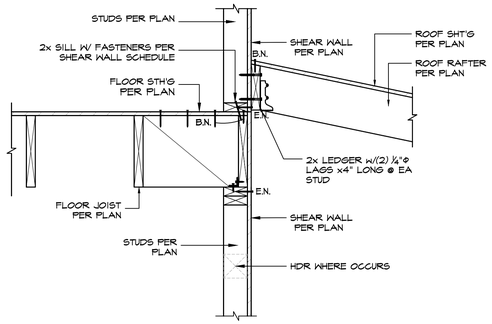
S-4.2



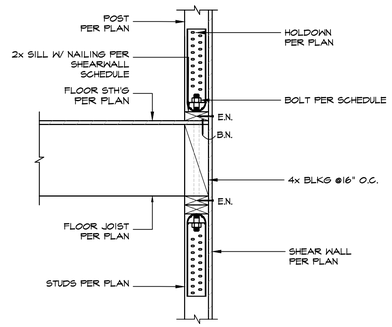
14 GUARDRAIL CONN. DETAIL

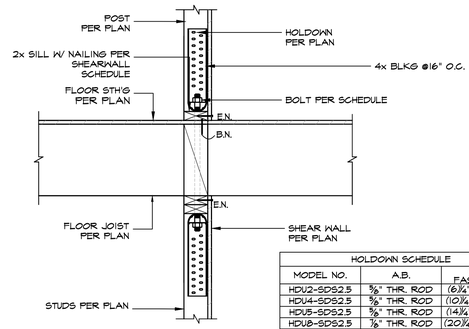


9 RBM TO HDR BEAM CONN.



10 EXT. WALL TO F.J. CONN.



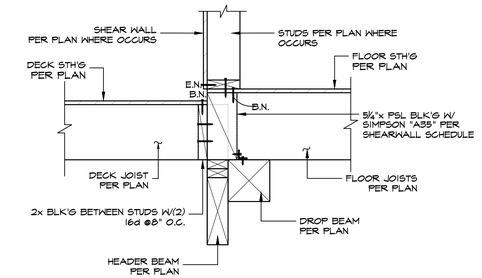


HOLDOWN SCHEDULE		
MODEL NO.	A.B.	POST FASTENERS
HDU2-SDS2.5	⅝" THR. ROD	(6)¼"x2½" SDS
HDU4-SDS2.5	⅝" THR. ROD	(10)¼"x2½" SDS
HDU5-SDS2.5	¾" THR. ROD	(14)¼"x2½" SDS
HDU8-SDS2.5	⅞" THR. ROD	(20)¼"x2½" SDS
HDU11-SDS2.5	1" THR. ROD	(30)¼"x2½" SDS
HDU14-SDS2.5	1" THR. ROD	(36)¼"x2½" SDS

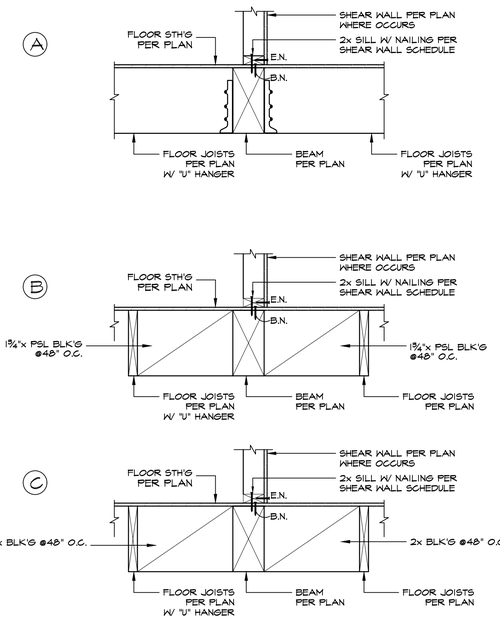
6 FLOOR TO FLOOR HDU

1 NOT USED

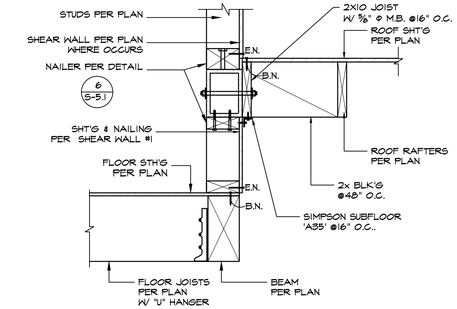
2 NOT USED



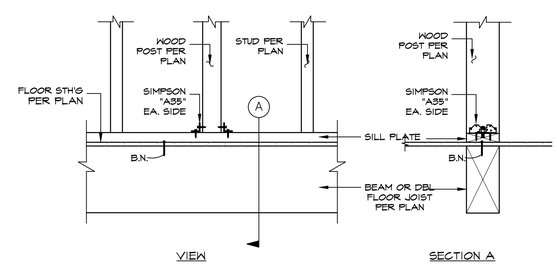
15 JOIST TO WALL CONN.



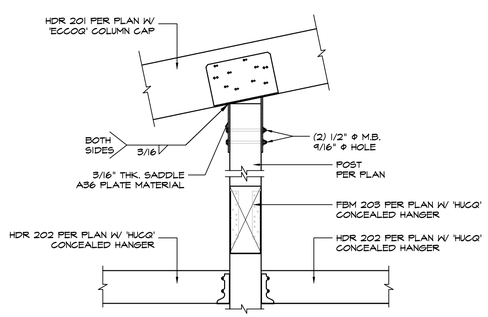
12 JOIST TO BEAM CONN.



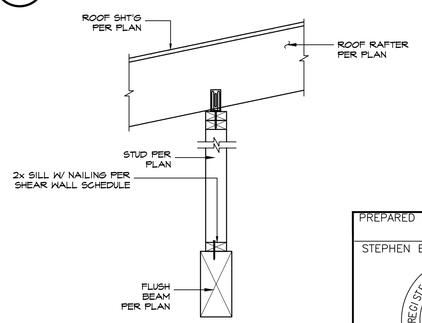
7 SECTION DETAIL



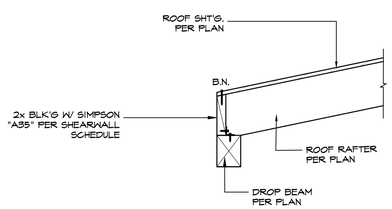
3 TYP. POST CONNECTION DETAIL



8 BEAMS TO POST CONN.



4 SECTION DETAIL



16 RAFTER TO DROP BEAM DETAIL

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER — STEPHEN B. PETER — No. 38623 — Exp. 3/31/25 — CIVIL — STATE OF CALIFORNIA

BY	REVISION	DESCRIPTION	APPROVED	DATE
	1	PCC		20230822
	2	PCC		20231212
	3	PCC		20240419
	4	PCC		20240802
	5	PCC		20250307

SCALE: N.A.

ACAD FILE NO. –

PROJECT NO. 21SE21064

DESIGNED:	DRAWN:	CHECKED:
M.A.A.	M.A.A.	S.P

07-02-2022 DATE

STEPHEN PETER

PLANS PREPARED BY:
PETER and ASSOCIATES ENGINEERS GEOLOGISTS & SURVEYORS, INC.
WWW.PETERASSOC.COM
1519 CALLE VALLE, SAN CLEMENTE, CA. 92672
Tel: (949) 492-3735 Fax: (949) 492-1891

FRAMING DETAILS

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

S-4.3

Colin E. Cunningham

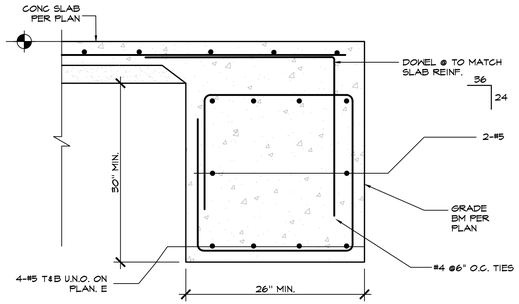
Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

PROFESSIONAL GEOLOGIST
COLIN E. CUNNINGHAM
No. EG 2140
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

13 NOT USED

9 NOT USED

5 GRADE BEAM DETAIL

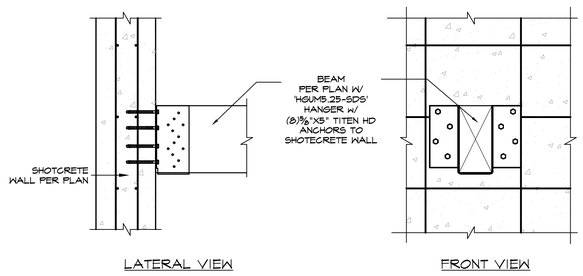


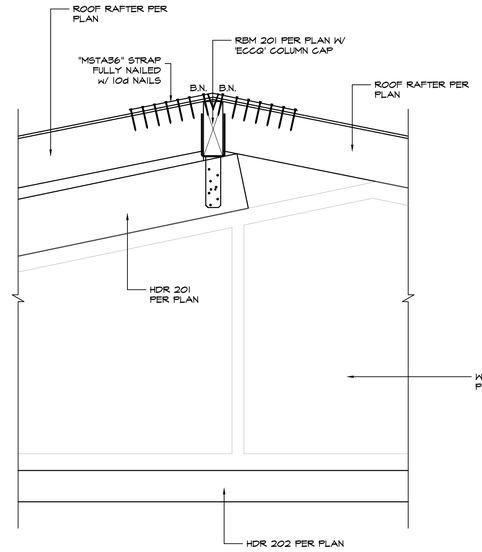
1 NOT USED

14 NOT USED

10 NOT USED

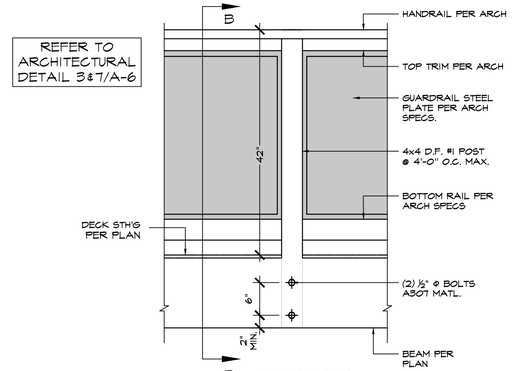
6 BEAM TO CONCRETE WALL CONN.





15 NOT USED

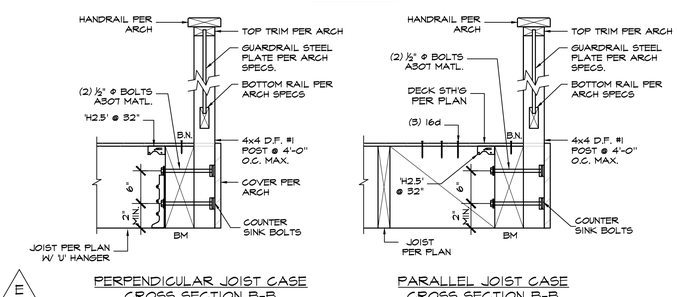
11 NOT USED



3 FRONT VIEW DETAIL

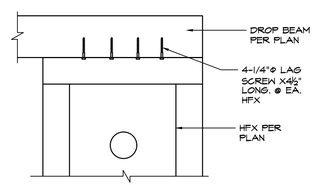
16 NOT USED

12 NOT USED



E

8 GUARDRAIL CONN. DETAIL



4 DROP BEAM TO HARDY FRAME CONN.

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN B. PETER
No. 38623
Exp. 3/31/25
CIVIL
STATE OF CALIFORNIA

BY	REVISION	DESCRIPTION	APPROVED	DATE
	1	PCC		20230822
	2	PCC		20231212
	3	PCC		20240419
	4	PCC		20240802
	5	PCC		20250307

SCALE: N.A.
ACAD FILE NO. –
PROJECT NO. 21SE21064

DESIGNED: M.A.A. | DRAWN: M.A.A. | CHECKED: S.P

07-02-2022 DATE

STEPHEN PETER

PLANS PREPARED BY:
PETER and ASSOCIATES ENGINEERS GEOLOGISTS & SURVEYORS, INC.
WWW.PETERASSOC.COM
1519 CALLE VALLE, SAN CLEMENTE, CA. 92672
Tel: (949) 492-3735 Fax: (949) 492-1891

FRAMING DETAILS

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

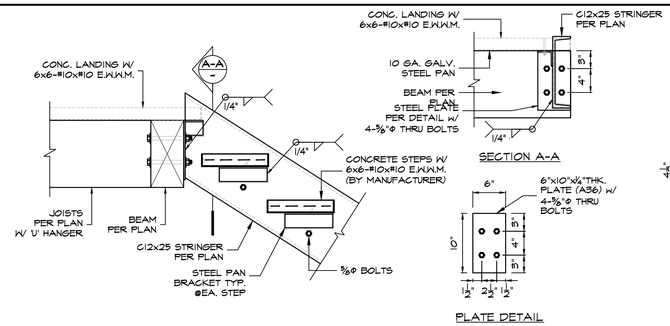
S-4.4

13 NOT USED

14 NOT USED

15 NOT USED

16 NOT USED

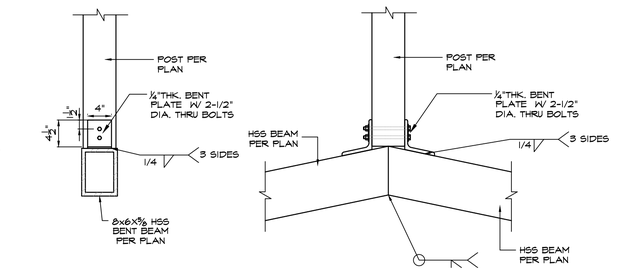


9 STRINGER TO BEAM DETAIL

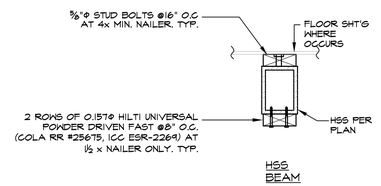
10 NOT USED

11 NOT USED

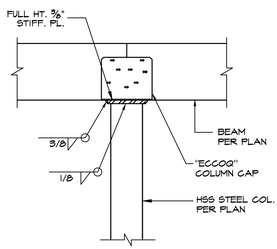
12 NOT USED



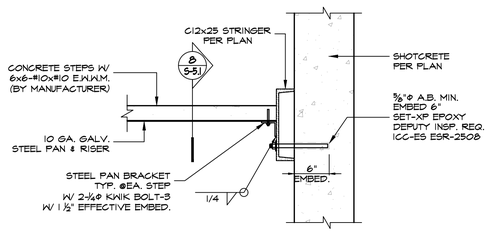
5 BENT BEAM DETAIL



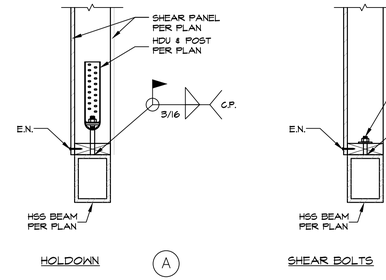
6 TYP. NAILER DETAIL



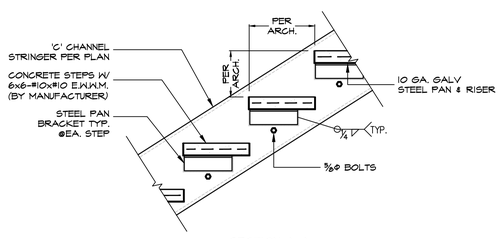
1 BEAM TO STEEL COLUMN CONN.



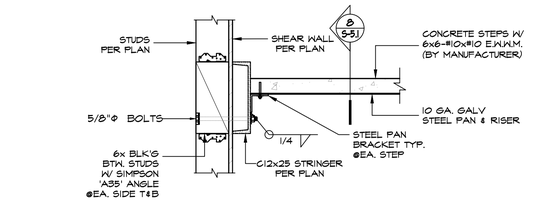
2 STRINGER TO WALL CONN.



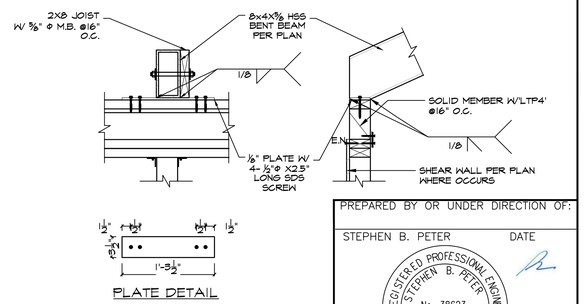
7 SHEAR WALL-Wx BEAM CONN



8 METAL STAIRS SECTION



3 STRINGER TO WALL CONN.



4 BENT BEAM TO POST CONN.

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER STEPHEN B. PETER No. 38623 Exp. 3/31/25 CIVIL STATE OF CALIFORNIA

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SCALE: N.A.

ACAD FILE NO. –

PROJECT NO. 21SE21064

DESIGNED:	DRAWN:	CHECKED:
M.A.A.	M.A.A.	S.P

07-02-2022 DATE

STEPHEN PETER

PLANS PREPARED BY:

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WWW.PETERASSOC.COM

1519 CALLE VALLE, SAN CLEMENTE, CA. 92672
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STEEL FRAMING DETAILS

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

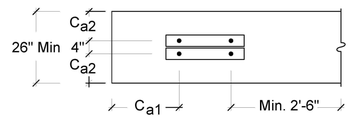
S-5.1

BACK TO BACK REINFORCED ANCHORAGE (BB-RA)

Model	Panel Width (in)	Anchorage [1]	Rod Dia (in)	Rod Grade [2,3]	BB-RA le [4] (in)	BB-RA Ca1 [5] (in)	BB-RA Ca2 [6] (in)	Stirrups [9] (in)	Shear [7] Ties
HFX-9x	9	1-1/8-STD-BB-RA	1-1/8	STD	15	19-3/4	11	8 - # 4	# 3 (min) @ 3-3/4" OC
HFX-12x	12	1-1/8-STD-BB-RA		STD	23			13 - # 4	# 3 (min) @ 4" OC
		1-1/8-HS-BB-RA		HS					
HFX-15x	15	1-1/8-STD-BB-RA		STD		20-5/8		14 - # 4	# 4 (min) @ 4" OC
		1-1/8-HS-BB-RA		HS					
HFX-18x	18	1-1/8-STD-BB-RA		STD				15 - # 4	
		1-1/8-HS-BB-RA		HS					
HFX-21x	21	1-1/8-STD-BB-RA		STD				16 - # 4	
		1-1/8-HS-BB-RA		HS					
HFX-24x	24	1-1/8-STD-BB-RA		STD				18 - # 4	
		1-1/8-HS-BB-RA		HS					

BACK TO BACK REINFORCED ANCHORAGE NOMENCLATURE

1-1/8 - STD - BB - RA
- REINFORCED ANCHORAGE
- "BACK TO BACK" INSTALLATION
- ROD GRADE
- ROD DIAMETER



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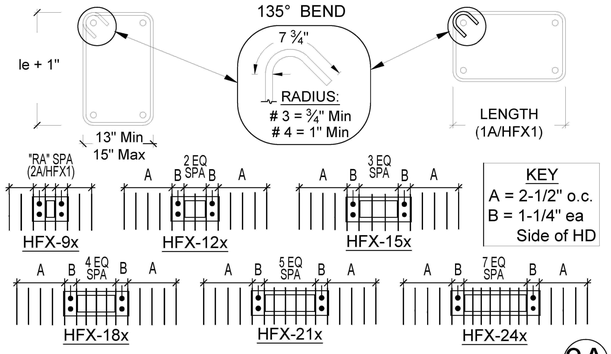
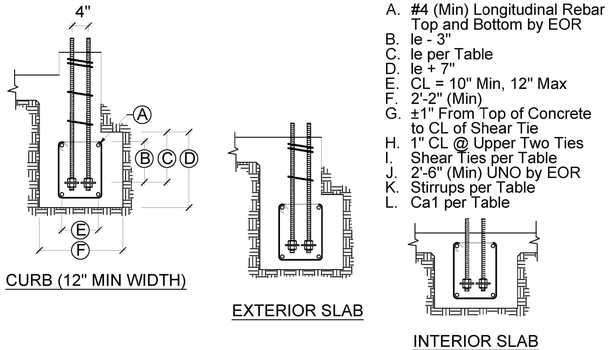
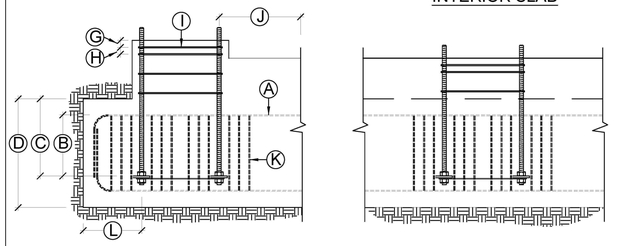


KEY
A = 2-1/2" o.c.
B = 1-1/4" ea Side of HD

BB-RA SHEAR TIES & STIRRUPS

3A





BB-RA SECTIONS & ELEVATIONS

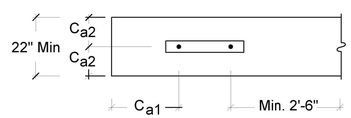
3B

REINFORCED ANCHORAGE (RA)

Model	Panel Width (in)	Anchorage [1]	Rod Dia (in)	Rod Grade [2,3]	RA le [4] (in)	RA Ca1 [5] (in)	RA Ca2 [6] (in)	Stirrups [9] (in)	Shear [7] Ties
HFX-9x	9	1-1/8-STD-RA	1-1/8	STD	15	19-3/4	11	8 - # 4	# 3 (min) @ 3-3/4" OC
HFX-12x	12	1-1/8-STD-RA		STD				9 - # 4	# 3 (min) @ 4" OC
		1-1/8-HS-RA		HS					
HFX-15x	15	1-1/8-STD-RA		STD		20-5/8		10 - # 4	
		1-1/8-HS-RA		HS					
HFX-18x	18	1-1/8-STD-RA		STD					
		1-1/8-HS-RA		HS					
HFX-21x	21	1-1/8-STD-RA		STD				11 - # 4	
		1-1/8-HS-RA		HS					
HFX-24x	24	1-1/8-STD-RA		STD				12 - # 4	# 4 (min) @ 4" OC
		1-1/8-HS-RA		HS					

REINFORCED ANCHORAGE NOMENCLATURE

1-1/8 - STD - RA
- REINFORCED ANCHORAGE
- ROD GRADE
- ROD DIAMETER



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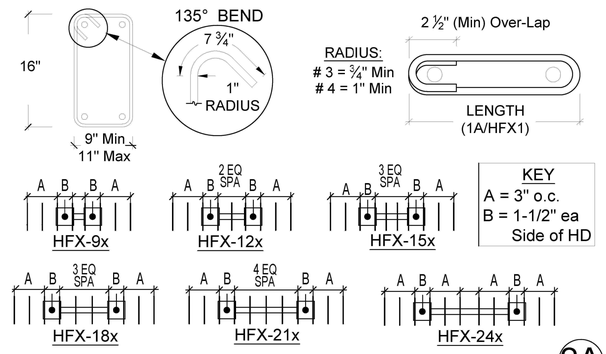
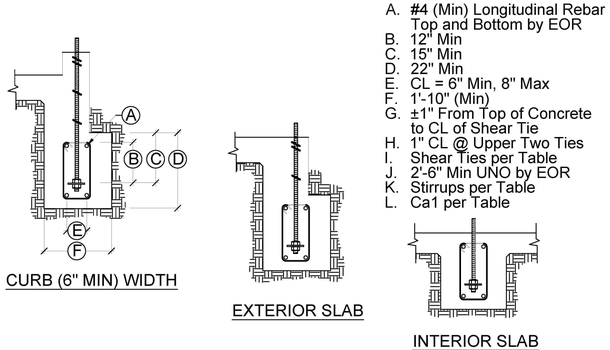
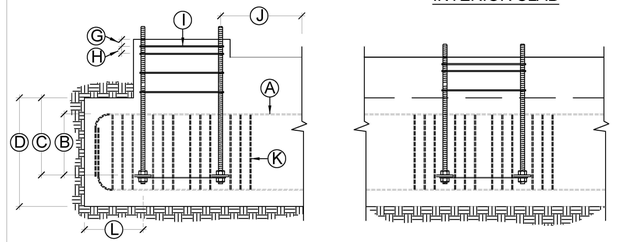


KEY
A = 3" o.c.
B = 1-1/2" ea Side of HD

RA SHEAR TIES & STIRRUPS

2A





RA SECTIONS & ELEVATIONS

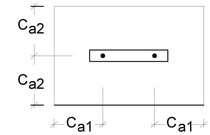
2B

UNREINFORCED ANCHORAGE (UA)

Model	Panel Height	Anchorage [1]	Rod Dia (in)	Rod Grade [2,3]	UA le [4] (in)	UA Ca1 & Ca2 [5,6] (in)	Shear [7,8] Ties
HFX-9x	79.5" - 8'	1-1/8-STD-13-19	1-1/8	STD	13	19	1 - # 3
HFX-12x	78" - 10'	1-1/8-HS-20-30		HS	20	30	
HFX-15x, 18x	78" - 13'	1-1/8-STD-14-20		STD	14	20	
HFX-15x, 18x Balloon	14' - 20'	1-1/8-HS-20-30		HS	20	30	
HFX-21x, 24x	78" - 13'	1-1/8-STD-14-20		STD	14	20	
		1-1/8-HS-23-34			23	34	2 - # 3
HFX-21x, 24x Balloon	14' - 20'	1-1/8-HS-20-30		HS	20	30	

UNREINFORCED ANCHORAGE NOMENCLATURE

1-1/8 - STD - 14 - 20
- END & EDGE DISTANCE (C_{a1} & C_{a2})
- EMBEDMENT DEPTH (l_e)
- ROD GRADE
- ROD DIAMETER



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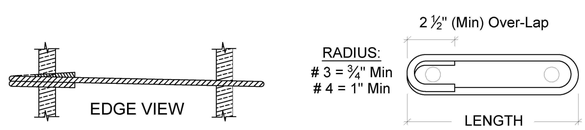
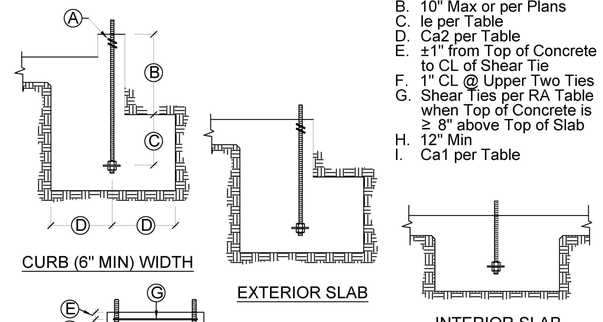
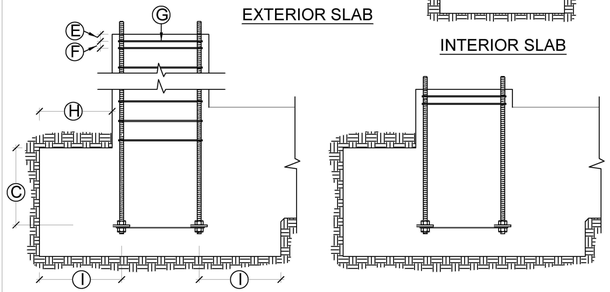


SHEAR TIES	NOT REQUIRED WHEN	
Model	Length	End Distance ≥	Edge Distance ≥
HFX-9x	7-1/2"	2-3/8"	2-3/8"
HFX-12x	10-1/2"	6-1/4"	3-1/2"
HFX-15x	12"	7-3/8"	4-1/4"
HFX-18x	15"	8-3/8"	5"
HFX-21x	18"	9-3/8"	5-1/2"
HFX-24x	21"	10-3/8"	6"

UA SHEAR TIES

1A





UA SECTIONS & ELEVATIONS

1B

1. DESIGNS ARE TO RESIST LOADING PER ACI 318-14, SEC 17.2.3.4.3.
2. STD INDICATES ANCHORS COMPLYING WITH ASTM F1554 GRADE 36 WITH A HARDY FRAME BOLT BRACE (HFXBB) INSTALLED WITH STD OR GRADE 8 DOUBLE NUTS ON THE EMBED END.
3. HS INDICATES ANCHORS COMPLYING WITH ASTM A193 GRADE B7 WITH A 1/2"x3"x3"(MIN) HFPW PLATE WASHER INSTALLED WITH DOUBLE NUTS ON THE EMBED END (HFXBB NOT REQUIRED).
4. LE = LENGTH OF EMBEDMENT FROM THE TOP OF FOOTING OR GRADE BEAM TO THE TOP OF THE HFXBB BOLT BRACE (TOP OF THE EMBEDDED HFPW PLATE WASHER @ HS ANCHORS)
5. CA1 = DISTANCE FROM HD CENTERLINE TO THE END OF THE FOOTING OR GRADE BEAM.
6. CA2 = DISTANCE FROM HD CENTERLINE TO BOTH THE FRONT AND THE BACK FACE OF THE FOOTING OR GRADE BEAM.
7. SHEAR TIES ARE GRADE 60 (MIN) REBAR AND REQUIRED FOR NEAR EDGE DISTANCE CONDITIONS PER ACI-318-14, F'C = 2,500 PSI. CURBS AND STEM WALLS MUST BE 6 INCH (MIN) WIDTH FOR UA AND RA, 12 INCH (MIN) WIDTH FOR BB-RA.
8. FOR UA APPLICATIONS, ADDITIONAL TIES MAY BE REQUIRED AT STEM WALLS. SHEAR TIES ARE NOT REQUIRED FOR INSTALLATION AWAY FROM EDGE (SEE DETAIL 1A), INSTALLATION ON WOOD FRAMING, OR FOR IRC BRACED WALL PANEL APPLICATIONS.
9. STIRRUPS ARE GRADE 60 (MIN) REBAR. SEE TABLE FOR SIZE AND SPACING. SEE "STIRRUP LAYOUT" DIAGRAMS AND "KEY" FOR LAYOUT PATTERNS.
10. CONCRETE EDGE DISTANCES MUST COMPLY WITH ACI 318-14, SECTION 17.7.2. COATED REINFORCEMENT MAY BE SPECIFIED BY THE EOR TO LIMIT EXPOSURE AND THEREFORE REDUCE MINIMUM CONCRETE COVER. COATED REINFORCEMENT MUST COMPLY WITH ACI 318-14, SECTION 20.6.2.

Model	Width	A	B
HFX-9x	9"	1-3/4"	5-1/2"
HFX-12x	12"		8-1/2"
HFX-15x	15"	2-5/8"	9-3/4"
HFX-18x	18"		12-3/4"
HFX-21x	21"		15-3/4"
HFX-24x	24"		18-3/4"

HFX ANCHOR CENTERLINES

A

IMPORTANT!

1. ANCHORAGE IS DESIGNED FOR TENSION AND SHEAR TRANSFER ONLY, FOUNDATION DESIGN PER EOR.
2. REINFORCEMENT SHOWN IS THE MINIMUM REQUIREMENT AND IS NOT INTENDED TO REPLACE REINFORCEMENT DESIGNED BY THE EOR.
3. FOR RA AND BB-RA INSTALLATIONS, THE HFXBB BOLT BRACE MAY BE PLACED ON TOP OF THE STIRRUPS WITH DOUBLE-NUTS INSTALLED AT EMBED END OF STANDARD GRADE ANCHOR RODS. (NOTE: ½" x 3" x 3" MIN. HFPW PLATE WASHERS ARE REQUIRED TO BE DOUBLE-NUTTED AT EMBED END OF HIGH STRENGTH ANCHOR RODS.)
4. HIGH STRENGTH ALL-THREAD RODS PROVIDED BY HARDY FRAMES ARE STAMPED ON BOTH ENDS. (HF B7)

IMPORTANT NOTES

B

REVISIONS	DATE

ANCHORAGE DETAILS - HFX PANELS

THIS DETAIL SHEET IS NOT PROPRIETARY AND IS NOT REQUIRED FOR PLAN SUBMITTAL WITH *HARDY FRAME* PRODUCTS

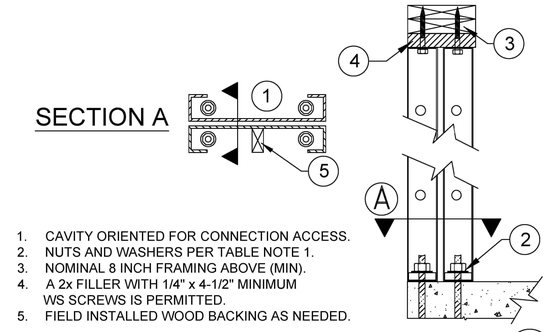
REGISTERED PROFESSIONAL ENGINEER STEPHEN B. PEEPLES No. 38623 Exp. 3/31/25 CIVIL STATE OF CALIFORNIA

HARDY FRAME®
SHEAR WALL SYSTEM
1732 PALMA DRIVE, SUITE 200, VENTURA, CA 93003
TELEPHONE: 800 754-3030 / www.hardyframe.com

MiTek®

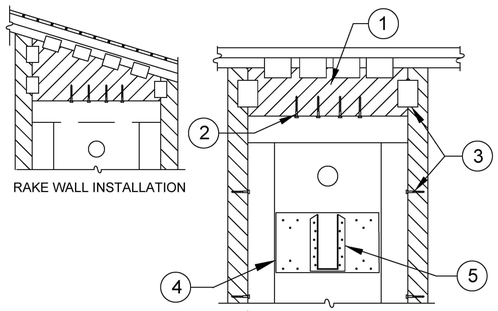
DATE: 1-1-2020

HFX1



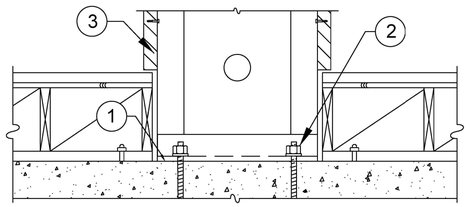
1. CAVITY ORIENTED FOR CONNECTION ACCESS.
2. NUTS AND WASHERS PER TABLE NOTE 1.
3. NOMINAL 8 INCH FRAMING ABOVE (MIN).
4. A 2x FILLER WITH 1/4" x 4-1/2" MINIMUM WS SCREWS IS PERMITTED.
5. FIELD INSTALLED WOOD BACKING AS NEEDED.

BACK TO BACK INSTALLATION 3



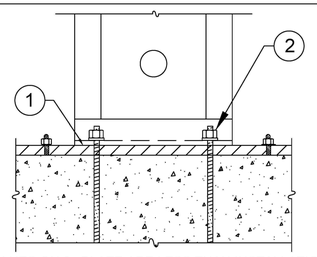
1. WOOD FILLER WITH USP MP4F CONNECTORS BOTH SIDES, QUANTITY BY BUILDING DESIGN PROFESSIONAL.
2. 1/4" x 3" (MINIMUM) WS SCREWS, QUANTITY PER TABLES
3. ADJACENT FRAMING WITH 1/4" DIAMETER SCREWS INSTALLED THROUGH PRE-PUNCHED HOLES IN PANEL EDGES REQUIRED WHEN INSTALLING A FILLER GREATER THAN 1-1/2" ABOVE TO BRACE OUT-OF-PLANE HINGE OR WHEN SPECIFIED BY THE DESIGN PROFESSIONAL.
4. PRE-DRILL 3/16" DIA. HOLES, EVENLY SPACED IN FACE OF PANEL NO LESS THAN 2-1/4" OC AND INSTALL 1/4" DIA. WOOD SCREWS INTO 2x (MIN.) WOOD "LEDGER" IN PANEL CAVITY.
5. CONNECTOR AND ATTACHMENT BY BUILDING DESIGN PROFESSIONAL.

FILLER GREATER THAN 1-1/2 IN. 6



1. 15# FELT OR EQUIVALENT MOISTURE BARRIER RECOMMENDED BETWEEN PANEL BASE AND CONCRETE.
2. NUTS AND WASHERS PER TABLE NOTE 1.
3. ADJACENT FRAMING WITH 1/4" DIAMETER SCREWS INSTALLED AT THE PANEL EDGES WHEN INSTALLING A FILLER GREATER THAN 1-1/2" ABOVE OR WHEN SPECIFIED BY DESIGN PROFESSIONAL.

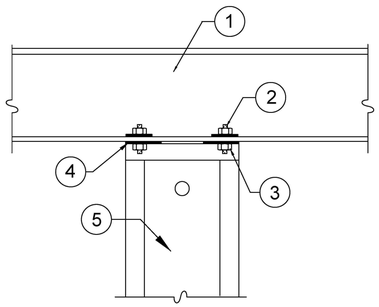
RAISED FLOOR HEAD-OUT 8



ALLOWABLE VALUES ON 2x PLATE ARE LESS THAN INSTALLATION ON CONCRETE

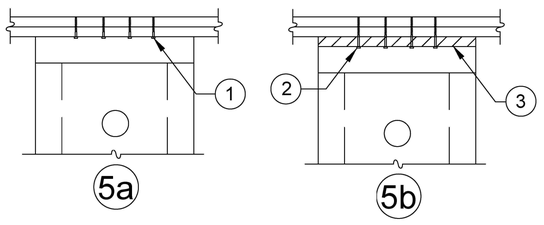
1. 15# FELT OR EQUIVALENT MOISTURE BARRIER RECOMMENDED BETWEEN PANEL BASE AND TREATED PLATE.
2. NUTS AND WASHERS PER TABLE NOTE 1.

INSTALLATION ON 2x PLATE 11



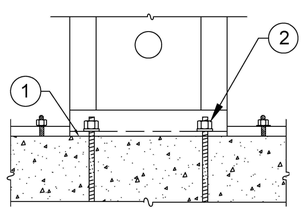
1. STEEL BEAM PER PLANS
2. ALL THREAD RODS THRU-BOLTED TO STEEL BEAM BY BUILDING DESIGN PROFESSIONAL.
3. NUTS AND WASHERS PER TABLE NOTE 1.
4. *HARDY FRAME*® STACKING WASHERS (HFSW) REQUIRED TO BE WELDED INSIDE TOP CHANNEL OF LOWER PANEL.
5. *HARDY FRAME*® "STK" PANEL WITH STACKING WASHERS WELDED INSIDE THE TOP CHANNEL BY MANUFACTURER.

STEEL BEAM ABOVE THRU-BOLT 2



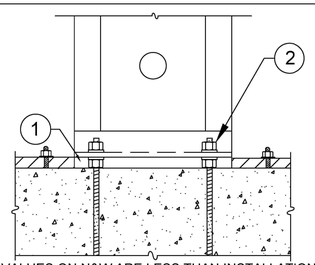
1. 1/4" x 3" (MINIMUM) WS SCREWS, QUANTITY PER TABLES
2. 1/4" x 4-1/2" (MINIMUM) WS SCREWS, QUANTITY PER TABLES
3. 2x WOOD FILLER.

TOP PLATE CONNECTIONS 5



1. 15# FELT OR EQUIVALENT MOISTURE BARRIER RECOMMENDED BETWEEN PANEL BASE AND CONCRETE.
2. NUTS AND WASHERS PER TABLE NOTE 1.

INSTALLATION ON CONCRETE 7

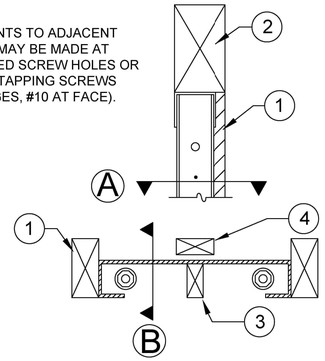


ALLOWABLE VALUES ON N&W ARE LESS THAN INSTALLATION ON CONCRETE

1. PLUS OR MINUS 1-1/2" GAP TO BE FILLED WITH 5,000 PSI NON-SHRINK GROUT (MINIMUM).
2. NUT AND WASHER GRADES PER TABLE NOTE 1.

INSTALLATION ON NUTS & WASHERS 10

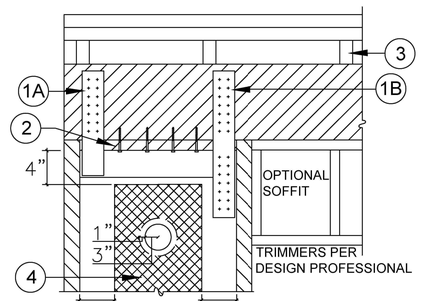
NOTE:
ATTACHMENTS TO ADJACENT TRIMMERS MAY BE MADE AT PREPUNCHED SCREW HOLES OR WITH SELF TAPPING SCREWS (#12 AT EDGES, #10 AT FACE).



1. TRIMMERS PROVIDE FULL BEARING FOR HEADER ABOVE, DESIGN AND CONNECTIONS BY BUILDING DESIGN PROFESSIONAL.
2. 6x HEADER.
3. WOOD MEMBERS FOR BACKING MAY BE INSERTED VERTICALLY OR HORIZONTALLY IN THE PANEL CAVITY AS NEEDED.
4. WOOD MEMBER FLUSH TO FACE OF WALL FOR BACKING AS NEEDED.

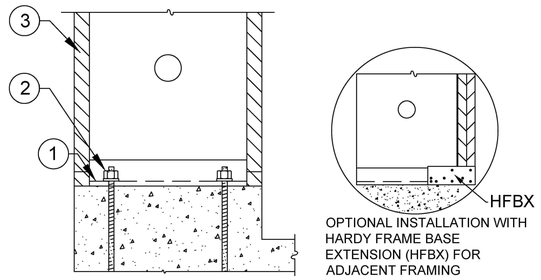
6x HEADER ABOVE-SECTIONS 1

NOTE:
TO PREVENT DRILLING ADDITIONAL HOLES ORIENT THE PANEL CAVITY TOWARD THE FIXTURE BEING INSTALLED.



1. (A) PRE-WELDED STRAPS ARE PROVIDED ON 78" AND 79-1/2" PANEL HEIGHTS. THEY ARE AVAILABLE FOR OTHER HEIGHTS UPON REQUEST.
   (B) FIELD INSTALLED STRAPS WITH SELF TAPPING SCREWS ARE PERMITTED. THE DESIGN AND CONNECTION IS BY THE DESIGN PROFESSIONAL.
2. A 2x WOOD FILLER WITH 1/4"x4-1/2" (MIN.) WS SCREWS IS PERMITTED.
3. WHEN CRIPPLE STUDS OCCUR, SHEAR TRANSFER DESIGN TO BE PER THE BUILDING DESIGN PROFESSIONAL.
4. A 1" DIA. HOLE MAY BE ADDED IN THE PANEL FACE WHEN IT IS LOCATED IN THE UPPER HALF OF THE PANEL HEIGHT AND IS 4" MINIMUM FROM ANY EDGE. FOR PANELS MORE THAN 12" WIDE, ADDITIONAL HOLES MUST BE OFFSET 1" MINIMUM FROM THE 3" DIA. PREPUNCHED HOLE. FOR HOLES LARGER THAN 1" DIAMETER OR TO ADD MORE THAN ONE HOLE CONTACT MITEK HARDY FRAME TECHNICAL SUPPORT AT (800) 754-3030.

TOP CONNECTION TO HEADER 4



1. 15# FELT OR EQUIVALENT MOISTURE BARRIER RECOMMENDED BETWEEN PANEL BASE AND CONCRETE.
2. NUTS AND WASHERS PER TABLE NOTE 1.
3. ADJACENT FRAMING OPTIONAL U.N.O. BY BUILDING DESIGN PROFESSIONAL.

INSTALLATION ON CURB 9

HFX PANELS 78 IN. THROUGH NOMINAL 13 FEET

Model Number	Net Height (in)	Depth (in)	Hold Down Diameter[1] (in)	Top Screw Qty[2] (ea)	Screw Qty Available at Edges (ea)[3]
HFX-12,15,18,21 & 24x78	78	3-1/2	1-1/8	9" Width = 5	4
HFX-9x79.5	79-1/2			12" Width = 6	
HFX-12,15,18,21 & 24x8	92-1/4			15" Width = 8	
HFX-9x8	93-3/4				
HFX-12,15,18,21 & 24x9	104-1/4			18" Width = 10	5
HFX-12,15,18,21 & 24x10	116-1/4				
HFX-15,18,21 & 24x11	128-1/4			21" Width = 12	
HFX-15,18,21 & 24x12	140-1/4			24" Width = 14	6
HFX-15,18,21 & 24x13	152-1/4				

BALLOON PANELS 14 FEET THROUGH 20 FEET

Model Number	Net Height (in)	Depth (in)	Hold Down Diameter[1] (in)	Top Screw Qty[2] (ea)	Screw Qty Available at Edges (ea)[3]
HFX-15,18,21 & 24x14	164-1/4	3-1/2	1-1/8	15" Width = 8	6
HFX-15,18,21 & 24x15	176-1/4				
HFX-15,18,21 & 24x16	188-1/4			18" Width = 10	
HFX-15,18,21 & 24x17	200-1/4				7
HFX-15,18,21 & 24x18	212-1/4			21" Width = 12	
HFX-15,18,21 & 24x19	224-1/4				8
HFX-15,18,21 & 24x20	236-1/4			24" Width = 14	

TABLE NOTES

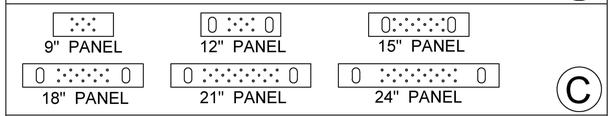
1. FOR STD OR HS GRADE HOLD DOWN ANCHOR BOLTS CONNECT TO THE PANEL BASE WITH HARDENED ROUND WASHERS BELOW GRADE 8 NUTS. ALTERNATE WASHERS ARE (2 EA) ROUND-FLAT OR (2 EA) SAE WASHERS ON EACH BOLT. ALTERNATE NUTS ARE 2H HEAVY HEX.
2. 1/4" DIAMETER MITEK® PRO SERIES™ WS SCREWS. LENGTH IS 3" (MINIMUM) WHEN ATTACHED DIRECTLY TO THE COLLECTOR AND 4-1/2" (MINIMUM) WHEN INSTALLING A 2x FILLER ABOVE THE PANEL.
3. ADJACENT FRAMING WITH 1/4" DIAMETER SCREWS IS REQUIRED AT THE PANEL EDGES WHEN INSTALLING A FILLER ABOVE THE TOP CHANNEL THAT IS GREATER THAN 1-1/2" OR WHEN SPECIFIED BY THE DESIGN PROFESSIONAL.

A

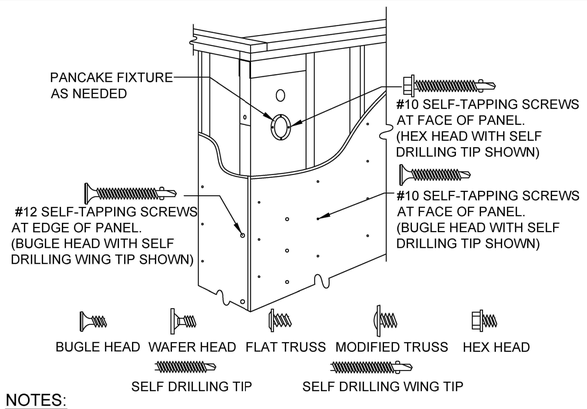
INSTALLATION INSTRUCTIONS

1. WHEN INSTALLING ON CONCRETE CONNECT WITH (1 EA) HARDENED ROUND WASHER BELOW (1 EA) GRADE 8 NUT, SECURE WITH A DEEP SOCKET (RECOMMENDED) UNTIL SNUG TIGHT. ALTERNATE WASHERS AND NUTS ARE PROVIDED IN TABLE NOTE 1.
2. INSTALLATION ON CONCRETE PROVIDES THE HIGHEST ALLOWABLE VALUES. CONFIRM WITH THE DESIGN PROFESSIONAL BEFORE INSTALLING ON OTHER SUPPORTING SURFACES.
3. USE 1/4"X4-1/2" MITEK PRO SERIES WS SCREWS AT TOP CONNECTIONS WITH A 2x FILLER. IF THE TOP OF PANEL IS IN DIRECT CONTACT WITH THE COLLECTOR ABOVE (TOP PLATES, HEADER, BEAM, ETC.) USE1/4 x 3" (MIN)
4. FOR INSTALLATIONS WITH A FILLER GREATER THAN 1-1/2" ABOVE, OR WHEN SPECIFIED BY THE DESIGN PROFESSIONAL, ADJACENT KING POSTS TO BRACE THE OUT-OF-PLANE HINGE CAN BE CONNECTED WITH 1/4" DIA. SCREWS THROUGH PRE-PUNCHED HOLES AT THE PANEL EDGES.

B



C



NOTES:

A. SURFACE FINISHES, CONNECTORS AND FIXTURES ARE ATTACHED TO THE PANEL FACE WITH # 10 SELF-TAPPING SCREWS SPACED NO LESS THAN 2-1/4" OC.
B. ATTACHMENTS TO THE PANEL EDGES ARE MADE WITH # 12 SELF-TAPPING SCREWS.
C. STRUCTURAL CONNECTIONS ARE TO BE DESIGNED BY THE DESIGN PROFESSIONAL.
D. STRUCTURAL HARDWARE USED TO TRANSFER LOADS SHOULD NOT EXCEED 12 GAUGE.

D

REVISIONS	DATE

FRAMING DETAILS - HFX PANELS

THIS DETAIL SHEET IS NOT PROPRIETARY AND IS NOT REQUIRED FOR PLAN SUBMITTAL WITH MITEK® *HARDY FRAME*® PRODUCTS

REGISTERED PROFESSIONAL ENGINEER STEPHEN B. PETER No. 38623 Exp. 3/31/25 CIVIL STATE OF CALIFORNIA

HARDY FRAME® SHEAR WALL SYSTEM
1732 PALMA DRIVE, SUITE 200, VENTURA, CA 93003
TELEPHONE: 800 754-3030 / www.hardyframe.com

MiTek®

DATE: 1-1-2020

HFX2

MANUFACTURER'S INSTALLATION SPECIFICATIONS - MiraDRAIN

1. EXAMINATION
   A. SITE VERIFICATION OF CONDITIONS: VERIFY SUBSTRATE CONDITIONS (WHICH HAVE BEEN PREVIOUSLY INSTALLED UNDER OTHER SECTIONS) AREA ACCEPTABLE FOR PRODUCT INSTALLATION IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. DO NOT PROCEED WITH DRAINAGE INSTALLATION UNTIL SUBSTRATE CONDITIONS ARE ACCEPTABLE FOR COMPLIANCE WITH MANUFACTURE'S WARRANTY REQUIREMENTS.
2. PREPARATION
   A. ADJACENT SURFACES PROTECTION: PROTECT ADJACENT WORK AREAS AND FINISH SURFACES FROM DAMAGE DURING INSTALLATION OPERATIONS.
   B. CONCRETE SURFACE PREPARATION: PREPARE CONCRETE SURFACES TO RECEIVE DRAINAGE COMPOSITE. SURFACES SHALL BE SMOOTH, FREE OF DEPRESSIONS, VOIDS, PROTRUSIONS, CLEAN AND FREE OF OTHER SURFACE CONTAMINANTS THAT MAY IMPAIR THE PERFORMANCE OF DRAINAGE AND MANUFACTURER'S WARRANTY REQUIREMENTS.
      1. CAST-IN PLACE CONCRETES: DECKS SHALL BE MONOLITHIC, SMOOTH, FREE OF VOIDS, SPALLED AREAS, LAITENANCE, HONEYCOMBS, AND SHARP PROTRUSIONS. **REFER TO DIVISION 3 CONCRETE SECTION FOR CONCRETE STRENGTH, DENSITY, FINISH, CURING METHODS AND OTHER CONCRETE REQUIREMENTS.**
      2. PRECAST CONCRETE DECKS: DECKS SHALL BE MECHANICALLY SECURED TO MINIMIZE DIFFERENTIAL MOVEMENT AND EACH JOINT BETWEEN PRECAST UNITS SHALL HAVE AN INSTALLED BACKER ROD. GROUT PRECAST UNITS AS RECOMMENDED BY MANUFACTURER.
      3. SHOTCRETE: SURFACE SHALL BE MONOLITHIC AND SMOOTH WITH NO UNDULATIONS, IRREGULARITIES OR EXPOSED WIRE MESH.
   C. SUBSTRATE CLEANING: CLEAN SUBSTRATE THAT IS TO RECEIVE DRAINAGE. REMOVE LOOSE DEBRIS AND OTHER HARMFUL CONTAMINANTS THAT WILL AFFECT PERFORMANCE OF DRAINAGE COMPOSITE.
3. DRAINAGE COURSE INSTALLATION
   A. VERTICAL SURFACES: CCW MIRADRAIN 2000, 5000, 6000/6200, 6000/6200XL, MIRADRAIN HC; OR PLANTERS: CCW MIRADRAIN 9800, GR9200.
      1. COMPLETED WALLS: POSITION THE PANEL WITH THE FLAT SIDE AGAINST THE WALL AND FILTER FABRIC TOWARD THE SOIL/DRAINAGE SIDE. CCW DRAIN GRIP CONTACT ADHESIVE OR A WASHER HEADED CONCRETE NAIL MAY BE USED TO ATTACH THE PANEL AGAINST THE CONCRETE WALL. OVER CCW WATERPROOFING MEMBRANE: PLACE THE CCW MIRADRAIN OVER THE WATERPROOFING MEMBRANE.
      2. SHORING SYSTEMS OR VERTICAL SOIL EXCAVATIONS: POSITION THE PANEL WITH THE FABRIC FACING THE SHORING OR SOIL. NAILS OF SUFFIGIENT LENGTH SHOULD BE USED TO PIN THE PANEL DIRECTLY AGAINST THE SHORING OR SOIL. THE FABRIC SHOULD LAY FLAT AGAINST THE SHORING OR SOIL TO MINIMIZE VOIDS. CONCRETE OR SHOTCRETE MAY BE PLACED DIRECTLY AGAINST THE BACKSIDE OF THE CCW MIRADRAIN.
      3.BUTTRESS DRAINAGE AND LANDSLIDE REPAIR: CCW MIRADRAIN SHOULD BE ROLLED OUT FABRIC SIDE DOWN ONTO THE PROPERLY PREPARED SUBGRADE. A "CHIMNEY" DRAIN TYPE DRAIN PATTERN SHOULD BE FORMED.
      a. **SPACING BETWEEN CCW MIRADRAIN CHIMNEY DRAINS WILL BE DICTATED BY THE ENGINEER. CHIMNEY DRAINS SHOULD BE CONNECTED TO THE CONTINUOUS HORIZONTAL COLLECTOR PANEL BY OVERLAPPING A MINIMUM OF 12" (30 cm) INTO THE COLLECTOR PANEL.**
      b. CCW MIRADRAIN PANELS MAY BE SECURED TO THE SUBGRADE BY BALLASTING WITH SOIL OR NAILING THROUGH THE CCW MIRADRAIN PANEL INTO THE UNDERLYING HILLSIDE. FABRIC FLAPS MUST BE FOLDED OVER ONTO THE CORE AND SECURED WITH DUCT TAPE OR SOIL BALLAST.
      4.EDGE DRAIN OR TRENCH DRAIN:
      a. CCW MIRADRAIN SHOULD BE LAID OUT IN 50 TO 500 FOOT LENGTHS ADJACENT TO THE PREVIOUSLY CUT/EXCAVATED TRENCH.
      b. PANEL END LAPS MAY BE CONNECTED BY OVERLAPPING THE PANELS AND APPLYING LOCKING CLIPS OR BUTTONING OF THE DIMPLES. FLEXIBLE, CORRUGATED POLYETHYLENE OR RIGID PVC PIPE, WHICH HAS BEEN WRAPPED WITH FILTER FABRIC, SHOULD BE PLACED IN THE BOTTOM OF THE TRENCH. **THE CCW MIRADRAIN PANEL SHOULD BE LOWERED INTO THE TRENCH BESIDE THE PIPE AND TEMPORARILY SECURED TO THE TRENCH WALL BY NAILING OR PROPPING.** THE FABRIC SIDE OF THE PALE MUST FACE THE DIRECTION FROM WHICH THE WATER IS FLOWING. FABRIC OVERLAPS ON THE TOP OF THE CCW MIRADRAIN PANELS SHOULD BE DRAPED OVER THE BACK OF THE CORE AND IF THERE IS INSUFFICIENT FABRIC, THE CORE SHALL BE CUT OUT FROM THE FABRIC BY A DEPTH OF 3 DIMPLES TO PROVIDE EXCESS FABRIC FOR WRAPPING THE CORE. BACKFILLING SHOULD BE COMPLETED IMMEDIATELY.
      5.CONNECTING ADJACENT PANELS: CONNECT ADJACENT PANELS AT THE LONGITUDINAL EDGE BY PULLING THE FILTER FABRIC BACK TO EXPOSE THE FLANGE. THE PANEL EDGE SHOULD BE BUTTED TO THE EDGE OF THE ADJACENT PANEL DIMPLE TO DIMPLE OR THE EDGE OF THE NEXT PANEL MAY BE PLACED OVER TWO DIMPLES AND INTERLOCKED. PANEL ENDS ARE TO BE ATTACHED IN THE SAME MANNER. CONNECTIONS SHOULD BE COMPLETED IN SHINGLE FASHION SO THAT MOISTURE WILL FLOW WITH THE OVERLAP AND NOT AGAINST IT. OVERLAP FABRIC IN THE DIRECTION THE CORE AND IF THERE IS INSUFFICIENT FABRIC, THE CORE SHALL BE CUT OUT FROM THE FABRIC BY A DEPTH OF 3 DIMPLES TO PROVIDE EXCESS FABRIC FOR WRAPPING THE CORE.
   B. HORIZONTAL SURFACES: CCW MIRADRAIN 9000, 9800, 9900 OR 8000 (HYDROCARBON-RESISTIVE APPLICATIONS), GR9200.
      1. PLAZA DECKS, PARKING DECKS, AND OTHER SPLIT-SLAB CONSTRUCTION:
      a. ATTACH THE CCW MIRADRAIN PANELS BY EITHER PLACING TEMPORARY BALLAST ON TOP OF THE CCW MIRADRAIN OR ADHERING THE PANELS TO THE WATERPROOFING MEMBRANE WITH CCW DRAIN GRIP CONTACT ADHESIVE OR SECURTAPE TWO-SIDED TAPE.
      b. CONNECT ADJACENT PANELS AT THE LONGITUDINAL EDGE BY PULLING THE FILTER FABRIC BACK TO EXPOSE THE FLANGE. THE PANEL EDGE SHOULD BE BUTTED TO THE EDGE OF THE ADJACENT PANEL DIMPLE TO DIMPLE OR THE EDGE OF THE NEXT PANEL MAY BE PLACED OVER TWO DIMPLES AND INTERLOCKED. PANEL ENDS ARE TO BE ATTACHED IN THE SAME MANNER. CONNECTIONS SHOULD BE COMPLETED IN SHINGLE FASHION SO THAT MOISTURE WILL FLOW WITH THE OVERLAP AND NOT AGAINST IT. OVERLAP FABRIC IN THE DIRECTION OF WATER FLOW. COVER ALL TERMINAL EDGES WITH THE FILTER FABRIC FLAP BY TUCKING THE FABRIC BEHIND THE CORE.
      c. CCW MIRADRAIN SHOULD BE CHANNELED INTO AN INTERNAL DRAIN OR PERIMETER DRAIN SYSTEM.
      d. CONCRETE, SAND, GROUT, OR PAVERS MAY BE PLACED DIRECTLY ON THE CCW MIRADRAIN WOVEN FABRIC SIDE. CAUTION SHOULD BE TAKEN NOT TO PLACE POINT LOADS ON THE CCW MIRADRAIN THAT MIGHT PUNCTURE THE FILTER FABRIC ON THE CCW MIRADRAIN. WHEN CONCRETE IS POURED AGAINST CCW MIRADRAIN, USE PROPER CHUTING TECHNIQUES AND AVOID HIGH DROP HEIGHTS.
      2. FLOOR SLABS AND CONCRETE-LINED CHANNELS:
      a. THE SUBGRADE SHALL BE GRADED TO A 2% MINIMUM SLOPE AND CLEAR OF RUBBLE, ROCK, LARGE SOIL CLODS, ETC. THE CCW MIRADRAIN SHOULD BE PLACED WOVEN FABRIC SIDE DOWN, DIRECTLY ON THE SUBGRADE. INSTALLATION SHOULD PROCEED FROM THE HIGHER ELEVATION OF THE SLOPE AND WORK DOWNWARD. CONNECTION OF PANEL ENDS SHALL BE ACHIEVED WITH FOUR-ROW DIMPLE OVERLAPPING AND TAPING OF TERMINAL EDGES.

3.PLANTERS:
   a. **CCW MIRADRAIN SHOULD BE PLACED FABRIC SIDE TO THE INSIDE (SOIL SIDE) OF THE PLANTER. THE PLANTER WALLS SHOULD BE COVERED WITH CCW MIRADRAIN, ALLOW A 3" (75 mm) FABRIC OVERLAP AT THE BOTTOM OF VERTICAL PANELS IN ORDER TO COVER THE INTERSECTION OF WALL AND BOTTOM SECTIONS. ANY EXPOSED PANEL EDGES MUST BE COVERED WITH SUPPLEMENTAL PIECES OF FABRIC TO PREVENT SOIL INTRUSION THE THE FLOW CHANNELS.**
4. DISCHARGE CONNECTIONS
   B. DRAINAGE:
      a. **FOUNDATION/RETAINING WALL: INSTALL CCW QUICKDRAIN PREFABRICATED DRAINAGE COLLECTION SYSTEM IN A VERTICAL FOUNDATION WALL TO A HORIZONTAL FOOTING CONFIGURATION.** ADHERE CCW QUICKDRAIN TO THE SUBSTRATE USING CCW DRAIN GRIP CONTACT ADHESIVE OR SECURTAPE TAPE. PLACE THE HINGED PORTION OF THE CCW QUICKDRAIN AGAINST THE VERTICAL/HORIZONTAL TRANSITION AND PRESS INTO PLACE. CONNECT ADJACENT PANELS BY PULLING FILTER FABRIC BACK TO EXPOSE THE FLANGE. OVERLAP THE FLANGE OF THE CORE OF EDGE DRAIN ON TO THE FLANGE OF THE PRECEDING DRAIN CORE. COVER THE JOINT WITH THE FILTER FABRIC. INSTALL CCW MIRADRAIN IN SHINGLE FASHION BY OVERLAPPING THE FLANGE OF THE CCW QUICKDRAIN IN THE DIRECTION OF WATER FLOW AND COVER WITH FILTER FABRIC. COVER ALL TERMINAL EDGES OF THE CORE WITH THE FABRIC FLAP BY TUCKING IT BEHIND THE CORE. DISCHARGE CONNECTION INSTALLATION: LEAVING THE FILTER FABRIC IN PLACE, SLIDE THE CCW QUICKDRAIN CONNECTOR OUTLET OVER THE HORIZONTAL PORTION OF THE CCW QUICKDRAIN AND WRAP WITH FILTER FABRIC.
      b. **WHERE DRAINPIPE IS INDICATED, PLACE THE DRAINPIPE NEXT TO THE CORE. WRAP THE DRAINPIPE OR ROCK-PIPE DRAIN COMBINATION WITH AN AUXILIARY PIECE OF FILTER FABRIC.**
   B. WEEP HOLES: CUT A HOLE IN THE CORE CORRESPONDING TO THE SIZE AND LOCATION OF THE WEEP HOLE. AVOID CUTTING A HOLE IN THE FABRIC BY CUTTING THE BACKSIDE OF THE CORE BETWEEN THE DIMPLES. A FOUR DIMPLE SQUARE AREA CUT BETWEEN THE DIMPLES (2 _ SQUARE INCH) SHOULD BE SUFFICIENT FOR MOST APPLICATIONS.
   C. PLAZA DRAINS: CREATE OPENINGS IN THE CCW MIRADRAIN CORE TO CORRESPOND WITH ALL DISCHARGE HOLES IN THE DRAIN AT THE STRUCTURAL DECK LEVEL. FABRIC MUST BE PLACED OVER THESE HOLES TO PREVENT INTRUSION OF SOIL, GROUT,SAND, OR CONCRETE INTO THE DRAINAGE CORE.
   D. TERMINAL CONNECTIONS AND PROTRUSIONS: COVER ALL TERMINAL EDGES WITH THE INTEGRAL FABRIC FLAP BY TUCKING IT AROUND THE EDGE OF THE CORE AND SECURING IT. AL PROTRUSIONS, CUT THE CORE AROUND THE PROTRUSION, CUT AN "X" IN THE FABRIC, AND TAPE THE FABRIC AROUND THE PROTRUSION. DIRT AND CONCRETE MUST NOT INFILTRATE THE CORE.
5. CLEANING AND PROTECTION
   A. CLEANING: REMOVE TEMPORARY COVERINGS AND PROTECTION OF ADJACENT WORK AREAS. REPAIR OR REPLACE DAMAGED INSTALLED PRODUCTS. CLEAN INSTALLED PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS PRIOR TO OWNER'S ACCEPTANCE. REMOVE CONSTRUCTION DEBRIS FROM PROJECT SITE AND LEGALLY DISPOSE OF DEBRIS.
   B. PROTECTION: PROTECTION INSTALLED PRODUCTS FINISHED SURFACES FROM DAMAGE DURING CONSTRUCTION.

MANUFACTURER'S INSTALLATION SPECS - MiraClay

1. INSPECTION
   A. EXAMINE SUBSTRATE AND CONDITION UNDER WHICH WATERPROOFING WILL BE INSTALLED. DO NOT PROCEED WITH THE WORK UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
2. SURFACE PREPARATION
   A. LAGGING, CONCRETE CAISSONS, SHOTCRETE OR GUNITE APPLICATIONS:
      1.FILL ALL SPACES THAT ARE OVER 1" (25 mm) IN WIDTH WITH GROUT OR CONCRETE TO A SMOOTH AND UNIFORM SURFACE. COVER LARGE GAPS WITH ½" (12 mm) PLYWOOD OR CCW MIRADRAIN 6000 OR 6000XL.
      2. TROWEL CCW MIRACLAY MASTIC AROUND ALL TIEBACK PLATES AND SOLDIER BEAMS A MINIMUM OF 1 ½" (39 mm) THICK AND EXTEND A MINIMUM OF 4" (10 cm) BEYOND THE FLANGE.
      3. REMOVE PROJECTIONS FROM THE WALL SURFACE IN EXCESS OF ¾" (20 mm).
   B. GRADE SUBSTRATES: SHALL BE LEVEL AND UNIFORM THAT IS COMPACTED TO A MINIMUM OF 85% MODIFIED PROCTOR.
   C. CONCRETE APPLICATION:
      1.APPLY CCW MIRACLAY MASTIC TO ALL CONSTRUCTION JOINTS AT MINIMUM OF ¼" (7 mm) THICKNESS AND 3" (8cm) MINIMUM WIDTH.
      2. REMOVE PROJECTIONS FROM THE WALL SURFACE IN EXCESS OF ¾" (20 mm)
   D. HONEYCOMBING, VOIDS AND AGGREGATE POCKETS EXCEEDING 1" IN DIAMETER OR HAVE A DEPTH GREATER THAN ¾" SHOULD BE FILLED WITH A NON-SHRINK CEMENTITIOUS GROUT. FILL TIE-ROD HOLES WITH A NON-SHRINK CEMENTITIOUS GROUT.
3. INSTALLATION
   A. PREVENT GEOTEXTILE/BENTONITE CLAY WATERPROOFING MEMBRANE FROM HYDRATING BEFORE BEING COVERED WITH OVERBURDEN. WHEN THREAT OF RAIN IS IMMINENT OR BACKFILL IS NOT IMMEDIATE, GEOTEXTILE/BENTONITE CLAY WATERPROOFING MEMBRANE SHOULD BE COVERED WITH POLYETHYLENE SHEETING.
   B. LAGGING APPLICATION
      1. INSTALL A STRIPPING PIECE OF CCW MIRACLAY OVER EACH SOLDIER BEAM THAT EXTENDS A MINIMUM OF 8" (20 cm) BEYOND EITHER SIDE OF THEM. EACH SOLDIER BEAM SHALL HAVE A DOUBLE LAYER OF CCW MIRACLAY MEMBRANE.
      2. INSTALL CCW MIRACLAY WITH THE WHITE NON-WOVEN SIDE OUT, FACING THE INSTALLER.
      3. STARTING AT THE BOTTOM OF THE WALL,ENROLL CCW MIRACLAY AND NAIL ACROSS TOP OF PANEL ONE NAIL PER 12" (31 cm) ON CENTER. ALLOW SHEET TO HANG DOWN, NAILING ONLY AS REQUIRED TO STABILIZE.
      4. INSTALL ADJACENT MEMBRANE BY OVERLAPPING EDGES A MINIMUM OF 4" (10 cm).
      5. FASTEN MEMBRANE ONCE EVERY 18" (45 cm) ON SEAMS OR AS REQUIRED TO PREVENT BLOUSING.
      6. EXTEND WATERPROOFING MEMBRANE TO OR ABOVE GRADE AND FASTEN MEMBRANE ONCE EVERY 12" (30 cm).
      7. INSTALL CCW MIRASTOP AT ALL POURJOINTS AND EXTERIOR PERIMETER OF TIE-BACK BOX OUTS.

   A. UNDERSLAB APPLICATION: (CONCRETE SLAB SHALL HAVE A MINIMUM THICKNESS OF 4" IF REINFORCED OR 5" IF NOT REINFORCED).
      1. INSTALL CCW MIRACLAY WITH THE WHITE NON-WOVEN SIDE UP, FACING THE INSTALLER.
      2. OVERLAP EDGES A MINIMUM OF 4" (10 cm).
      3. PROTECT CCW MIRACLAY FROM DAMAGE CAUSED BY CHAIRS WITH SHARP EDGES OR POINTS BY PLACING A PATCH OF CCW MIRACLAY UNDER THE CHAIR.
      4. STAPLE JOINTS OFTEN ENOUGH TO PREVENT EXCESSIVE MOVEMENT.
      5. POUR CCW MIRACLAY GRANULES OR TROWEL CCW MIRACLAY MASTIC AROUND ALL PENETRATIONS AND PRESS IN " CUT-TO-FIT" COLLARS OF CCW MIRACLAY.
      6. EXTEND THE INSTALLATION OF CCW MIRACLAY 12" (31 cm) UP OR BEYOND THE PERIMETER SLAB FORMS.
      7. INSPECT AND REPAIR ANY DAMAGED MATERIAL BEFORE CONCRETE POUR.

   D. CONCRETE WALL APPLICATION:
      1. INSTALL CCW MIRACLAY WITH THE WHITE NON-WOVEN SIDE OUT, FACING THE INSTALLER.
      2. STARTING AT THE BOTTOM OF THE WALL, UNROLL CCW MIRACLAY AND NAIL ACROSS TOP OF PANEL ONE NAIL PER 12" (31 cm) ON CENTER. ALLOW SHEET TO HANG DOWN NAILING ONLY AS REQUIRED TO STABILIZE.
      3. INSTALL ADJACENT MEMBRANE BY OVERLAPPING EDGES A MINIMUM OF 4" (10 cm).
      4. FASTEN MEMBRANE ONCE EVERY 18" (45 cm) ON SEAMS OR AS REQUIRED TO PREVENT BLOUSING WITH ¾" (20 mm) TO 1" (25 mm) CONCRETE NAILS WITH WASHERS.
      5. EXTEND WATERPROOFING MEMBRANE TO 6" BELOW GRADE AND FASTEN MEMBRANE TO THE SUBSTRATE TO MAINTAIN CONSTANT COMPRESSION USING A ⅛" X 1" (3 X 25 mm) MINIMUM TERMINATION BAR. TROWEL A ½" (12 mm) THICK AND 2" (5 cm) WIDE BEAD OF CCW MIRACLAY MASTIC AT TOP EDGE OF MEMBRANE AND COVER TERMINATION BAR.
      6. CREATE A CANT AT ANY VERTICAL TO HORIZONTAL TRANSITION BY APPLYING A 1.5" TO 2" (4 cm to 5 cm) CANT OF CCW MIRACLAY GRANULES OR CCW MIRACLAY MASTIC.
      7. STRIP IN ALL OUTSIDE CORNERS AND TRANSITIONS WITH A MIN. 12" (30) PIECE OF CCW MIRACLAY MEMBRANE TO DOUBLE COVER THESE AREAS.PLAZA DECKS, PARKING DECKS, AND OTHER SPLIT-SLAB CONSTRUCTION:
      8.MAKE A MIN. 1" CANT AT ALL INSIDE CORNERS WITH CCW MIRACLAY MASTIC.
      9.BACKFILL MUST BE COMPACTABLE SOILS FREE OF CONSTRUCTION DEBRIS AND MUST BE UNIFORMLY COMPACTED TO A MINIMUM 85% MODIFIED PROCTOR DENSITY ON EACH LIFT.
   E. CONCRETE CAISSONS, SHOTCRETE OR GUNITE APPLICATION
      1. CONFORM CCW MIRACLAY TO THE CHANGE IN PLANES.
      2. INSTALL CCW MIRACLAY WITH THE WITE NON-WOVEN SIDE OUT, FACING THE INSTALLER.
      3.STARTING AT THE BOTTOM OF THE WALL, UNROLL CCW MIRACLAY AND NAIL ACROSS TOP OF PANEL ONE NAIL PER 12" (31 cm) ON CENTER. ALLOW SHEET TO HANG DOWN NAILING ONLY AS REQUIRED TO STABILIZE.
      4. INSTALL ADJACENT MEMBRANE BY OVERLAPPING EDGES A MINIMUM OF 4" (10 cm).
      5. FASTEN MEMBRANE ONCE EVERY 12" (30 cm) ON SEAMS OR AS REQUIRED TO PREVENT BLOUSING WITH ¾" (19 mm) TO 1" (25 mm) CONCRETE NAILS WITH 1" (25 mm) WASHERS.
4. SHOTCRETE PLACEMENT
      1. APPLY SHOTCRETE IN STRICT ACCORDANCE WITH ACI 506.2-95 SPECIFICATION FOR SHOTCRETE.
      2. MOISTEN THE MIRACLAY NON-WOVER SURFACE TO IMPROVE ADHESION.
      3. COMMENCE SPRAYING FROM THE BOTTOM TO THE TOP AT A PRESSURE NOT TO VIBRATE OR MOVE THE CCW MIRACLAY.
      4. INSTALL TO THE DESIGNED THICKNESS IN LIFTS NOT TO EXCEED 4 FEET (1.2 m)
      5. PROTECT ADJACENT CCW MIRACLAY FROM OVERSPRAY AND REMOVE REBOUND AND SAND POCKETS.
5. PROTECTION AND DRAINAGE
      1. PROTECT THE GEOTEXTILE/BENTONITE CLAY WATERPROOFING MEMBRANE WITH CCW MIRADRAIN DRAINAGE COMPOSITE.
      2. INSTALL THE CCW MIRADRAIN DRAINAGE COMPOSITE ACCORDING TO THE DETAILED DRAWINGS FOR THE SPECIFIC INSTALLATION REQUIREMENTS OF THE PROJECT.
6. BACKFILL
   BACKFILL WITH SMOOTH AND UNIFORM MATERIAL WITH NO SHARP PROJECTIONS OR STONES LARGER THAN ¾". COMPACT BACKFILL TO AN 85% MODIFIED PROCTOR DENSITY. ENSURE BACKFILL MATERIAL IS NOT CONTAMINATED WITH SALT OR OTHER MATERIALS THAT COULD PREVENT THE CCW MIRACLAY FROM HYDRATING

MANUFACTURER'S INSTALLATION SPECIFICATIONS - MIRIDRI 860/861

1. INSPECTION
   A. BEFORE ANY WATERPROOFING WORK IS STARTED THE WATERPROOFING APPLICATOR SHALL THOROUGHLY EXAMINE ALL SURFACES FOR ANY DEFICIENCIES. SHOULD ANY DEFICIENCIES EXIST, THE ARCHITECT, OWNER, OR GENERAL CONTRACTOR SHALL BE NOTIFIED IN WRITING AND CORRECTIONS MADE.
   B. CONDITION OF CONCRETE SURFACES:
      1. THE CONCRETE SURFACES SHALL BE OF SOUND STRUCTURAL GRADE AND SHALL HAVE A SMOOTH FINISH, FREE OF FINS, RIDGES, PROTRUSIONS, ROUGH SPALLED AREAS, LOOSE AGGREGATE, EXPOSED COURSE AGGREGATE, VOIDS OR ENTRAINED AIR HOLES. ROUGH SURFACES SHALL RECEIVE A WELL-ADHERED PARGET COAT.
      2. CONCRETE SHALL BE CURED BY WATER CURING METHOD. ANY CURING COMPOUNDS MUST BE OF THE PURE SODIUM SILICATE TYPE AND BE APPROVED BY THE CARLISLE REPRESENTATIVE.
      3. CONCRETE SHALL BE CURED AT LEAST 7 DAYS AND SHALL BE SLOPED FOR PROPER DRAINAGE.
      4. VOIDS, ROCK POCKETS AND EXCESSIVELY ROUGH SURFACES SHALL BE REPAIRED WITH APPROVED NON-SHRINK GROUT OR GROUND TO MATCH THE UNREPAIRED AREAS.
      5. TWO-STAGE DRAINS SHALL HAVE A MINIMUM 3 INCH FLANGE AND BE INSTALLED WITH THE FLANGE FLUSH AND LEVEL WITH THE CONCRETE SURFACE.
      6. SURFACES AT COLD JOINTS SHALL BE ON THE SAME PLANE.
2. SURFACE PREPARATION
   A. THE CONCRETE SURFACE MUST BE THOROUGHLY CLEAN, DRY AND FREE FROM ANY SURFACE CONTAMINATES OR CLEANING RESIDUE THAT MAY HARMFULLY AFFECT THE ADHESION OF THE MEMBRANE.
   B. INSTALL A ¾" FACE, 45 DEGREE CANT OF CCW-201 POLYURETHANE SEALANT OR CCW LM-800XL AT ALL CHANGES AND INSIDE CORNERS INCLUDING PENETRATIONS THROUGH THE DECK, WALLS, CURBS, ETC.
   C. ALL CRACKS OVER 1/16" IN WIDTH AND ALL MOVING CRACKS UNDER 1/16" IN WIDTH SHALL BE ROUTED OUT TO ¼" MINIMUM IN WIDTH AND DEPTH AND FILLED FLUSH WITH AN APPROVED SEALANT BY CCW OR CCW-201 POLYURETHANE SEALANT.
   D. ALL EXPANSION JOINTS LESS THAN 1" WIDE SHALL BE CLEANED, PRIMED, FITED, WITH A BACKING ROD AND CAULKED WITH CCW-201 POLYURETHANE SEALANT. FOR LARGER JOINTS, CONTACT CARLISLE REPRESENTATIVE.
   E. ALLOW ALL SEALANT TO CURE AL LEAST OVERNIGHT.
   F. STIR PRIMER. APPLY A THIN FILM OF PRIMER 10" WIDE, CENTERED OVER SEALED CRACKS AND JOINTS, HAIRLINE CRACKS, AND COLD JOINTS. APPLY PRIMER 8" ON EACH SIDE OF ALL CORNERS. PRIME CONCRETE AROUND DRAIN FLANGES. ALLOW PRIMER TO DRY PER MANUFACTURER=S RECOMMENDATIONS.
   G. INSTALL AN 8" WIDE STRIP OF CCW MIRADRI 860/861 CENTERED OVER JOINTS AND CRACKS. INSTALL A 12" WIDE STRIP OF CCW MIRADRI 860/861 CENTERED OVER THE AXIS OF ALL CORNERS.
   H. TERMINATE MEMBRANE AROUND DRAINS PER CCW MIRADRI 860 SERIES DETAILS. TERMINATE THE MEMBRANE UNDER THE CLAMPING RING. SEAL ALL EDGES WITH CCW-704 MASTIC. DO NOT INTERFERE WITH WEEP HOLES.
3. APPLICATION:
   A. PRIMING: CLEAN SURFACES TO REMOVE RESIDUAL DUST BEFORE PRIMING. STIR PRIMER. APPLY BY SPRAY OR ROLLER AT A RATE RECOMMENDED BY MANUFACTURER. ALLOW TO DRY PER MANUFACTURER=S RECOMMENDATION.
   B. HORIZONTAL SURFACES: INSTALL SHEET MEMBRANE FROM LOW TO HIGH POINT, SO THAT LAPS WILL SHED WATER. OVERLAP EDGE SEAMS 2_", END LAPS 5". STAGGER EN SEAMS. ROLL IN PLACE WITH AN 18 TO 24" WIDE, 100 LB. (MIN.) RESILIENT ROLLER. ENSURE THAT ALL LAPS ARE FIRMLY ADHERED AND THAT THERE ARE NO GAPS OR FISHMOUTHS.
   C. VERTICAL SURFACES: APPLY IN LENGTHS OF 8' OR LESS. OVERLAP EDGE SEAMS 2_". ON WALLS OVER 8' HIGH, APPLY IN 8' SECTIONS, STARTING AT THE LOWEST POINT WITH THE HIGHER SECTION OVERLAPPING THE LOWER SECTION 5". ROLL IN PLACE USING FIRM PRESSURE WITH A HAND ROLLER.
   D. TERMINATIONS: CONSULT CARLISLE 860-9 DETAILS FOR PROPER TERMINATIONS. ROLL TERMINATING EDGES FIRMLY. APPLY CCW-704 MASTIC TO ALL TERMINATIONS AND T= JOINTS. APPLY CCW-704 MASTIC OR CCW-703-V LIQUISEAL TO LAPS AT ANGLE CHANGES, EXTENDING 9" IN EACH DIRECTION.
4. FLOOD TEST
   A. AFTER SHEET MEMBRANE HAS BEEN IN PLACE AT LEAST 24 HOURS, PLUG DRAINS AND PROVIDE BARRIERS NECESSARY TO CONTAIN FLOOD WATER. CONSULT WITH STRUCTURAL ENGINEER FOR DECK LOADING LIMITS BEFORE CONDUCTING A WATER TEST.
   B. FLOOD SURFACE WITH 2" HEAD OF WATER FOR 24 HOURS. INSPECT FOR LEAKS AND REPAIR MEMBRANE IF LEAKS ARE FOUND. RETEST AFTER MAKING REPAIRS.
5. PROTECTION COURSE
   A. VERTICAL APPLICATION:
      INSTALL CCW QUICKDRAIN PERIMETER DRAINAGE SYSTEM AS THE FIRST COURSE OF DRAINAGE COMPOSITE IMMEDIATELY AFTER MEMBRANE HAS BEEN INSTALLED ON VERTICAL SURFACES. INSTALL CCW MIRADRAIN DRAINAGE COMPOSITE (CONSULT CCW FOR RECOMMENDATION), CCW PROTECTION BOARD-V PROTECTION COURSE OR CCW 200V ON REMAINDER. STOP DRAINAGE COMPOSITE 6" BELOW FINAL GRADE LEVEL.
   B. HORIZONTAL APPLICATION:
      INSTALL CCW MIRADRAIN DRAINAGE COMPOSITE (CONSULT CCW FOR RECOMMENDATION) OR CCW PROTECTION BOARD-H PROTECTION COURSE OR CCW 300HV IMMEDIATELY AFTER FLOOD TESTING ON HORIZONTAL SURFACES. IF FLOOD TESTING IS DELAYED, INSTALL A TEMPORARY COVERING TO PROTECT THE CCW MIRADRI 860/861 MEMBRANE FROM DAMAGE BY OTHER TRADES.

END OF SECTION.

E

NOTE:
IN ADDITION REFER TO SHORING & PILE PERMIT #BLD23-2075 IN RETAINING WALL & SHORING PACKAGE #PKG23-1037

PREPARED BY OR UNDER DIRECTION OF:
STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN B. PETER
No. 38623
Exp. 3/31/25
CIVIL
STATE OF CALIFORNIA

BY	REVISION	DESCRIPTION	APPROVED	DATE
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SCALE: N.A.
ACAD FILE NO. –
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DESIGNED:	DRAWN:	CHECKED:
M.A.A.	M.A.A.	S.P

07-02-2022 DATE
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PLANS PREPARED BY:
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1519 CALLE VALLE, SAN CLEMENTE, CA. 92672
Tel: (949) 492-3735 Fax: (949) 492-1891

WATERPROOFING NOTES

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

S-6.1

SHOTCRETE REQUIREMENTS

MIXES

A. SHOTCRETE: THE SHOTCRETE USED SHALL CONSIST OF MIXTURE OR PORTLAND CEMENT, SAND, AGGREGATE, AND WATER SO PROPORTIONED AND MIXED TO BE PUMPED. MIXTURE SHALL BE PROPORTIONED TO PROVIDE A MINIMUM COMPRESSIVE STRENGTH OF **4500 PSI** AT 28 DAYS.

B. MIX DESIGN: TESTING LABORATORY, RETAINED BY CONTRACTOR, SHALL DESIGN A MIX TO PRODUCE CONCRETE AS SPECIFIED AND PERFORM TESTS AS REQUIRED. CERTIFIED TEST REPORTS (DUPLICATE) SHALL BE SUBMITTED. REPORTS SHALL INCLUDE PROPORTIONS OF DESIGN MIX.

C. MAINTAIN **WATER–CEMENT RATIO BETWEEN 0.35 TO 0.50 BY WEIGHT.**

D. CONCRETE–MIX DESIGN ADJUSTMENTS MAY BE CONSIDERED IF CHARACTERISTICS OF MATERIALS, PROJECT CONDITIONS, WEATHER, TEST RESULTS, OR OTHER CIRCUMSTANCES WARRANT. RESUBMIT AND OBTAIN APPROVAL FROM THE RESIDENT ENGINEER OF PROPOSED CHANGES TO CONCRETE–MIX DESIGN.

E. IMPROPER MIX: IMMEDIATELY NOTIFY THE CONCRETE TESTING LABORATORY AND THE RESIDENT ENGINEER IF AT ANY TIME DURING CONSTRUCTION THE ACCEPTED MIX DESIGN PROVES TO BE UNSATISFACTORY FOR ANY REASON. THE CONTRACTOR'S CONCRETE MIX DESIGNER SHALL MODIFY THE DESIGN, SUBJECT TO THE REVIEW OF THE RESIDENT ENGINEER, UNTIL A SATISFACTORY MIX IS OBTAINED.

EXECUTION

1.<u>PROPORTIONING, DELIVERY AND MIXING</u>

A. PROPORTIONING: MIX SHALL BE DESIGNED BY CONTRACTOR–RETAINED TESTING LABORATORY.

B. MIXING PROCESSES:

1. MIXING, GENERAL: STRENGTH OF MIX IS SPECIFIED ON THE DRAWINGS. AT CONTRACTOR'S OPTION, USE EITHER THE DRY OR WET MIX PROCESS. DISCHARGE ENTIRE BATCH BEFORE RECHARGING. CLEAN MIXER AL LEAST ONCE EVERY 8–HOUR SHIFT OR PORTION THEREOF. REJECT MATERIAL MIXED AND STANDING FOR 45 MINUTES; REMIXING OR TEMPERING NOT PERMITTED.
2. DRY MIX PROCESS: CONFORM TO ACI 506R, PARAGRAPH 1.5.1
3. WET MIX PROCESS: CONFORM TO ACI 506R, PARAGRAPH 1.5.2

2. <u>EQUIPMENT, DRY MIX PROCESS</u>

A. BATCHING AND MIXING EQUIPMENT: BATCH BY WEIGHING, USE ROTATING MIXER OR ADEQUATE CAPACITY FOR DRY–MIXING AGGREGATE AND CEMENT FOR CONTINUOUS SUPPLY OF MATERIAL TO GUN, ALL CONFORMING TO ACI 506R, PARAGRAPH 3.5.

B. DELIVERY EQUIPMENT:

1. GUN AND NOZZLE: PREMIXING TYPE CONFORMING TO THE REQUIREMENTS OF ACI 506R, PARAGRAPH 3.2 AND 3.7 DESIGNED FOR MATERIAL DELIVERY AND WATER INJECTION.
2. AIR COMPRESSOR AND HOSES: STANDARD TYPE, OF CAPACITY TO PROVIDE WITHOUT INTERRUPTION, PRESSURES AND VOLUME OF AIR NECESSARY FOR LONGEST HOSE DELIVERY; CONFORM TO ACI 506R, TABLE 3.1. MAKE ALLOWANCES FOR AIR CONSUMED BY SEPARATE BLOW PIPE IN BLOWING AWAY REBOUND, CLEANING REINFORCING AND INCIDENTAL USES.

3. <u>EQUIPMENT, WET MIX PROCESS</u>

A. BATCHING AND MIXING EQUIPMENT: ACI 506R, PARAGRAPH 3.5. BATCH BY WEIGHING; USE ROTATING MIXING EQUIPMENT AND MIX IN ACCORDANCE WITH ACI 304R, AND ASTM C94 FOR READY–MIXED CONCRETE.

B. DELIVERY EQUIPMENT: USE PNEUMATIC FEED OR POSITIVE DISPLACEMENT TYPE OF DESIGN AND SIZE CAPABLE OF DELIVERING PREMIXED MATERIALS ACCURATELY, UNIFORMLY AND CONTINUOUSLY THROUGH THE HOSE, ALL IN ACCORDANCE WITH ACI 506R, PARAGRAPH 3.3 AND 3.7

C. AIR SUPPLY: ACI 506R, PARAGRAPH 3.4.2

D. WATER SUPPLY: CONFORM TO ACI 506R, PARAGRAPH 3.8.1 WITH ADEQUATE CAPACITY TO MAINTAIN WATER PRESSURE APPROXIMATELY 65N(15 POUNDS) HIGHER THAN HIGHEST AIR PRESSURE REQUIRED, BOTCH AIR AND WATER PRESSURE UNIFORMLY STEADY, NON–PULSATING.

4. <u>ALIGNMENT CONTROL</u>

A. GENERAL: TO ESTABLISH THICKNESS AND SURFACE PLANES OR SHOTCRETE BUILD–UP PROVIDE GROUND WIRES, TAUT, SECURE, TRUE TO LINE AND PLANES, CONFORMING TO ACI 506R, PARAGRAPH 5.6.

B. THE CONTRACTOR SHALL ENSURE THAT THE THICKNESS OF SHOTCRETE SATISFIES THE MINIMUM REQUIREMENTS SHOWN ON THE CONTRACT DRAWINGS.

C. THE CONTRACTOR SHALL ENSURE THAT THE FRONT FACE OF THE SHOTCRETE REMAINS LESS THAN 25mm (1 INCH) OUTSIDE OF ITS REQUIRED LIMITS SHOWN ON THE CONTRACT DRAWINGS.

D. THE CONTRACTOR SHALL ENSURE THAT THE EXCAVATED FACE BE FLAT AND FREE FROM IRREGULARITY PRIOR TO SHOTCRETE PLACEMENT. ADDITIONAL SHOTCRETE USED TO FILL GAPS, VOIDS AND IRREGULARITIES ON THE EXCAVATION FACE IS THE RESPONSIBILITY OF THE CONTRACTOR.

E. THE COST OF ADDITIONAL MATERIAL USED TO FILL VOID SPACE BETWEEN THE ACTUAL SHOTCRETE FACE AND THE PROPOSED LIMITS OF THE SHOTCRETE FACE IS THE RESPONSIBILITY OF THE CONTRACTOR.

F. REINFORCING POSITIONING: CHECK THAT REINFORCING IS POSITIONED AND SIZED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ACI 506R, PARAGRAPH 5.4.

5. <u>SHOOTING</u>

A. GENERAL: ACI 506R, PARAGRAPH 8.5.7. SHOOT AND FILL CORNERS FIRST, WITH CONTINUOUS UNIFORM MATERIAL FLOW FROM NOZZLE HELD APPROXIMATELY 600 TO 1500 mm (2 TO 5 FEET) FROM THE WORK, AT ANGLE NORMAL TO THE SURFACE.

1. SHOOT AROUND REINFORCING WITH NOZZLE CLOSE TO ENCASE REINFORCEMENT AS ILLUSTRATED IN ACI 506R, FIGURE 8.4, LEFT COLUMN.
2. IF FLOW IS NOT UNIFORM AND SLUGS, SAND SPOTS OR WET SLOUGHS RESULT, TURN NOZZLE AWAY UNTIL FAULTY WORK IS CUT OUT AND REPAIRED.
3. DO NO SHOTCRETE WORK IF TEMPERATURE IS BELOW 4 DEGREES CELSIUS (40 DEGREES FAHRENHEIT) WITHOUT PROVIDING CONTINUOUS HEAT AND ADEQUATE PROTECTION FROM FREEZING.

B. PREPARATION OF SURFACES TO RECEIVE SHOTCRETE: ACI 506R, PARAGRAPH 5.2, AS APPLICABLE TO THE WORK, AS APPROVED.

C. REBOUND: ACI 506R, PARAGRAPH 8.5.11. DO NOT WORK REBOUND INTO CONSTRUCTION NOR SALVAGE REBOUND FOR SUBSEQUENT BATCHING.

D. SUSPEND APPLICATION IF:

1. HIGH WIND PREVENTS NOZZLEMEN FROM PROPER APPLICATION OF MATERIAL.
2. WEATHER APPROACHES FREEZING AND SHOTCRETE CANNOT BE PROTECTED.
3. RAIN, OTHER THAN A VERY LIGHT SPRINKLE, OCCURS WHICH WOULD WASH CEMENT OUT OF FRESHLY PLACED MATERIAL.
4. GROUND WATER OR SURFACE WATER FLOW IS PERSISTENT ENOUGH TO WASH CEMENT OUT OF FRESHLY PLACED MATERIAL.

E. TIME BETWEEN COATS:

1. IN SLOPING, VERTICAL OR OVERHANGING WORK, ALLOW INTERVAL OF TIME SUFFICIENT FOR INITIAL, BUT NOT FINAL, SET TO DEVELOP.
2. AT DEVELOPMENT OF INITIAL SET, LIGHTLY BROOM SURFACE TO REMOVE ANY LAITANCE TO PROVIDE BETTER BOND WITH SUCCEEDING APPLICATIONS.

F. CONSTRUCTION JOINTS:

1. ACI 506R, PARAGRAPH 5.7.2, TAPERING OVER A WIDTH OF 300 mm (1 FOOT) TO A 25 mm (1 INCH) EDGE FROM BOARD LAID FLAT.
2. BEFORE PROCEEDING WITH ADDITIONAL SHOTCRETE WORK, THOROUGHLY CLEAN JOINT AND ADJACENT SHOTCRETE, THEN WET AND SCOUR SURFACES WITH AIR JET.

G. WARM WEATHER APPLICATION: PREVENT DRYOUT RESULTING IN CRACKING AND SEPARATION BY KEEPING SURFACES CONTINUOUSLY MOIST AND / OR COVERED WITH CONTINUOUSLY MOISTENED BURLAP FOR 7 DAYS AFTER SHOTCRETING.

H. SURFACE FINISH: BRING FINAL SURFACES OF SHOTCRETE TO AN EVEN PLANE, WELL FORMED CORNERS EITHER SQUARE OR TO RADIUS SHOWN, WORKING UP TO GROUND WIRES USING SOMEWHAT LOWER PLACING VELOCITY THAN NORMAL.

1. REMOVE GROUND WIRES TO 20 mm (¾ INCH) BACK FROM SURFACE AND FILL HOLES WITH SHOTCRETE TO ADJACENT SURFACE ELEVATIONS.
2. WOOD FLOAT SURFACES TO PROVIDE A SMOOTH TRUE FINISH.

6. <u>CURING</u>

ACI 506.2, PARAGRAPH 3.8.

7. <u>HOT WEATHER SHOTCRETING</u>

ACI 506R, PARAGRAPH 8.9.

8. <u>COLD WEATHER SHOTCRETING</u>

ACI 506R, PARAGRAPH 8.10.

9. <u>PROTECTION AND CLEAN–UP</u>

A. PROTECTION: PROTECT ADJACENT WALLS, WINDOWS, DOORS, OTHER BUILDING SURFACES, GROUNDS AND7OR SHRUBS AND PROPERTY OF OTHERS FROM DAMAGE BY SHOTCRETING, REBOUND AND DUST.

1. CONSTRUCTION A SEALED DUST PARTITION TO CONFINE REBOUND AND DUST TO IMMEDIATE WORK AREA. DUST PARTITION SHALL BE INTEGRAL WITH EXHAUST SYSTEM. A NEGATIVE AIR PRESSURE SHALL BE MAINTAINED WITHIN PARTITIONED AREA DURING SHOTCRETE APPLICATIONS TO PREVENT DUST LEAKAGE BEYOND AREA.
2. IMMEDIATELY CLEAN ALL SHOTCRETE MATERIALS AND REMOVE ALL REBOUND FROM SITE.

B. CLEAN–UP: CONTINUOUSLY REMOVE REBOUND MATERIAL TO ENSURE THAT BASE, INTERMEDIATE, AND FINISH SURFACES ARE CLEAN AND READY FOR BONDING LAYERS.

10 <u>DEFECTIVE WORK</u>

GENERAL WORK WILL BE EVALUATED BE THE ENGINEER OR DESIGNATED AGENT IN ACCORDANCE WITH ACI 506.4. IF THE EVALUATION REVEALS UNBONDED WORK OR CORES FAIL TO MEET SPECIFIED STRENGTHS, OR FINISHES ARE UNSATISFACTORY, REPAIR SUCH DEFECTIVE WORK, AS APPROVED, WITHOUT ADDITIONAL COST TO THE CLIENT.

E

NOTE:
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PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN B. PETER
No. 38623
Exp. 3/31/25
CIVIL
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SCALE: N.A.
ACAD FILE NO. –
PROJECT NO. 21SE21064

DESIGNED: M.A.A. DRAWN: M.A.A. CHECKED: S.P

07–02–2022 DATE

STEPHEN PETER

PLANS PREPARED BY:
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1519 CALLE VALLE, SAN CLEMENTE, CA. 92672
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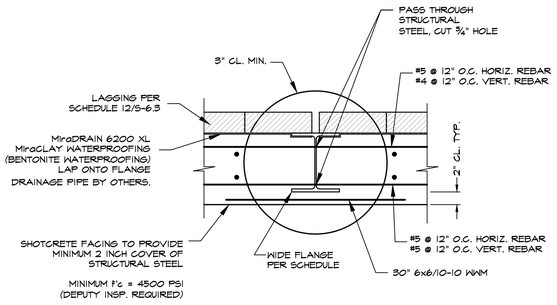
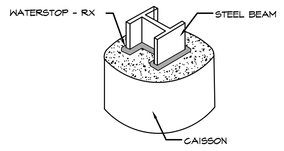
SHOTCRETE NOTES

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

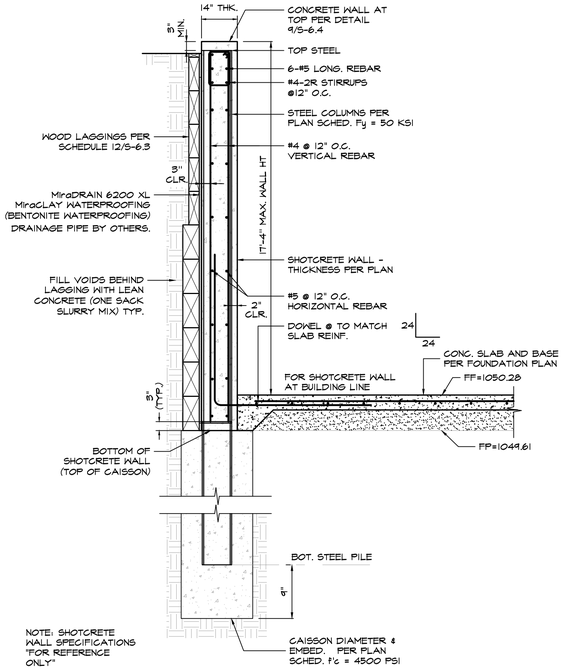
S-6.2



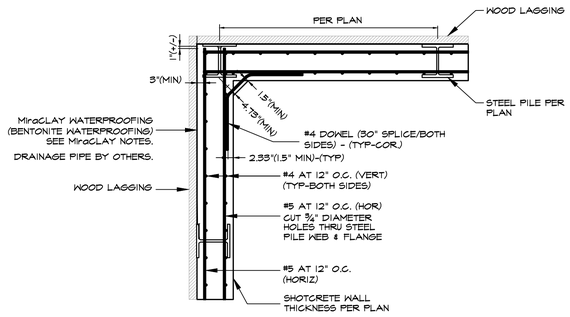
10 SHOTCRETE WALL/PILE CONNECTION DETAIL



11 WATERSTOP RX AT STEEL PILE/CAISSON



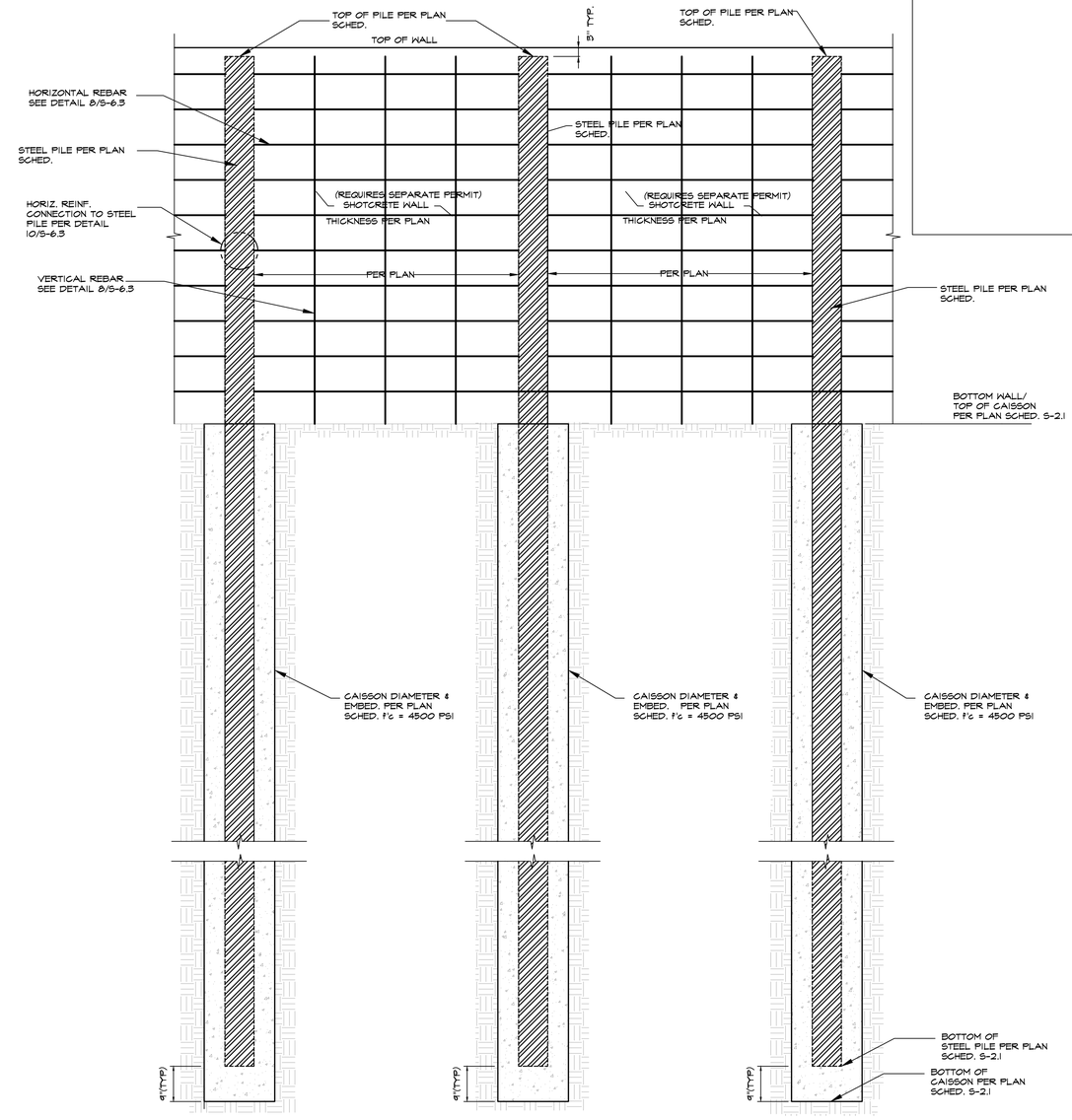
8 SHORING SECTION VIEW



9 CORNER DETAIL

EXCAVATION DEPTH	WOOD LAGGINGS SIZE
TO 0-5' FT	4X12 D.F. NO.1
TO 5-12' FT	6x12 D.F. NO.1
TO 12-18' FT	6X12 D.F. DENSE NO.1

12 LAGGING SCHEDULE



6 SHOTCRETE WALL - FRONT VIEW

Colin E. Cunningham
Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

PROFESSIONAL GEOLOGIST • COLIN E. CUNNINGHAM No. EG 2140 CERTIFIED ENGINEERING GEOLOGIST • STATE OF CALIFORNIA

E

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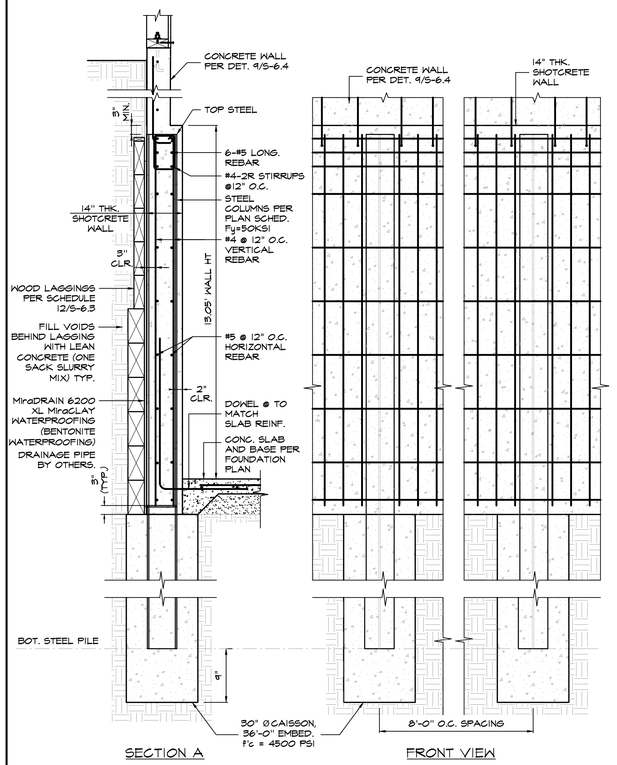
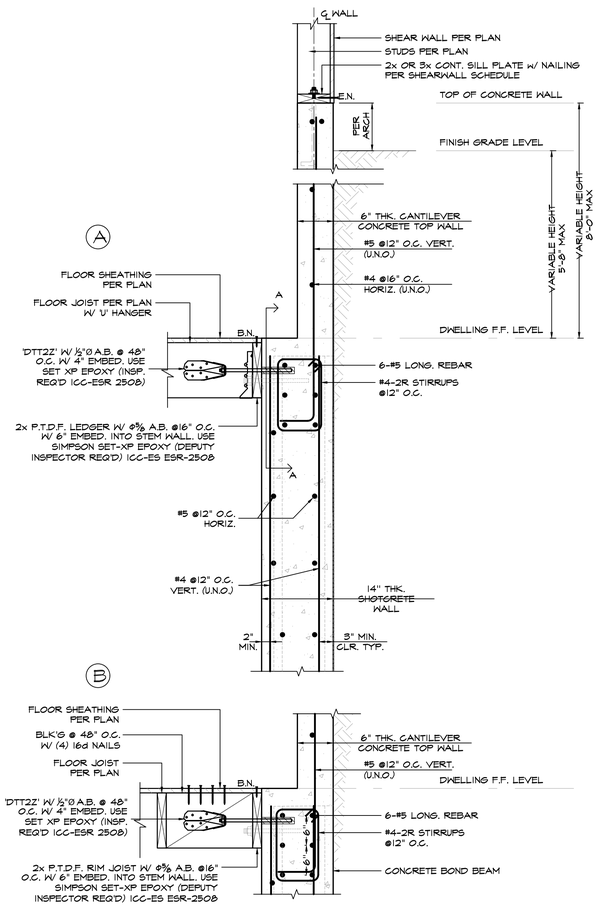
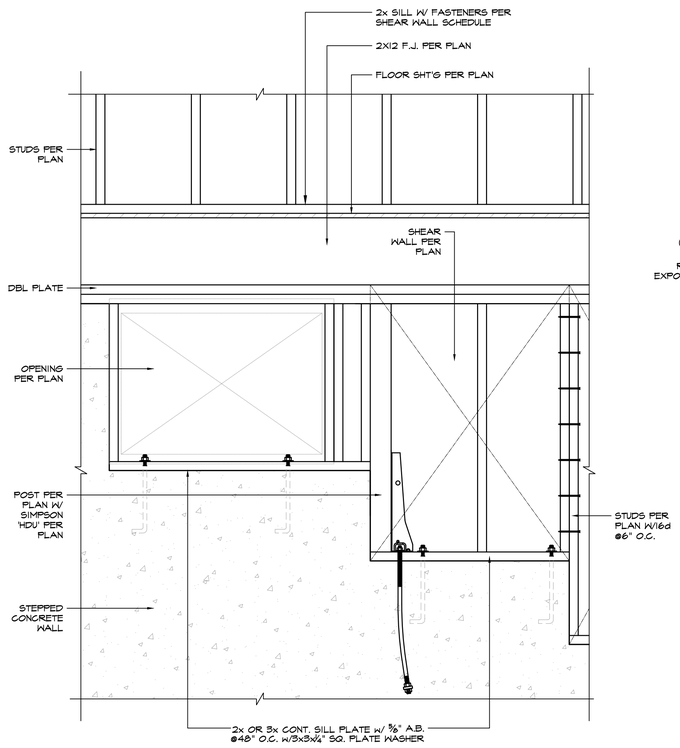
SHOTCRETE WALLS STRUCTURAL DETAILS

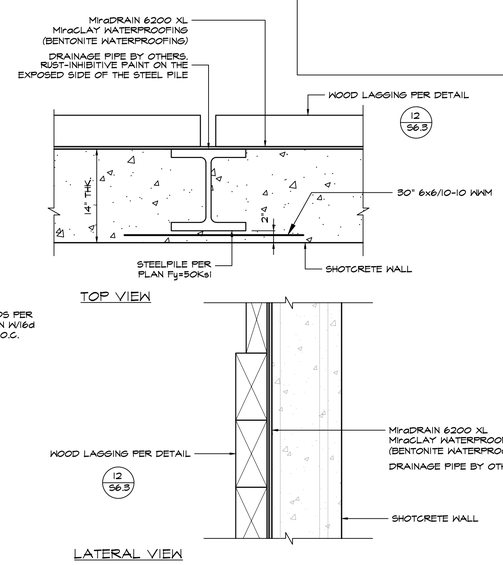
FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

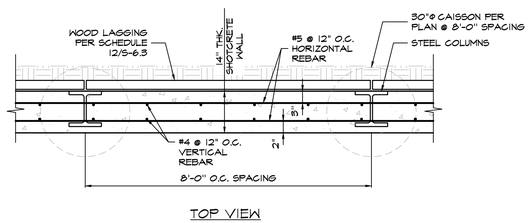
S-6.3

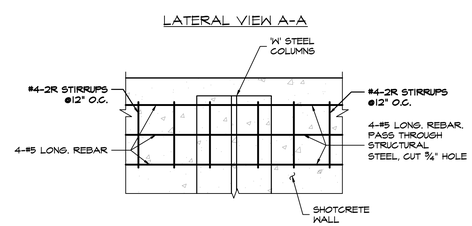


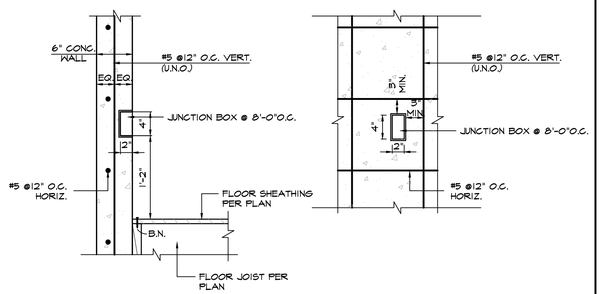












12/D SHORING SECTION VIEW

9 FLOOR JOIST TO CONCRETE WALL CONN.

6 NOT USED

3 JUNCTION BOX TO CONC. WALL CONN.

5 OPENING DETAIL

2 WOOD LAGGING INSTALLATION

Colin E. Cunningham

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

PROFESSIONAL GEOLOGIST · COLIN E. CUNNINGHAM · No. EG 2140 · CERTIFIED ENGINEERING GEOLOGIST · STATE OF CALIFORNIA

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SHOTCRETE WALLS STRUCTURAL DETAILS

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

S-6.4

PARAMETERS DESIGN, CBC 2022

SEISMIC DESIGN

1. SEISMIC IMPORTANCE FACTOR, I=1.0 , AND OCCUPANCY CATEGORY = II
2. MAPPED SPECTRA RESPONSE ACCELERATIONS, Ss=137.70%g AND S1=48.60%g
3. SITE CLASS = C
4. SPECTRA RESPONSE COEFFICIENTS, S_{DS}=1.102g AND S_{D1}=0.486g
5. SEISMIC DESIGN CATEGORY=D
6. THE DESIGN LOAD BEARING VALUE OF SOILS = 2500 PSF.

BASIS OF DESIGN

- WALKWAY LIVE LOAD = 60 PSF

CONCRETE & REINFORCING STEEL NOTES

CONCRETE FOUNDATION, FLOOR SLABS, PATIO SLAB & AND PILES

- ALL CONCRETE SHALL ATTAIN THE FOLLOWING MINIMUM STRENGTHS AT 28 DAYS: FOOTINGS AND SLAB-ON-GRADE, GRADE BEAMS AND PILES = 4500 PSI
- BAR SPLICES IN CONCRETE SHALL BE LAP 48 BAR DIAMETERS MINIMUM, AND MAY BE WIRED TOGETHER, UNLESS OTHERWISE NOTED ON PLANS.

REINFORCING STEEL

- REINFORCING BARS SHALL CONFORM TO THE FOLLOWING ASTM RATING AND GRADE TYPE FOR BAR SIZES LISTED:

#3	ASTM A 615 GRADE 40 (MIN)
#4 AND LARGER	ASTM A 615 GRADE 60

ADDITIONAL NOTES

1) CONTRACTORS RESPONSIBLE FOR THE CONSTRUCTION OF A WIND OR SEISMIC FORCE RESISTING SYSTEM/COMPONENT LISTED IN THE "STATEMENT OF SPECIAL INSPECTION" SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE ORANGE COUNTY INSPECTORS AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON SUCH SYSTEM OR COMPONENT PER SEC. 1709.1.
2) CONTINUOUS SPECIAL INSPECTION BY A REGISTERED DEPUTY INSPECTOR IS REQUIRED FOR FIELD WELDING, CONCRETE STRENGTH f'c>2500 PSI.
3) IF ADVERSE SOIL CONDITIONS ARE ENCOUNTERED, A SOILS INVESTIGATION REPORT MAY BE REQUIRED.
4) FIELD WELDING TO BE DONE BY WELDERS CERTIFIED BY THE ORANGE COUNTY FOR STRUCTURAL STEEL. CONTINUOUS INSPECTION BY A DEPUTY INSPECTOR IS REQUIRED.
5) SHOP WELDS MUST BE PERFORMED IN A ORANGE COUNTY LICENSED FABRICATOR'S SHOP.
6) ORANGE COUNTY LICENSED FABRICATOR IS REQUIRED FOR STRUCTURAL STEEL.

STEEL NOTES

STEEL

1. STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING

A.	WIDE FLANGE COLUMNS:	ASTM A572 OR A992, Fy = 50 ksi
B.	OTHER STRUCTURAL STEEL:	ASTM A36, Fy = 36 ksi
C.	BOLTS, (STEEL TO STEEL):	ASTM A307
E.	HIGH-STRENGTH BOLTS (H.S.B.):	ASTM A325-SC
F.	ANCHOR BOLTS:	ASTM 307 ASTM A307/ASTM A36
G.	THREADED RODS:	ASTM A53, TYPE E OR S, GRADE B.
H.	PIPE COLUMNS:	ASTM A500, GRADE B
I.	STRUCTURAL TUBE COLUMNS:	ASTM A36 (y = 36 ksi)
J.	OTHER SHAPES AND PLATES:	

2. ALL WELDING IS TO BE DONE PER THE AMERICAN WELDING SOCIETY "STRUCTURAL WELDING CODE STEEL (ANSI/AWS D1.1)", WITH ALL CERTIFIED WELDERS.
3. ALL WELDS SHALL BE TESTED AND INSPECTED IN ACCORDANCE WITH: THE SPECIFICATIONS; THE LATEST UNIFORM BUILDING CODE; AND AWS D1.1. THE WELDING INSPECTOR SHALL CHECK THE MATERIAL, EQUIPMENT, FIT UP AND PROCEDURES, AS WELL AS THE WELDS. THE INSPECTOR SHALL USE ALL MEANS NECESSARY TO DETERMINE THE QUALITY OF THE WELDS.
4. STEEL FRAMING, EXCEPT THOSE PORTIONS TO BE EMBEDDED IN CONCRETE OR FIELD WELDED SHALL BE SHOP-PAINTED PER THE SPECIFICATIONS. PROVIDE AS A MINIMUM, ONE COAT OF RED-OXIDE PRIMER WITH 2 MIL THICKNESS. DO NOT PAINT ANY STEEL THAT RECEIVES SPRAY APPLIED FIREPROOFING.
5. FIELD PAINT ALL EXPOSED, UNPAINTED STEEL SURFACES AFTER INSTALLATION PER THE SPECIFICATIONS.
6. SUBMIT CERTIFICATION OF COMPLIANCE FOR ALL STEEL MATERIALS.
7. ALL STRUCTURAL WELDING SHALL BE DONE IN AN APPROVED FABRICATING SHOP. IN THE ABSENCE OF AN APPROVED FABRICATING SHOP, ALL WELDING SHALL BE DONE UNDER THE SUPERVISION OF A CERTIFIED SPECIAL INSPECTOR.
8. THE WELDING INSPECTOR SHALL CHECK THE MATERIAL, EQUIPMENT, FIT UP AND PROCEDURES, AS WELL AS THE WELDS. THE INSPECTOR SHALL USE ALL MEANS NECESSARY TO DETERMINE THE QUALITY OF THE WELDS.

WELDING

- SHOP WELDS MUST BE PERFORMED IN A LA COUNTY BLDG. DEPT. LICENSED FABRICATOR'S SHOP.
- FIELD WELDING TO BE DONE BY WELDERS CERTIFIED BY THE ORANGE COUNTY FOR STRUCTURAL STEEL, REINFORCING STEEL. CONTINUOUS INSPECTION BY A DEPUTY INSPECTOR IS REQUIRED.

SOIL INFORMATION

EARTH MATERIAL PARAMETERS	FOUNDATION BEARING MATERIALS	UNDISTURBED NATURAL SOIL
	FOUNDATION BEARING PRESSURES/PILE SKIN FRICTION	2500 PSF
	COEFFICIENT OF FRICTION [1]	0.35
	PASSIVE EARTH PRESSURE (EFP)	300 PCF
	MAXIMUM PASSIVE EARTH PRESSURE	4000 PSF
CONVENTIONAL CONTINUOUS FOOTING DESIGN	MINIMUM FOUNDATION WIDTH	15 INCHES
	MIN. EMBEDMENT DEPTH INTO APPROVED BEARING MATERIAL	12 INCHES
(PAD) FOOTING DESIGN	MINIMUM FOUNDATION DIMENSIONS (WIDTHxLENGTH)	18in X 18in
	MINIMUM EMBEDMENT DEPTH INTO BEARING MATERIAL	24 INCHES

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1519 CALLE VALLE, SAN CLEMENTE, CA
(949) 492-3735; (949) 492-1891
INFO@PETERASSOC.COM

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

PROFESSIONAL GEOLOGIST · COLIN E. CUNNINGHAM No. EG 2140 CERTIFIED ENGINEERING GEOLOGIST · STATE OF CALIFORNIA

JOB NO. 19G19012-b
DATE: 9/4/2024

CONCRETE MASONRY BLOCK CONSTRUCTION

1) CONCRETE BLOCK SHALL BE GRADE N HOLLOW LOAD-BEARING MASONRY UNITS CONFORMING TO ASTM C90-70, F'M = 2000 PSI.
2) NO SPECIAL INSPECTION REQUIRED FOR MASONRY RETAINING WALLS .
3) MORTAR MIX SHALL ATTAIN A COMPRESSIVE STRENGTH OF 2000 PSI AT 28 DAYS. THE MIX SHALL BE 1 PART CEMENT TO 1/2 PART LIME TO 4-1/2 PARTS DAMP LOOSE SAND, F'M = 1500 PSI. MORTAR TYPE S.
4) GROUT SHALL ATTAIN A COMPRESSIVE STRENGTH OF 2000 PSI AT 28 DAYS.MIX SHALL BE 1 PART CEMENT TO 3 PARTS SAND TO WHICH MAY BE ADDED NOT MORE THAN 1/10 PART LIME. SUFFICIENT WATER TO BE ADDED TO PROVIDE CONSISTENCY FOR POURING WITHOUT SEGREGATION OF THE CONSTITUENTS. GROUT MAY CONTAIN 2 PARTS PEA GRAVEL, MAXIMUM SIZE OF 3/8".
5) ALL CELLS IN THE CONCRETE BLOCKS SHALL BE FILLED SOLID WITH GROUT. CELLS SHALL BE IN VERTICAL ALIGNMENT.
6) PROVIDE A MINIMUM OF 1/2" GROUT BETWEEN MAIN REINFORCEMENT AND MASONRY UNITS.
7) LOW LIFT CONSTRUCTION, MAXIMUM GROUT POUR HEIGHT IS 4 FEET.
8) ALL FILL OR BACKFILL SHALL BE COMPACTED BY MECHANICAL MEANS TO A MINIMUM 90% RELATIVE COMPACTION AS DETERMINED BY ASTM METHOD D-1557.
9) REINFORCING STEEL TO BE DEFORMED AND CONFORM TO ASTM SPECIFICATIONS A 615 GRADE 60.
10) STEEL SPLICE REQUIREMENTS (40 BAR DIAMETERS)
11) ALL CELLS CONTAINING HORIZONTAL OR VERTICAL REINFORCING STEEL, BOLTS, OR INSERTS SHALL BE GROUTED. WHERE REINFORCING STEEL, ETC. OCCURS IN OR ADJACENT TO MORTAR BE GROUTED, WHERE BLOCK WALL IS RETAINING EARTH OR IN CONTACT WITH EARTH, SUCH PORTION OF WALL SHALL BE GROUTED SOLID. CLEAN OUT OPENINGS SHALL BE PROVIDE AT BOTTOM OF ALL VERTICALLY GROUTED SOLID.
12) CLEANOUT OPENINGS SHALL BE PROVIDED AT BOTTOM OF ALL VERTICALLY GROUTED CELLS IF GROUT EXCEEDS 4'-0".
13) WALL SHALL NOT BE GROUTED UNLESS SO SPECIFIED ON THE PLANS. WIRE MESH SHALL BE USED TO FORM HORIZONTALLY (PAPER, CARDBOARD, ETC., SHALL NOT BE USED).
14) ALL CONCRETE BLOCKS UNITS TO BE STAGGERED. PROVIDE UNOBSTRUCTED CONTINUITY OF THE CELLS. ALL CELLS WHERE REINFORCING STEEL OR ANCHOR BOLTS OCCUR, OR BELOW RETAINED EARTH BE SOLID GROUTED. ALL REINFORCING STEEL SHALL BE SECURED IN PLACE.
15) CONSTRUCTION JOINTS: WHEN GROUTING IS STOPPED FOR A PERIOD OF ONE HOUR OR LONGER, FROM HORIZONTAL CONSTRUCTION JOINTS BY STOPPING THE GROUT POUR 1 - 1/2" MINIMUM BELOW THE UPPERMOST.
16) NO PIPES OR DUCTS SHALL BE PLACED IN MASONRY WALL, UNLESS SPECIFICALLY NOTED OR DETAILED.

OC PublicWorks

Special Inspection Program and Designation of Special Inspectors

SPECIAL INSPECTIONS
(Only checked items are required)

INSPECTION ITEMS	SPECIAL INSPECTORS(S) NAME, PHONE NUMBER, REGISTRATION #
x Concrete (Design Mix, Form Work, Placement, etc., per table 1705.3)	
□ Erection of Pre-Cast Concrete Members	
x Bolts Installed in Concrete	
x Reinforcing Steel and Pre-Stressing Steel Tendons	
x Structural Welding/Rebar Welding	
□ High-Strength Bolting/Material Verification	
□ Steel Frame Joint Details	
x All Masonry Construction	
□ Sprayed Fire-Resistive Materials	
x Shotcrete (Curing Temperature, Design Mix, Placement, Strength etc. per table 1705.3)	
x Soils (Excavation, Fill, etc. per table 1705.6)	
□ Smoke-Control System	
□ Driven Piles per Table 1705.7	
x Cast in Place Piles per Table 1705.8	
□ Mastic and Intumescent Fire-Resistant Coatings	
□ Exterior Insulation and Finish Systems (EIFS)	
□ Wood for High-Load Diaphragms	
□ Others	
□ Others	
□ Others	
□ Others	

DECLARATION BY OWNER OR ARCHITECT/ENGINEER OF RECORD:

I, the □ Owner x Engineer or □ Architect of record, declare that the above listed Special Inspector(s) is/are hired by me.

Stephen B. Peter, PE		3/4/2025
Print Name	**Signature**	**Date**

601 N. Ross Street, Santa Ana, CA 92701
P.O. Box 4048, Santa Ana, CA 92702-4048
www.ocpublicworks.com
714.667.8888 | myOCeServices.ocgov.com

OC PublicWorks

Structural Observation Report Form

STRUCTURAL OBSERVATION means the visual observation of the structural system, for general conformance to the approved plans and specifications, at significant construction stages and at completion of the structural system. Structural observation does not include or waive the responsibility for the inspections required by Section 110, 1704 or other sections of the Code.

Report No. _____
This report includes all construction work through _____ days of _____ , 20__ Page No.____of____

PROJECT ADDRESS:		STRUCTURAL OBSERVER OF RECORD (SOR):	SOR PHONE NO.:
Building Permit No.:	Structural Observation performed by:	Observer Professional Lic./Reg. No.:	Observer Phone No.:

OBSERVED STRUCTURAL ELEMENTS AND THEIR CONNECTIONS

FOUNDATION	WALL	FRAMES	FLOOR	PORTION OBSERVED, IF NOT WHOLE
☒ Footing, Stem Walls	☐ Concrete	☐ Steel Moment Frame	☐ Concrete	
☐ Mat Foundation	☒ Masonry	☐ Steel Braced Frame	☐ Steel Deck	
☒ Caisson, Piles, Grade Beams	☐ Wood	☐ Concrete Moment Frame	☐ Wood	
☐ Retaining Foundation Hillside Special Anchors	☒ Other: SHOTCRETE	☐ Masonry Wall Frame	☐ Others:	
☐ Others:		☐ Others:		

Remarks:
Bottom of 1) retaining walls
(2) Caisson to be verified by licensed engineer or geologist

I DECLARE THAT THE FOLLOWING ARE TRUE TO THE BEST OF MY KNOWLEDGE:

1. I am the engineer or architect retained by the owner to be in responsible charge for the structural observation in accordance with the requirements of the County of Orange.
2. I, or another Engineer or Architect who I have designated above and is under my responsible charge, has performed the required site visits at each significant construction stage to verify if the structure is in general conformance with approved plans and specifications;

REGISTERED PROFESSIONAL ENGINEER · STEPHEN B. PETER · No. 38623 · Exp. 3/31/25 · CIVIL · STATE OF CALIFORNIA

Stephen B. Peter, PE 3/4/2025
SIGNATURE DATE

STAMP OF STRUCTURAL OBSERVER OF RECORD

300 N. Flower Street, Santa Ana, CA 92703
P.O. Box 4048, Santa Ana, CA 92702-4048
Revised 02/2017
www.ocpublicworks.com
P: 714.667.8888 I F: 714.667.7575
ocpCustomerCare@ocpw.ocgov.com

WOOD LAGGING

1. ANY LAGGING USED FOR TEMPORARY SUPPORT OF CONSTRUCTION EXCAVATIONS SHALL BE DOUGLAS-FIR-LARCH PER BELOW TABLE UNLESS OTHERWISE APPROVED BY THE ENGINEER AND BUILDING OFFICIAL.
2. WOOD LAGGING SHALL BE PRESSURE TREATED, CONFORMING TO CURRENT AMERICAN WOOD PRESERVERS ASSOCIATION (AWPA) SPECIFICATIONS FOR " GROUND CONTACT"
3. ALL TREATED WOOD SHALL BEAR THE QUALITY MARK OF AN APPROVED INDEPENDENT TESTING AGENCY. THE STAMP MUST INDICATE COMPLIANCE WITH " GROUND CONTACT" STANDARDS OF THE IDENTIFICATION OF THE APPROVED AGENCY.
4. HANDELING OF PRESSURE TREATED WOOD AND FIELD TREATMENTS OF CUT ENDS SHALL CONFORM TO AMERICAN WOOD PRESERVERS ASSOCIATION STANDARD M4-01.

EXCAVATION DEPTH	WOOD LAGGINGS SIZE
TO 0-5' FT	4X12 D.F. NO.1
TO 5-12' FT	6X12 D.F. NO.1
TO 12-18' FT	6X12 D.F. DENSE NO.1

C

RETAINING WALL PACKAGE #: PKG23-1037
RETAINING WALL PERMIT #: RWP23-0104
ENCROACHMENT PERMIT #: RE23-0550
SHORING & PILE PERMIT #: BLD23-2075
CONCRETE STEPS PERMIT #: BLD24-1164

SHEET INDEX

SW-1.1	GENERAL NOTES AND SPECIAL INSPECTION
SW-1.2	WATERPROOFING NOTES
SW-2.1	CONCRETE STEPS SITE PLAN
SW-2.2	RETAINING WALLS & SHORING PLAN
SW-3.1	FOUNDATION & RETAINING WALL DETAILS
SW-3.2	FOUNDATION & RETAINING WALL DETAILS
SW-3.3	FOUNDATION & RETAINING WALL DETAILS
SW-3.4	FOUNDATION & RETAINING WALL DETAILS
SW-3.5	CROSS SECTIONAL DETAIL
SW-4.1	WATERPROOFING NOTES
SW-4.2	SHOTCRETE NOTES
SW-4.3	SHOTCRETE WALL STRUCTURAL DETAILS
SW-4.4	SHOTCRETE WALL STRUCTURAL DETAILS

PREPARED BY OR UNDER DIRECTION OF:
STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER · STEPHEN B. PETER · No. 38623 · Exp. 3/31/25 · CIVIL · STATE OF CALIFORNIA

BY	REVISION	DESCRIPTION	APPROVED	DATE
	1	PCC		20240419
	2	PCC		20240802
	3	PCC		20250220

SCALE: N.A.
ACAD FILE NO. –
PROJECT NO. 21SE21064

DESIGNED:	DRAWN:	CHECKED:
M.E.F.	M.E.F.	S.P

12-12-2023
DATE
STEPHEN PETER

PLANS PREPARED BY:
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1519 CALLE VALLE, SAN CLEMENTE, CA. 92672
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GENERAL NOTES AND SPECIAL INSPECTIONS

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

SW-1.1

MANUFACTURER'S INSTALLATION SPECIFICATIONS - MiraDRAIN

1. EXAMINATION
   A. SITE VERIFICATION OF CONDITIONS: VERIFY SUBSTRATE CONDITIONS (WHICH HAVE BEEN PREVIOUSLY INSTALLED UNDER OTHER SECTIONS) AREA ACCEPTABLE FOR PRODUCT INSTALLATION IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. DO NOT PROCEED WITH DRAINAGE INSTALLATION UNTIL SUBSTRATE CONDITIONS ARE ACCEPTABLE FOR COMPLIANCE WITH MANUFACTURE'S WARRANTY REQUIREMENTS.
2. PREPARATION
   A. ADJACENT SURFACES PROTECTION: PROTECT ADJACENT WORK AREAS AND FINISH SURFACES FROM DAMAGE DURING INSTALLATION OPERATIONS.
   B. CONCRETE SURFACE PREPARATION: PREPARE CONCRETE SURFACES TO RECEIVE DRAINAGE COMPOSITE. SURFACES SHALL BE SMOOTH, FREE OF DEPRESSIONS, VOIDS, PROTRUSIONS, CLEAN AND FREE OF OTHER SURFACE CONTAMINANTS THAT MAY IMPAIR THE PERFORMANCE OF DRAINAGE AND MANUFACTURER'S WARRANTY REQUIREMENTS.
      1. CAST–IN PLACE CONCRETES: DECKS SHALL BE MONOLITHIC, SMOOTH, FREE OF VOIDS, SPALLED AREAS, LAITENANCE, HONEYCOMBS, AND SHARP PROTRUSIONS. **REFER TO DIVISION 3 CONCRETE SECTION FOR CONCRETE STRENGTH, DENSITY, FINISH, CURING METHODS AND OTHER CONCRETE REQUIREMENTS.**
      2. PRECAST CONCRETE DECKS: DECKS SHALL BE MECHANICALLY SECURED TO MINIMIZE DIFFERENTIAL MOVEMENT AND EACH JOINT BETWEEN PRECAST UNITS SHALL HAVE AN INSTALLED BACKER ROD. GROUT PRECAST UNITS AS RECOMMENDED BY MANUFACTURER.
      3. SHOTCRETE: SURFACE SHALL BE MONOLITHIC AND SMOOTH WITH NO UNDULATIONS, IRREGULARITIES OR EXPOSED WIRE MESH.
   C. SUBSTRATE CLEANING: CLEAN SUBSTRATE THAT IS TO RECEIVE DRAINAGE. REMOVE LOOSE DEBRIS AND OTHER HARMFUL CONTAMINANTS THAT WILL AFFECT PERFORMANCE OF DRAINAGE COMPOSITE.
3. DRAINAGE COURSE INSTALLATION
   A. VERTICAL SURFACES: CCW MIRADRAIN 2000, 5000, 6000/6200, 6000/6200XL, MIRADRAIN HC; OR PLANTERS: CCW MIRADRAIN 9800, GR9200.
      1. COMPLETED WALLS: POSITION THE PANEL WITH THE FLAT SIDE AGAINST THE WALL AND FILTER FABRIC TOWARD THE SOIL/DRAINAGE SIDE. CCW DRAIN GRIP CONTACT ADHESIVE OR A WASHER HEADED CONCRETE NAIL MAY BE USED TO ATTACH THE PANEL AGAINST THE CONCRETE WALL. OVER CCW WATERPROOFING MEMBRANE: PLACE THE CCW MIRADRAIN OVER THE WATERPROOFING MEMBRANE.
      2. SHORING SYSTEMS OR VERTICAL SOIL EXCAVATIONS: POSITION THE PANEL WITH THE FABRIC FACING THE SHORING OR SOIL. NAILS OF SUFFIGIENT LENGTH SHOULD BE USED TO PIN THE PANEL DIRECTLY AGAINST THE SHORING OR SOIL. THE FABRIC SHOULD LAY FLAT AGAINST THE SHORING OR SOIL TO MINIMIZE VOIDS. CONCRETE OR SHOTCRETE MAY BE PLACED DIRECTLY AGAINST THE BACKSIDE OF THE CCW MIRADRAIN.
      3.BUTTRESS DRAINAGE AND LANDSLIDE REPAIR: CCW MIRADRAIN SHOULD BE ROLLED OUT FABRIC SIDE DOWN ONTO THE PROPERLY PREPARED SUBGRADE. A "CHIMNEY" DRAIN TYPE DRAIN PATTERN SHOULD BE FORMED.
      a. **SPACING BETWEEN CCW MIRADRAIN CHIMNEY DRAINS WILL BE DICTATED BY THE ENGINEER. CHIMNEY DRAINS SHOULD BE CONNECTED TO THE CONTINUOUS HORIZONTAL COLLECTOR PANEL BY OVERLAPPING A MINIMUM OF 12" (30 cm) INTO THE COLLECTOR PANEL.**
      b. CCW MIRADRAIN PANELS MAY BE SECURED TO THE SUBGRADE BY BALLASTING WITH SOIL OR NAILING THROUGH THE CCW MIRADRAIN PANEL INTO THE UNDERLYING HILLSIDE. FABRIC FLAPS MUST BE FOLDED OVER ONTO THE CORE AND SECURED WITH DUCT TAPE OR SOIL BALLAST.
      4.EDGE DRAIN OR TRENCH DRAIN:
      a. CCW MIRADRAIN SHOULD BE LAID OUT IN 50 TO 500 FOOT LENGTHS ADJACENT TO THE PREVIOUSLY CUT/EXCAVATED TRENCH.
      b. PANEL END LAPS MAY BE CONNECTED BY OVERLAPPING THE PANELS AND APPLYING LOCKING CLIPS OR BUTTONING OF THE DIMPLES. FLEXIBLE, CORRUGATED POLYETHYLENE OR RIGID PVC PIPE, WHICH HAS BEEN WRAPPED WITH FILTER FABRIC, SHOULD BE PLACED IN THE BOTTOM OF THE TRENCH. **THE CCW MIRADRAIN PANEL SHOULD BE LOWERED INTO THE TRENCH BESIDE THE PIPE AND TEMPORARILY SECURED TO THE TRENCH WALL BY NAILING OR PROPPING.** THE FABRIC SIDE OF THE PALE MUST FACE THE DIRECTION FROM WHICH THE WATER IS FLOWING. FABRIC OVERLAPS ON THE TOP OF THE CCW MIRADRAIN PANELS SHOULD BE DRAPED OVER THE BACK OF THE CORE AND IF THERE IS INSUFFICIENT FABRIC, THE CORE SHALL BE CUT OUT FROM THE FABRIC BY A DEPTH OF 3 DIMPLES TO PROVIDE EXCESS FABRIC FOR WRAPPING THE CORE. BACKFILLING SHOULD BE COMPLETED IMMEDIATELY.
      5.CONNECTING ADJACENT PANELS: CONNECT ADJACENT PANELS AT THE LONGITUDINAL EDGE BY PULLING THE FILTER FABRIC BACK TO EXPOSE THE FLANGE. THE PANEL EDGE SHOULD BE BUTTED TO THE EDGE OF THE ADJACENT PANEL DIMPLE TO DIMPLE OR THE EDGE OF THE NEXT PANEL MAY BE PLACED OVER TWO DIMPLES AND INTERLOCKED. PANEL ENDS ARE TO BE ATTACHED IN THE SAME MANNER. CONNECTIONS SHOULD BE COMPLETED IN SHINGLE FASHION SO THAT MOISTURE WILL FLOW WITH THE OVERLAP AND NOT AGAINST IT. OVERLAP FABRIC IN THE DIRECTION THE CORE AND IF THERE IS INSUFFICIENT FABRIC, THE CORE SHALL BE CUT OUT FROM THE FABRIC BY A DEPTH OF 3 DIMPLES TO PROVIDE EXCESS FABRIC FOR WRAPPING THE CORE.
   B. HORIZONTAL SURFACES: CCW MIRADRAIN 9000, 9800, 9900 OR 8000 (HYDROCARBON–RESISTIVE APPLICATIONS), GR9200.
      1. PLAZA DECKS, PARKING DECKS, AND OTHER SPLIT–SLAB CONSTRUCTION:
      a. ATTACH THE CCW MIRADRAIN PANELS BY EITHER PLACING TEMPORARY BALLAST ON TOP OF THE CCW MIRADRAIN OR ADHERING THE PANELS TO THE WATERPROOFING MEMBRANE WITH CCW DRAIN GRIP CONTACT ADHESIVE OR SECURTAPE TWO–SIDED TAPE.
      b. CONNECT ADJACENT PANELS AT THE LONGITUDINAL EDGE BY PULLING THE FILTER FABRIC BACK TO EXPOSE THE FLANGE. THE PANEL EDGE SHOULD BE BUTTED TO THE EDGE OF THE ADJACENT PANEL DIMPLE TO DIMPLE OR THE EDGE OF THE NEXT PANEL MAY BE PLACED OVER TWO DIMPLES AND INTERLOCKED. PANEL ENDS ARE TO BE ATTACHED IN THE SAME MANNER. CONNECTIONS SHOULD BE COMPLETED IN SHINGLE FASHION SO THAT MOISTURE WILL FLOW WITH THE OVERLAP AND NOT AGAINST IT. OVERLAP FABRIC IN THE DIRECTION OF WATER FLOW. COVER ALL TERMINAL EDGES WITH THE FILTER FABRIC FLAP BY TUCKING THE FABRIC BEHIND THE CORE.
      c. CCW MIRADRAIN SHOULD BE CHANNELED INTO AN INTERNAL DRAIN OR PERIMETER DRAIN SYSTEM.
      d. CONCRETE, SAND, GROUT, OR PAVERS MAY BE PLACED DIRECTLY ON THE CCW MIRADRAIN WOVEN FABRIC SIDE. CAUTION SHOULD BE TAKEN NOT TO PLACE POINT LOADS ON THE CCW MIRADRAIN THAT MIGHT PUNCTURE THE FILTER FABRIC ON THE CCW MIRADRAIN. WHEN CONCRETE IS POURED AGAINST CCW MIRADRAIN, USE PROPER CHUTING TECHNIQUES AND AVOID HIGH DROP HEIGHTS.
      2. FLOOR SLABS AND CONCRETE–LINED CHANNELS:
      a. THE SUBGRADE SHALL BE GRADED TO A 2% MINIMUM SLOPE AND CLEAR OF RUBBLE, ROCK, LARGE SOIL CLODS, ETC. THE CCW MIRADRAIN SHOULD BE PLACED WOVEN FABRIC SIDE DOWN, DIRECTLY ON THE SUBGRADE. INSTALLATION SHOULD PROCEED FROM THE HIGHER ELEVATION OF THE SLOPE AND WORK DOWNWARD. CONNECTION OF PANEL ENDS SHALL BE ACHIEVED WITH FOUR–ROW DIMPLE OVERLAPPING AND TAPING OF TERMINAL EDGES.

3.PLANTERS:
   a. **CCW MIRADRAIN SHOULD BE PLACED FABRIC SIDE TO THE INSIDE (SOIL SIDE) OF THE PLANTER. THE PLANTER WALLS SHOULD BE COVERED WITH CCW MIRADRAIN, ALLOW A 3" (75 mm) FABRIC OVERLAP AT THE BOTTOM OF VERTICAL PANELS IN ORDER TO COVER THE INTERSECTION OF WALL AND BOTTOM SECTIONS. ANY EXPOSED PANEL EDGES MUST BE COVERED WITH SUPPLEMENTAL PIECES OF FABRIC TO PREVENT SOIL INTRUSION THE THE FLOW CHANNELS.**
4. DISCHARGE CONNECTIONS
   B. DRAINAGE:
      a. **FOUNDATION/RETAINING WALL: INSTALL CCW QUICKDRAIN PREFABRICATED DRAINAGE COLLECTION SYSTEM IN A VERTICAL FOUNDATION WALL TO A HORIZONTAL FOOTING CONFIGURATION.** ADHERE CCW QUICKDRAIN TO THE SUBSTRATE USING CCW DRAIN GRIP CONTACT ADHESIVE OR SECURTAPE TAPE. PLACE THE HINGED PORTION OF THE CCW QUICKDRAIN AGAINST THE VERTICAL/HORIZONTAL TRANSITION AND PRESS INTO PLACE. CONNECT ADJACENT PANELS BY PULLING FILTER FABRIC BACK TO EXPOSE THE FLANGE. OVERLAP THE FLANGE OF THE CORE OF EDGE DRAIN ON TO THE FLANGE OF THE PRECEDING DRAIN CORE. COVER THE JOINT WITH THE FILTER FABRIC. INSTALL CCW MIRADRAIN IN SHINGLE FASHION BY OVERLAPPING THE FLANGE OF THE CCW QUICKDRAIN IN THE DIRECTION OF WATER FLOW AND COVER WITH FILTER FABRIC. COVER ALL TERMINAL EDGES OF THE CORE WITH THE FABRIC FLAP BY TUCKING IT BEHIND THE CORE. DISCHARGE CONNECTION INSTALLATION: LEAVING THE FILTER FABRIC IN PLACE, SLIDE THE CCW QUICKDRAIN CONNECTOR OUTLET OVER THE HORIZONTAL PORTION OF THE CCW QUICKDRAIN AND WRAP WITH FILTER FABRIC.
      b. **WHERE DRAINPIPE IS INDICATED, PLACE THE DRAINPIPE NEXT TO THE CORE. WRAP THE DRAINPIPE OR ROCK–PIPE DRAIN COMBINATION WITH AN AUXILIARY PIECE OF FILTER FABRIC.**
   B. WEEP HOLES: CUT A HOLE IN THE CORE CORRESPONDING TO THE SIZE AND LOCATION OF THE WEEP HOLE. AVOID CUTTING A HOLE IN THE FABRIC BY CUTTING THE BACKSIDE OF THE CORE BETWEEN THE DIMPLES. A FOUR DIMPLE SQUARE AREA CUT BETWEEN THE DIMPLES (2 _ SQUARE INCH) SHOULD BE SUFFICIENT FOR MOST APPLICATIONS.
   C. PLAZA DRAINS: CREATE OPENINGS IN THE CCW MIRADRAIN CORE TO CORRESPOND WITH ALL DISCHARGE HOLES IN THE DRAIN AT THE STRUCTURAL DECK LEVEL. FABRIC MUST BE PLACED OVER THESE HOLES TO PREVENT INTRUSION OF SOIL, GROUT,SAND, OR CONCRETE INTO THE DRAINAGE CORE.
   D. TERMINAL CONNECTIONS AND PROTRUSIONS: COVER ALL TERMINAL EDGES WITH THE INTEGRAL FABRIC FLAP BY TUCKING IT AROUND THE EDGE OF THE CORE AND SECURING IT. AL PROTRUSIONS, CUT THE CORE AROUND THE PROTRUSION, CUT AN "X" IN THE FABRIC, AND TAPE THE FABRIC AROUND THE PROTRUSION. DIRT AND CONCRETE MUST NOT INFILTRATE THE CORE.
5. CLEANING AND PROTECTION
   A. CLEANING: REMOVE TEMPORARY COVERINGS AND PROTECTION OF ADJACENT WORK AREAS. REPAIR OR REPLACE DAMAGED INSTALLED PRODUCTS. CLEAN INSTALLED PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS PRIOR TO OWNER'S ACCEPTANCE. REMOVE CONSTRUCTION DEBRIS FROM PROJECT SITE AND LEGALLY DISPOSE OF DEBRIS.
   B. PROTECTION: PROTECTION INSTALLED PRODUCTS FINISHED SURFACES FROM DAMAGE DURING CONSTRUCTION.

MANUFACTURER'S INSTALLATION SPECS - MiraClay

1. INSPECTION
   A. EXAMINE SUBSTRATE AND CONDITION UNDER WHICH WATERPROOFING WILL BE INSTALLED. DO NOT PROCEED WITH THE WORK UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
2. SURFACE PREPARATION
   A. LAGGING, CONCRETE CAISSONS, SHOTCRETE OR GUNITE APPLICATIONS:
      1.FILL ALL SPACES THAT ARE OVER 1" (25 mm) IN WIDTH WITH GROUT OR CONCRETE TO A SMOOTH AND UNIFORM SURFACE. COVER LARGE GAPS WITH ½" (12 mm) PLYWOOD OR CCW MIRADRAIN 6000 OR 6000XL.
      2. TROWEL CCW MIRACLAY MASTIC AROUND ALL TIEBACK PLATES AND SOLDIER BEAMS A MINIMUM OF 1 ½" (39 mm) THICK AND EXTEND A MINIMUM OF 4" (10 cm) BEYOND THE FLANGE.
      3. REMOVE PROJECTIONS FROM THE WALL SURFACE IN EXCESS OF ¾" (20 mm).
   B. GRADE SUBSTRATES: SHALL BE LEVEL AND UNIFORM THAT IS COMPACTED TO A MINIMUM OF 85% MODIFIED PROCTOR.
   C. CONCRETE APPLICATION:
      1.APPLY CCW MIRACLAY MASTIC TO ALL CONSTRUCTION JOINTS AT MINIMUM OF ¼" (7 mm) THICKNESS AND 3" (8cm) MINIMUM WIDTH.
      2. REMOVE PROJECTIONS FROM THE WALL SURFACE IN EXCESS OF ¾" (20 mm)
   D. HONEYCOMBING, VOIDS AND AGGREGATE POCKETS EXCEEDING 1" IN DIAMETER OR HAVE A DEPTH GREATER THAN ¾" SHOULD BE FILLED WITH A NON–SHRINK CEMENTITIOUS GROUT. FILL TIE–ROD HOLES WITH A NON–SHRINK CEMENTITIOUS GROUT.
3. INSTALLATION
   A. PREVENT GEOTEXTILE/BENTONITE CLAY WATERPROOFING MEMBRANE FROM HYDRATING BEFORE BEING COVERED WITH OVERBURDEN. WHEN THREAT OF RAIN IS IMMINENT OR BACKFILL IS NOT IMMEDIATE, GEOTEXTILE/BENTONITE CLAY WATERPROOFING MEMBRANE SHOULD BE COVERED WITH POLYETHYLENE SHEETING.
   B. LAGGING APPLICATION
      1. INSTALL A STRIPPING PIECE OF CCW MIRACLAY OVER EACH SOLDIER BEAM THAT EXTENDS A MINIMUM OF 8" (20 cm) BEYOND EITHER SIDE OF THEM. EACH SOLDIER BEAM SHALL HAVE A DOUBLE LAYER OF CCW MIRACLAY MEMBRANE.
      2. INSTALL CCW MIRACLAY WITH THE WHITE NON–WOVEN SIDE OUT, FACING THE INSTALLER.
      3. STARTING AT THE BOTTOM OF THE WALL,ENROLL CCW MIRACLAY AND NAIL ACROSS TOP OF PANEL ONE NAIL PER 12" (31 cm) ON CENTER. ALLOW SHEET TO HANG DOWN, NAILING ONLY AS REQUIRED TO STABILIZE.
      4. INSTALL ADJACENT MEMBRANE BY OVERLAPPING EDGES A MINIMUM OF 4" (10 cm).
      5. FASTEN MEMBRANE ONCE EVERY 18" (45 cm) ON SEAMS OR AS REQUIRED TO PREVENT BLOUSING.
      6. EXTEND WATERPROOFING MEMBRANE TO OR ABOVE GRADE AND FASTEN MEMBRANE ONCE EVERY 12" (30 cm).
      7. INSTALL CCW MIRASTOP AT ALL POURJOINTS AND EXTERIOR PERIMETER OF TIE–BACK BOX OUTS.

   A. UNDERSLAB APPLICATION: (CONCRETE SLAB SHALL HAVE A MINIMUM THICKNESS OF 4" IF REINFORCED OR 5" IF NOT REINFORCED).
      1. INSTALL CCW MIRACLAY WITH THE WHITE NON–WOVEN SIDE UP, FACING THE INSTALLER.
      2. OVERLAP EDGES A MINIMUM OF 4" (10 cm).
      3. PROTECT CCW MIRACLAY FROM DAMAGE CAUSED BY CHAIRS WITH SHARP EDGES OR POINTS BY PLACING A PATCH OF CCW MIRACLAY UNDER THE CHAIR.
      4. STAPLE JOINTS OFTEN ENOUGH TO PREVENT EXCESSIVE MOVEMENT.
      5. POUR CCW MIRACLAY GRANULES OR TROWEL CCW MIRACLAY MASTIC AROUND ALL PENETRATIONS AND PRESS IN " CUT–TO–FIT" COLLARS OF CCW MIRACLAY.
      6. EXTEND THE INSTALLATION OF CCW MIRACLAY 12" (31 cm) UP OR BEYOND THE PERIMETER SLAB FORMS.
      7. INSPECT AND REPAIR ANY DAMAGED MATERIAL BEFORE CONCRETE POUR.

   D. CONCRETE WALL APPLICATION:
      1. INSTALL CCW MIRACLAY WITH THE WHITE NON–WOVEN SIDE OUT, FACING THE INSTALLER.
      2. STARTING AT THE BOTTOM OF THE WALL, UNROLL CCW MIRACLAY AND NAIL ACROSS TOP OF PANEL ONE NAIL PER 12" (31 cm) ON CENTER. ALLOW SHEET TO HANG DOWN NAILING ONLY AS REQUIRED TO STABILIZE.
      3. INSTALL ADJACENT MEMBRANE BY OVERLAPPING EDGES A MINIMUM OF 4" (10 cm).
      4. FASTEN MEMBRANE ONCE EVERY 18" (45 cm) ON SEAMS OR AS REQUIRED TO PREVENT BLOUSING WITH ¾" (20 mm) TO 1" (25 mm) CONCRETE NAILS WITH WASHERS.
      5. EXTEND WATERPROOFING MEMBRANE TO 6" BELOW GRADE AND FASTEN MEMBRANE TO THE SUBSTRATE TO MAINTAIN CONSTANT COMPRESSION USING A ⅛" X 1" (3 X 25 mm) MINIMUM TERMINATION BAR. TROWEL A ½" (12 mm) THICK AND 2" (5 cm) WIDE BEAD OF CCW MIRACLAY MASTIC AT TOP EDGE OF MEMBRANE AND COVER TERMINATION BAR.
      6. CREATE A CANT AT ANY VERTICAL TO HORIZONTAL TRANSITION BY APPLYING A 1.5" TO 2" (4 cm to 5 cm) CANT OF CCW MIRACLAY GRANULES OR CCW MIRACLAY MASTIC.
      7. STRIP IN ALL OUTSIDE CORNERS AND TRANSITIONS WITH A MIN. 12" (30) PIECE OF CCW MIRACLAY MEMBRANE TO DOUBLE COVER THESE AREAS.PLAZA DECKS, PARKING DECKS, AND OTHER SPLIT–SLAB CONSTRUCTION:
      8.MAKE A MIN. 1" CANT AT ALL INSIDE CORNERS WITH CCW MIRACLAY MASTIC.
      9.BACKFILL MUST BE COMPACTABLE SOILS FREE OF CONSTRUCTION DEBRIS AND MUST BE UNIFORMLY COMPACTED TO A MINIMUM 85% MODIFIED PROCTOR DENSITY ON EACH LIFT.
   E. CONCRETE CAISSONS, SHOTCRETE OR GUNITE APPLICATION
      1. CONFORM CCW MIRACLAY TO THE CHANGE IN PLANES.
      2. INSTALL CCW MIRACLAY WITH THE WITE NON–WOVEN SIDE OUT, FACING THE INSTALLER.
      3.STARTING AT THE BOTTOM OF THE WALL, UNROLL CCW MIRACLAY AND NAIL ACROSS TOP OF PANEL ONE NAIL PER 12" (31 cm) ON CENTER. ALLOW SHEET TO HANG DOWN NAILING ONLY AS REQUIRED TO STABILIZE.
      4. INSTALL ADJACENT MEMBRANE BY OVERLAPPING EDGES A MINIMUM OF 4" (10 cm).
      5. FASTEN MEMBRANE ONCE EVERY 12" (30 cm) ON SEAMS OR AS REQUIRED TO PREVENT BLOUSING WITH ¾" (19 mm) TO 1" (25 mm) CONCRETE NAILS WITH 1" (25 mm) WASHERS.
4. SHOTCRETE PLACEMENT
      1. APPLY SHOTCRETE IN STRICT ACCORDANCE WITH ACI 506.2–95 SPECIFICATION FOR SHOTCRETE.
      2. MOISTEN THE MIRACLAY NON–WOVER SURFACE TO IMPROVE ADHESION.
      3. COMMENCE SPRAYING FROM THE BOTTOM TO THE TOP AT A PRESSURE NOT TO VIBRATE OR MOVE THE CCW MIRACLAY.
      4. INSTALL TO THE DESIGNED THICKNESS IN LIFTS NOT TO EXCEED 4 FEET (1.2 m)
      5. PROTECT ADJACENT CCW MIRACLAY FROM OVERSPRAY AND REMOVE REBOUND AND SAND POCKETS.
5. PROTECTION AND DRAINAGE
      1. PROTECT THE GEOTEXTILE/BENTONITE CLAY WATERPROOFING MEMBRANE WITH CCW MIRADRAIN DRAINAGE COMPOSITE.
      2. INSTALL THE CCW MIRADRAIN DRAINAGE COMPOSITE ACCORDING TO THE DETAILED DRAWINGS FOR THE SPECIFIC INSTALLATION REQUIREMENTS OF THE PROJECT.
6. BACKFILL
   BACKFILL WITH SMOOTH AND UNIFORM MATERIAL WITH NO SHARP PROJECTIONS OR STONES LARGER THAN ¾". COMPACT BACKFILL TO AN 85% MODIFIED PROCTOR DENSITY. ENSURE BACKFILL MATERIAL IS NOT CONTAMINATED WITH SALT OR OTHER MATERIALS THAT COULD PREVENT THE CCW MIRACLAY FROM HYDRATING

MANUFACTURER'S INSTALLATION SPECIFICATIONS - MIRIDRI 860/861

1. INSPECTION
   A. BEFORE ANY WATERPROOFING WORK IS STARTED THE WATERPROOFING APPLICATOR SHALL THOROUGHLY EXAMINE ALL SURFACES FOR ANY DEFICIENCIES. SHOULD ANY DEFICIENCIES EXIST, THE ARCHITECT, OWNER, OR GENERAL CONTRACTOR SHALL BE NOTIFIED IN WRITING AND CORRECTIONS MADE.
   B. CONDITION OF CONCRETE SURFACES:
      1. THE CONCRETE SURFACES SHALL BE OF SOUND STRUCTURAL GRADE AND SHALL HAVE A SMOOTH FINISH, FREE OF FINS, RIDGES, PROTRUSIONS, ROUGH SPALLED AREAS, LOOSE AGGREGATE, EXPOSED COURSE AGGREGATE, VOIDS OR ENTRAINED AIR HOLES. ROUGH SURFACES SHALL RECEIVE A WELL–ADHERED PARGET COAT.
      2. CONCRETE SHALL BE CURED BY WATER CURING METHOD. ANY CURING COMPOUNDS MUST BE OF THE PURE SODIUM SILICATE TYPE AND BE APPROVED BY THE CARLISLE REPRESENTATIVE.
      3. CONCRETE SHALL BE CURED AT LEAST 7 DAYS AND SHALL BE SLOPED FOR PROPER DRAINAGE.
      4. VOIDS, ROCK POCKETS AND EXCESSIVELY ROUGH SURFACES SHALL BE REPAIRED WITH APPROVED NON–SHRINK GROUT OR GROUND TO MATCH THE UNREPAIRED AREAS.
      5. TWO–STAGE DRAINS SHALL HAVE A MINIMUM 3 INCH FLANGE AND BE INSTALLED WITH THE FLANGE FLUSH AND LEVEL WITH THE CONCRETE SURFACE.
      6. SURFACES AT COLD JOINTS SHALL BE ON THE SAME PLANE.
2. SURFACE PREPARATION
   A. THE CONCRETE SURFACE MUST BE THOROUGHLY CLEAN, DRY AND FREE FROM ANY SURFACE CONTAMINATES OR CLEANING RESIDUE THAT MAY HARMFULLY AFFECT THE ADHESION OF THE MEMBRANE.
   B. INSTALL A ¾" FACE, 45 DEGREE CANT OF CCW–201 POLYURETHANE SEALANT OR CCW LM–800XL AT ALL CHANGES AND INSIDE CORNERS INCLUDING PENETRATIONS THROUGH THE DECK, WALLS, CURBS, ETC.
   C. ALL CRACKS OVER 1/16" IN WIDTH AND ALL MOVING CRACKS UNDER 1/16" IN WIDTH SHALL BE ROUTED OUT TO ¼" MINIMUM IN WIDTH AND DEPTH AND FILLED FLUSH WITH AN APPROVED SEALANT BY CCW OR CCW–201 POLYURETHANE SEALANT.
   D. ALL EXPANSION JOINTS LESS THAN 1" WIDE SHALL BE CLEANED, PRIMED, FITED, WITH A BACKING ROD AND CAULKED WITH CCW–201 POLYURETHANE SEALANT. FOR LARGER JOINTS, CONTACT CARLISLE REPRESENTATIVE.
   E. ALLOW ALL SEALANT TO CURE AL LEAST OVERNIGHT.
   F. STIR PRIMER. APPLY A THIN FILM OF PRIMER 10" WIDE, CENTERED OVER SEALED CRACKS AND JOINTS, HAIRLINE CRACKS, AND COLD JOINTS. APPLY PRIMER 8" ON EACH SIDE OF ALL CORNERS. PRIME CONCRETE AROUND DRAIN FLANGES. ALLOW PRIMER TO DRY PER MANUFACTURER=S RECOMMENDATIONS.
   G. INSTALL AN 8" WIDE STRIP OF CCW MIRADRI 860/861 CENTERED OVER JOINTS AND CRACKS. INSTALL A 12" WIDE STRIP OF CCW MIRADRI 860/861 CENTERED OVER THE AXIS OF ALL CORNERS.
   H. TERMINATE MEMBRANE AROUND DRAINS PER CCW MIRADRI 860 SERIES DETAILS. TERMINATE THE MEMBRANE UNDER THE CLAMPING RING. SEAL ALL EDGES WITH CCW–704 MASTIC. DO NOT INTERFERE WITH WEEP HOLES.
3. APPLICATION:
   A. PRIMING: CLEAN SURFACES TO REMOVE RESIDUAL DUST BEFORE PRIMING. STIR PRIMER. APPLY BY SPRAY OR ROLLER AT A RATE RECOMMENDED BY MANUFACTURER. ALLOW TO DRY PER MANUFACTURER=S RECOMMENDATION.
   B. HORIZONTAL SURFACES: INSTALL SHEET MEMBRANE FROM LOW TO HIGH POINT, SO THAT LAPS WILL SHED WATER. OVERLAP EDGE SEAMS 2_", END LAPS 5". STAGGER EN SEAMS. ROLL IN PLACE WITH AN 18 TO 24" WIDE, 100 LB. (MIN.) RESILIENT ROLLER. ENSURE THAT ALL LAPS ARE FIRMLY ADHERED AND THAT THERE ARE NO GAPS OR FISHMOUTHS.
   C. VERTICAL SURFACES: APPLY IN LENGTHS OF 8' OR LESS. OVERLAP EDGE SEAMS 2_". ON WALLS OVER 8' HIGH, APPLY IN 8' SECTIONS, STARTING AT THE LOWEST POINT WITH THE HIGHER SECTION OVERLAPPING THE LOWER SECTION 5". ROLL IN PLACE USING FIRM PRESSURE WITH A HAND ROLLER.
   D. TERMINATIONS: CONSULT CARLISLE 860–9 DETAILS FOR PROPER TERMINATIONS. ROLL TERMINATING EDGES FIRMLY. APPLY CCW–704 MASTIC TO ALL TERMINATIONS AND T= JOINTS. APPLY CCW–704 MASTIC OR CCW–703–V LIQUISEAL TO LAPS AT ANGLE CHANGES, EXTENDING 9" IN EACH DIRECTION.
4. FLOOD TEST
   A. AFTER SHEET MEMBRANE HAS BEEN IN PLACE AT LEAST 24 HOURS, PLUG DRAINS AND PROVIDE BARRIERS NECESSARY TO CONTAIN FLOOD WATER. CONSULT WITH STRUCTURAL ENGINEER FOR DECK LOADING LIMITS BEFORE CONDUCTING A WATER TEST.
   B. FLOOD SURFACE WITH 2" HEAD OF WATER FOR 24 HOURS. INSPECT FOR LEAKS AND REPAIR MEMBRANE IF LEAKS ARE FOUND. RETEST AFTER MAKING REPAIRS.
5. PROTECTION COURSE
   A. VERTICAL APPLICATION:
      INSTALL CCW QUICKDRAIN PERIMETER DRAINAGE SYSTEM AS THE FIRST COURSE OF DRAINAGE COMPOSITE IMMEDIATELY AFTER MEMBRANE HAS BEEN INSTALLED ON VERTICAL SURFACES. INSTALL CCW MIRADRAIN DRAINAGE COMPOSITE (CONSULT CCW FOR RECOMMENDATION), CCW PROTECTION BOARD–V PROTECTION COURSE OR CCW 200V ON REMAINDER. STOP DRAINAGE COMPOSITE 6" BELOW FINAL GRADE LEVEL.
   B. HORIZONTAL APPLICATION:
      INSTALL CCW MIRADRAIN DRAINAGE COMPOSITE (CONSULT CCW FOR RECOMMENDATION) OR CCW PROTECTION BOARD–H PROTECTION COURSE OR CCW 300HV IMMEDIATELY AFTER FLOOD TESTING ON HORIZONTAL SURFACES. IF FLOOD TESTING IS DELAYED, INSTALL A TEMPORARY COVERING TO PROTECT THE CCW MIRADRI 860/861 MEMBRANE FROM DAMAGE BY OTHER TRADES.

END OF SECTION.

PREPARED BY OR UNDER DIRECTION OF:
STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER – STEPHEN B. PETER – No. 38623 – Exp. 3/31/25 – CIVIL – STATE OF CALIFORNIA

BY	REVISION	DESCRIPTION	APPROVED	DATE
	1	PCC		20240419
	2	PCC		20240802
	3	PCC		20250220

SCALE: N.A.
ACAD FILE NO. –
PROJECT NO. 21SE21064

DESIGNED: M.E.F. | DRAWN: M.E.F. | CHECKED: S.P

12–12–2023 DATE
STEPHEN PETER

PLANS PREPARED BY:
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WATERPROOFING NOTES

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

SW-1.2

FOUNDATION NOTES

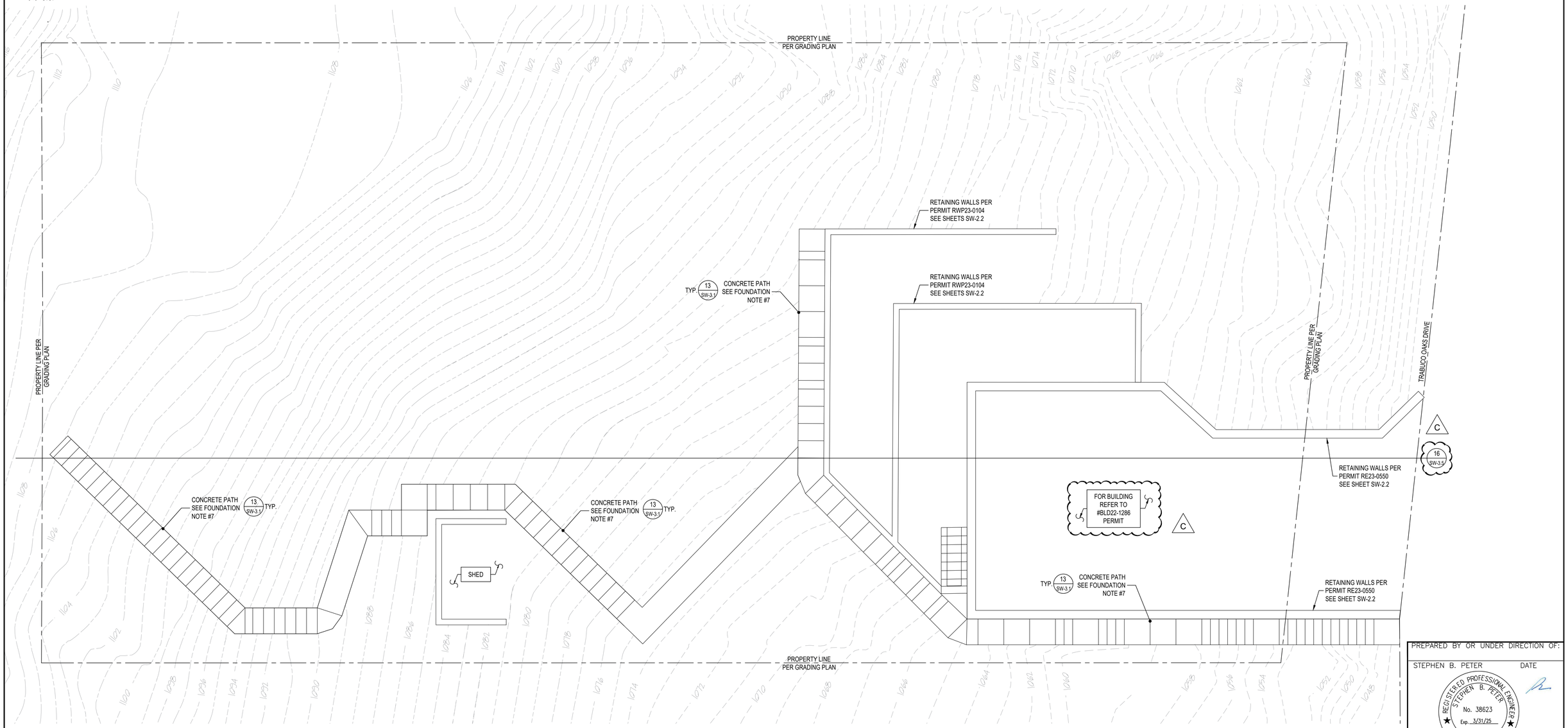
1. ALL CONCRETE SHALL HAVE F'c = 4500 PSI UNLESS NOTED OTHERWISE.
2. CONTRACTOR TO VERIFY ALL DIMENSIONS & ELEVATIONS WITH ARCHITECTURAL PLANS PRIOR TO STARTING ANY WORK.
3. ALL EXCAVATIONS SHALL BE APPROVED BY THE CITY SOILS ENGINEER AND/OR THE ENGINEERING GEOLOGIST PRIOR TO THE PLACEMENT OF REINFORCING STEEL. DOCUMENTATION OF THE APPROVAL SHALL BE LEFT ON SITE FOR THE BUILDING INSPECTOR AT FOUNDATION INSPECTION.
4. SOIL COMPACTION REPORT SHALL BE PROVIDED TO THE BUILDING INSPECTOR AT THE JOB SITE PRIOR TO PLACEMENT OF CONCRETE FOR THE FOUNDATION.
5. SOIL ENGINEER SHALL INSPECT FOUNDATION PRIOR TO PLACEMENT OF CONCRETE FOR THE FOUNDATION.
6. THE SOILS ENGINEER IS TO APPROVE THE KEY OR BOTTOM AND LEAVE A CERTIFICATE ON THE SITE FOR THE GRADING INSPECTOR THE GRADING INSPECTOR IS TO BE NOTIFIED BEFORE ANY GRADING BEGINS AND, FOR BOTTOM INSPECTION, BEFORE FILL IS PLACED. FILL MAY NOT BE PLACED WITHOUT APPROVAL OF THE GRADING INSPECTOR.
7. EXTERIOR CONCRETE SLAB ON GRADE AND STEPS SHALL BE 4" THICK w/ #4 @ 18" O.C. E.W. OVER 4" SAND OR GRAVEL BASE. CONSTRUCTION JOINTS @ 6'-0" O.C.

LEGEND	
▭	INDICATES BUILDING WALLS & RTW's - SEE S-2.1

Colin E. Cunningham

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

PROFESSIONAL GEOLOGIST
COLIN E. CUNNINGHAM
No. EG 2140
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA



CONCRETE STEPS SITE PLAN

SCALE: 3/16" = 1'-0"

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN B. PETER
No. 38623
Exp. 3/31/25
CIVIL
STATE OF CALIFORNIA

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	1	PCC		20240419
	2	PCC		20240802
	3	PCC		20250220

SCALE:	DESIGNED:	DRAWN:	CHECKED:
N.A.	M.E.F.	M.E.F.	S.P
ACAD FILE NO. –			
PROJECT NO. 21SE21064	12–12–2023 DATE		
STEPHEN PETER			

PLANS PREPARED BY:
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CONCRETE STEPS SITE PLAN

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

SW-2.1

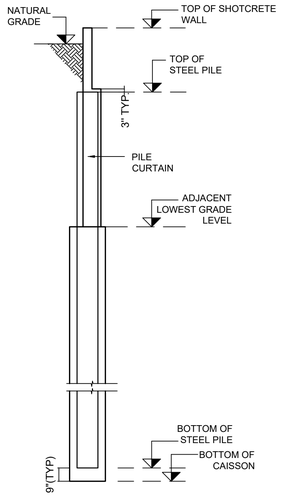
Colin E. Cunningham

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

PROFESSIONAL GEOLOGIST * COLIN E. CUNNINGHAM No. EG 2140 CERTIFIED ENGINEERING GEOLOGIST * STATE OF CALIFORNIA

CONCRETE PILE SCHEDULE										
MARK	DIAMETER	VERTICAL STEEL REINF.	STIRRUPS REINF.	TOP OF CONCRETE WALL - MAXIMUM LEVEL	TOP OF CONCRETE WALL - MINIMUM LEVEL	TOP OF STEEL PILE MAX. LVL[3]	BOTTOM OF CONC. PILE ELEVATION[2]	ADJACENT LOWEST GRADE ELEVATION	ADJACENT HIGHEST GRADE ELEVATION	MIN. EMBED. BELOW BOTTOM OF WALL PER GRADING PLAN	NOTES (SEE BELOW)
P1	30"	W 12x152	N.A.	PER GRADING PLAN	PER GRADING PLAN	PER GRADING PLAN				36.00 Ft	-
P2	30"	W 12x152	N.A.							36.00 Ft	-
P2'	30"	W 12x152	N.A.							36.00 Ft	-
P3	24"	W 12x120	N.A.							36.00 Ft	-
P3'	24"	W 12x120	N.A.							29.00 Ft	-
P4	30"	W 12x152	N.A.							36.00 Ft	-

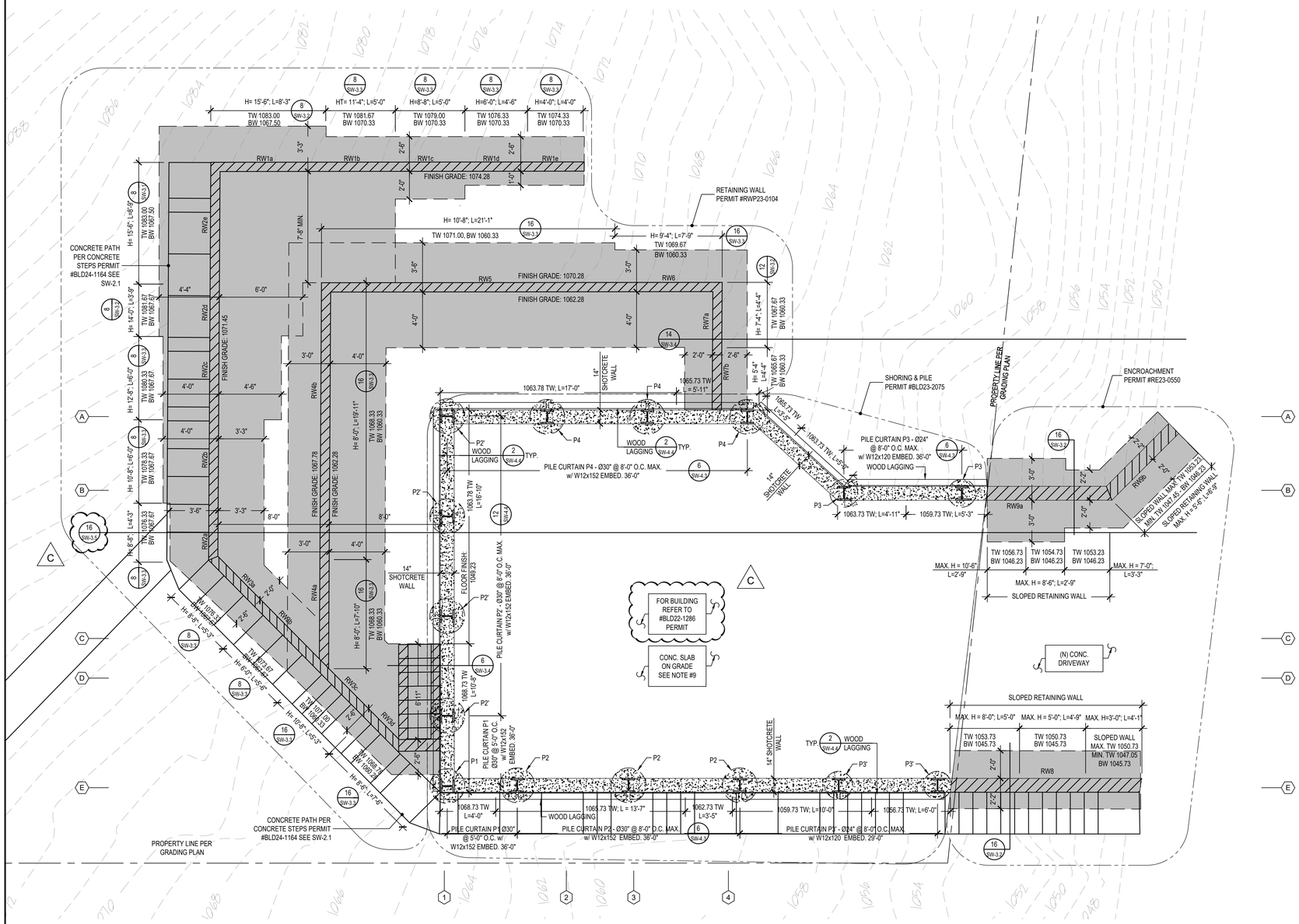
1. REQUIRED RESISTANCE OF CONCRETE PILES SHALL BE f'c = 4500 Psi, DEPUTY INSPECTION REQUIRED.
2. BOTTOM OF PILE ELEVATION MAY BE CHANGE ACCORDING BEDROCK ELEVATION AND FIXITY POINT ELEVATION.
3. TOP OF STEEL PILES 3" BELOW THE TOP OF SHOTCRETE WALL ELEVATION.



FOUNDATION NOTES

1. ALL ANCHOR BOLTS SHALL BE SET IN PLACE BY TEMPLATE PRIOR TO FOUNDATION INSPECTION.
2. ALL FOOTING SHALL HAVE F'c = 4500 PSI UNLESS NOTED OTHERWISE.
3. ALL BOLT HOLES SHALL BE DRILLED A MAXIMUM OF 1/16" OVERSIZED. INSPECTOR TO VERIFY.
4. CONTRACTOR TO VERIFY ALL DIMENSIONS & ELEVATIONS WITH ARCHITECTURAL PLANS PRIOR TO STARTING ANY WORK.
5. ALL EXCAVATIONS SHALL BE APPROVED BY THE CITY SOILS ENGINEER AND/OR THE ENGINEERING GEOLOGIST PRIOR TO THE PLACEMENT OF REINFORCING STEEL. DOCUMENTATION OF THE APPROVAL SHALL BE LEFT ON SITE FOR THE BUILDING INSPECTOR AT FOUNDATION INSPECTION.
6. SOIL COMPACTION REPORT SHALL BE PROVIDED TO THE BUILDING INSPECTOR AT THE JOB SITE PRIOR TO PLACEMENT OF CONCRETE FOR THE FOUNDATION.
7. SOIL ENGINEER SHALL INSPECT FOUNDATION PRIOR TO PLACEMENT OF CONCRETE FOR THE FOUNDATION.
8. THE SOILS ENGINEER IS TO APPROVE THE KEY OR BOTTOM AND LEAVE A CERTIFICATE ON THE SITE FOR THE GRADING INSPECTOR THE GRADING INSPECTOR IS TO BE NOTIFIED BEFORE ANY GRADING BEGINS AND, FOR BOTTOM INSPECTION, BEFORE FILL IS PLACED. FILL MAY NOT BE PLACED WITHOUT APPROVAL OF THE GRADING INSPECTOR.
9. CONCRETE SLAB ON GRADE SHALL BE 4" THICK w/ #4 @ 16" O.C. E.W. OVER A 4-INCH THICK BASE OF 1/2 INCH OR LARGER CLEAN AGGREGATE. A 10MIL VAPOR BARRIER SHALL BE PROVIDED IN DIRECT CONTACT WITH CONCRETE FOR THE PROPOSED SLAB ON GRADE CONSTRUCTION.

LEGEND	
(A)	INDICATES GRID LINE
	INDICATES CMU WALL
	INDICATES SHOTCRETE WALL
	INDICATES (N) FOOTING



RETAINING WALLS & SHORING PLAN

SCALE: 1/4" = 1'-0"

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER * STEPHEN B. PETER * No. 38623 Exp. 3/31/25 CIVIL * STATE OF CALIFORNIA

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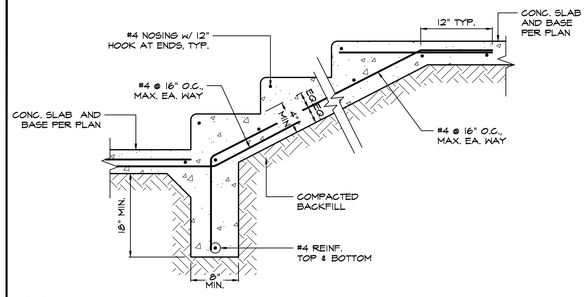
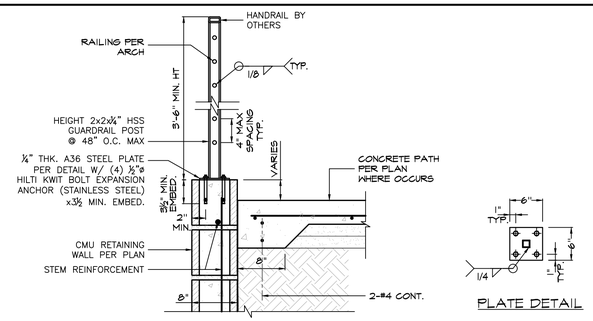
RETAINING WALLS & SHORING PLAN

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

SW-2.2

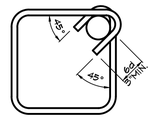


13 CONC. STAIRS ON GRADE

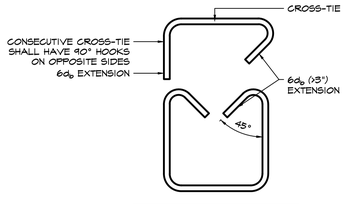


9 GUARDRAIL CONN. DETAIL

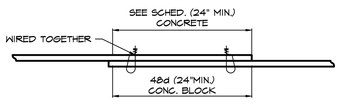
PLATE DETAIL



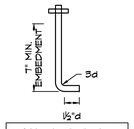
CLOSED TIE



ALTERNATE CLOSED TIE



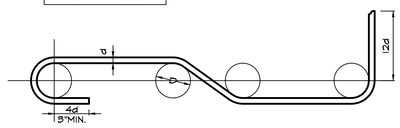
LAP SPLICE



ANCHOR BOLT

STANDARD BEND

D = 6d #3 THROUGH #8
D = 8d #9 THROUGH #11
D = 10d #14 THROUGH #18

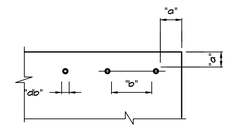


STANDARD HOOK

TENSION LAP SPLICE SCHEDULE

	CLASS B TENSION LAP SPLICE LENGTH						CLASS A DEVELOPMENT LENGTH (ld)						LAP SPLICE (IN.)- DEFORMED BARS - NON SEISMIC TENSION
	2500 PSI CONC f'c		3000 PSI CONC f'c		4000 PSI CONC f'c		2500 PSI CONC f'c		3000 PSI CONC f'c		4000 PSI CONC f'c		
BAR SIZE	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	MANSORY f'c 1500
3"	31	24	28	22	24	19	24	19	22	17	19	15	24
4"	41	32	37	29	32	25	32	24	29	22	25	19	48
5"	52	40	47	36	40	31	39	31	36	28	31	24	60
6"	61	47	56	43	48	37	47	36	43	33	37	29	72
7"	89	69	81	63	70	54	69	53	63	48	54	42	84
8"	102	79	93	72	80	62	79	60	72	55	62	48	96
9"	115	89	105	81	91	70	89	68	81	62	70	54	108
10"	129	100	118	91	102	79	100	77	91	70	79	61	122
11"	144	111	131	101	113	87	111	85	101	78	87	67	135

15 TYP. SPLICE DETAIL



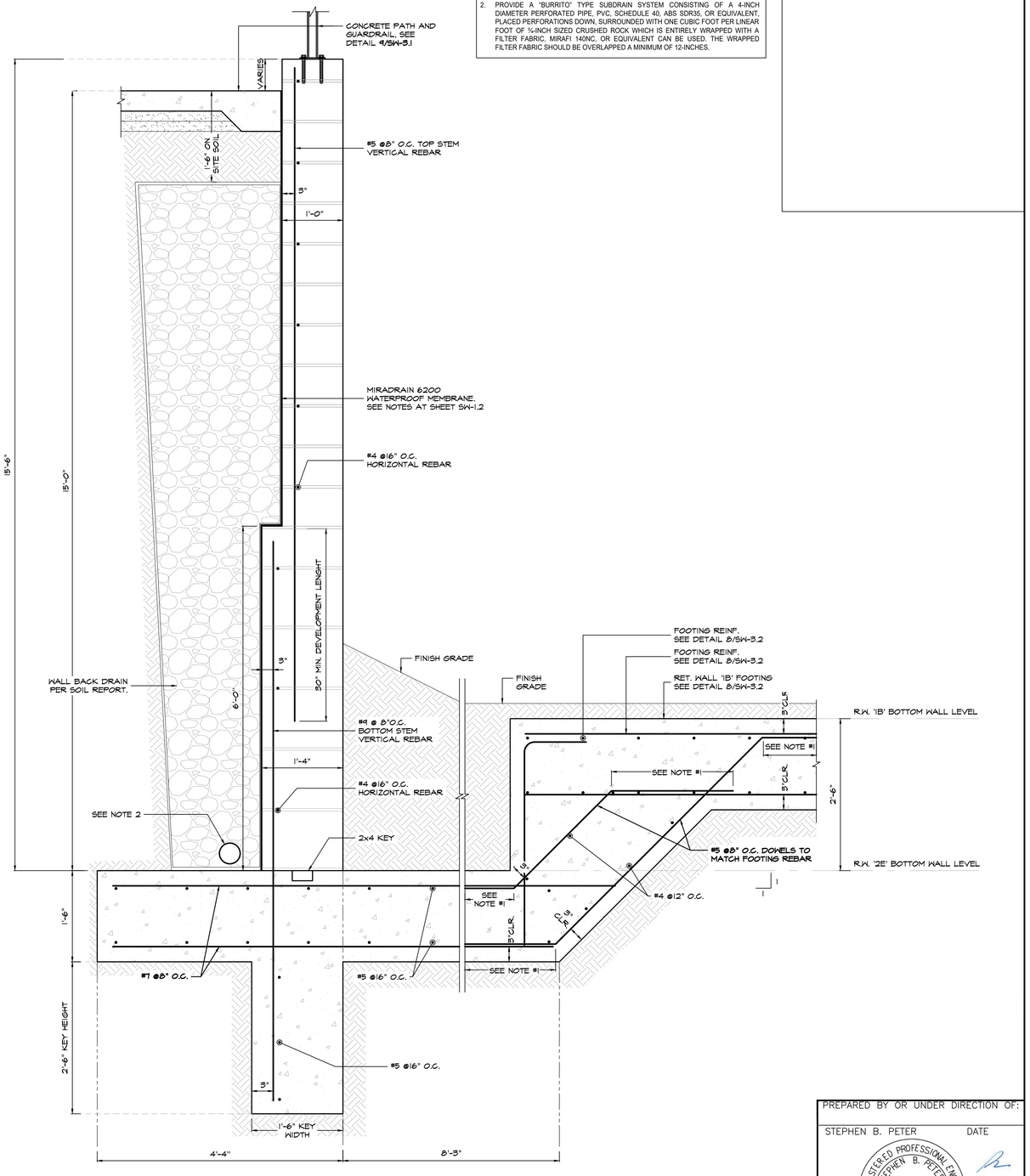
WHERE: "a" IS THE CLEAR COVER
"b" IS THE CLEAR SPACING
"db" IS THE BAR DIA.

NOTES:
1. ALL SPLICES SHALL BE CLASS B TENSION LAP SPLICES U.N.O.
2. LENGTHS SHOWN ARE FOR GRADE 60 UNCOATED BARS.
3. LENGTHS SHOWN ARE IN INCHES.
4. INCREASE LENGTHS 30% FOR LIGHT WEIGHT CONC. & AT FOUR BAR BUNDLES (WHERE 2 BARS LAP WITH 2 OTHER BARS) INDIVIDUAL BARS WITHIN A BUNDLE SHALL NOT OVERLAP.
5. TOP BARS - HORIZONTAL BARS PLACED WITH MORE THAN 12" OF FRESH CONC. CAST BELOW THEM.
6. INCREASE LENGTHS 50% WHERE α < db OR WHERE b < db FOR BEAMS & COLS OR WHERE b < 2db FOR OTHER ELEMENTS.
7. FOR #14 & #18 BARS, USE MECHANICAL SPLICE IN ACCORDANCE WITH CBC REQUIREMENTS.

16 NOT USED

12 NOT USED

NOTES:
1. FOR REBAR LAP SPLICES SCHEDULE SEE DETAIL 15 ON SHEET SW-3.1.
2. PROVIDE A "BURRITO" TYPE SUBDRAIN SYSTEM CONSISTING OF A 4-INCH DIAMETER PERFORATED PIPE, PVC, SCHEDULE 40, ABS SDR35, OR EQUIVALENT, PLACED PERFORATIONS DOWN, SURROUNDED WITH ONE CUBIC FOOT PER LINEAR FOOT OF ½-INCH SIZED CRUSHED ROCK WHICH IS ENTIRELY WRAPPED WITH A FILTER FABRIC, MIRAFI 140NC, OR EQUIVALENT CAN BE USED. THE WRAPPED FILTER FABRIC SHOULD BE OVERLAPPED A MINIMUM OF 12-INCHES.



8 RETAINING WALL #2e DETAIL

PREPARED BY OR UNDER DIRECTION OF:
STEPHEN B. PETER DATE
REGISTERED PROFESSIONAL ENGINEER STEPHEN B. PETER No. 38623 Exp. 3/31/25 CIVIL STATE OF CALIFORNIA

BY	REVISION	DESCRIPTION	APPROVED	DATE
	1	PCC		20240419
	2	PCC		20240802
	3	PCC		20250220

SCALE: N.A.
ACAD FILE NO. –
PROJECT NO. 21SE21064

DESIGNED: M.E.F. | DRAWN: M.E.F. | CHECKED: S.P

12-12-2023 DATE
STEPHEN PETER

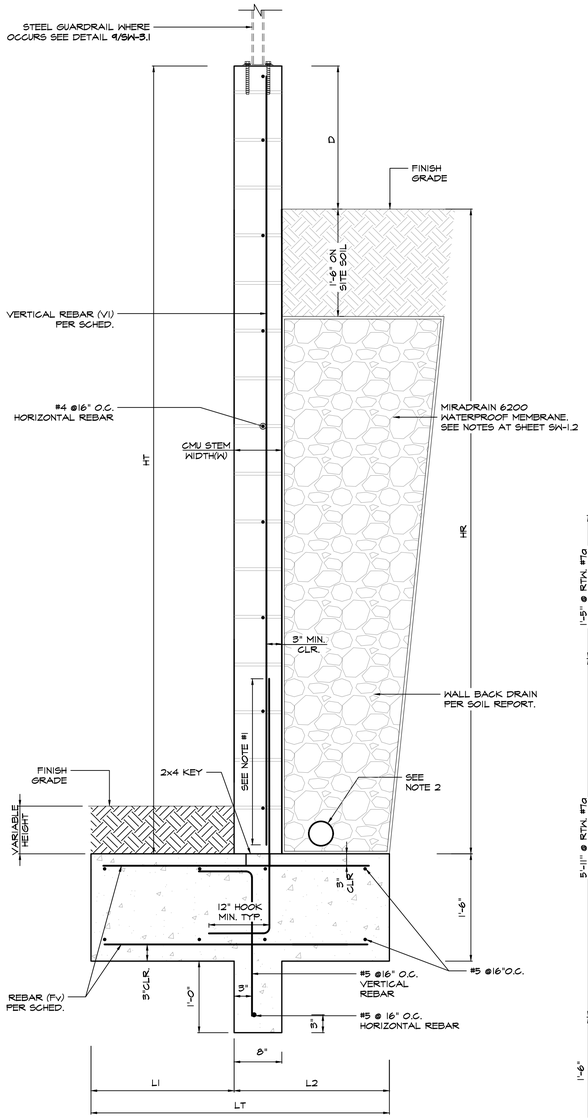
PLANS PREPARED BY:
PETER and ASSOCIATES ENGINEERS GEOLOGISTS & SURVEYORS, INC.
WWW.PETERASSOC.COM
1519 CALLE VALLE, SAN CLEMENTE, CA. 92672
Tel: (949) 492-3735 Fax: (949) 492-1891

FOUNDATION & RETAINING WALL DETAILS

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

SW-3.1

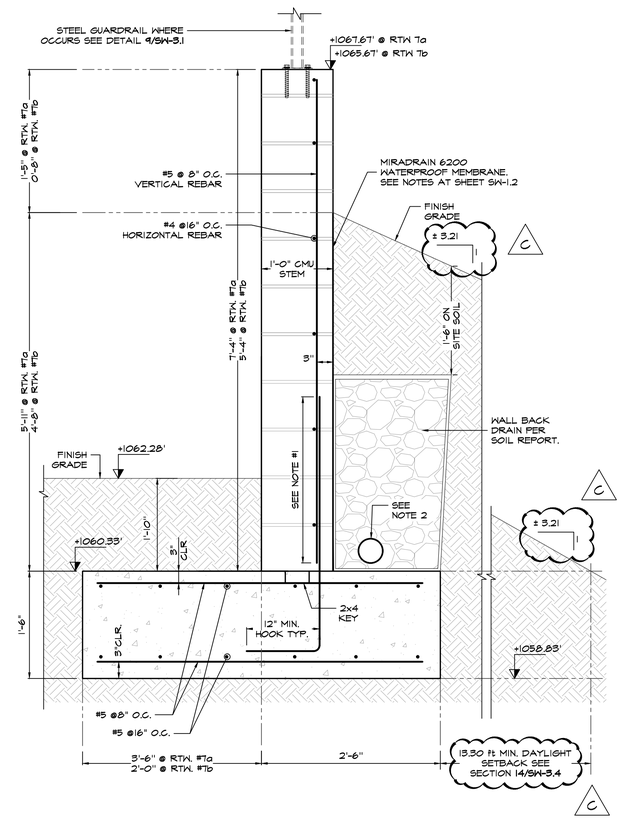
NOTES:
1. FOR REBAR LAP SPLICES SCHEDULE SEE DETAIL 15 ON SHEET SW-3.1.
2. PROVIDE A "BURRITO" TYPE SUBDRAIN SYSTEM CONSISTING OF A 4-INCH DIAMETER PERFORATED PIPE, PVC, SCHEDULE 40, ABS SDR35, OR EQUIVALENT, PLACED PERFORATIONS DOWN, SURROUNDED WITH ONE CUBIC FOOT PER LINEAR FOOT OF ¾-INCH SIZED CRUSHED ROCK WHICH IS ENTIRELY WRAPPED WITH A FILTER FABRIC, MIRAFI 140NC, OR EQUIVALENT CAN BE USED. THE WRAPPED FILTER FABRIC SHOULD BE OVERLAPPED A MINIMUM OF 12-INCHES.



R.W.#	W	HT	HR	D	L1	L2	LT	V1	Fv
R.W.8	8"	8'-0"	7'-3"	0'-9"	2'-0"	2'-2"	4'-2"	#5 @ 8"O.C.	#5 @ 8"O.C.
R.W.9a	10"	10'-6"	9'-9"	0'-9"	3'-0"	3'-0"	6'-0"	#6 @ 8"O.C.	#5 @ 8"O.C.
R.W.9b	8"	7'-0"	6'-9"	0'-3"	2'-0"	2'-2"	4'-2"	#5 @ 8"O.C.	#5 @ 8"O.C.

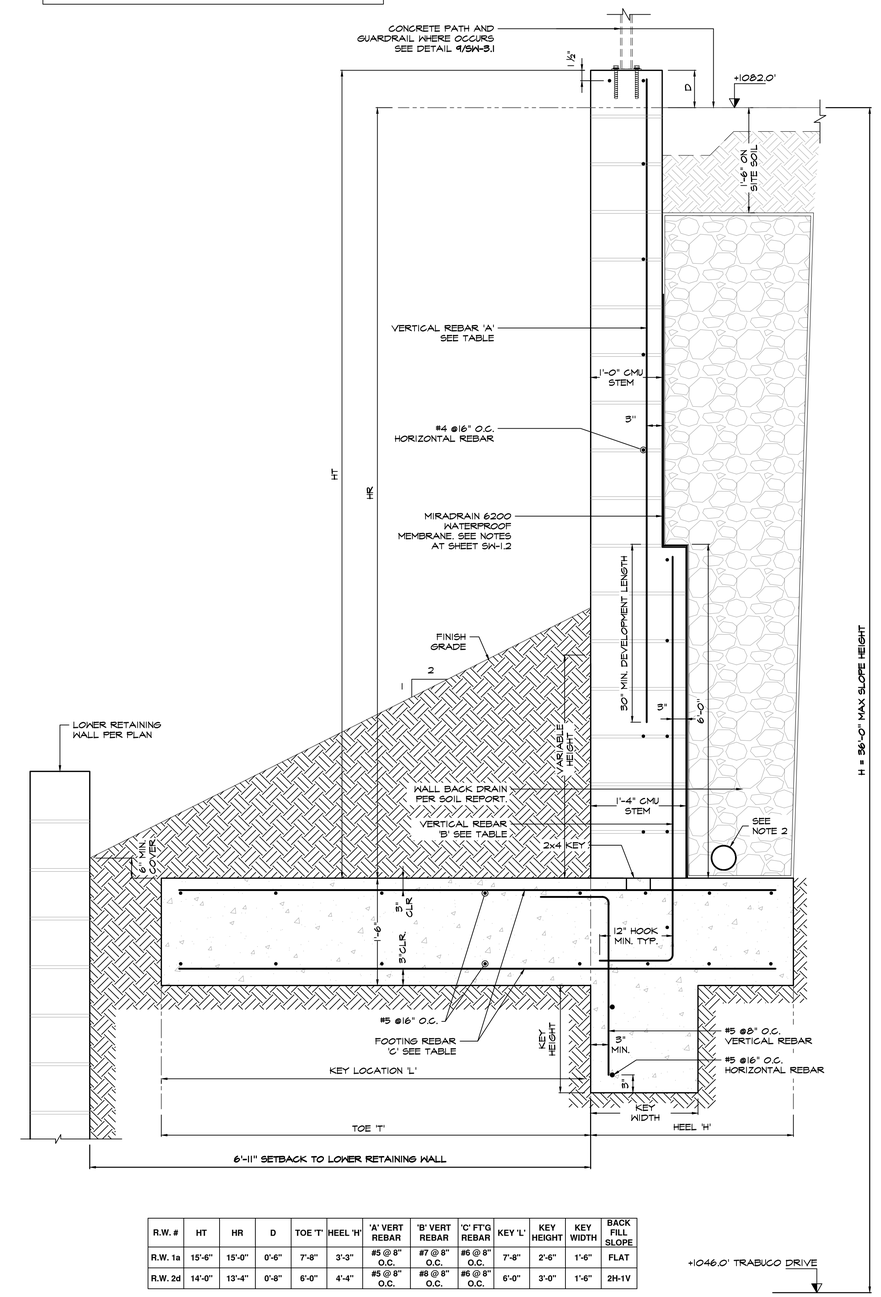
16 RETAINING WALL #8 & #9

NOTES:
1. FOR REBAR LAP SPLICES SCHEDULE SEE DETAIL 15 ON SHEET SW-3.1.
2. PROVIDE A "BURRITO" TYPE SUBDRAIN SYSTEM CONSISTING OF A 4-INCH DIAMETER PERFORATED PIPE, PVC, SCHEDULE 40, ABS SDR35, OR EQUIVALENT, PLACED PERFORATIONS DOWN, SURROUNDED WITH ONE CUBIC FOOT PER LINEAR FOOT OF ¾-INCH SIZED CRUSHED ROCK WHICH IS ENTIRELY WRAPPED WITH A FILTER FABRIC, MIRAFI 140NC, OR EQUIVALENT CAN BE USED. THE WRAPPED FILTER FABRIC SHOULD BE OVERLAPPED A MINIMUM OF 12-INCHES.



12 RETAINING WALL #7a & #7b

NOTES:
1. FOR REBAR LAP SPLICES SCHEDULE SEE DETAIL 15 ON SHEET SW-3.1.
2. PROVIDE A "BURRITO" TYPE SUBDRAIN SYSTEM CONSISTING OF A 4-INCH DIAMETER PERFORATED PIPE, PVC, SCHEDULE 40, ABS SDR35, OR EQUIVALENT, PLACED PERFORATIONS DOWN, SURROUNDED WITH ONE CUBIC FOOT PER LINEAR FOOT OF ¾-INCH SIZED CRUSHED ROCK WHICH IS ENTIRELY WRAPPED WITH A FILTER FABRIC, MIRAFI 140NC, OR EQUIVALENT CAN BE USED. THE WRAPPED FILTER FABRIC SHOULD BE OVERLAPPED A MINIMUM OF 12-INCHES.



R.W. #	HT	HR	D	TOE 'T'	HEEL 'H'	'A' VERT REBAR	'B' VERT REBAR	'C' FTG REBAR	KEY 'L'	KEY HEIGHT	KEY WIDTH	BACK FILL SLOPE
R.W. 1a	15'-6"	15'-0"	0'-6"	7'-8"	3'-3"	#5 @ 8" O.C.	#7 @ 8" O.C.	#6 @ 8" O.C.	7'-8"	2'-6"	1'-6"	FLAT
R.W. 2d	14'-0"	13'-4"	0'-8"	6'-0"	4'-4"	#5 @ 8" O.C.	#8 @ 8" O.C.	#6 @ 8" O.C.	6'-0"	3'-0"	1'-6"	2H-1V

8 RETAINING WALL DETAIL

PREPARED BY OR UNDER DIRECTION OF:
STEPHEN B. PETER DATE
REGISTERED PROFESSIONAL ENGINEER STEPHEN B. PETER No. 38623 Exp. 3/31/25 CIVIL STATE OF CALIFORNIA

BY	REVISION	DESCRIPTION	APPROVED	DATE
	3	PCC		20240419
	4	PCC		20240802
	5	PCC		20250220

SCALE: N.A.
ACAD FILE NO. –
PROJECT NO. 21SE21064

DESIGNED:	DRAWN:	CHECKED:
M.E.F.	M.E.F.	S.P

12-12-2023 DATE
STEPHEN PETER

PLANS PREPARED BY:
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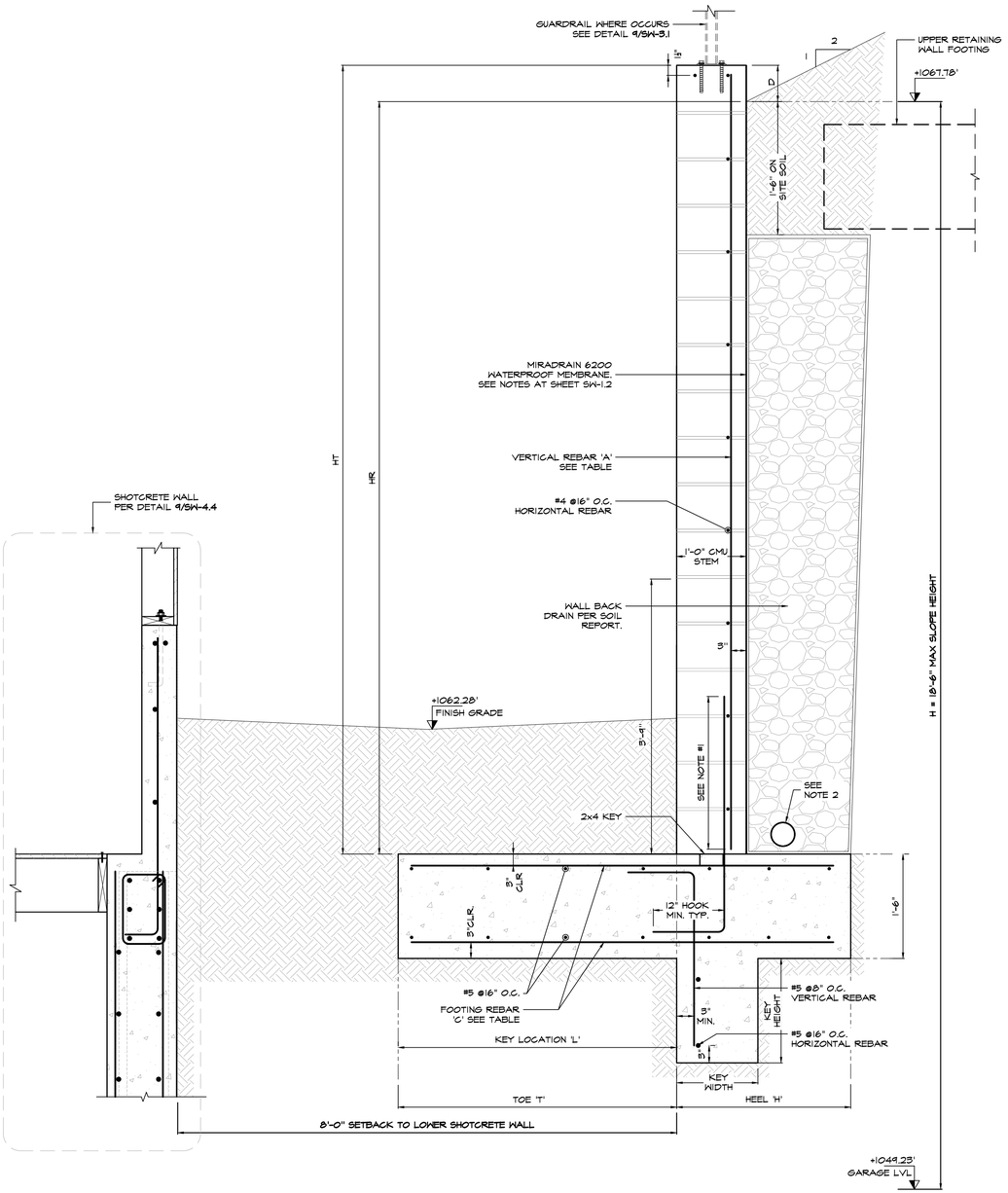
FOUNDATION & RETAINING WALL DETAILS

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

SW-3.2

R.W. #	HT	HR	D	TOE 'T'	HEEL 'H'	'A' VERT REBAR	'C' FT'G REBAR	KEY 'L'	KEY HEIGHT	KEY WIDTH	BACK FILL SLOPE
R.W. 3c	10'-8"	10'-0"	0'-8"	4'-0"	2'-6"	#6 @ 8" O.C.	#6 @ 8" O.C.	4'-0"	1'-6"	1'-0"	FLAT
R.W. 3d	8'-6"	8'-3"	0'-3"	4'-0"	2'-6"	#6 @ 8" O.C.	#6 @ 8" O.C.	4'-0"	1'-6"	1'-0"	FLAT
R.W. 4a	8'-1"	7'-6"	0'-7"	4'-0"	3'-0"	#6 @ 8" O.C.	#6 @ 8" O.C.	4'-0"	1'-6"	1'-0"	2H-1V
R.W. 4b	8'-1"	7'-6"	0'-7"	4'-0"	3'-0"	#6 @ 8" O.C.	#6 @ 8" O.C.	4'-0"	1'-6"	1'-0"	2H-1V
R.W. 5	10'-8"	10'-0"	0'-8"	4'-0"	3'-6"	#6 @ 8" O.C.	#6 @ 8" O.C.	4'-0"	2'-6"	1'-0"	2H-1V
R.W. 6	9'-4"	8'-8"	0'-8"	4'-0"	3'-0"	#6 @ 8" O.C.	#6 @ 8" O.C.	4'-0"	2'-0"	1'-0"	2H-1V

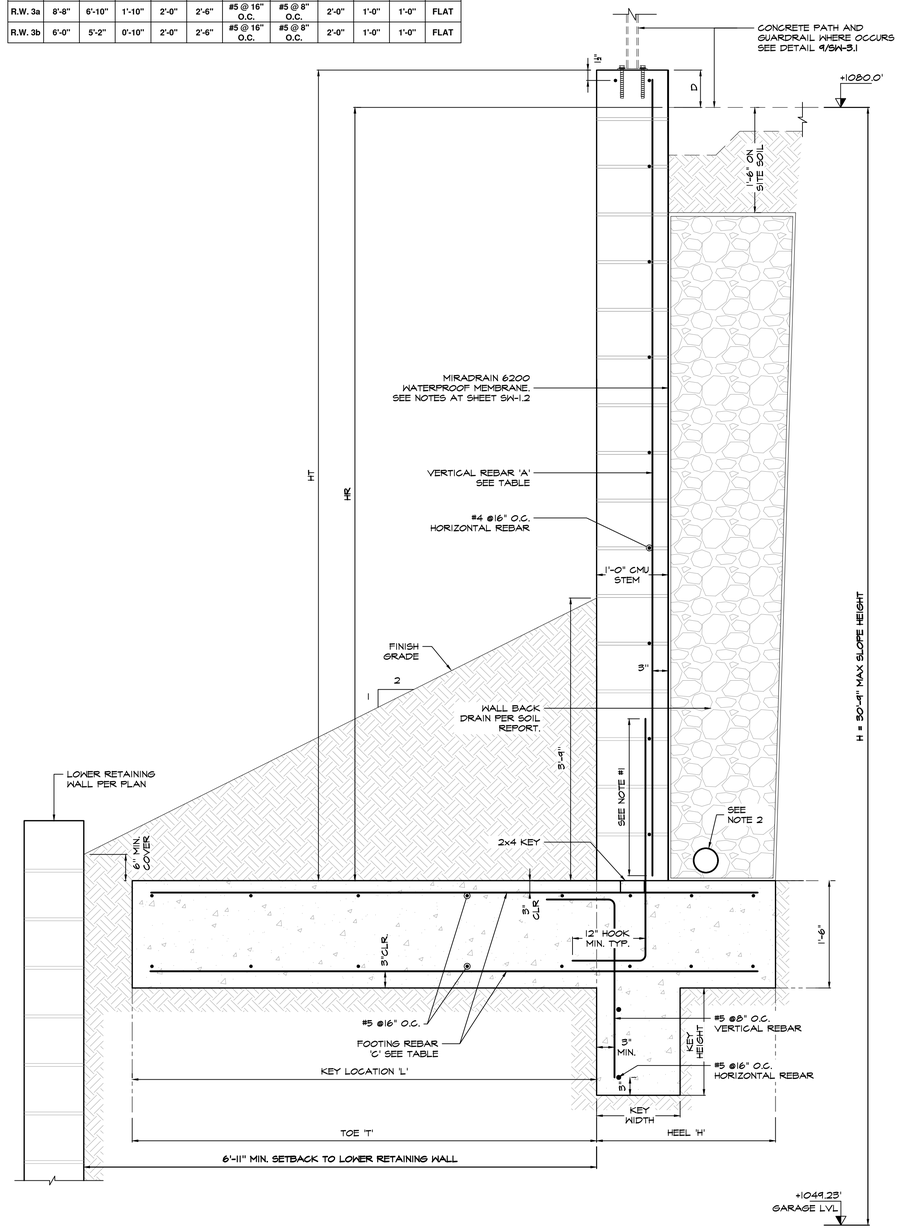
NOTES:
1. FOR REBAR LAP SPLICES SCHEDULE SEE DETAIL 15 ON SHEET SW-3.1.
2. PROVIDE A "BURRITO" TYPE SUBDRAIN SYSTEM CONSISTING OF A 4-INCH DIAMETER PERFORATED PIPE, PVC, SCHEDULE 40, ABS SDR35, OR EQUIVALENT, PLACED PERFORATIONS DOWN, SURROUNDED WITH ONE CUBIC FOOT PER LINEAR FOOT OF ¾-INCH SIZED CRUSHED ROCK WHICH IS ENTIRELY WRAPPED WITH A FILTER FABRIC, MIRAFI 140NC, OR EQUIVALENT CAN BE USED. THE WRAPPED FILTER FABRIC SHOULD BE OVERLAPPED A MINIMUM OF 12-INCHES.



16 RETAINING WALL DETAIL

R.W. #	HT	HR	D	TOE 'T'	HEEL 'H'	'A' VERT REBAR	'C' FT'G REBAR	KEY 'L'	KEY HEIGHT	KEY WIDTH	BACK FILL SLOPE
R.W. 1b	11'-4"	9'-4"	2'-0"	7'-8"	2'-6"	#5 @ 8" O.C.	#5 @ 8" O.C.	7'-8"	1'-3"	1'-0"	FLAT
R.W. 1c	8'-8"	7'-4"	1'-4"	2'-0"	2'-6"	#5 @ 16" O.C.	#5 @ 8" O.C.	2'-0"	1'-0"	1'-0"	FLAT
R.W. 1d	6'-0"	5'-0"	1'-0"	1'-0"	2'-6"	#5 @ 16" O.C.	#5 @ 8" O.C.	1'-0"	1'-0"	1'-0"	FLAT
R.W. 1e	4'-0"	3'-8"	0'-4"	1'-0"	2'-6"	#5 @ 16" O.C.	#5 @ 8" O.C.	1'-0"	1'-0"	1'-0"	FLAT
R.W. 2a	8'-8"	7'-9"	0'-11"	3'-3"	3'-6"	#5 @ 8" O.C.	#5 @ 8" O.C.	3'-3"	1'-6"	1'-0"	2H-1V
R.W. 2b	10'-8"	9'-4"	1'-4"	3'-3"	4'-0"	#6 @ 8" O.C.	#5 @ 8" O.C.	3'-3"	2'-0"	1'-0"	2H-1V
R.W. 2c	12'-8"	12'-0"	0'-8"	4'-6"	4'-0"	#8 @ 8" O.C.	#6 @ 8" O.C.	4'-6"	2'-6"	1'-2"	2H-1V
R.W. 3a	8'-8"	6'-10"	1'-10"	2'-0"	2'-6"	#5 @ 16" O.C.	#5 @ 8" O.C.	2'-0"	1'-0"	1'-0"	FLAT
R.W. 3b	6'-0"	5'-2"	0'-10"	2'-0"	2'-6"	#5 @ 16" O.C.	#5 @ 8" O.C.	2'-0"	1'-0"	1'-0"	FLAT

NOTES:
1. FOR REBAR LAP SPLICES SCHEDULE SEE DETAIL 15 ON SHEET SW-3.1.
2. PROVIDE A "BURRITO" TYPE SUBDRAIN SYSTEM CONSISTING OF A 4-INCH DIAMETER PERFORATED PIPE, PVC, SCHEDULE 40, ABS SDR35, OR EQUIVALENT, PLACED PERFORATIONS DOWN, SURROUNDED WITH ONE CUBIC FOOT PER LINEAR FOOT OF ¾-INCH SIZED CRUSHED ROCK WHICH IS ENTIRELY WRAPPED WITH A FILTER FABRIC, MIRAFI 140NC, OR EQUIVALENT CAN BE USED. THE WRAPPED FILTER FABRIC SHOULD BE OVERLAPPED A MINIMUM OF 12-INCHES.



8 RETAINING WALL DETAIL

PREPARED BY OR UNDER DIRECTION OF:
STEPHEN B. PETER DATE
REGISTERED PROFESSIONAL ENGINEER STEPHEN B. PETER No. 38623 Exp. 3/31/25 CIVIL STATE OF CALIFORNIA

BY	REVISION	DESCRIPTION	APPROVED	DATE
	1	PCC		20240419
	2	PCC		20240802
	3	PCC		20250220

SCALE: N.A.
ACAD FILE NO. –
PROJECT NO. 21SE21064

DESIGNED:	DRAWN:	CHECKED:
M.E.F.	M.E.F.	S.P

12-12-2023 DATE
STEPHEN PETER

PLANS PREPARED BY:
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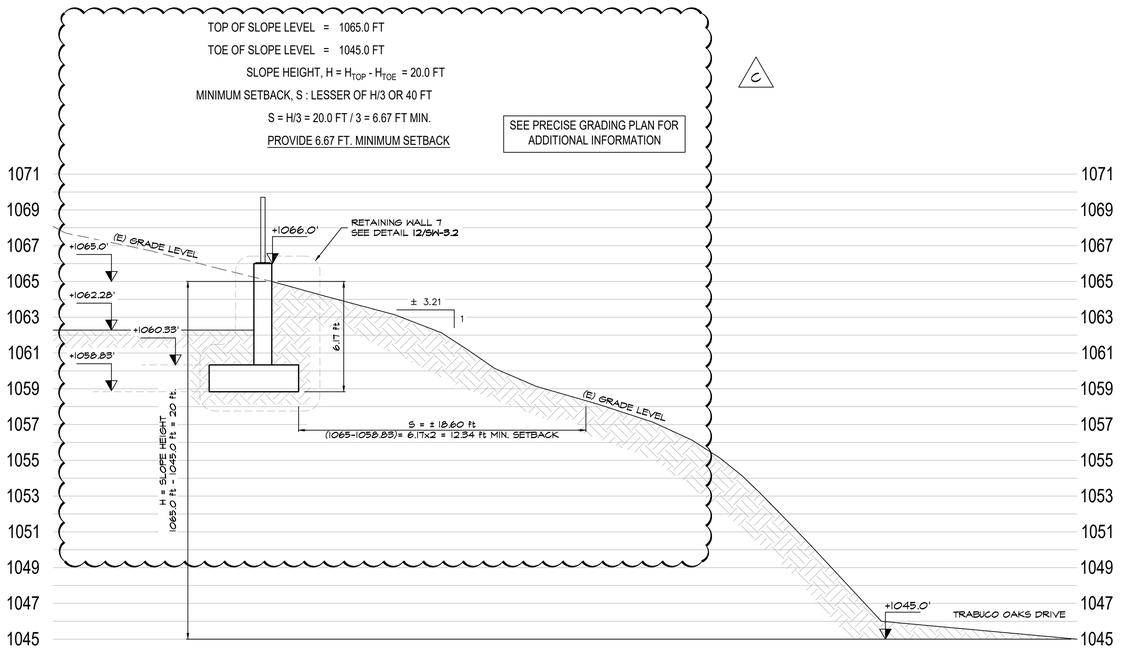
Tel: (949) 492-3735 Fax: (949) 492-1891

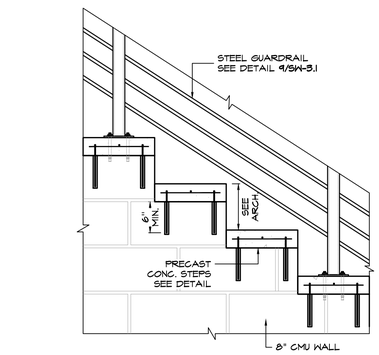
FOUNDATION & RETAINING WALL DETAILS

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

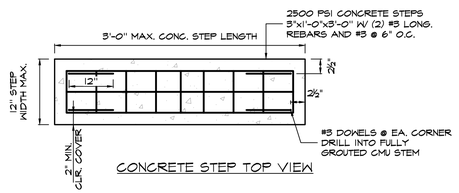
SW-3.3



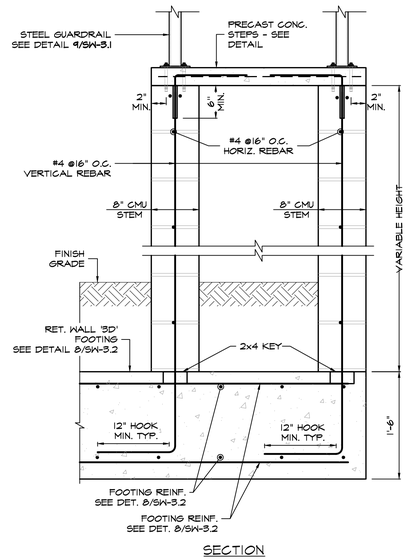
14 SETBACK AND SLOPE HEIGHT DETAILS



SIDE VIEW



CONCRETE STEP TOP VIEW



SECTION

6 CMU WALLS & CONCRETE STAIR DETAIL

15 NOT USED

11 NOT USED

7 NOT USED

3 NOT USED

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

PROFESSIONAL GEOLOGIST · COLIN E. CUNNINGHAM No. EG 2140 CERTIFIED ENGINEERING GEOLOGIST · STATE OF CALIFORNIA

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER · STEPHEN B. PETER · No. 38623 · Exp. 3/31/25 · CIVIL · STATE OF CALIFORNIA

C

16 NOT USED

12 NOT USED

8 NOT USED

4 NOT USED

BY	REVISION	DESCRIPTION	APPROVED	DATE
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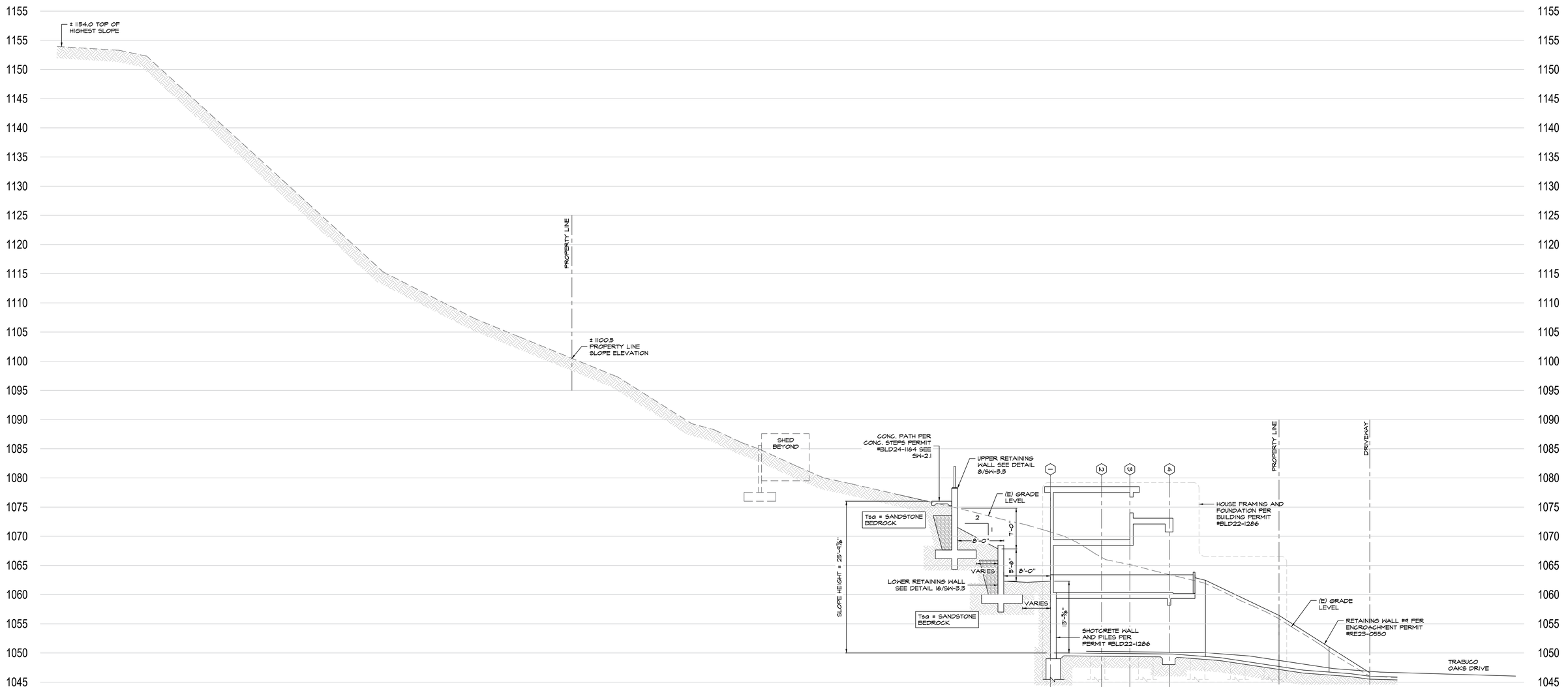
FOUNDATION & RETAINING WALL DETAILS

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

SW-3.4

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

PROFESSIONAL GEOLOGIST
COLIN E. CUNNINGHAM
No. EG 2140
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA



PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN B. PETER
No. 38623
Exp. 3/31/25
CIVIL
STATE OF CALIFORNIA

16

CROSS SECTION

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FOUNDATION & RETAINING WALL DETAILS

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

U

SW-3.5

MANUFACTURER'S INSTALLATION SPECIFICATIONS - MiraDRAIN

1. EXAMINATION
   A. SITE VERIFICATION OF CONDITIONS: VERIFY SUBSTRATE CONDITIONS (WHICH HAVE BEEN PREVIOUSLY INSTALLED UNDER OTHER SECTIONS) AREA ACCEPTABLE FOR PRODUCT INSTALLATION IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. DO NOT PROCEED WITH DRAINAGE INSTALLATION UNTIL SUBSTRATE CONDITIONS ARE ACCEPTABLE FOR COMPLIANCE WITH MANUFACTURE'S WARRANTY REQUIREMENTS.
2. PREPARATION
   A. ADJACENT SURFACES PROTECTION: PROTECT ADJACENT WORK AREAS AND FINISH SURFACES FROM DAMAGE DURING INSTALLATION OPERATIONS.
   B. CONCRETE SURFACE PREPARATION: PREPARE CONCRETE SURFACES TO RECEIVE DRAINAGE COMPOSITE. SURFACES SHALL BE SMOOTH, FREE OF DEPRESSIONS, VOIDS, PROTRUSIONS, CLEAN AND FREE OF OTHER SURFACE CONTAMINANTS THAT MAY IMPAIR THE PERFORMANCE OF DRAINAGE AND MANUFACTURER'S WARRANTY REQUIREMENTS.
      1. CAST–IN PLACE CONCRETES: DECKS SHALL BE MONOLITHIC, SMOOTH, FREE OF VOIDS, SPALLED AREAS, LAITENANCE, HONEYCOMBS, AND SHARP PROTRUSIONS. **REFER TO DIVISION 3 CONCRETE SECTION FOR CONCRETE STRENGTH, DENSITY, FINISH, CURING METHODS AND OTHER CONCRETE REQUIREMENTS.**
      2. PRECAST CONCRETE DECKS: DECKS SHALL BE MECHANICALLY SECURED TO MINIMIZE DIFFERENTIAL MOVEMENT AND EACH JOINT BETWEEN PRECAST UNITS SHALL HAVE AN INSTALLED BACKER ROD. GROUT PRECAST UNITS AS RECOMMENDED BY MANUFACTURER.
      3. SHOTCRETE: SURFACE SHALL BE MONOLITHIC AND SMOOTH WITH NO UNDULATIONS, IRREGULARITIES OR EXPOSED WIRE MESH.
   C. SUBSTRATE CLEANING: CLEAN SUBSTRATE THAT IS TO RECEIVE DRAINAGE. REMOVE LOOSE DEBRIS AND OTHER HARMFUL CONTAMINANTS THAT WILL AFFECT PERFORMANCE OF DRAINAGE COMPOSITE.
3. DRAINAGE COURSE INSTALLATION
   A. VERTICAL SURFACES: CCW MIRADRAIN 2000, 5000, 6000/6200, 6000/6200XL, MIRADRAIN HC; OR PLANTERS: CCW MIRADRAIN 9800, GR9200.
      1. COMPLETED WALLS: POSITION THE PANEL WITH THE FLAT SIDE AGAINST THE WALL AND FILTER FABRIC TOWARD THE SOIL/DRAINAGE SIDE. CCW DRAIN GRIP CONTACT ADHESIVE OR A WASHER HEADED CONCRETE NAIL MAY BE USED TO ATTACH THE PANEL AGAINST THE CONCRETE WALL. OVER CCW WATERPROOFING MEMBRANE: PLACE THE CCW MIRADRAIN OVER THE WATERPROOFING MEMBRANE.
      2. SHORING SYSTEMS OR VERTICAL SOIL EXCAVATIONS: POSITION THE PANEL WITH THE FABRIC FACING THE SHORING OR SOIL. NAILS OF SUFFIGIENT LENGTH SHOULD BE USED TO PIN THE PANEL DIRECTLY AGAINST THE SHORING OR SOIL. THE FABRIC SHOULD LAY FLAT AGAINST THE SHORING OR SOIL TO MINIMIZE VOIDS. CONCRETE OR SHOTCRETE MAY BE PLACED DIRECTLY AGAINST THE BACKSIDE OF THE CCW MIRADRAIN.
      3.BUTTRESS DRAINAGE AND LANDSLIDE REPAIR: CCW MIRADRAIN SHOULD BE ROLLED OUT FABRIC SIDE DOWN ONTO THE PROPERLY PREPARED SUBGRADE. A "CHIMNEY" DRAIN TYPE DRAIN PATTERN SHOULD BE FORMED.
      a. **SPACING BETWEEN CCW MIRADRAIN CHIMNEY DRAINS WILL BE DICTATED BY THE ENGINEER. CHIMNEY DRAINS SHOULD BE CONNECTED TO THE CONTINUOUS HORIZONTAL COLLECTOR PANEL BY OVERLAPPING A MINIMUM OF 12" (30 cm) INTO THE COLLECTOR PANEL.**
      b. CCW MIRADRAIN PANELS MAY BE SECURED TO THE SUBGRADE BY BALLASTING WITH SOIL OR NAILING THROUGH THE CCW MIRADRAIN PANEL INTO THE UNDERLYING HILLSIDE. FABRIC FLAPS MUST BE FOLDED OVER ONTO THE CORE AND SECURED WITH DUCT TAPE OR SOIL BALLAST.
      4.EDGE DRAIN OR TRENCH DRAIN:
      a. CCW MIRADRAIN SHOULD BE LAID OUT IN 50 TO 500 FOOT LENGTHS ADJACENT TO THE PREVIOUSLY CUT/EXCAVATED TRENCH.
      b. PANEL END LAPS MAY BE CONNECTED BY OVERLAPPING THE PANELS AND APPLYING LOCKING CLIPS OR BUTTONING OF THE DIMPLES. FLEXIBLE, CORRUGATED POLYETHYLENE OR RIGID PVC PIPE, WHICH HAS BEEN WRAPPED WITH FILTER FABRIC, SHOULD BE PLACED IN THE BOTTOM OF THE TRENCH. **THE CCW MIRADRAIN PANEL SHOULD BE LOWERED INTO THE TRENCH BESIDE THE PIPE AND TEMPORARILY SECURED TO THE TRENCH WALL BY NAILING OR PROPPING.** THE FABRIC SIDE OF THE PALE MUST FACE THE DIRECTION FROM WHICH THE WATER IS FLOWING. FABRIC OVERLAPS ON THE TOP OF THE CCW MIRADRAIN PANELS SHOULD BE DRAPED OVER THE BACK OF THE CORE AND IF THERE IS INSUFFICIENT FABRIC, THE CORE SHALL BE CUT OUT FROM THE FABRIC BY A DEPTH OF 3 DIMPLES TO PROVIDE EXCESS FABRIC FOR WRAPPING THE CORE. BACKFILLING SHOULD BE COMPLETED IMMEDIATELY.
      5.CONNECTING ADJACENT PANELS: CONNECT ADJACENT PANELS AT THE LONGITUDINAL EDGE BY PULLING THE FILTER FABRIC BACK TO EXPOSE THE FLANGE. THE PANEL EDGE SHOULD BE BUTTED TO THE EDGE OF THE ADJACENT PANEL DIMPLE TO DIMPLE OR THE EDGE OF THE NEXT PANEL MAY BE PLACED OVER TWO DIMPLES AND INTERLOCKED. PANEL ENDS ARE TO BE ATTACHED IN THE SAME MANNER. CONNECTIONS SHOULD BE COMPLETED IN SHINGLE FASHION SO THAT MOISTURE WILL FLOW WITH THE OVERLAP AND NOT AGAINST IT. OVERLAP FABRIC IN THE DIRECTION THE CORE AND IF THERE IS INSUFFICIENT FABRIC, THE CORE SHALL BE CUT OUT FROM THE FABRIC BY A DEPTH OF 3 DIMPLES TO PROVIDE EXCESS FABRIC FOR WRAPPING THE CORE.
   B. HORIZONTAL SURFACES: CCW MIRADRAIN 9000, 9800, 9900 OR 8000 (HYDROCARBON–RESISTIVE APPLICATIONS), GR9200.
      1. PLAZA DECKS, PARKING DECKS, AND OTHER SPLIT–SLAB CONSTRUCTION:
      a. ATTACH THE CCW MIRADRAIN PANELS BY EITHER PLACING TEMPORARY BALLAST ON TOP OF THE CCW MIRADRAIN OR ADHERING THE PANELS TO THE WATERPROOFING MEMBRANE WITH CCW DRAIN GRIP CONTACT ADHESIVE OR SECURTAPE TWO–SIDED TAPE.
      b. CONNECT ADJACENT PANELS AT THE LONGITUDINAL EDGE BY PULLING THE FILTER FABRIC BACK TO EXPOSE THE FLANGE. THE PANEL EDGE SHOULD BE BUTTED TO THE EDGE OF THE ADJACENT PANEL DIMPLE TO DIMPLE OR THE EDGE OF THE NEXT PANEL MAY BE PLACED OVER TWO DIMPLES AND INTERLOCKED. PANEL ENDS ARE TO BE ATTACHED IN THE SAME MANNER. CONNECTIONS SHOULD BE COMPLETED IN SHINGLE FASHION SO THAT MOISTURE WILL FLOW WITH THE OVERLAP AND NOT AGAINST IT. OVERLAP FABRIC IN THE DIRECTION OF WATER FLOW. COVER ALL TERMINAL EDGES WITH THE FILTER FABRIC FLAP BY TUCKING THE FABRIC BEHIND THE CORE.
      c. CCW MIRADRAIN SHOULD BE CHANNELED INTO AN INTERNAL DRAIN OR PERIMETER DRAIN SYSTEM.
      d. CONCRETE, SAND, GROUT, OR PAVERS MAY BE PLACED DIRECTLY ON THE CCW MIRADRAIN WOVEN FABRIC SIDE. CAUTION SHOULD BE TAKEN NOT TO PLACE POINT LOADS ON THE CCW MIRADRAIN THAT MIGHT PUNCTURE THE FILTER FABRIC ON THE CCW MIRADRAIN. WHEN CONCRETE IS POURED AGAINST CCW MIRADRAIN, USE PROPER CHUTING TECHNIQUES AND AVOID HIGH DROP HEIGHTS.
      2. FLOOR SLABS AND CONCRETE–LINED CHANNELS:
      a. THE SUBGRADE SHALL BE GRADED TO A 2% MINIMUM SLOPE AND CLEAR OF RUBBLE, ROCK, LARGE SOIL CLODS, ETC. THE CCW MIRADRAIN SHOULD BE PLACED WOVEN FABRIC SIDE DOWN, DIRECTLY ON THE SUBGRADE. INSTALLATION SHOULD PROCEED FROM THE HIGHER ELEVATION OF THE SLOPE AND WORK DOWNWARD. CONNECTION OF PANEL ENDS SHALL BE ACHIEVED WITH FOUR–ROW DIMPLE OVERLAPPING AND TAPING OF TERMINAL EDGES.

3.PLANTERS:
   a. **CCW MIRADRAIN SHOULD BE PLACED FABRIC SIDE TO THE INSIDE (SOIL SIDE) OF THE PLANTER. THE PLANTER WALLS SHOULD BE COVERED WITH CCW MIRADRAIN, ALLOW A 3" (75 mm) FABRIC OVERLAP AT THE BOTTOM OF VERTICAL PANELS IN ORDER TO COVER THE INTERSECTION OF WALL AND BOTTOM SECTIONS. ANY EXPOSED PANEL EDGES MUST BE COVERED WITH SUPPLEMENTAL PIECES OF FABRIC TO PREVENT SOIL INTRUSION THE THE FLOW CHANNELS.**
4. DISCHARGE CONNECTIONS
   B. DRAINAGE:
      a. **FOUNDATION/RETAINING WALL: INSTALL CCW QUICKDRAIN PREFABRICATED DRAINAGE COLLECTION SYSTEM IN A VERTICAL FOUNDATION WALL TO A HORIZONTAL FOOTING CONFIGURATION.** ADHERE CCW QUICKDRAIN TO THE SUBSTRATE USING CCW DRAIN GRIP CONTACT ADHESIVE OR SECURTAPE TAPE. PLACE THE HINGED PORTION OF THE CCW QUICKDRAIN AGAINST THE VERTICAL/HORIZONTAL TRANSITION AND PRESS INTO PLACE. CONNECT ADJACENT PANELS BY PULLING FILTER FABRIC BACK TO EXPOSE THE FLANGE. OVERLAP THE FLANGE OF THE CORE OF EDGE DRAIN ON TO THE FLANGE OF THE PRECEDING DRAIN CORE. COVER THE JOINT WITH THE FILTER FABRIC. INSTALL CCW MIRADRAIN IN SHINGLE FASHION BY OVERLAPPING THE FLANGE OF THE CCW QUICKDRAIN IN THE DIRECTION OF WATER FLOW AND COVER WITH FILTER FABRIC. COVER ALL TERMINAL EDGES OF THE CORE WITH THE FABRIC FLAP BY TUCKING IT BEHIND THE CORE. DISCHARGE CONNECTION INSTALLATION: LEAVING THE FILTER FABRIC IN PLACE, SLIDE THE CCW QUICKDRAIN CONNECTOR OUTLET OVER THE HORIZONTAL PORTION OF THE CCW QUICKDRAIN AND WRAP WITH FILTER FABRIC.
      b. **WHERE DRAINPIPE IS INDICATED, PLACE THE DRAINPIPE NEXT TO THE CORE. WRAP THE DRAINPIPE OR ROCK–PIPE DRAIN COMBINATION WITH AN AUXILIARY PIECE OF FILTER FABRIC.**
   B. WEEP HOLES: CUT A HOLE IN THE CORE CORRESPONDING TO THE SIZE AND LOCATION OF THE WEEP HOLE. AVOID CUTTING A HOLE IN THE FABRIC BY CUTTING THE BACKSIDE OF THE CORE BETWEEN THE DIMPLES. A FOUR DIMPLE SQUARE AREA CUT BETWEEN THE DIMPLES (2 _ SQUARE INCH) SHOULD BE SUFFICIENT FOR MOST APPLICATIONS.
   C. PLAZA DRAINS: CREATE OPENINGS IN THE CCW MIRADRAIN CORE TO CORRESPOND WITH ALL DISCHARGE HOLES IN THE DRAIN AT THE STRUCTURAL DECK LEVEL. FABRIC MUST BE PLACED OVER THESE HOLES TO PREVENT INTRUSION OF SOIL, GROUT,SAND, OR CONCRETE INTO THE DRAINAGE CORE.
   D. TERMINAL CONNECTIONS AND PROTRUSIONS: COVER ALL TERMINAL EDGES WITH THE INTEGRAL FABRIC FLAP BY TUCKING IT AROUND THE EDGE OF THE CORE AND SECURING IT. AL PROTRUSIONS, CUT THE CORE AROUND THE PROTRUSION, CUT AN "X" IN THE FABRIC, AND TAPE THE FABRIC AROUND THE PROTRUSION. DIRT AND CONCRETE MUST NOT INFILTRATE THE CORE.
5. CLEANING AND PROTECTION
   A. CLEANING: REMOVE TEMPORARY COVERINGS AND PROTECTION OF ADJACENT WORK AREAS. REPAIR OR REPLACE DAMAGED INSTALLED PRODUCTS. CLEAN INSTALLED PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS PRIOR TO OWNER'S ACCEPTANCE. REMOVE CONSTRUCTION DEBRIS FROM PROJECT SITE AND LEGALLY DISPOSE OF DEBRIS.
   B. PROTECTION: PROTECTION INSTALLED PRODUCTS FINISHED SURFACES FROM DAMAGE DURING CONSTRUCTION.

MANUFACTURER'S INSTALLATION SPECS - MiraClay

1. INSPECTION
   A. EXAMINE SUBSTRATE AND CONDITION UNDER WHICH WATERPROOFING WILL BE INSTALLED. DO NOT PROCEED WITH THE WORK UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
2. SURFACE PREPARATION
   A. LAGGING, CONCRETE CAISSONS, SHOTCRETE OR GUNITE APPLICATIONS:
      1.FILL ALL SPACES THAT ARE OVER 1" (25 mm) IN WIDTH WITH GROUT OR CONCRETE TO A SMOOTH AND UNIFORM SURFACE. COVER LARGE GAPS WITH ½" (12 mm) PLYWOOD OR CCW MIRADRAIN 6000 OR 6000XL.
      2. TROWEL CCW MIRACLAY MASTIC AROUND ALL TIEBACK PLATES AND SOLDIER BEAMS A MINIMUM OF 1 ½" (39 mm) THICK AND EXTEND A MINIMUM OF 4" (10 cm) BEYOND THE FLANGE.
      3. REMOVE PROJECTIONS FROM THE WALL SURFACE IN EXCESS OF ¾" (20 mm).
   B. GRADE SUBSTRATES: SHALL BE LEVEL AND UNIFORM THAT IS COMPACTED TO A MINIMUM OF 85% MODIFIED PROCTOR.
   C. CONCRETE APPLICATION:
      1.APPLY CCW MIRACLAY MASTIC TO ALL CONSTRUCTION JOINTS AT MINIMUM OF ¼" (7 mm) THICKNESS AND 3" (8cm) MINIMUM WIDTH.
      2. REMOVE PROJECTIONS FROM THE WALL SURFACE IN EXCESS OF ¾" (20 mm)
   D. HONEYCOMBING, VOIDS AND AGGREGATE POCKETS EXCEEDING 1" IN DIAMETER OR HAVE A DEPTH GREATER THAN ¾" SHOULD BE FILLED WITH A NON–SHRINK CEMENTITIOUS GROUT. FILL TIE–ROD HOLES WITH A NON–SHRINK CEMENTITIOUS GROUT.
3. INSTALLATION
   A. PREVENT GEOTEXTILE/BENTONITE CLAY WATERPROOFING MEMBRANE FROM HYDRATING BEFORE BEING COVERED WITH OVERBURDEN. WHEN THREAT OF RAIN IS IMMINENT OR BACKFILL IS NOT IMMEDIATE, GEOTEXTILE/BENTONITE CLAY WATERPROOFING MEMBRANE SHOULD BE COVERED WITH POLYETHYLENE SHEETING.
   B. LAGGING APPLICATION
      1. INSTALL A STRIPPING PIECE OF CCW MIRACLAY OVER EACH SOLDIER BEAM THAT EXTENDS A MINIMUM OF 8" (20 cm) BEYOND EITHER SIDE OF THEM. EACH SOLDIER BEAM SHALL HAVE A DOUBLE LAYER OF CCW MIRACLAY MEMBRANE.
      2. INSTALL CCW MIRACLAY WITH THE WHITE NON–WOVEN SIDE OUT, FACING THE INSTALLER.
      3. STARTING AT THE BOTTOM OF THE WALL,ENROLL CCW MIRACLAY AND NAIL ACROSS TOP OF PANEL ONE NAIL PER 12" (31 cm) ON CENTER. ALLOW SHEET TO HANG DOWN, NAILING ONLY AS REQUIRED TO STABILIZE.
      4. INSTALL ADJACENT MEMBRANE BY OVERLAPPING EDGES A MINIMUM OF 4" (10 cm).
      5. FASTEN MEMBRANE ONCE EVERY 18" (45 cm) ON SEAMS OR AS REQUIRED TO PREVENT BLOUSING.
      6. EXTEND WATERPROOFING MEMBRANE TO OR ABOVE GRADE AND FASTEN MEMBRANE ONCE EVERY 12" (30 cm).
      7. INSTALL CCW MIRASTOP AT ALL POURJOINTS AND EXTERIOR PERIMETER OF TIE–BACK BOX OUTS.

   A. UNDERSLAB APPLICATION: (CONCRETE SLAB SHALL HAVE A MINIMUM THICKNESS OF 4" IF REINFORCED OR 5" IF NOT REINFORCED).
      1. INSTALL CCW MIRACLAY WITH THE WHITE NON–WOVEN SIDE UP, FACING THE INSTALLER.
      2. OVERLAP EDGES A MINIMUM OF 4" (10 cm).
      3. PROTECT CCW MIRACLAY FROM DAMAGE CAUSED BY CHAIRS WITH SHARP EDGES OR POINTS BY PLACING A PATCH OF CCW MIRACLAY UNDER THE CHAIR.
      4. STAPLE JOINTS OFTEN ENOUGH TO PREVENT EXCESSIVE MOVEMENT.
      5. POUR CCW MIRACLAY GRANULES OR TROWEL CCW MIRACLAY MASTIC AROUND ALL PENETRATIONS AND PRESS IN " CUT–TO–FIT" COLLARS OF CCW MIRACLAY.
      6. EXTEND THE INSTALLATION OF CCW MIRACLAY 12" (31 cm) UP OR BEYOND THE PERIMETER SLAB FORMS.
      7. INSPECT AND REPAIR ANY DAMAGED MATERIAL BEFORE CONCRETE POUR.

   D. CONCRETE WALL APPLICATION:
      1. INSTALL CCW MIRACLAY WITH THE WHITE NON–WOVEN SIDE OUT, FACING THE INSTALLER.
      2. STARTING AT THE BOTTOM OF THE WALL, UNROLL CCW MIRACLAY AND NAIL ACROSS TOP OF PANEL ONE NAIL PER 12" (31 cm) ON CENTER. ALLOW SHEET TO HANG DOWN NAILING ONLY AS REQUIRED TO STABILIZE.
      3. INSTALL ADJACENT MEMBRANE BY OVERLAPPING EDGES A MINIMUM OF 4" (10 cm).
      4. FASTEN MEMBRANE ONCE EVERY 18" (45 cm) ON SEAMS OR AS REQUIRED TO PREVENT BLOUSING WITH ¾" (20 mm) TO 1" (25 mm) CONCRETE NAILS WITH WASHERS.
      5. EXTEND WATERPROOFING MEMBRANE TO 6" BELOW GRADE AND FASTEN MEMBRANE TO THE SUBSTRATE TO MAINTAIN CONSTANT COMPRESSION USING A ⅛" X 1" (3 X 25 mm) MINIMUM TERMINATION BAR. TROWEL A ½" (12 mm) THICK AND 2" (5 cm) WIDE BEAD OF CCW MIRACLAY MASTIC AT TOP EDGE OF MEMBRANE AND COVER TERMINATION BAR.
      6. CREATE A CANT AT ANY VERTICAL TO HORIZONTAL TRANSITION BY APPLYING A 1.5" TO 2" (4 cm to 5 cm) CANT OF CCW MIRACLAY GRANULES OR CCW MIRACLAY MASTIC.
      7. STRIP IN ALL OUTSIDE CORNERS AND TRANSITIONS WITH A MIN. 12" (30) PIECE OF CCW MIRACLAY MEMBRANE TO DOUBLE COVER THESE AREAS.PLAZA DECKS, PARKING DECKS, AND OTHER SPLIT–SLAB CONSTRUCTION:
      8.MAKE A MIN. 1" CANT AT ALL INSIDE CORNERS WITH CCW MIRACLAY MASTIC.
      9.BACKFILL MUST BE COMPACTABLE SOILS FREE OF CONSTRUCTION DEBRIS AND MUST BE UNIFORMLY COMPACTED TO A MINIMUM 85% MODIFIED PROCTOR DENSITY ON EACH LIFT.
   E. CONCRETE CAISSONS, SHOTCRETE OR GUNITE APPLICATION
      1. CONFORM CCW MIRACLAY TO THE CHANGE IN PLANES.
      2. INSTALL CCW MIRACLAY WITH THE WITE NON–WOVEN SIDE OUT, FACING THE INSTALLER.
      3.STARTING AT THE BOTTOM OF THE WALL, UNROLL CCW MIRACLAY AND NAIL ACROSS TOP OF PANEL ONE NAIL PER 12" (31 cm) ON CENTER. ALLOW SHEET TO HANG DOWN NAILING ONLY AS REQUIRED TO STABILIZE.
      4. INSTALL ADJACENT MEMBRANE BY OVERLAPPING EDGES A MINIMUM OF 4" (10 cm).
      5. FASTEN MEMBRANE ONCE EVERY 12" (30 cm) ON SEAMS OR AS REQUIRED TO PREVENT BLOUSING WITH ¾" (19 mm) TO 1" (25 mm) CONCRETE NAILS WITH 1" (25 mm) WASHERS.
4. SHOTCRETE PLACEMENT
      1. APPLY SHOTCRETE IN STRICT ACCORDANCE WITH ACI 506.2–95 SPECIFICATION FOR SHOTCRETE.
      2. MOISTEN THE MIRACLAY NON–WOVER SURFACE TO IMPROVE ADHESION.
      3. COMMENCE SPRAYING FROM THE BOTTOM TO THE TOP AT A PRESSURE NOT TO VIBRATE OR MOVE THE CCW MIRACLAY.
      4. INSTALL TO THE DESIGNED THICKNESS IN LIFTS NOT TO EXCEED 4 FEET (1.2 m)
      5. PROTECT ADJACENT CCW MIRACLAY FROM OVERSPRAY AND REMOVE REBOUND AND SAND POCKETS.
5. PROTECTION AND DRAINAGE
      1. PROTECT THE GEOTEXTILE/BENTONITE CLAY WATERPROOFING MEMBRANE WITH CCW MIRADRAIN DRAINAGE COMPOSITE.
      2. INSTALL THE CCW MIRADRAIN DRAINAGE COMPOSITE ACCORDING TO THE DETAILED DRAWINGS FOR THE SPECIFIC INSTALLATION REQUIREMENTS OF THE PROJECT.
6. BACKFILL
   BACKFILL WITH SMOOTH AND UNIFORM MATERIAL WITH NO SHARP PROJECTIONS OR STONES LARGER THAN ¾". COMPACT BACKFILL TO AN 85% MODIFIED PROCTOR DENSITY. ENSURE BACKFILL MATERIAL IS NOT CONTAMINATED WITH SALT OR OTHER MATERIALS THAT COULD PREVENT THE CCW MIRACLAY FROM HYDRATING

MANUFACTURER'S INSTALLATION SPECIFICATIONS - MIRIDRI 860/861

1. INSPECTION
   A. BEFORE ANY WATERPROOFING WORK IS STARTED THE WATERPROOFING APPLICATOR SHALL THOROUGHLY EXAMINE ALL SURFACES FOR ANY DEFICIENCIES. SHOULD ANY DEFICIENCIES EXIST, THE ARCHITECT, OWNER, OR GENERAL CONTRACTOR SHALL BE NOTIFIED IN WRITING AND CORRECTIONS MADE.
   B. CONDITION OF CONCRETE SURFACES:
      1. THE CONCRETE SURFACES SHALL BE OF SOUND STRUCTURAL GRADE AND SHALL HAVE A SMOOTH FINISH, FREE OF FINS, RIDGES, PROTRUSIONS, ROUGH SPALLED AREAS, LOOSE AGGREGATE, EXPOSED COURSE AGGREGATE, VOIDS OR ENTRAINED AIR HOLES. ROUGH SURFACES SHALL RECEIVE A WELL–ADHERED PARGET COAT.
      2. CONCRETE SHALL BE CURED BY WATER CURING METHOD. ANY CURING COMPOUNDS MUST BE OF THE PURE SODIUM SILICATE TYPE AND BE APPROVED BY THE CARLISLE REPRESENTATIVE.
      3. CONCRETE SHALL BE CURED AT LEAST 7 DAYS AND SHALL BE SLOPED FOR PROPER DRAINAGE.
      4. VOIDS, ROCK POCKETS AND EXCESSIVELY ROUGH SURFACES SHALL BE REPAIRED WITH APPROVED NON–SHRINK GROUT OR GROUND TO MATCH THE UNREPAIRED AREAS.
      5. TWO–STAGE DRAINS SHALL HAVE A MINIMUM 3 INCH FLANGE AND BE INSTALLED WITH THE FLANGE FLUSH AND LEVEL WITH THE CONCRETE SURFACE.
      6. SURFACES AT COLD JOINTS SHALL BE ON THE SAME PLANE.
2. SURFACE PREPARATION
   A. THE CONCRETE SURFACE MUST BE THOROUGHLY CLEAN, DRY AND FREE FROM ANY SURFACE CONTAMINATES OR CLEANING RESIDUE THAT MAY HARMFULLY AFFECT THE ADHESION OF THE MEMBRANE.
   B. INSTALL A ¾" FACE, 45 DEGREE CANT OF CCW–201 POLYURETHANE SEALANT OR CCW LM–800XL AT ALL CHANGES AND INSIDE CORNERS INCLUDING PENETRATIONS THROUGH THE DECK, WALLS, CURBS, ETC.
   C. ALL CRACKS OVER 1/16" IN WIDTH AND ALL MOVING CRACKS UNDER 1/16" IN WIDTH SHALL BE ROUTED OUT TO ¼" MINIMUM IN WIDTH AND DEPTH AND FILLED FLUSH WITH AN APPROVED SEALANT BY CCW OR CCW–201 POLYURETHANE SEALANT.
   D. ALL EXPANSION JOINTS LESS THAN 1" WIDE SHALL BE CLEANED, PRIMED, FITED, WITH A BACKING ROD AND CAULKED WITH CCW–201 POLYURETHANE SEALANT. FOR LARGER JOINTS, CONTACT CARLISLE REPRESENTATIVE.
   E. ALLOW ALL SEALANT TO CURE AL LEAST OVERNIGHT.
   F. STIR PRIMER. APPLY A THIN FILM OF PRIMER 10" WIDE, CENTERED OVER SEALED CRACKS AND JOINTS, HAIRLINE CRACKS, AND COLD JOINTS. APPLY PRIMER 8" ON EACH SIDE OF ALL CORNERS. PRIME CONCRETE AROUND DRAIN FLANGES. ALLOW PRIMER TO DRY PER MANUFACTURER=S RECOMMENDATIONS.
   G. INSTALL AN 8" WIDE STRIP OF CCW MIRADRI 860/861 CENTERED OVER JOINTS AND CRACKS. INSTALL A 12" WIDE STRIP OF CCW MIRADRI 860/861 CENTERED OVER THE AXIS OF ALL CORNERS.
   H. TERMINATE MEMBRANE AROUND DRAINS PER CCW MIRADRI 860 SERIES DETAILS. TERMINATE THE MEMBRANE UNDER THE CLAMPING RING. SEAL ALL EDGES WITH CCW–704 MASTIC. DO NOT INTERFERE WITH WEEP HOLES.
3. APPLICATION:
   A. PRIMING: CLEAN SURFACES TO REMOVE RESIDUAL DUST BEFORE PRIMING. STIR PRIMER. APPLY BY SPRAY OR ROLLER AT A RATE RECOMMENDED BY MANUFACTURER. ALLOW TO DRY PER MANUFACTURER=S RECOMMENDATION.
   B. HORIZONTAL SURFACES: INSTALL SHEET MEMBRANE FROM LOW TO HIGH POINT, SO THAT LAPS WILL SHED WATER. OVERLAP EDGE SEAMS 2_", END LAPS 5". STAGGER EN SEAMS. ROLL IN PLACE WITH AN 18 TO 24" WIDE, 100 LB. (MIN.) RESILIENT ROLLER. ENSURE THAT ALL LAPS ARE FIRMLY ADHERED AND THAT THERE ARE NO GAPS OR FISHMOUTHS.
   C. VERTICAL SURFACES: APPLY IN LENGTHS OF 8' OR LESS. OVERLAP EDGE SEAMS 2_". ON WALLS OVER 8' HIGH, APPLY IN 8' SECTIONS, STARTING AT THE LOWEST POINT WITH THE HIGHER SECTION OVERLAPPING THE LOWER SECTION 5". ROLL IN PLACE USING FIRM PRESSURE WITH A HAND ROLLER.
   D. TERMINATIONS: CONSULT CARLISLE 860–9 DETAILS FOR PROPER TERMINATIONS. ROLL TERMINATING EDGES FIRMLY. APPLY CCW–704 MASTIC TO ALL TERMINATIONS AND T= JOINTS. APPLY CCW–704 MASTIC OR CCW–703–V LIQUISEAL TO LAPS AT ANGLE CHANGES, EXTENDING 9" IN EACH DIRECTION.
4. FLOOD TEST
   A. AFTER SHEET MEMBRANE HAS BEEN IN PLACE AT LEAST 24 HOURS, PLUG DRAINS AND PROVIDE BARRIERS NECESSARY TO CONTAIN FLOOD WATER. CONSULT WITH STRUCTURAL ENGINEER FOR DECK LOADING LIMITS BEFORE CONDUCTING A WATER TEST.
   B. FLOOD SURFACE WITH 2" HEAD OF WATER FOR 24 HOURS. INSPECT FOR LEAKS AND REPAIR MEMBRANE IF LEAKS ARE FOUND. RETEST AFTER MAKING REPAIRS.
5. PROTECTION COURSE
   A. VERTICAL APPLICATION:
      INSTALL CCW QUICKDRAIN PERIMETER DRAINAGE SYSTEM AS THE FIRST COURSE OF DRAINAGE COMPOSITE IMMEDIATELY AFTER MEMBRANE HAS BEEN INSTALLED ON VERTICAL SURFACES. INSTALL CCW MIRADRAIN DRAINAGE COMPOSITE (CONSULT CCW FOR RECOMMENDATION), CCW PROTECTION BOARD–V PROTECTION COURSE OR CCW 200V ON REMAINDER. STOP DRAINAGE COMPOSITE 6" BELOW FINAL GRADE LEVEL.
   B. HORIZONTAL APPLICATION:
      INSTALL CCW MIRADRAIN DRAINAGE COMPOSITE (CONSULT CCW FOR RECOMMENDATION) OR CCW PROTECTION BOARD–H PROTECTION COURSE OR CCW 300HV IMMEDIATELY AFTER FLOOD TESTING ON HORIZONTAL SURFACES. IF FLOOD TESTING IS DELAYED, INSTALL A TEMPORARY COVERING TO PROTECT THE CCW MIRADRI 860/861 MEMBRANE FROM DAMAGE BY OTHER TRADES.

END OF SECTION.

PREPARED BY OR UNDER DIRECTION OF:
STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER – STEPHEN B. PETER – No. 38623 – Exp. 3/31/25 – CIVIL – STATE OF CALIFORNIA

BY	REVISION	DESCRIPTION	APPROVED	DATE
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DESIGNED: M.A.A. | DRAWN: M.A.A. | CHECKED: S.P

07–02–2022 DATE
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WATERPROOFING NOTES

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

SW-4.1

SHOTCRETE REQUIREMENTS

MIXES

A. SHOTCRETE: THE SHOTCRETE USED SHALL CONSIST OF MIXTURE OR PORTLAND CEMENT, SAND, AGGREGATE, AND WATER SO PROPORTIONED AND MIXED TO BE PUMPED. MIXTURE SHALL BE PROPORTIONED TO PROVIDE A MINIMUM COMPRESSIVE STRENGTH OF **4500 PSI** AT 28 DAYS.

B. MIX DESIGN: TESTING LABORATORY, RETAINED BY CONTRACTOR, SHALL DESIGN A MIX TO PRODUCE CONCRETE AS SPECIFIED AND PERFORM TESTS AS REQUIRED. CERTIFIED TEST REPORTS (DUPLICATE) SHALL BE SUBMITTED. REPORTS SHALL INCLUDE PROPORTIONS OF DESIGN MIX.

C. MAINTAIN **WATER–CEMENT RATIO BETWEEN 0.35 TO 0.50 BY WEIGHT.**

D. CONCRETE–MIX DESIGN ADJUSTMENTS MAY BE CONSIDERED IF CHARACTERISTICS OF MATERIALS, PROJECT CONDITIONS, WEATHER, TEST RESULTS, OR OTHER CIRCUMSTANCES WARRANT. RESUBMIT AND OBTAIN APPROVAL FROM THE RESIDENT ENGINEER OF PROPOSED CHANGES TO CONCRETE–MIX DESIGN.

E. IMPROPER MIX: IMMEDIATELY NOTIFY THE CONCRETE TESTING LABORATORY AND THE RESIDENT ENGINEER IF AT ANY TIME DURING CONSTRUCTION THE ACCEPTED MIX DESIGN PROVES TO BE UNSATISFACTORY FOR ANY REASON. THE CONTRACTOR'S CONCRETE MIX DESIGNER SHALL MODIFY THE DESIGN, SUBJECT TO THE REVIEW OF THE RESIDENT ENGINEER, UNTIL A SATISFACTORY MIX IS OBTAINED.

EXECUTION

1.<u>PROPORTIONING, DELIVERY AND MIXING</u>

A. PROPORTIONING: MIX SHALL BE DESIGNED BY CONTRACTOR–RETAINED TESTING LABORATORY.

B. MIXING PROCESSES:

1. MIXING, GENERAL: STRENGTH OF MIX IS SPECIFIED ON THE DRAWINGS. AT CONTRACTOR'S OPTION, USE EITHER THE DRY OR WET MIX PROCESS. DISCHARGE ENTIRE BATCH BEFORE RECHARGING. CLEAN MIXER AL LEAST ONCE EVERY 8–HOUR SHIFT OR PORTION THEREOF. REJECT MATERIAL MIXED AND STANDING FOR 45 MINUTES; REMIXING OR TEMPERING NOT PERMITTED.
2. DRY MIX PROCESS: CONFORM TO ACI 506R, PARAGRAPH 1.5.1
3. WET MIX PROCESS: CONFORM TO ACI 506R, PARAGRAPH 1.5.2

2. <u>EQUIPMENT, DRY MIX PROCESS</u>

A. BATCHING AND MIXING EQUIPMENT: BATCH BY WEIGHING, USE ROTATING MIXER OR ADEQUATE CAPACITY FOR DRY–MIXING AGGREGATE AND CEMENT FOR CONTINUOUS SUPPLY OF MATERIAL TO GUN, ALL CONFORMING TO ACI 506R, PARAGRAPH 3.5.

B. DELIVERY EQUIPMENT:

1. GUN AND NOZZLE: PREMIXING TYPE CONFORMING TO THE REQUIREMENTS OF ACI 506R, PARAGRAPH 3.2 AND 3.7 DESIGNED FOR MATERIAL DELIVERY AND WATER INJECTION.
2. AIR COMPRESSOR AND HOSES: STANDARD TYPE, OF CAPACITY TO PROVIDE WITHOUT INTERRUPTION, PRESSURES AND VOLUME OF AIR NECESSARY FOR LONGEST HOSE DELIVERY; CONFORM TO ACI 506R, TABLE 3.1. MAKE ALLOWANCES FOR AIR CONSUMED BY SEPARATE BLOW PIPE IN BLOWING AWAY REBOUND, CLEANING REINFORCING AND INCIDENTAL USES.

3. <u>EQUIPMENT, WET MIX PROCESS</u>

A. BATCHING AND MIXING EQUIPMENT: ACI 506R, PARAGRAPH 3.5. BATCH BY WEIGHING; USE ROTATING MIXING EQUIPMENT AND MIX IN ACCORDANCE WITH ACI 304R, AND ASTM C94 FOR READY–MIXED CONCRETE.

B. DELIVERY EQUIPMENT: USE PNEUMATIC FEED OR POSITIVE DISPLACEMENT TYPE OF DESIGN AND SIZE CAPABLE OF DELIVERING PREMIXED MATERIALS ACCURATELY, UNIFORMLY AND CONTINUOUSLY THROUGH THE HOSE, ALL IN ACCORDANCE WITH ACI 506R, PARAGRAPH 3.3 AND 3.7

C. AIR SUPPLY: ACI 506R, PARAGRAPH 3.4.2

D. WATER SUPPLY: CONFORM TO ACI 506R, PARAGRAPH 3.8.1 WITH ADEQUATE CAPACITY TO MAINTAIN WATER PRESSURE APPROXIMATELY 65N(15 POUNDS) HIGHER THAN HIGHEST AIR PRESSURE REQUIRED, BOTCH AIR AND WATER PRESSURE UNIFORMLY STEADY, NON–PULSATING.

4. <u>ALIGNMENT CONTROL</u>

A. GENERAL: TO ESTABLISH THICKNESS AND SURFACE PLANES OR SHOTCRETE BUILD–UP PROVIDE GROUND WIRES, TAUT, SECURE, TRUE TO LINE AND PLANES, CONFORMING TO ACI 506R, PARAGRAPH 5.6.

B. THE CONTRACTOR SHALL ENSURE THAT THE THICKNESS OF SHOTCRETE SATISFIES THE MINIMUM REQUIREMENTS SHOWN ON THE CONTRACT DRAWINGS.

C. THE CONTRACTOR SHALL ENSURE THAT THE FRONT FACE OF THE SHOTCRETE REMAINS LESS THAN 25mm (1 INCH) OUTSIDE OF ITS REQUIRED LIMITS SHOWN ON THE CONTRACT DRAWINGS.

D. THE CONTRACTOR SHALL ENSURE THAT THE EXCAVATED FACE BE FLAT AND FREE FROM IRREGULARITY PRIOR TO SHOTCRETE PLACEMENT. ADDITIONAL SHOTCRETE USED TO FILL GAPS, VOIDS AND IRREGULARITIES ON THE EXCAVATION FACE IS THE RESPONSIBILITY OF THE CONTRACTOR.

E. THE COST OF ADDITIONAL MATERIAL USED TO FILL VOID SPACE BETWEEN THE ACTUAL SHOTCRETE FACE AND THE PROPOSED LIMITS OF THE SHOTCRETE FACE IS THE RESPONSIBILITY OF THE CONTRACTOR.

F. REINFORCING POSITIONING: CHECK THAT REINFORCING IS POSITIONED AND SIZED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ACI 506R, PARAGRAPH 5.4.

5. <u>SHOOTING</u>

A. GENERAL: ACI 506R, PARAGRAPH 8.5.7. SHOOT AND FILL CORNERS FIRST, WITH CONTINUOUS UNIFORM MATERIAL FLOW FROM NOZZLE HELD APPROXIMATELY 600 TO 1500 mm (2 TO 5 FEET) FROM THE WORK, AT ANGLE NORMAL TO THE SURFACE.

1. SHOOT AROUND REINFORCING WITH NOZZLE CLOSE TO ENCASE REINFORCEMENT AS ILLUSTRATED IN ACI 506R, FIGURE 8.4, LEFT COLUMN.
2. IF FLOW IS NOT UNIFORM AND SLUGS, SAND SPOTS OR WET SLOUGHS RESULT, TURN NOZZLE AWAY UNTIL FAULTY WORK IS CUT OUT AND REPAIRED.
3. DO NO SHOTCRETE WORK IF TEMPERATURE IS BELOW 4 DEGREES CELSIUS (40 DEGREES FAHRENHEIT) WITHOUT PROVIDING CONTINUOUS HEAT AND ADEQUATE PROTECTION FROM FREEZING.

B. PREPARATION OF SURFACES TO RECEIVE SHOTCRETE: ACI 506R, PARAGRAPH 5.2, AS APPLICABLE TO THE WORK, AS APPROVED.

C. REBOUND: ACI 506R, PARAGRAPH 8.5.11. DO NOT WORK REBOUND INTO CONSTRUCTION NOR SALVAGE REBOUND FOR SUBSEQUENT BATCHING.

D. SUSPEND APPLICATION IF:

1. HIGH WIND PREVENTS NOZZLEMEN FROM PROPER APPLICATION OF MATERIAL.
2. WEATHER APPROACHES FREEZING AND SHOTCRETE CANNOT BE PROTECTED.
3. RAIN, OTHER THAN A VERY LIGHT SPRINKLE, OCCURS WHICH WOULD WASH CEMENT OUT OF FRESHLY PLACED MATERIAL.
4. GROUND WATER OR SURFACE WATER FLOW IS PERSISTENT ENOUGH TO WASH CEMENT OUT OF FRESHLY PLACED MATERIAL.

E. TIME BETWEEN COATS:

1. IN SLOPING, VERTICAL OR OVERHANGING WORK, ALLOW INTERVAL OF TIME SUFFICIENT FOR INITIAL, BUT NOT FINAL, SET TO DEVELOP.
2. AT DEVELOPMENT OF INITIAL SET, LIGHTLY BROOM SURFACE TO REMOVE ANY LAITANCE TO PROVIDE BETTER BOND WITH SUCCEEDING APPLICATIONS.

F. CONSTRUCTION JOINTS:

1. ACI 506R, PARAGRAPH 5.7.2, TAPERING OVER A WIDTH OF 300 mm (1 FOOT) TO A 25 mm (1 INCH) EDGE FROM BOARD LAID FLAT.
2. BEFORE PROCEEDING WITH ADDITIONAL SHOTCRETE WORK, THOROUGHLY CLEAN JOINT AND ADJACENT SHOTCRETE, THEN WET AND SCOUR SURFACES WITH AIR JET.

G. WARM WEATHER APPLICATION: PREVENT DRYOUT RESULTING IN CRACKING AND SEPARATION BY KEEPING SURFACES CONTINUOUSLY MOIST AND / OR COVERED WITH CONTINUOUSLY MOISTENED BURLAP FOR 7 DAYS AFTER SHOTCRETING.

H. SURFACE FINISH: BRING FINAL SURFACES OF SHOTCRETE TO AN EVEN PLANE, WELL FORMED CORNERS EITHER SQUARE OR TO RADIUS SHOWN, WORKING UP TO GROUND WIRES USING SOMEWHAT LOWER PLACING VELOCITY THAN NORMAL.

1. REMOVE GROUND WIRES TO 20 mm (¾ INCH) BACK FROM SURFACE AND FILL HOLES WITH SHOTCRETE TO ADJACENT SURFACE ELEVATIONS.
2. WOOD FLOAT SURFACES TO PROVIDE A SMOOTH TRUE FINISH.

6. <u>CURING</u>

ACI 506.2, PARAGRAPH 3.8.

7. <u>HOT WEATHER SHOTCRETING</u>

ACI 506R, PARAGRAPH 8.9.

8. <u>COLD WEATHER SHOTCRETING</u>

ACI 506R, PARAGRAPH 8.10.

9. <u>PROTECTION AND CLEAN–UP</u>

A. PROTECTION: PROTECT ADJACENT WALLS, WINDOWS, DOORS, OTHER BUILDING SURFACES, GROUNDS AND7OR SHRUBS AND PROPERTY OF OTHERS FROM DAMAGE BY SHOTCRETING, REBOUND AND DUST.

1. CONSTRUCTION A SEALED DUST PARTITION TO CONFINE REBOUND AND DUST TO IMMEDIATE WORK AREA. DUST PARTITION SHALL BE INTEGRAL WITH EXHAUST SYSTEM. A NEGATIVE AIR PRESSURE SHALL BE MAINTAINED WITHIN PARTITIONED AREA DURING SHOTCRETE APPLICATIONS TO PREVENT DUST LEAKAGE BEYOND AREA.
2. IMMEDIATELY CLEAN ALL SHOTCRETE MATERIALS AND REMOVE ALL REBOUND FROM SITE.

B. CLEAN–UP: CONTINUOUSLY REMOVE REBOUND MATERIAL TO ENSURE THAT BASE, INTERMEDIATE, AND FINISH SURFACES ARE CLEAN AND READY FOR BONDING LAYERS.

10 <u>DEFECTIVE WORK</u>

GENERAL WORK WILL BE EVALUATED BE THE ENGINEER OR DESIGNATED AGENT IN ACCORDANCE WITH ACI 506.4. IF THE EVALUATION REVEALS UNBONDED WORK OR CORES FAIL TO MEET SPECIFIED STRENGTHS, OR FINISHES ARE UNSATISFACTORY, REPAIR SUCH DEFECTIVE WORK, AS APPROVED, WITHOUT ADDITIONAL COST TO THE CLIENT.

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN B. PETER
No. 38623
Exp. 3/31/25
CIVIL
STATE OF CALIFORNIA

BY	REVISION	DESCRIPTION	APPROVED	DATE
	3	PCC		20240419
	4	PCC		20240802
	5	PCC		20250220

SCALE: N.A.

ACAD FILE NO. –

PROJECT NO. 21SE21064

DESIGNED:	DRAWN:	CHECKED:
M.A.A.	M.A.A.	S.P

07–02–2022
DATE

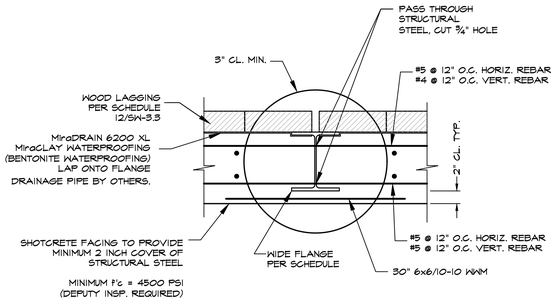
STEPHEN PETER

PLANS PREPARED BY:
PETER and ASSOCIATES ENGINEERS GEOLOGISTS & SURVEYORS, INC.
WWW.PETERASSOC.COM
1519 CALLE VALLE, SAN CLEMENTE, CA. 92672
Tel: (949) 492–3735 Fax: (949) 492–1891

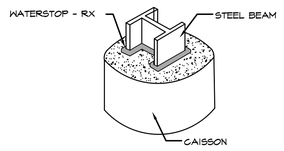
SHOTCRETE NOTES

FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

SW-4.2



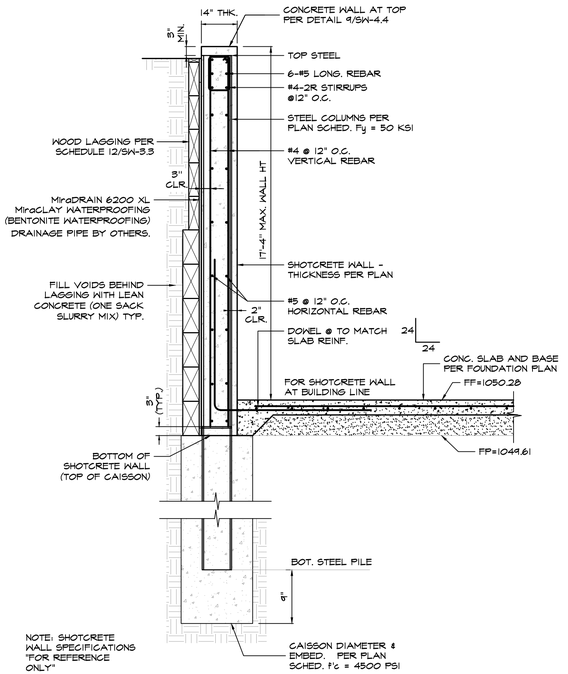
10 SHOTCRETE WALL/PILE CONNECTION DETAIL



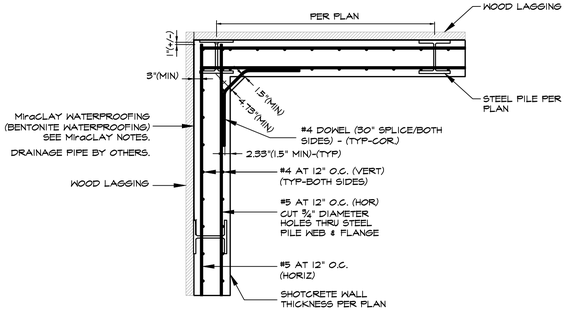
11 WATERSTOP RX AT STEEL PILE/CAISSON

EXCAVATION DEPTH	WOOD LAGGINGS SIZE
TO 0-5' FT	4X12 D.F. NO.1
TO 5-12' FT	6x12 D.F. NO.1
TO 12-18' FT	6X12 D.F. DENSE NO.1

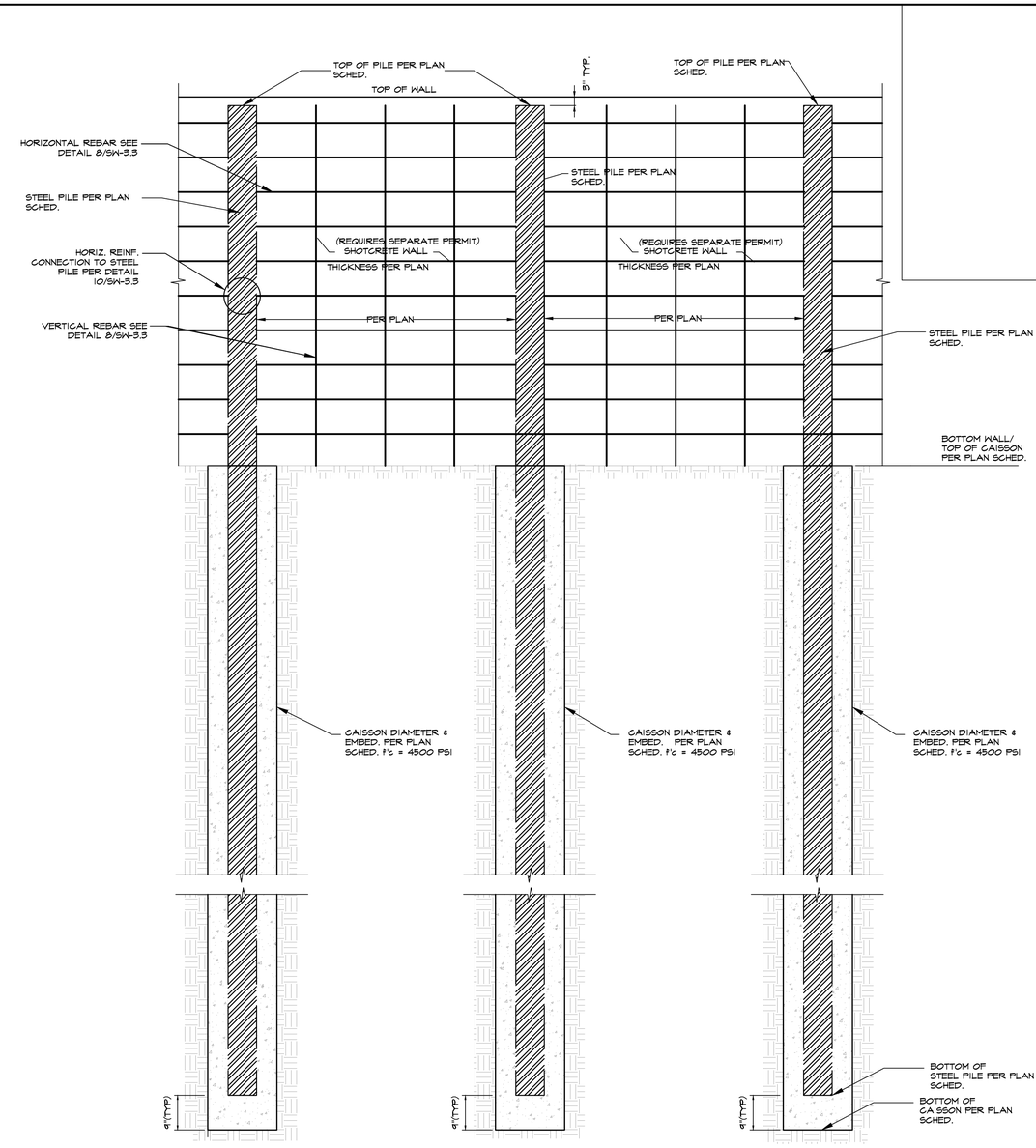
12 LAGGING SCHEDULE



8 SHORING SECTION VIEW



9 CORNER DETAIL



6 SHOTCRETE WALL - FRONT VIEW

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER STEPHEN B. PETER No. 38623 Exp. 3/31/25 CIVIL STATE OF CALIFORNIA

BY	REVISION	DESCRIPTION	APPROVED	DATE
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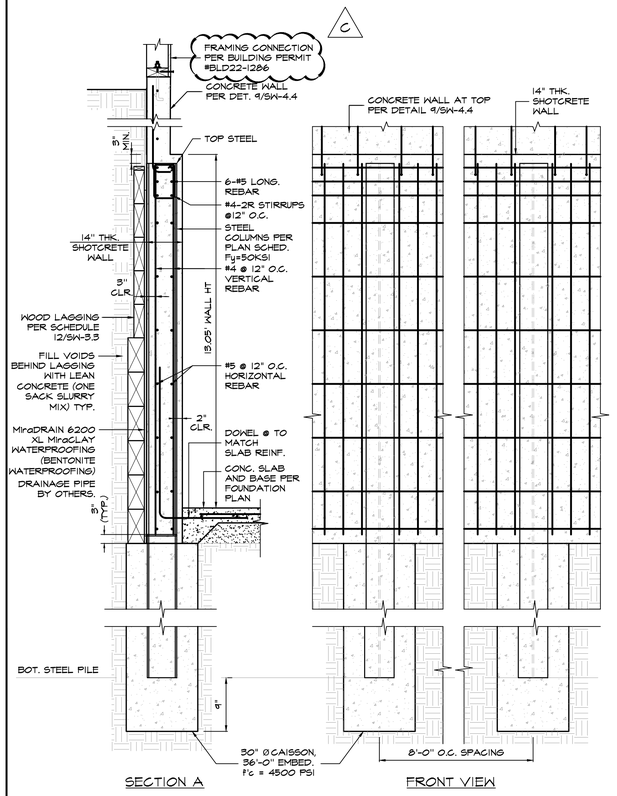
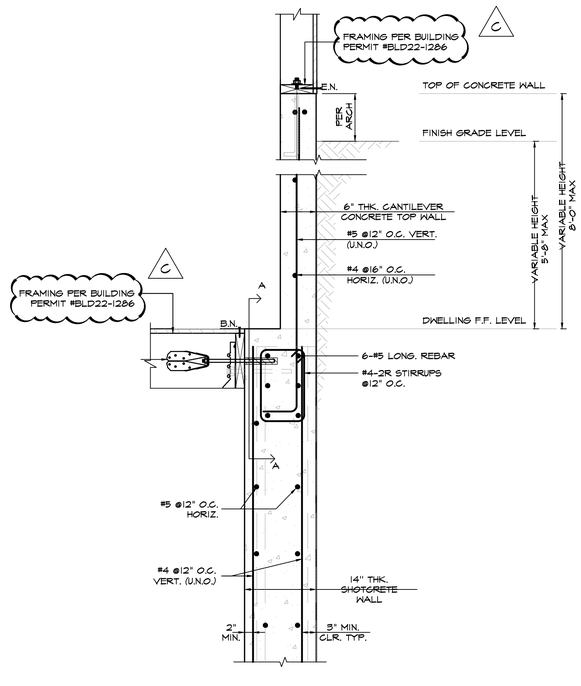
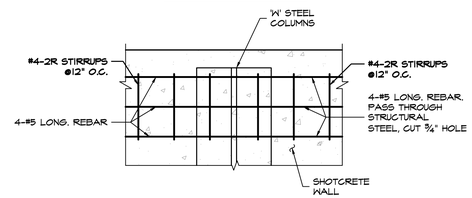
SHOTCRETE WALLS STRUCTURAL DETAILS

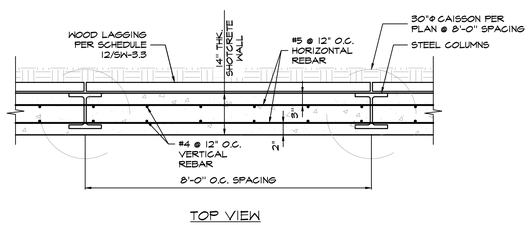
FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

SW-4.3









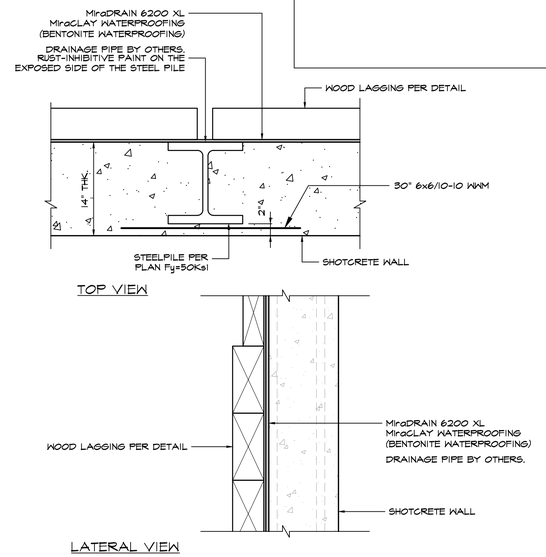
12 SHORING SECTION VIEW

9 FLOOR JOIST TO CONCRETE WALL CONN.

4 NOT USED

5 NOT USED

6 NOT USED



2 WOOD LAGGING INSTALLATION

3 NOT USED

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER STEPHEN B. PETER No. 38623 Exp. 3/31/25 CIVIL STATE OF CALIFORNIA

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SHOTCRETE WALLS STRUCTURAL DETAILS

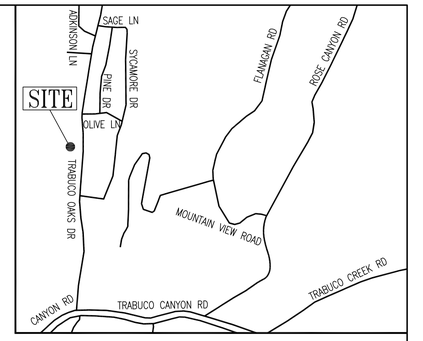
FOR
20601 TRABUCO OAKS DR.
TRABUCO CANYON, CALIFORNIA 92678

SW-4.4

GRADING PLANS-NEW HOME

FOR THE

20601 TRABUCO OAKS DRIVE, TRABUCO CANYON, CA 92678



VICINITY MAP

N.T.S.

GRADING NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE GRADING CODE OF THE COUNTY OF ORANGE AND ANY SPECIAL REQUIREMENTS OF THE PERMIT. A COPY OF THE GRADING CODE AND MANUAL SHALL BE RETAINED ON THE JOB SITE WHILE WORK IS IN PROGRESS. WHEN REFERENCED ON THE PLANS, A COPY OF OCPW STANDARD PLANS SHALL ALSO BE RETAINED ON THE SITE.

2. GRADING SHALL NOT BE STARTED WITHOUT FIRST NOTIFYING THE DISTRICT GRADING INSPECTOR. A PRE-GRADING MEETING ON THE SITE IS REQUIRED BEFORE START OF GRADING WITH THE FOLLOWING PEOPLE PRESENT: OWNER, GRADING CONTRACTOR, DESIGN CIVIL ENGINEER, SOIL ENGINEER, ENGINEERING GEOLOGIST, DISTRICT GRADING INSPECTOR AND WHEN REQUIRED THE ARCHAEOLOGIST AND PALEONTOLOGIST. THE REQUIRED INSPECTIONS FOR GRADING WILL BE EXPLAINED AT THIS MEETING.

3. ISSUANCE OF A GRADING PERMIT DOES NOT ELIMINATE THE NEED FOR PERMITS FROM OTHER AGENCIES WITH REGULATORY RESPONSIBILITIES FOR CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE WORK AUTHORIZED ON THIS PLAN.

4. THE GRADING PERMIT AND AN APPROVED COPY OF THE GRADING PLAN SHALL BE ON THE PERMITTED SITE WHILE WORK IS IN PROGRESS.

5. PRELIMINARY SOIL AND GEOLOGY REPORTS AND ALL SUBSEQUENT REPORTS AS APPROVED BY OCPW, GRADING SECTION, ARE CONSIDERED A PART OF THE APPROVED GRADING PLAN.

6. THE SOIL ENGINEER AND ENGINEERING GEOLOGIST SHALL PERFORM SUFFICIENT INSPECTIONS AND BE AVAILABLE DURING GRADING AND CONSTRUCTION TO VERIFY COMPLIANCE WITH THE PLANS, SPECIFICATIONS AND THE CODE WITHIN THEIR PURVIEW.

7. THE CIVIL ENGINEER SHALL BE AVAILABLE DURING GRADING TO VERIFY COMPLIANCE WITH THE PLANS, SPECIFICATIONS, CODE AND ANY SPECIAL CONDITIONS OF THE PERMIT WITHIN HIS PURVIEW.

8. THE SOIL ENGINEER AND ENGINEERING GEOLOGIST SHALL, AFTER CLEARING AND PRIOR TO THE PLACEMENT OF FILL IN CANYONS, INSPECT EACH CANYON FOR AREAS OF ADVERSE STABILITY AND TO DETERMINE THE PRESENCE OR ABSENCE OF SUBSURFACE WATER OR SPRING FLOW. IF NEEDED, SUBDRAINS WILL BE DESIGNED AND CONSTRUCTED PRIOR TO THE PLACEMENT OF FILL IN EACH RESPECTIVE CANYON.

9. SUBDRAIN OUTLETS SHALL BE COMPLETED AT THE BEGINNING OF THE SUBDRAIN CONSTRUCTION.

10. THE EXACT LOCATION OF THE SUBDRAINS SHALL BE SURVEYED IN THE FIELD FOR LINE/GRADE AND SHOWN ON AS-GRADED PLANS.

11. AREAS TO RECEIVE FILL SHALL BE PROPERLY PREPARED AND APPROVED IN WRITING BY THE SOIL ENGINEER AND THE BUILDING OFFICIAL PRIOR TO PLACING FILL.

12. FILLS SHALL BE BENCHED INTO COMPETENT MATERIAL PER OCPW STANDARD PLAN NO. 1322.

13. ALL EXISTING FILLS SHALL BE APPROVED BY THE BUILDING OFFICIAL OR REMOVED PRIOR TO PLACING ADDITIONAL FILLS.

14. FILLS SHALL BE COMPACTED THROUGHOUT TO A MINIMUM OF 90% RELATIVE COMPACTION. AGGREGATE BASE FOR ASPHALTIC AREAS SHALL BE COMPACTED TO A MINIMUM OF 95% RELATIVE COMPACTION. MAXIMUM DENSITY SHALL BE DETERMINED BY UNIFORM BUILDING CODE STANDARD NO. 70-1 OR APPROVED EQUIVALENT AND FIELD DENSITY BY UNIFORM BUILDING CODE STANDARD NO. 70-2 OR APPROVED EQUIVALENT.

15. CUT AND FILL SLOPES SHALL BE NO STEEPER THAN 2-FOOT HORIZONTAL TO 1-FOOT VERTICAL (2:1) EXCEPT WHERE SPECIFICALLY APPROVED OTHERWISE.

16. ALL CUT SLOPES SHALL BE INVESTIGATED BOTH DURING AND AFTER GRADING BY THE ENGINEERING GEOLOGIST TO DETERMINE IF ANY SLOPE STABILITY PROBLEM EXISTS. SHOULD EXCAVATION DISCLOSE ANY GEOLOGICAL HAZARDS OR POTENTIAL GEOLOGICAL HAZARDS, THE ENGINEERING GEOLOGIST SHALL SUBMIT RECOMMENDED TREATMENT TO THE BUILDING OFFICIAL FOR APPROVAL.

17. WHERE SUPPORT OR BUTTRESSING OF CUT AND NATURAL SLOPES IS DETERMINED TO BE NECESSARY BY THE ENGINEERING GEOLOGIST AND SOIL ENGINEER, THE SOIL ENGINEER SHALL SUBMIT DESIGN, LOCATIONS AND CALCULATIONS TO THE BUILDING OFFICIAL PRIOR TO CONSTRUCTION. THE ENGINEERING GEOLOGIST AND SOIL ENGINEER SHALL INSPECT AND CONTROL THE CONSTRUCTION OF THE BUTTRESSING AND CERTIFY TO THE STABILITY OF THE SLOPE AND ADJACENT STRUCTURES UPON COMPLETION.

18. WHEN CUT PADS ARE BROUGHT TO NEAR GRADE, THE ENGINEERING GEOLOGIST SHALL DETERMINE IF THE BEDROCK IS EXTENSIVELY FRACTURED OR FAULTED AND WILL READILY TRANSMIT WATER. IF CONSIDERED NECESSARY BY THE ENGINEERING GEOLOGIST AND SOIL ENGINEER, A COMPACTED FILL BLANKET WILL BE PLACED.

19. ALL TRENCH BACKFILL SHALL BE TESTED AND APPROVED BY THE SOIL ENGINEER PER THE GRADING CODE.

20. ANY EXISTING IRRIGATION LINES AND CISTERNS SHALL BE REMOVED OR CRUSHED IN PLACE AND APPROVED BY THE BUILDING OFFICIAL AND SOIL ENGINEER.

21. ANY EXISTING WATER WELLS SHALL BE ABANDONED IN COMPLIANCE WITH THE SPECIFICATIONS APPROVED BY ORANGE COUNTY, HEALTH CARE AGENCY, AND DIVISION OF ENVIRONMENTAL HEALTH.

22. ANY EXISTING CESSPOOLS AND SEPTIC TANKS SHALL BE ABANDONED IN COMPLIANCE WITH THE UNIFORM PLUMBING CODE TO THE APPROVAL OF OCPW/BUILDING INSPECTION.

23. STOCKPILING OF EXCESS MATERIAL SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO EXCAVATION.

24. EXPORT SOIL MUST BE TRANSPORTED TO A LEGAL DUMP OR TO A PERMITTED SITE APPROVED BY THE DISTRICT GRADING INSPECTOR.

25. THE PERMITTEE SHALL COMPLY WITH THE GRADING CODE REQUIREMENTS FOR HAUL ROUTES WHEN AN EXCESS OF 5,000 CUBIC YARDS OF EARTH IS TRANSPORTED TO OR FROM A PERMITTED SITE ON PUBLIC ROADWAYS.

26. THE PERMITTEE IS RESPONSIBLE FOR DUST CONTROL MEASURES.

27. THE PERMITTEE SHALL GIVE REASONABLE NOTICE TO THE OWNER OF ADJOINING LANDS AND BUILDINGS PRIOR TO BEGINNING EXCAVATIONS WHICH MAY AFFECT THE LATERAL AND SUBJACENT SUPPORT OF THE ADJOINING PROPERTY. THE NOTICE SHALL STATE THE INTENDED DEPTH OF EXCAVATION AND WHEN THE EXCAVATION WILL COMMENCE. THE ADJOINING OWNER SHALL BE ALLOWED AT LEAST 30 DAYS AND REASONABLE ACCESS ON THE PERMITTED PROPERTY TO PROTECT HIS STRUCTURE, IF HE SO DESIRES, UNLESS OTHERWISE PROTECTED BY LAW.

28. ALL CONCRETE STRUCTURES THAT COME IN CONTACT WITH THE ON-SITE SOILS SHALL BE CONSTRUCTED WITH TYPE V CEMENT, UNLESS DEEMED UNNECESSARY BY SOLUBLE SULFATE-CONTENT TESTS CONDUCTED BY THE SOIL ENGINEER.

29. SLOPES EXCEEDING 5 FEET IN HEIGHT SHALL BE PLANTED WITH AN APPROVED PLANT MATERIAL. IN ADDITION, SLOPES EXCEEDING 15 FEET IN HEIGHT SHALL BE PROVIDED WITH AN APPROVED IRRIGATION SYSTEM UNLESS OTHERWISE APPROVED BY THE BUILDING OFFICIAL.

30. ALL EXISTING DRAINAGE COURSES THROUGH THIS SITE SHALL REMAIN OPEN UNTIL FACILITIES TO HANDLE STORMWATER ARE APPROVED AND FUNCTIONAL; HOWEVER, IN ANY CASE, THE PERMITTEE SHALL BE HELD LIABLE FOR ANY DAMAGE DUE TO OBSTRUCTING NATURAL DRAINAGE PATTERNS.

31. SANITARY FACILITIES SHALL BE MAINTAINED ON THE SITE.

32. THE LOCATION AND PROTECTION OF ALL UTILITIES IS THE RESPONSIBILITY OF THE PERMITTEE.

33. APPROVED PROTECTIVE MEASURES AND TEMPORARY DRAINAGE PROVISIONS SHALL BE USED TO PROTECT ADJOINING PROPERTIES DURING GRADING.

34. GRADING OPERATIONS INCLUDING MAINTENANCE OF EQUIPMENT WITHIN ONE-HALF MILE OF A HUMAN OCCUPANCY SHALL NOT BE CONDUCTED BETWEEN THE HOURS OF 9 P.M. AND 7 A.M. DAILY, ON SUNDAY OR ON A FEDERAL HOLIDAY.

(A) ALL CONSTRUCTION VEHICLES OR EQUIPMENT, FIXED OR MOBILE, OPERATED WITHIN 1,000' OF A DWELLING SHALL BE EQUIPPED WITH PROPERLY OPERATING AND MAINTAINED MUFFLERS.

(B) ALL OPERATIONS SHALL COMPLY WITH ORANGE COUNTY CODIFIED ORDINANCE DIVISION 6 (NOISE CONTROL).

(C) STOCKPILING AND/OR VEHICLE STAGING AREAS SHALL BE LOCATED AS FAR AS PRACTICABLE FROM DWELLINGS AND WITHIN THE LIMITS OF GRADING PERMIT.

35. GRADING AND EXCAVATION SHALL BE HALTED DURING PERIODS OF HIGH WINDS. ACCORDING TO AQMD MEASURE F-4, HIGH WINDS ARE DEFINED AS 30 MPH OR GREATER. THIS LEVEL OCCURS ONLY UNDER UNUSUALLY EXTREME CONDITIONS, SUCH AS SANTA ANA WIND CONDITIONS.

36. ASPHALT SECTIONS MUST BE PER CODE: PARKING STALLS = 3" A/C OVER 6" A/B, DRIVES 3" A/C OVER 10" (COMMERCIAL) 12" (INDUSTRIAL) OR PRIOR TO ROUGH GRADE RELEASE FOR BUILDING PERMITS BY THE DISTRICT GRADING INSPECTOR, THE SOIL ENGINEER SHALL SUBMIT FOR APPROVAL, PAVEMENT SECTION RECOMMENDATIONS BASED ON 'R' VALUE ANALYSIS OF THE SUB-GRADE SOILS, AND EXPECTED TRAFFIC INDICES.

37. ASPHALT CONCRETE SHALL BE CONSTRUCTED PER THE REQUIREMENTS OF PFRD STANDARD PLAN NO. 1805.

38. AGGREGATE BASE SECTION SHALL BE CONSTRUCTED PER PFRD STANDARD NO. 1804.

39. ROOF GUTTERS SHALL BE INSTALLED TO PREVENT ROOF DRAINAGE FROM FAILING ON MANUFACTURED SLOPES.

40. THE CIVIL ENGINEER, AS A CONDITION OF ROUGH GRADE APPROVAL, SHALL PROVIDE A BLUE TOP WITH ACCOMPANYING WITNESS STAKE, SET AT THE CENTER OF EACH PAD REFLECTING THE PAD ELEVATION FOR PRECISE PERMITS AND A BLUE TOP WITH WITNESS STAKE SET AT THE DRAINAGE SWALE HIGH-POINT REFLECTING THE HIGH POINT ELEVATION FOR PRELIMINARY PERMITS.

41. PRIOR TO FINAL APPROVAL, THE CIVIL ENGINEER SHALL CERTIFY TO THE BUILDING OFFICIAL THE AMOUNT OF EARTH MOVED DURING THE GRADING OPERATION.

42. THE ENGINEERING GEOLOGIST SHALL PERFORM PERIODIC INSPECTIONS AND SUBMIT A COMPLETE REPORT AND MAP UPON COMPLETION OF THE ROUGH GRADING.

43. THE GRADING CONTRACTOR SHALL SUBMIT A STATEMENT OF COMPLIANCE TO THE APPROVED GRADING PLAN PRIOR TO FINAL APPROVAL.

44. THE COMPACTION REPORT AND APPROVAL FROM THE SOIL ENGINEER SHALL INDICATE THE TYPE OF FIELD TESTING PERFORMED, THE METHOD OF OBTAINING THE IN-PLACE DENSITY SHALL BE IDENTIFIED WHETHER SAND CONE, DRIVE RING, OR NUCLEAR, AND SHALL BE NOTED FOR EACH TEST. SUFFICIENT MAXIMUM DENSITY DETERMINATIONS SHALL BE PERFORMED TO VERIFY THE ACCURACY OF THE MAXIMUM DENSITY CURVES USED BY THE FIELD TECHNICIAN.

45. IN THE EVENT THAT SOIL CONTAMINATION IS DISCOVERED DURING EXCAVATION AND REMOVAL OF AN EXISTING TANK, WORK SHALL BE STOPPED UNTIL A SITE ASSESSMENT AND MITIGATION PLAN HAS BEEN PREPARED, SUBMITTED AND APPROVED BY HCA/ENVIRONMENTAL HEALTH AND OCPW/GRADING.

EROSION CONTROL NOTES

46. IN THE CASE OF EMERGENCY, CALL ANN MESA AT WORK PHONE NUMBER (949)257-9522.

47. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. NECESSARY MATERIALS SHALL BE AVAILABLE ON SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.

48. EROSION CONTROL DEVICES SHALL NOT BE MOVED OR MODIFIED WITHOUT THE APPROVAL OF THE BUILDING OFFICIAL.

49. ALL REMOVABLE EROSION PROTECTIVE DEVICES SHALL BE IN PLACE AT THE END OR EACH WORKING DAY WHEN THE 5-DAY RAIN PROBABILITY FORECAST EXCEEDS 40%.

50. AFTER A RAINSTORM, ALL SILT AND DEBRIS SHALL BE REMOVED FROM STREETS, CHECK BERMS AND BASINS.

51. GRADED AREAS ON THE PERMITTED AREA PERIMETER MUST DRAIN AWAY FROM THE FACE OF SLOPES AT THE CONCLUSION OF EACH WORKING DAY. DRAINAGE IS TO BE DIRECTED TOWARD DESILTING FACILITIES.

52. THE PERMITTEE AND CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATER CREATES A HAZARDOUS CONDITION.

53. THE PERMITTEE AND CONTRACTOR SHALL INSPECT THE EROSION CONTROL WORK AND ENSURE THAT THE WORK IS IN ACCORDANCE WITH THE APPROVED PLANS.

ENVIRONMENTAL NOTES

54. THE PERMITTEE SHALL NOTIFY ALL GENERAL CONTRACTORS, SUBCONTRACTORS, MATERIAL SUPPLIERS, LESSEES, AND PROPERTY OWNERS: THAT DUMPING OF CHEMICALS INTO THE STORM DRAIN SYSTEM OR THE WATERSHED IS PROHIBITED.

55. PERMITTEE SHALL MAINTAIN CONSTRUCTION SITE IN SUCH A CONDITION THAT AN ANTICIPATED STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SOLID OR LIQUID CHEMICAL SPILLS; WASTES FROM PAINTS, STAINS, SEALANTS, GLUES, LIMES, PESTICIDES, HERBICIDES, WOOD PRESERVATIVES AND SOLVENTS; ASBESTOS FIBERS, PAINT FLAKES OR STUCCO FRAGMENTS; FUELS, OILS, LUBRICANTS, AND HYDRAULIC, RADIATOR OR BATTERY FLUIDS; FERTILIZERS; VEHICLE/EQUIPMENT WASH WATER AND CONCRETE WASH WATER; CONCRETE, DETERGENT OR FLOATABLE WASTES; WASTES FROM ANY ENGINE/EQUIPMENT STEAM CLEANING OR CHEMICAL DEGREASING AND SUPERCHLORINATED POTABLE WATER LINE FLUSHING. DURING CONSTRUCTION, PERMITTEE SHALL DISPOSE OF SUCH MATERIALS IN A SPECIFIED AND CONTROLLED TEMPORARY AREA ON-SITE, PHYSICALLY SEPARATED FROM POTENTIAL STORMWATER RUNOFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.

56. PERMITTEE MAY DISCHARGE MATERIAL OTHER THAN STORMWATER ONLY WHEN NECESSARY FOR PERFORMANCE AND COMPLETION OF CONSTRUCTION PRACTICES AND WHERE THEY DO NOT: CAUSE OR CONTRIBUTE TO A VIOLATION OF ANY WATER QUALITY STANDARD; CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR NUISANCE; OR CONTAIN A HAZARDOUS SUBSTANCE IN A QUANTITY REPORTABLE UNDER FEDERAL REGULATIONS 40 CFR PARTS 117 AND 302.

57. DEWATERING OF CONTAMINATED GROUNDWATER, OR DISCHARGING CONTAMINATED SOILS VIA SURFACE EROSION IS PROHIBITED. DEWATERING OF NON-CONTAMINATED GROUNDWATER REQUIRES A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FROM THE RESPECTIVE STATE REGIONAL WATER QUALITY CONTROL BOARD.

58. SPECIAL NOTE: "SURVEY MONUMENTS SHALL BE PRESERVED AND REFERENCED BEFORE CONSTRUCTION AND REPLACED AFTER CONSTRUCTION PURSUANT TO SECTION 8771 OF THE BUSINESS AND PROFESSIONS CODE."

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) NOTES

1. IN THE CASE OF EMERGENCY, CALL ALEXANDER & SVETLANA TCHOURBANOV AT WORK PHONE (520) 400-9008 (A) (520) 909-0869 (S) B

2. SEDIMENT FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING STRUCTURAL CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE.

3. STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TACKING OR WIND.

4. APPROPRIATE BMP'S FOR CONSTRUCTION-RELATED MATERIALS, WASTES, SPILLS SHALL BE IMPLEMENTED TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTIES BY WIND OR RUNOFF.

5. RUNOFF FROM EQUIPMENT AND VEHICLE WASHING SHALL BE CONTAINED AT CONSTRUCTION SITES UNLESS TREATED TO REDUCE OR REMOVE SEDIMENT AND OTHER POLLUTANTS.

6. ALL CONSTRUCTION CONTRACTOR AND SUBCONTRACTOR PERSONNEL ARE TO BE MADE AWARE OR THE REQUIRED BEST MANAGEMENT PRACTICES AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS.

7. AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND PROPERLY DISPOSED IN TRASH OR RECYCLE BINS.

8. CONSTRUCTION SITES SHALL BE MAINTAINED IN SUCH A CONDITION THAT AN ANTICIPATED STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. DISCHARGES OF MATERIAL OTHER THAN STORMWATER ONLY WHEN NECESSARY FOR PERFORMANCE AND COMPLETION OF CONSTRUCTION PRACTICES AND WHERE THEY DO NOT: CAUSE OR CONTRIBUTE TO A VIOLATION OF ANY WATER QUALITY STANDARD; CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR NUISANCE; OR CONTAIN A HAZARDOUS SUBSTANCE IN A QUANTITY REPORTABLE UNDER FEDERAL REGULATIONS 40 CFS PARTS 117 AND 302.

9. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SOLID OR LIQUID CHEMICAL SPILLS; WASTES FROM PAINTS, STAINS, SEALANTS, GLUES, LIMES, PESTICIDES, HERBICIDES, WOOD PRESERVATIVES AND SOLVENTS; ASBESTOS FIBERS, PAINT FLAKES OR STUCCO FRAGMENTS; FUELS, OILS, LUBRICANTS, AND HYDRAULIC, RADIATOR OR BATTERY FLUIDS; FERTILIZERS, VEHICLE/EQUIPMENT WASH WATER AND CONCRETE WASH WATER; CONCRETE, DETERGENT OR FLOATABLE WASTES; WASTES FROM ANY ENGINE/EQUIPMENT STEAM CLEANING OR CHEMICAL DEGREASING AND SUPERCHLORINATED POTABLE WATER LINE FLUSHING.

DURING CONSTRUCTION, PERMITTEE SHALL DISPOSE OF SUCH MATERIALS IN A SPECIFIED AND CONTROLLED TEMPORARY AREA ON-SITE, PHYSICALLY SEPARATED FROM POTENTIAL STORMWATER RUNOFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.

10. DEWATERING OF CONTAMINATED GROUNDWATER, OR DISCHARGING CONTAMINATED SOILS VIA SURFACE EROSION IS PROHIBITED. DEWATERING OF NON-CONTAMINATED GROUNDWATER REQUIRES A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FROM THE RESPECTIVE STATE REGIONAL WATER QUALITY CONTROL BOARD.

11. GRADED AREAS ON THE PERMITTED AREA PERIMETER MUST DRAIN AWAY FROM THE FACE OF SLOPES AT THE CONCLUSION OF EACH WORKING DAY. DRAINAGE IS TO BE DIRECTED TOWARD DESILTING FACILITIES.

12. THE PERMITTEE AND CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATER CREATES A HAZARDOUS CONDITION.

13. THE PERMITTEE AND CONTRACTOR SHALL INSPECT THE EROSION CONTROL WORK AND INSURE THAT THE WORK IS IN ACCORDANCE WITH THE APPROVED PLANS.

14. THE PERMITTEE SHALL NOTIFY ALL GENERAL CONTRACTORS, SUBCONTRACTORS, MATERIAL SUPPLIERS, LESSEES, AND PROPERTY OWNERS: THAT DUMPING OF CHEMICALS INTO THE STORM DRAIN SYSTEM OR THE WATERSHED IS PROHIBITED.

15. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. NECESSARY MATERIALS SHALL BE AVAILABLE ON SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.

16. ALL REMOVABLE EROSION PROTECTIVE DEVICES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE 5-DAY RAIN PROBABILITY FORECAST EXCEEDS 40%.

17. SEDIMENTS FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING AN EFFECTIVE COMBINATION OF EROSION AND SEDIMENT CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE, AND STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING, OR WIND.

18. APPROPRIATE BMPS FOR CONSTRUCTION-RELATED MATERIALS, WASTES, SPILLS OR RESIDUES SHALL BE IMPLEMENTED AND RETAINED ON SITE TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTY BY WIND OR RUNOFF.

GEOTECHNICAL CERTIFICATION

THIS GRADING PLAN HAS BEEN REVIEWED BY THE UNDERSIGNED AND FOUND TO BE IN CONFORMANCE WITH THE RECOMMENDATIONS AS OUTLINED IN THE FOLLOWING SOILS AND GEOLOGY REPORT (WITH ASSOCIATED RESPONSES AND ADDENDUMS) FOR THIS PROJECT:

ENTITLED: "LIMITED PRELIMINARY GEOTECHNICAL INVESTIGATION FOR PROPOSED NEW HOME AT 20601 TRABUCO OAKS DRIVE, TRABUCO CANYON, COUNTY OF ORANGE, CA 92679"

DATED: SEPTEMBER 04, 2024 JOB NUMBER: 19G19012

FIRM NAME: PETER & ASSOCIATES, INC. C

BY: _____ GEOTECHNICAL CONSULTANT _____ DATE

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

PROFESSIONAL GEOLOGIST · COLIN E. CUNNINGHAM No. EG 2140 CERTIFIED ENGINEERING GEOLOGIST · STATE OF CALIFORNIA

PROJECT INFORMATION

SITE ADDRESS:

20601 TRABUCO OAKS DRIVE,
TRABUCO CANYON, CA 92678

OWNER:

ALEXANDER & SVETLANA TCHOURBANOV
426 E. 30TH STREET
TUCSON, ARIZONA 85713
(520) 400-9008 (A)
(520) 909-0869 (S)

ARCHITECT:

JOHN A. SALAT, ARCHITECT
22386 WOODGROVE ROAD
LAKE FOREST, CA 92630
(949) 235-4847
EMAIL: FREEINGWINDS@EARTHLINK.NET

CIVIL ENGINEER/SURVEYOR:

PETER & ASSOCIATES
CONTACT: STEPHEN PETER. P.E.
1519 CALLE VALLE
SAN CLEMENTE, CA 92672
PHONE: (949)492-3735
FAX: (949)492-1891

GEOTECHNICAL CONSULTANT:

PETER & ASSOCIATES
CONTACT: LAN PHAM, G.E.
1519 CALLE VALLE
SAN CLEMENTE, CA 92672
PHONE: (949)492-3735
FAX: (949)492-1891

LEGAL DESCRIPTION & ACCESSOR'S PARCEL NUMBER (APN):

LOT 33 AND NORTH ½ OF LOT 31 OF TRACT 926 IN THE COUNTY OF ORANGE, STATE OF CALIFORNIA, FILED IN BOOK 29, PAGES 20-21 INCLUSIVE OF MISCELLANEOUS MAPS COUNTY OF ORANGE, CA.

APN: 842-102-06

BASIS OF BEARINGS :

CENTERLINE OF TRABUCO OAKS DRIVE BEING N06°57'07"E PER RECORD OF SURVEY 2014-1042

BENCHMARK (AS PROVIDED BY COASTAL LAND SOLUTIONS, INC. ON THE TOPOGRAPHIC SURVEY):

ORANGE COUNTY BENCH MARK: 3W-61-90

ELEVATION = 995.132 (NAVD 88) LEVELED 1990

APPLICABLE CODE:

2022 CALIFORNIA BUILDING CODE

SITE DATA (SQUARE FOOTAGE)

TOTAL AREA:		10,644 SQ.FT.
DISTURBED AREA:		1003 SQ.FT.
IMPERVIOUS AREA:	EXISTING CONDITIONS:	0 SQ.FT. (0%)
IMPERVIOUS AREA:	PROPOSED CONDITIONS:	1980 SQ.FT. (18.6%)
PERVIOUS AREA:	EXISTING CONDITIONS:	10,644 SQ.FT. (100%)
PERVIOUS AREA:	PROPOSED CONDITIONS:	8664 SQ.FT. (81.4%)

C

SCOPE OF PROPOSED IMPROVEMENTS

NEW HOUSE AND GARAGE/DRIVEWAY.

OSHA NOTE:

THERE SHALL BE NO TRENCHES OR EXCAVATIONS 5 FEET OR MORE IN DEPTH INTO WHICH A PERSON IS REQUIRED TO DESCEND, OR OBTAIN PERMIT FROM THE STATE OF CALIFORNIA, DIVISION OF OCCUPATIONAL SAFETY, AND HEALTH (CAL/OSHA). THIS PERMIT AND ANY OTHER SAFETY PERMIT SHALL BE OBTAINED PRIOR TO COMMENCE OF ANY WORK. CONTACT CAL/OSHA AT 714-558-4451 FOR ADDITIONAL INFORMATION.

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C-1 TITLE SHEET
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C-2A SHORING PILES SCHEDULE C
C-3 TO C-9 SECTIONS
C-10 BMP'S & EROSINON CONTROL PLAN B
C-10A EROSION CONTROL WM-8 AND SE-6 DETAILS C
T-1 TOPOGRAPHIC MAP
P-1 AQUAROBIC MINI-PLANT (FOR REFERENCE ONLY)

ESTIMATED EARTHWORK QUANTITIES (C.Y.)

	CUT	FILL
RAW CUT	950	----
RAW FILL	XXX	100
OVEREXCAVATION	XX	XX
SHRINKAGE 10% OF OVEREXCAVATION	----	XX
IMPORT	XX	----
EXPORT	----	850
TOTAL	950	950

**SPECIAL NOTE: GRADING SHALL BE LIMITED TO 3000 CUBIC YARDS FOR CUT OR FILL ON INDIVIDUAL LOTS

**SPECIAL NOTE: EARTHWORK CALCULATED FOR ESTIMATING PURPOSES ONLY. CONTRACTOR SOLELY RESPONSIBLE TO VERIFY ACCURACY OF ALL QUANTITIES.

APPROXIMATE AREA TO BE DISTURBED = 0.0455 ACRES (1980 SQ.FT.)
APPROXIMATE AREA LOT 33 & N1/2 LOT 31 = 10,644 SQ.FT. OR 0.244 ACRES C

SECTION 4216 OF THE GOVERNMENT CODE REQUIRES A DIGALERT IDENTIFICATION NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID. FOR YOUR DIGALERT I.D. NUMBER CALL UNDERGROUND SERVICE ALERT

C

NOTE 1: RETAINING WALLS TO BE CONSTRUCTED UNDER A SEPARATED PERMIT #: RWP23-0104
NOTE 2: SEWER/SEPTIC SYSTEM TO BE CONSTRUCTED UNDER A SEPARATED PERMIT #: PLB23-1358
NOTE 3: THE ENCROACHMENT PERMIT#: RE23-0550

C

PACKAGE #: PKG23-995
PERMIT #: GRD23-0096 (BUILDING)
PERMIT #: BLD23-2075 (SHORING)

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER · STEPHEN B. PETER · No. 38623 · Exp. 3/31/27 · CIVIL · STATE OF CALIFORNIA

REVISION	DESCRIPTION	APPROVED	DATE
A	PLAN CHECK COMMENTS		08/22/23
B	PLAN CHECK COMMENTS		12/11/23
C	PLAN CHECK COMMENTS		04/15/24
D	PLAN CHECK COMMENTS		09/13/24
E	PLAN CHECK COMMENTS		02/17/25

SCALE: N/A

ACAD FILE NO. 19E19011

PROJECT NO. 19E19011

PREPARED BY: STEPHEN B. PETER — RCE 38623 — 03/31/27
CIVIL ENGINEER — LICENSE NO. — EXP. DATE

LEGAL:
LOT 33 AND N½ OF LOT 31 OF TRACT 926

BENCHMARK
OCSBM: 3W-61-90
ELEVATION = 995.132
NAVD 88/DATUM

A.P. NUMBER:
842-102-06

PLANS PREPARED BY:
PETER and ASSOCIATES ENGINEERS GEOLOGISTS & SURVEYORS, INC.
WWW.PETERASSOC.COM
1519 CALLE VALLE, SAN CLEMENTE, CA. 92672
Tel: (949) 492-3735 Fax: (949) 492-1891

TITLE SHEET

20601 TRABUCO OAKS DRIVE
TRABUCO CANYON, CA 92679

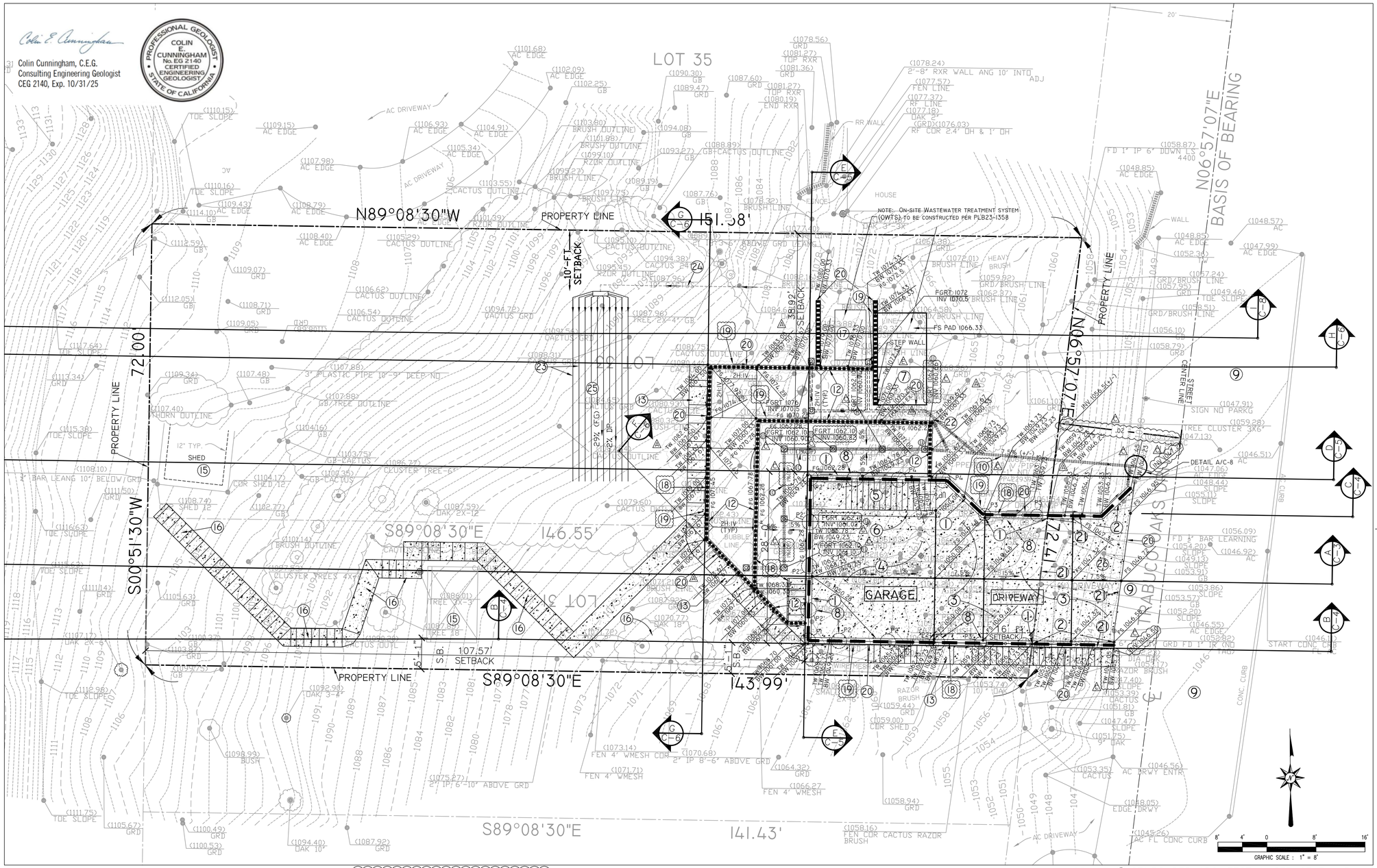
C-1

PLOT DATE: 09-05-2025

Colin E. Cunningham

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

COLIN E. CUNNINGHAM No. EG 2140 CERTIFIED ENGINEERING GEOLOGIST — PROFESSIONAL GEOLOGIST — STATE OF CALIFORNIA



TREATMENT PLANT:

(7) AQUAROBIC MINI-PLANT-450 GPD PER PERMIT #: PLB23-1358

(17) EMERGENCY 1000 GALLON OUTFLOW TANK-NORWESCO "BRUISER" SINGLE OR DOUBLE COMPARTMENT DOSING STORAGE TANK. TREATED EFFLUENT TO LANDSCAPE SPRINKLER SYSTEM OR DRIP SYSTEM (BY OTHERS AND REQUIRES SEPARATE PERMIT. PUMP SYSTEM BY ORENCO OR EQUIVALENT OTHERS.

(20) LIMITS OF GRADING IS EXTERIOR FACE OF ALL RETAINING WALLS

(21) LIMITS OF OFF-SITE GRADING
(22) PIPE INLET AND CONNECTOR PER DETAIL 1/C-2

(23) DRIP SYSTEM (1" PVC SCH 80) AND DISTRIBUTION BOX 300 FT (10X30FT). DRIP SYSTEM TO EMBED AT LEAST 12" BELOW SURFACE. THE DRIP SYSTEM SHALL BE PLACED AT 1' O.C. USE MINIMUM 4" OF BEDDING SAND LAYER (SEE DETAIL A).

(24) *2" PVC SCH 80 TO DISTRIBUTION BOX / DRIP SYSTEM ON SITE.*

(25) *GRADE AREA BY CONTRACTOR, IF NECESSARY.*

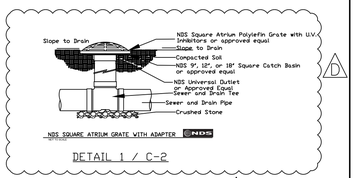
(26) *ENCROACHMENT PERMIT: RE23-0550*

(27) *SHORING TO BE CONSTRUCTED PER BLD23-2075*

(28) *BUILDING TO BE CONSTRUCTED PER BLD22-1286*

LEGEND:

BQ	BARBECUE	PA	PLANTER AREA
	BRICK	SL	STREET LIGHT
	ROCK WALL	TC	TOP OF CURB
	BUILDING LINE		TILE
	CONCRETE	TOS	TOP OF STEPS
	DRAIN	TS	TOP OF SLOPE
E	ELECTRICAL BOX	TW	TOP OF WALL
(XX.XX)	EXISTING SPOT ELEVATION	TOB	TOP OF BRICK
FF	FINISH FLOOR		SHOTCRETE WALL
FG	FINISH GRADE		MASONRY WALL
FS	FINISH SURFACE	WI	WATER IRRIGATION
FH	FIRE HYDRANT	WM	WATER METER
FL	FLOW LINE	WS	WATER SPIGOT
GM	GAS METER	WV	WATER VALVE
OPP BOB	POWER POLE BOTTOM OF BRICK		WOOD FENCE
EOB	EDGE OF BRICK	G	CHAIN LINK FENCE GRATE
	GRASS		
HS	HORSE SHOE PIT		
LSA	NATURAL GROUND/LANDSCAPE		



DETAIL 1 / C-2

QUANTITY: CONSTRUCTION NOTES:

SEE CAISSON SCHEDULE PER C-2A.

104 L.F. (+/-) (1) CONSTRUCT SOLDIER PILE/SHOTCRETE RETAINING WALL; SEPARATE RET. WALL PERMIT #BLD23-2075
28.67 L.F. (2) CONSTRUCT MASONRY RETAINING WALLS IN STREET RIGHT OF WAY PERMIT #: RWP23-0104
645 S.F.(+/-) (3) CONSTRUCT NEW CONCRETE DRIVEWAY; PROVIDE 5-INCH THICK CONCRETE WITH #4 REBAR AT 12-INCHES ON CENTERS, BOTH DIRECTIONS.
510 S.F.(+/-) (4) CONSTRUCT 5-INCH THICK CONCRETE PAD WITH #4 REBAR AT 12-INCH CENTERS, EACH WAY, PLACED AT MID-HEIGHT OF THE SLAB. UNDERLAIN SLAB BY A 4-INCH THICK LAYER OF CLEAN SAND, PLACE 15-MIL POLYETHYLENE MOISTURE BARRIER (SUCH AS VISQUEEN) OR MOISTURE/VAPOR BARRIER REQUIRED BY CALGREEN, SANDWICHED MOISTURE BARRIER MATERIAL WITHIN THE CLEAN SAND LAYER.

QUANTITY: CONSTRUCTION NOTES:

(5) STAIRS PER ARCHITECT & STRUCTURAL PLANS.
(6) INTERIOR BUILDING WALL PER ARCHITECT & STRUCTURAL PLANS
(7) PROPOSED TREATMENT PLANT LOCATION-OWTS TO BE CONSTRUCTED PER PLB23-1358
(8) SOLDIER PILE (TYP); SEE STRUCTURAL RETAINING WALL PLANS - PERMIT # BLD23-2075
(9) (EX) AC ROAD
135 L.F. (+/-) (10) 4-INCH DRAINAGE PVC SCH 40 OR ABS SDR 35 DISCHARGE TO STREET
(9) (11) 12"X12" NDS 1290 ATRIUM INLETS-SEE DETAIL 1/C-7A
211 L.F. (12) RETAINING WALLS UNDER SEPARATE PERMIT RWP23-0104
105 L.F. (13) STAIRS PER ARCHITECT & STRUCTURAL PLANS. RISE: MAX. 7-INCH(4-MIN), TREAD 12-INCH(MIN.11-INCH) SEE SECTIONS B, F & G FOR STEPS CROSS SECTIONS
(1) (14) REMOVE & REPLACE EXISTING SHED; BY OTHERS.
(1) (15) EXISTING SHED; KEEP IN PLACE.
233 L.F. (19) 4-INCH PERFORATED DRAINAGE PVC SCH 40 OR ABS SDR 35 WITH HOLES DOWN
(125) (16) NEW STEPS; CONCRETE STEPS FOR OCFA (MAXIMIM RISE 7", MINIMUM TREAD: 11")
193 L.F. (18) 3.5'-FT RAILING MAX PICKET SPACING < 4" BY OTHERS.

PERMIT #: GRD23-0096

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER — STEPHEN B. PETER — No. 38623 — Exp. 3/31/27 — CIVIL — STATE OF CALIFORNIA

REVISION	DESCRIPTION	APPROVED	DATE
REVISION	DESCRIPTION		
A	WALL ELEVATION REVISION		08/22/23
B	PLAN CHECK COMMENTS		04/15/24
C	PLAN CHECK COMMENTS / DRIP SYSTEM		09/13/24
D	PLAN CHECK COMMENTS / DRIP SYSTEM		02/17/25

SCALE: N/A
ACAD FILE NO.
PROJECT NO. 19E19011

PREPARED BY: STEPHEN B. PETER, RCE 38623, 03/31/21 (CIVIL ENGINEER, LICENSE NO., EXP. DATE)

LEGAL:
LOT 33 & N½ LOT 31
TRACT 926, MM 29/20-21

BENCHMARK
OCSBM: 3W-61-90
ELEVATION = 995.132
NAVD 88/DATUM

A.P. NUMBER:
842-102-06

PLANS PREPARED BY:
PETER and ASSOCIATES ENGINEERS GEOLOGISTS & SURVEYORS, INC.
WWW.PETERASSOC.COM
1519 CALLE VALLE, SAN CLEMENTE, CA. 92672
Tel: (949) 492-3735 Fax: (949) 492-1891

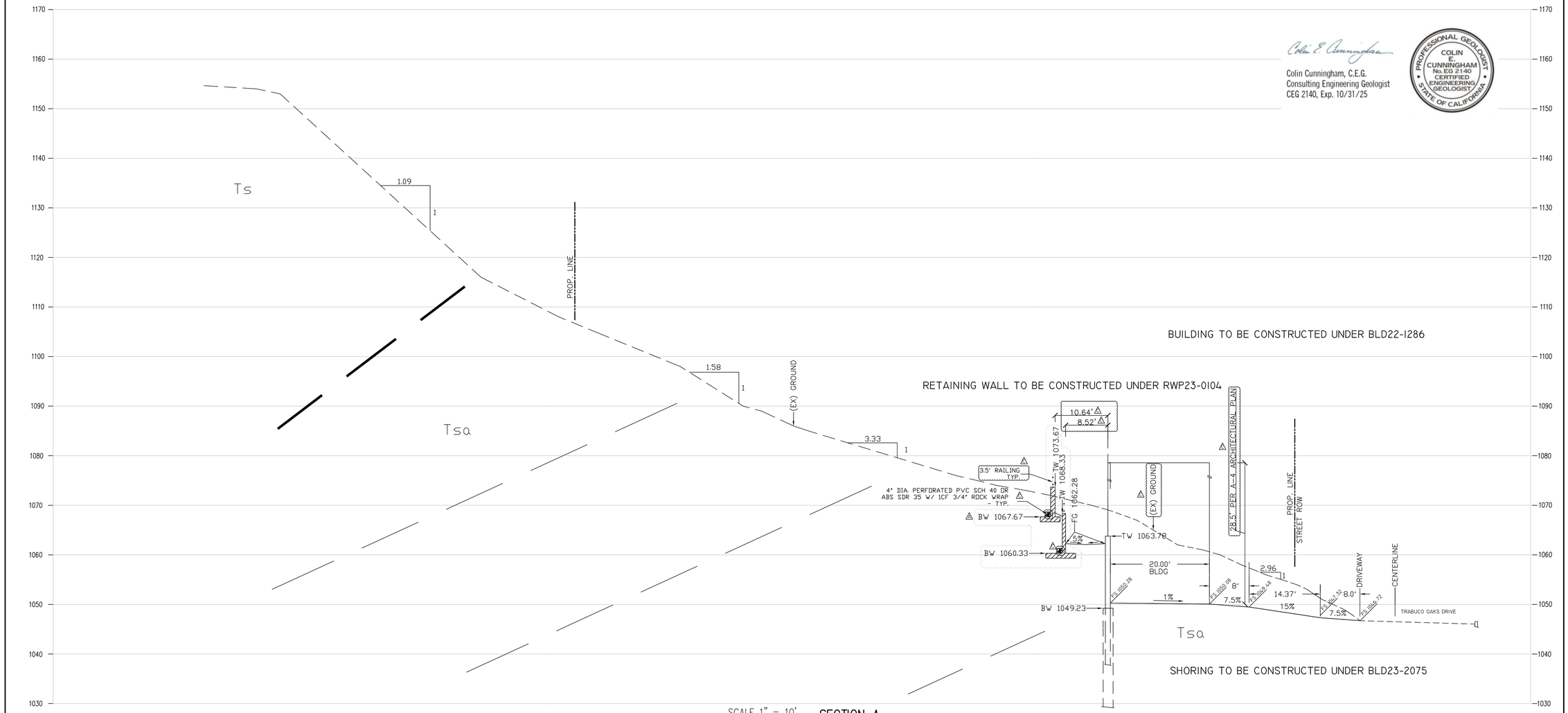
PRECISE GRADING PLAN

20601 TRABUCO OAKS DRIVE
TRABUCO CANYON, CA 92679

19E19011

C-2

PLOT DATE: 09-05-2025



SCALE 1" = 10'

SECTION A

Colin E. Cunningham

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

PROFESSIONAL GEOLOGIST
COLIN E. CUNNINGHAM
No. EG 2140
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

△C
PERMIT #: GRD23-0096

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN B. PETER
No. 38623
Exp. 3/31/27
CIVIL
STATE OF CALIFORNIA

	REVISION	DESCRIPTION	APPROVED	DATE
	△A	WALL ELEVATION REVISION		08/22/23
	△B	PLAN CHECK COMMENTS		04/15/24
	△C	PLAN CHECK COMMENTS-SECTIONS		02/17/25

SCALE: N/A

ACAD FILE NO. 19E19011

PROJECT NO. 19E19011

PREPARED BY:

STEPHEN B. PETER	RCE 38623	03/31/21
CIVIL ENGINEER	LICENSE NO.	EXP. DATE

BENCHMARK

OCSBM: 3W-61-90
ELEVATION = 995.132
NAVD 88/DATUM

LEGAL

A.P. NUMBER:
842-102-06

PLANS PREPARED BY:
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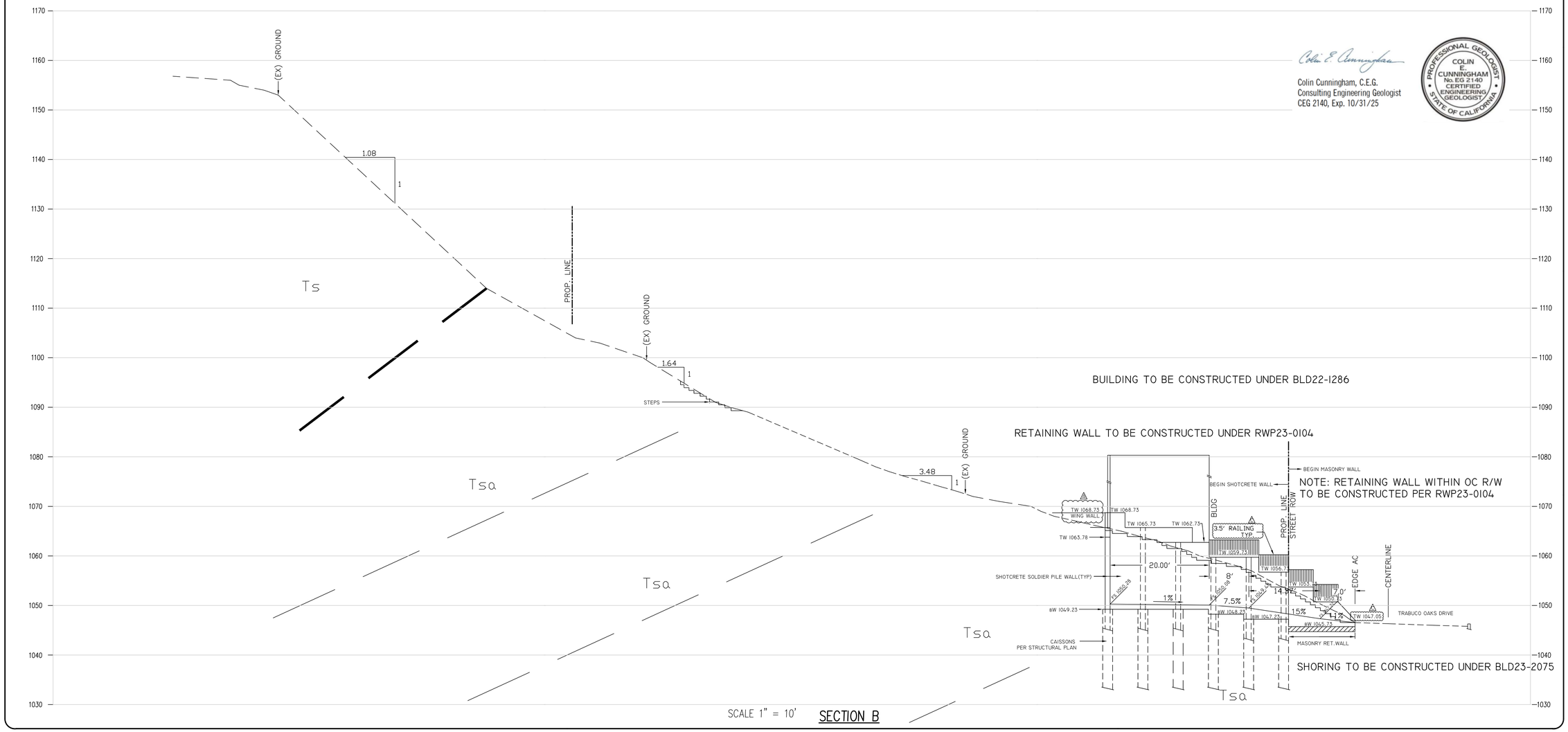
SECTIONS

20601 TRABUCO OAKS DRIVE
TRABUCO CANYON, CA 92679

C-3

PLOT DATE: 09-05-2025



SCALE 1" = 10'

SECTION B

Colin E. Cunningham

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

PROFESSIONAL GEOLOGIST
COLIN E. CUNNINGHAM
No. EG 2140
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

C

PERMIT #: GRD23-0096

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN B. PETER
No. 38623
Exp. 3/31/27
CIVIL
STATE OF CALIFORNIA

	REVISION	DESCRIPTION	APPROVED	DATE
	B	WALL ELEVATION REVISION		08/22/23
	A	PLAN CHECK COMMENTS		04/15/24
	A	PLAN CHECK COMMENTS-SECTIONS		02/17/25

SCALE: N/A

ACAD FILE NO. 19E19011

PROJECT NO. 19E19011

PREPARED BY:

STEPHEN B. PETER	RCE 38623	03/31/21
CIVIL ENGINEER	LICENSE NO.	EXP. DATE

BENCHMARK

OCSBM: 3W-61-90
ELEVATION = 995.132

NAVD 88/DATUM

LEGAL

A.P. NUMBER:
842-102-06

PLANS PREPARED BY:

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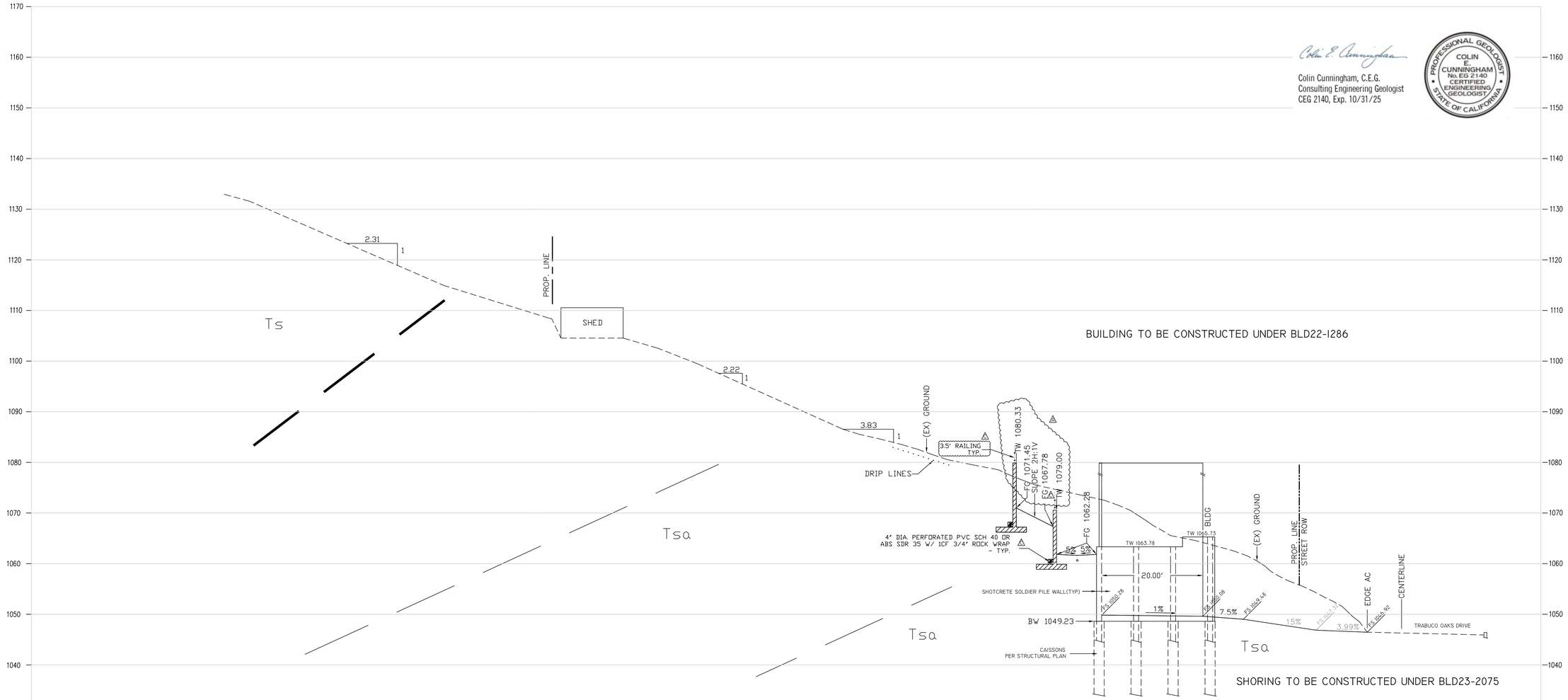
SECTIONS

20601 TRABUCO OAKS DRIVE
TRABUCO CANYON, CA 92679

C-4

PLOT DATE: 09-05-2025



SCALE 1" = 10'

SECTION D

Colin E. Cunningham

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

PROFESSIONAL GEOLOGIST
COLIN E. CUNNINGHAM
No. EG 2140
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

C

PERMIT #: GRD23-0096

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN B. PETER
No. 38623
Exp. 3/31/27
CIVIL
STATE OF CALIFORNIA

	REVISION	DESCRIPTION	APPROVED	DATE
	A	WALL ELEVATION REVISION		08/22/23
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SCALE: N/A

ACAD FILE NO. 19E19011

PROJECT NO. 19E19011

PREPARED BY:

STEPHEN B. PETER	RCE 38823	03/31/21
CIVIL ENGINEER	LICENSE NO.	EXP. DATE

BENCHMARK

OCSBM: 3W-61-90
ELEVATION = 995.132
NAVD 88/DATUM

LEGAL

A.P. NUMBER:
842-102-06

PLANS PREPARED BY:
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SECTIONS

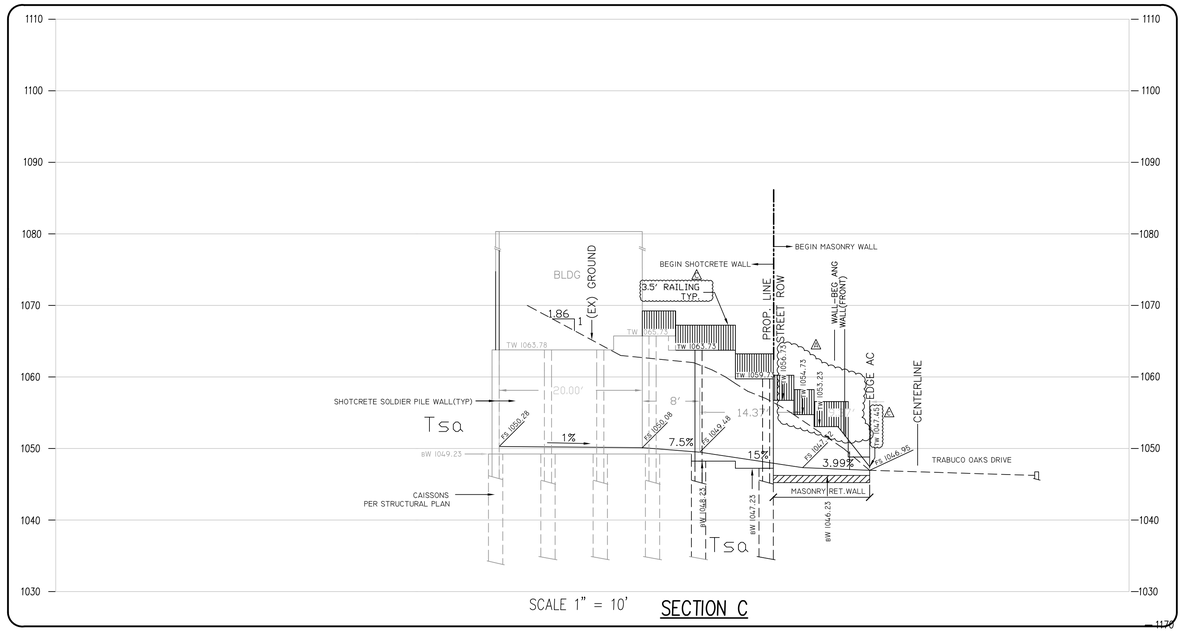
20601 TRABUCO OAKS DRIVE
TRABUCO CANYON, CA 92679

C-5

PLOT DATE: 09-05-2023

Colin E. Cunningham
Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

COLIN E. CUNNINGHAM No. EG 2140 CERTIFIED ENGINEERING GEOLOGIST — PROFESSIONAL GEOLOGIST — STATE OF CALIFORNIA


BLDG
(EX) GROUND
1.86
1
BEGIN SHOTCRETE WALL
3.5' RAILING TYP.
BEGIN MASONRY WALL
PROP. LINE
STREET ROW
WALL-REG. ANG WALL(FRONT)
EDGE AC
CENTERLINE
TRABUCO OAKS DRIVE
TW 1063.78
TW 1063.73
TW 1064.73
TW 1053.23
TW 1060.73
TW 1062.73
TW 1062.23
TW 1060.73
TW 1062.73
TW 1062.23
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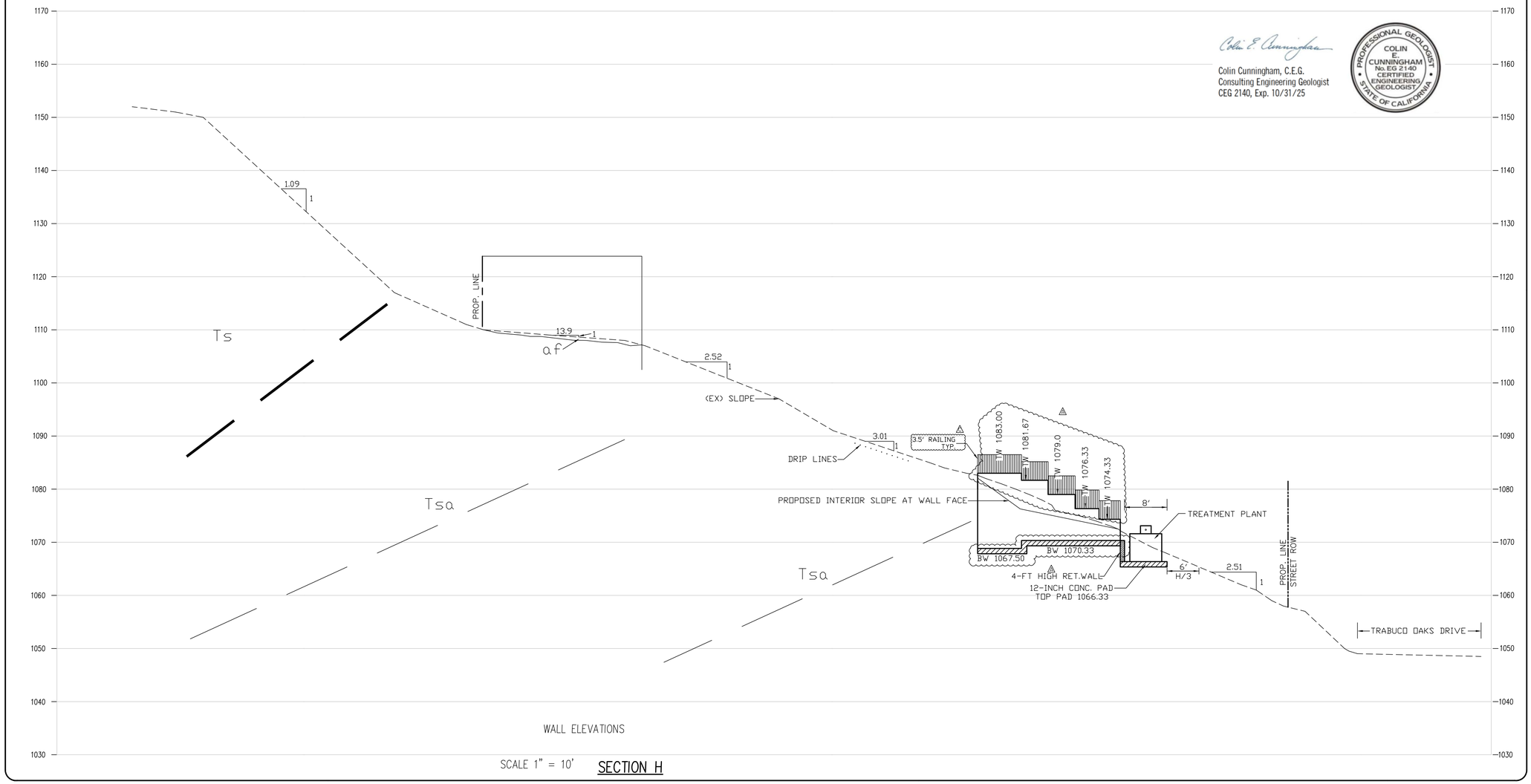
TW 1062



WALL ELEVATIONS

SCALE 1" = 10' **SECTION H**

Colin E. Cunningham

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

PROFESSIONAL GEOLOGIST
COLIN E. CUNNINGHAM
No. EG 2140
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

C

PERMIT #: GRD23-0096

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN B. PETER
No. 38623
Exp. 3/31/27
CIVIL
STATE OF CALIFORNIA

	REVISION	DESCRIPTION	APPROVED	DATE
	C	WALL ELEVATION REVISION		08/22/23
	B	PLAN CHECK COMMENTS		04/15/24
	A	PLAN CHECK COMMENTS-SECTIONS		02/17/25

SCALE: N/A

ACAD FILE NO. 19E19011

PROJECT NO. 19E19011

PREPARED BY:

STEPHEN B. PETER	RCE 38623	03/31/21
CIVIL ENGINEER	LICENSE NO.	EXP. DATE

BENCHMARK

OCSBM: 3W-61-90
ELEVATION = 995.132

NAVD 88/DATUM

LEGAL

A.P. NUMBER:
842-102-06

PLANS PREPARED BY:

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Tel: (949) 492-3735 Fax: (949) 492-1891

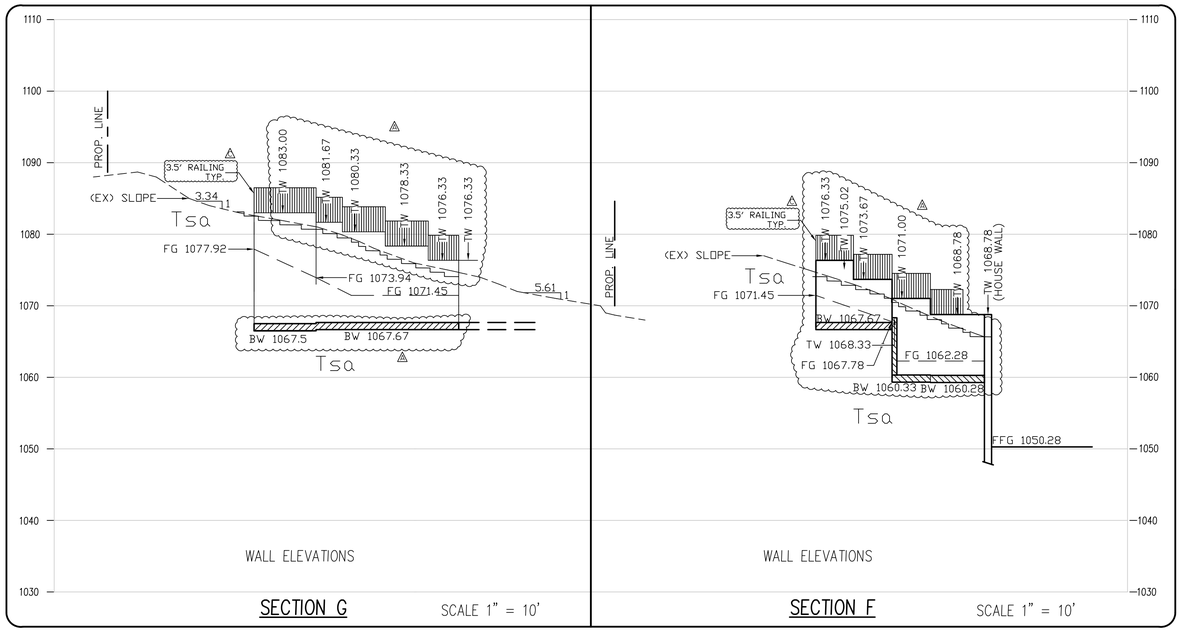
SECTIONS

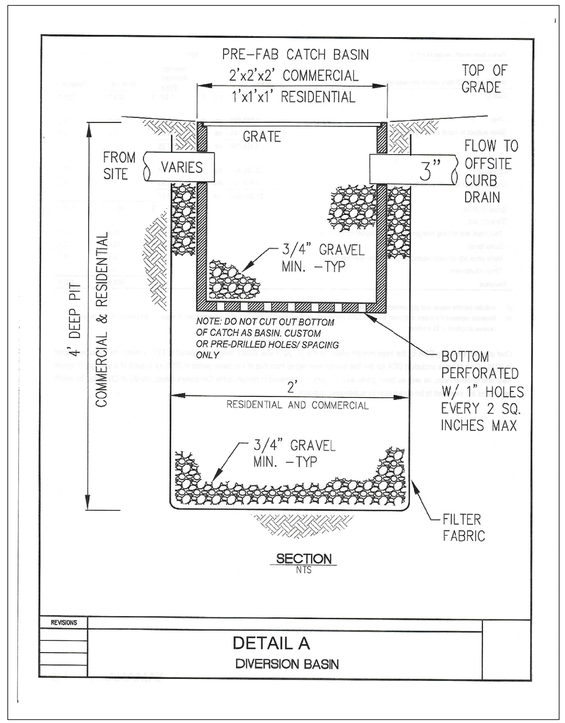
20601 TRABUCO OAKS DRIVE
TRABUCO CANYON, CA 92679

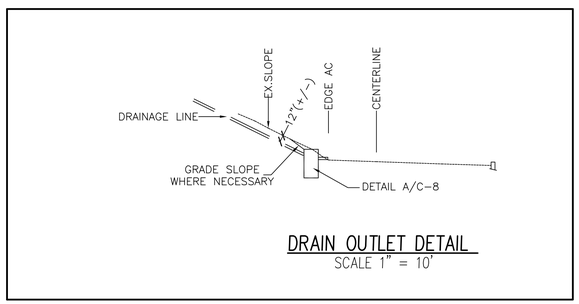
C-7

PLOT DATE: 09-05-2025

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25







PERMIT #: GRD23-0096

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER STEPHEN B. PETER No. 38623 Exp. 3/31/27 CIVIL STATE OF CALIFORNIA

	REVISION	DESCRIPTION	APPROVED	DATE
	C	WALL ELEVATION REVISION		08/22/23
	B	PLAN CHECK COMMENTS		04/15/24
	A	PLAN CHECK COMMENTS-SECTIONS		02/17/25

SCALE: N/A

ACAD FILE NO. 19E19011

PROJECT NO. 19E19011

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STEPHEN B. PETER	RCE 38823	03/31/21
CIVIL ENGINEER	LICENSE NO.	EXP. DATE

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OCSBM: 3W-61-90
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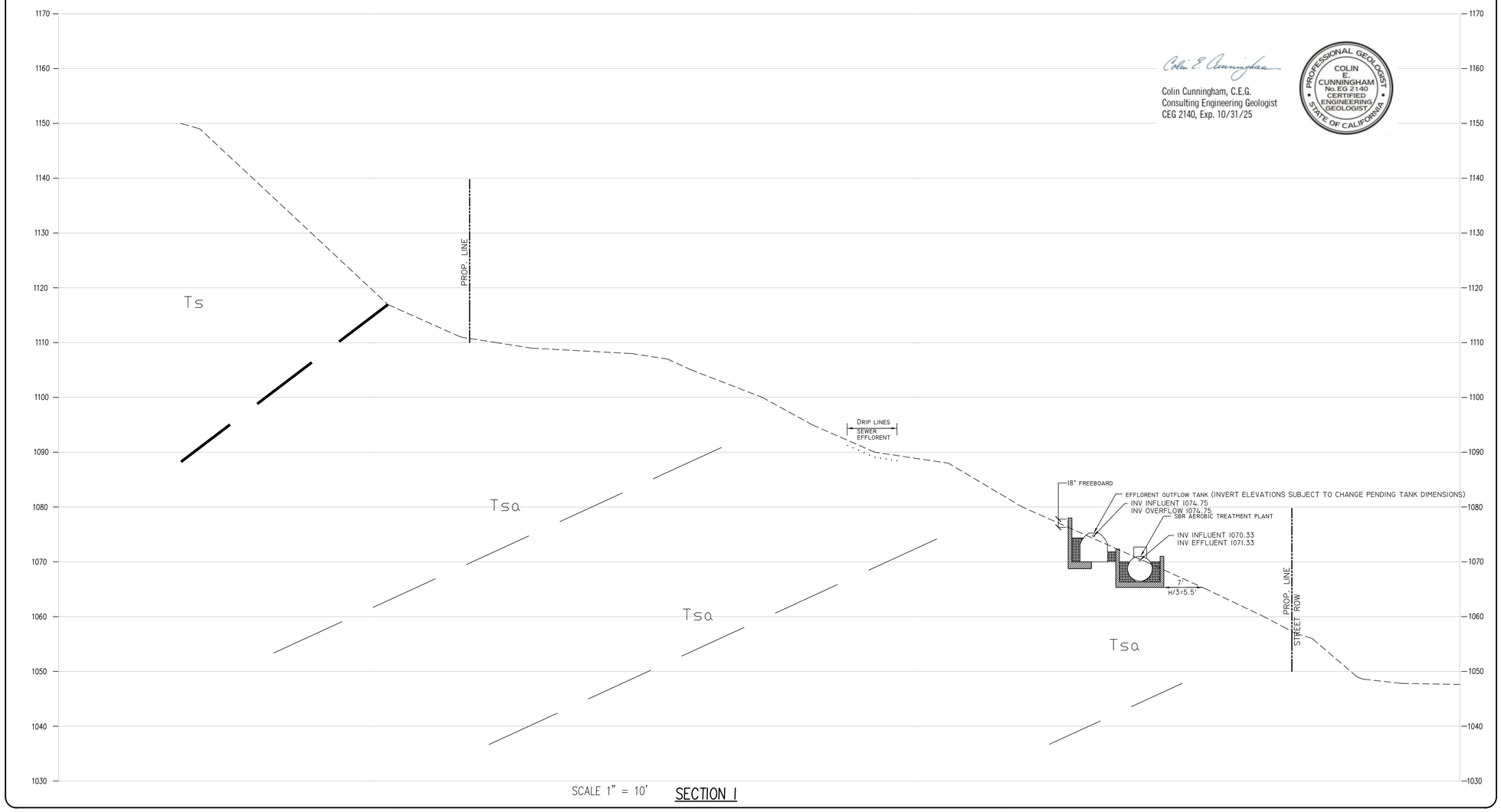
SECTIONS F & G & OUTLET

20601 TRABUCO OAKS DRIVE
TRABUCO CANYON, CA 92679

C-8

PLOT DATE: 09-05-2025



SCALE 1" = 10'

SECTION I

Colin E. Cunningham

Colin Cunningham, C.E.G.
Consulting Engineering Geologist
CEG 2140, Exp. 10/31/25

PROFESSIONAL GEOLOGIST
COLIN E. CUNNINGHAM
No. EG 2140
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

C

PERMIT #: GRD23-0096

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN B. PETER
No. 38623
Exp. 3/31/27
CIVIL
STATE OF CALIFORNIA

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	A	WALL ELEVATION REVISION		08/22/23
	B	PLAN CHECK COMMENTS		04/15/24
	C	PLAN CHECK COMMENTS-SECTIONS		02/17/25

SCALE: N/A

ACAD FILE NO. 19E19011

PROJECT NO. 19E19011

PREPARED BY:

STEPHEN B. PETER	RCE 38623	03/31/21
CIVIL ENGINEER	LICENSE NO.	EXP. DATE

BENCHMARK

OCSBM: 3W-61-90
ELEVATION = 995.132

NAVD 88/DATUM

LEGAL

A.P. NUMBER:
842-102-06

PLANS PREPARED BY:
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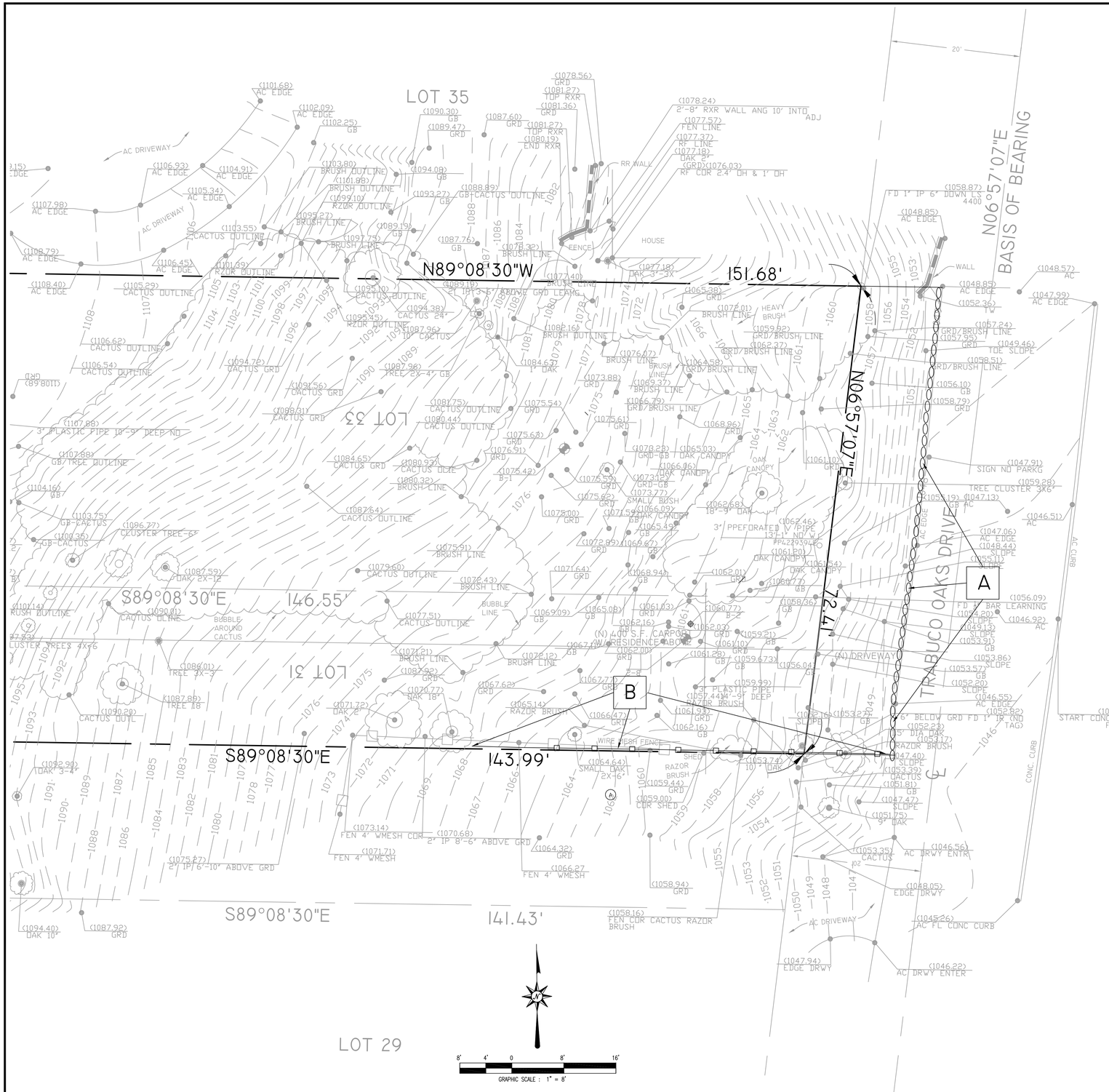
SECTION I

20601 TRABUCO OAKS DRIVE
TRABUCO CANYON, CA 92679

C-9

PLOT DATE: 09-05-2025



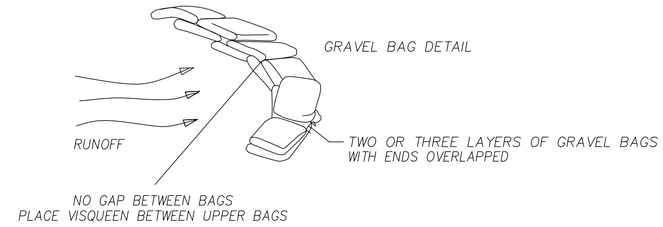
EROSION CONTROL NOTES:

DETAILS BELOW ARE PER THE "CALIFORNIA BEST MANAGEMENT PRACTICES HANDBOOK".

EROSION CONTROL NOTES:

A — INSTALL GRAVEL BAGS PER DETAIL SE-6.

B — INSTALL SILT FENCE SE-1.



THE FOLLOWING GENERAL SITE MANAGEMENT BMP'S SHALL BE MAINTAINED/IMPLEMENTED ON PROJECT SITE AT ALL TIMES.

EC-1: SCHEDULING
EC-2: PRESERVATION OF EXISTING VEGETATION
EC-4: HYDROSEEDING: EARTHGUARD @ 2000#/AC
NS-1: WATER CONSERVATION PRACTICES
NS-3: PAVING AND GRINDING OPERATION
NS-6: ILLICIT CONNECTION/ILLEGAL DISCHARGE
SE-1: SILT FENCE
SE-5: FIBER ROLLS
SE-6: GRAVEL BAG BERM
SE-7: STREET SWEEPING AND VACUUMING
SE-10: STORMDRAIN INLET PROTECTION
WE-1: WIND EROSION CONTROL
WM-1: MATERIAL DELIVERY & STORAGE
WM-2: MATERIAL USE
WM-3: STOCKPILE MANAGEMENT
WM-4: SPILL PREVENTION AND CONTROL
WM-5: SOLID WASTE MANAGEMENT
WM-6: HAZARDOUS WASTE MANAGEMENT
WM-8: CONCRETE WASTE MANAGEMENT
WM-9: SANITARY/SEPTIC WASTE MANAGEMENT
TC-1: STABILIZATION CONSTRUCTION ENTRANCE/EXIT

C

PERMIT #: GRD23-0096

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER — STEPHEN B. PETER — No. 38623 — Exp. 3/31/27 — CIVIL — STATE OF CALIFORNIA

NO.	DATE	REVISIONS	APP.	DATE
1				
2				
3				
4				
5				
6				

SILVERADO

PREPARED BY:

STEPHEN B. PETER — RCE 38623 — 03/31/21
CIVIL ENGINEER — LICENSE NO. — EXP. DATE

BENCHMARK

OCSBM: 3W-61-90
ELEVATION = 995.132

NAVD 88/DATUM

PLANS PREPARED BY:

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1519 CALLE VALLE, SAN CLEMENTE, CA. 92672
Tel: (949) 492-3735 Fax: (949) 492-1891
WWW.PETERASSOC.COM INFO@PETERASSOC.COM

LEGAL DESCRIPTION:

LEGAL:

LOT 33 & N½ LOT 31 TR926

A.P. NUMBER:

842-102-06

BMP's AND EROSION CONTROL PLAN

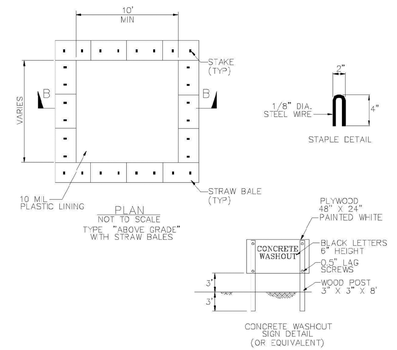
20601 TRABUCO OAKS DRIVE
TRABUCO CANYON, CA 92679

JOB NO. 19E19011

SHEET C-10

PLOT DATE: 09-05-2025

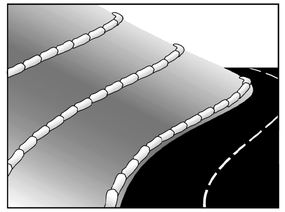
Concrete Waste Management WM-8



NOTES

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

Gravel Bag Berm SE-6



Description and Purpose

A gravel bag berm is a series of gravel-filled bags placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow runoff, allowing sediment to settle out, and release runoff slowly as sheet flow, preventing erosion.

Suitable Applications

Gravel bag berms may be suitable:

- As a linear sediment control measure:
  - Below the toe of slopes and erodible slopes
  - As sediment traps at culvert/pipe outlets
  - Below other small cleared areas
  - Along the perimeter of a site
  - Down slope of exposed soil areas
  - Around temporary stockpiles and spoil areas
  - Parallel to a roadway to keep sediment off paved areas
  - Along streams and channels
- As a linear erosion control measure:
  - Along the face and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow.

Categories

EC	Erosion Control	☒
SE	Sediment Control	☑
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Category**
☒ **Secondary Category**

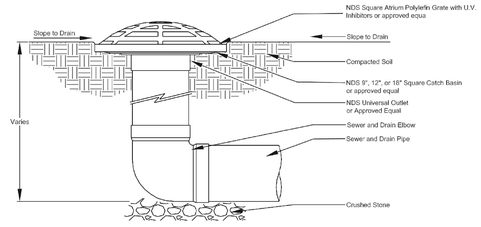
Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence
SE-5 Fiber Roll
SE-8 Sandbag Barrier
SE-12 Temporary Silt Dike
SE-14 Biofilter Bags

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



NDS SQUARE ATRIUM GRATE WITH ADAPTER
NOT TO SCALE

C

PERMIT #: GRD23-0096

PREPARED BY OR UNDER DIRECTION OF:

STEPHEN B. PETER DATE

REGISTERED PROFESSIONAL ENGINEER STEPHEN B. PETER No. 38623 Exp. 3/31/27 CIVIL STATE OF CALIFORNIA

NO.	DATE	REVISIONS	APP.	DATE
1				
2	C	PLAN CHECK COMMENTS 04/15/24		
3				
4				
5				
6				

SILVERADO

PREPARED BY:

STEPHEN B. PETER	RCE 38623	03/31/21
CIVIL ENGINEER	LICENSE NO.	EXP. DATE

BENCHMARK

OCSBM: 3W-61-90
ELEVATION = 995.132
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LEGAL DESCRIPTION:
LEGAL:
LOT 33 & N½ LOT 31 TR926
A.P. NUMBER:
842-102-06

EROSION CONTROL WM-8 AND SE-6 DETAILS

20601 TRABUCO OAKS DRIVE
TRABUCO CANYON, CA 92679

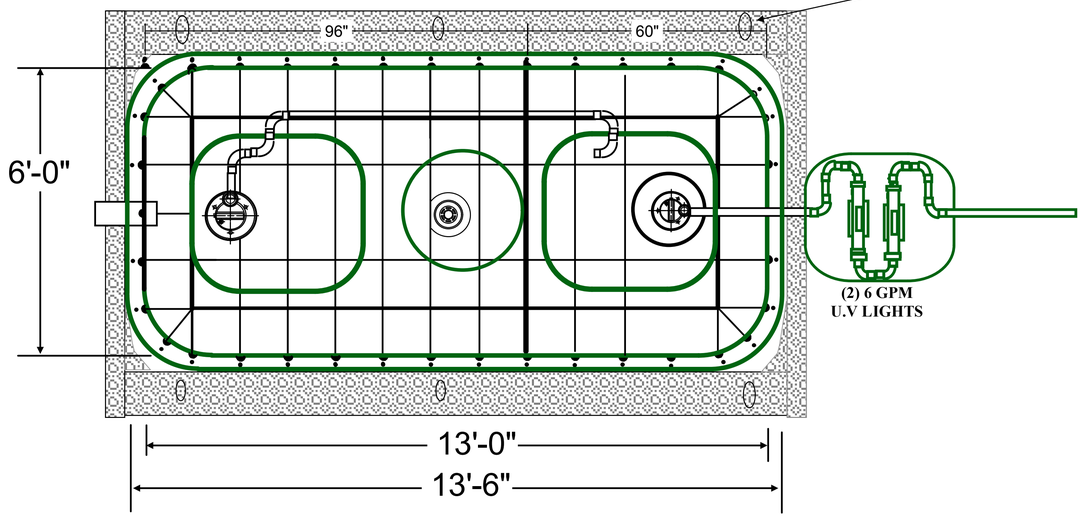
JOB NO. 19E19011

SHEET C-10A

PLOT DATE: 09-05-2025

PLAN VIEW

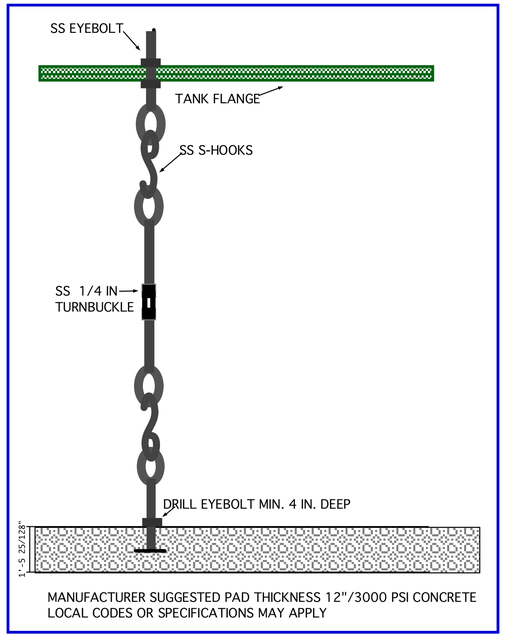
For Reference Only



REGISTERED PROFESSIONAL ENGINEER
STEPHEN B. PETER
No. 38623
Exp. 3/31/25
CIVIL
STATE OF CALIFORNIA

Note: "Sewer /Septic System to be constructed under a Separated Permit, PLB-23-1358 and Water Board Application (WQ 2014-0153-DWQ)".

Grading Permit No. GRD23- 0096

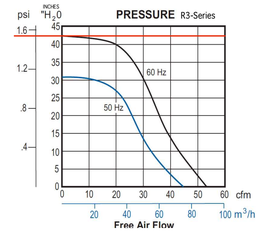


MANUFACTURER SUGGESTED PAD THICKNESS 12"/3000 PSI CONCRETE
LOCAL CODES OR SPECIFICATIONS MAY APPLY

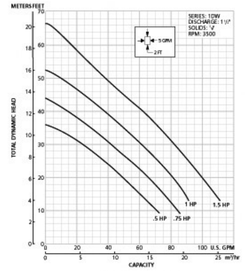
REMOVAL EFFICIENCIES
BASED ON MEDIAN OF VALUES
TESTED BY THE NSF 1993

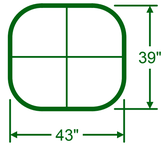
	INFLUENT AVERAGE	EFFLUENT AVERAGE	REDUCTION	PERCENT REDUCTION
BOD MG/L	170	<5	167	98 %
SS MG/L	200	<5	196	98 %

GAST REGENAIR R3105-1 BLOWER



GOULDS PUMP LSP0712F

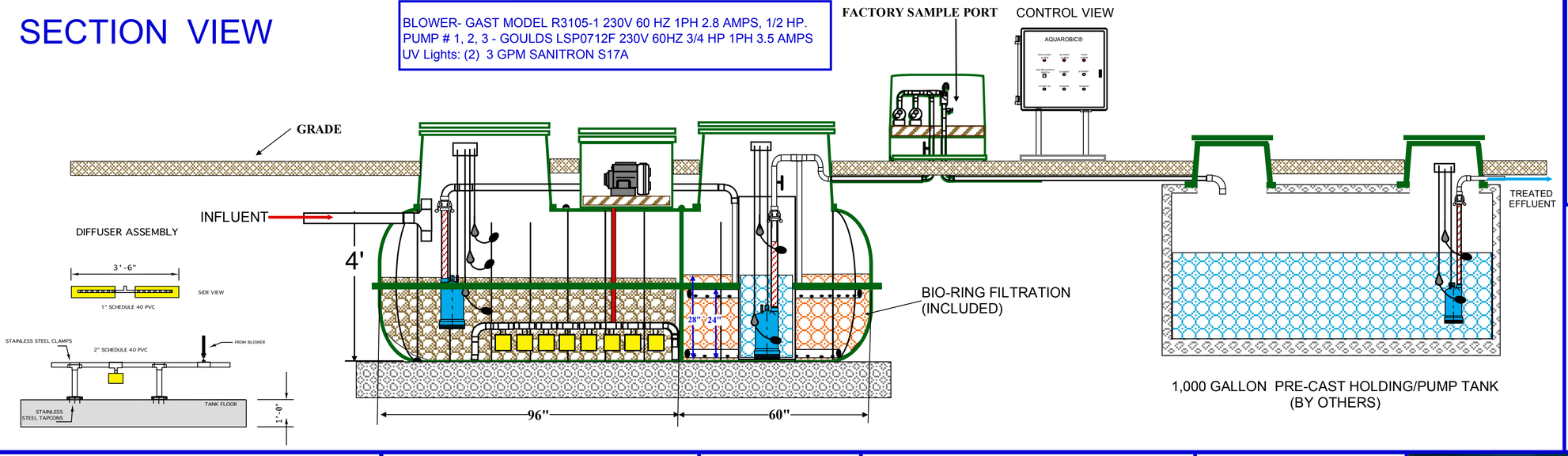




SECTION VIEW

EQUIPMENT NOTES:

BLOWER- GAST MODEL R3105-1 230V 60 HZ 1PH 2.8 AMPS, 1/2 HP.
PUMP # 1, 2, 3 - GOULDS LSP0712F 230V 60HZ 3/4 HP 1PH 3.5 AMPS
UV Lights: (2) 3 GPM SANITRON S17A



1,000 GALLON PRE-CAST HOLDING/PUMP TANK
(BY OTHERS)

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AQUAROBIC
MINI-PLANT WITH
RECIRCULATING FILTER
AND UV DISINFECTION

NSF 1993 CLASS
ONE REMOVAL
WITH REUSE
CAPABILITIES
OF 450 GPD
Bod & SS < 5 mg/L

PETER & ASSOCIATES
1519 CALLE VALLE
SAN CLEMENTE, CA 92672
MR. STEVE PETER

THOURBANOV RESIDENCE

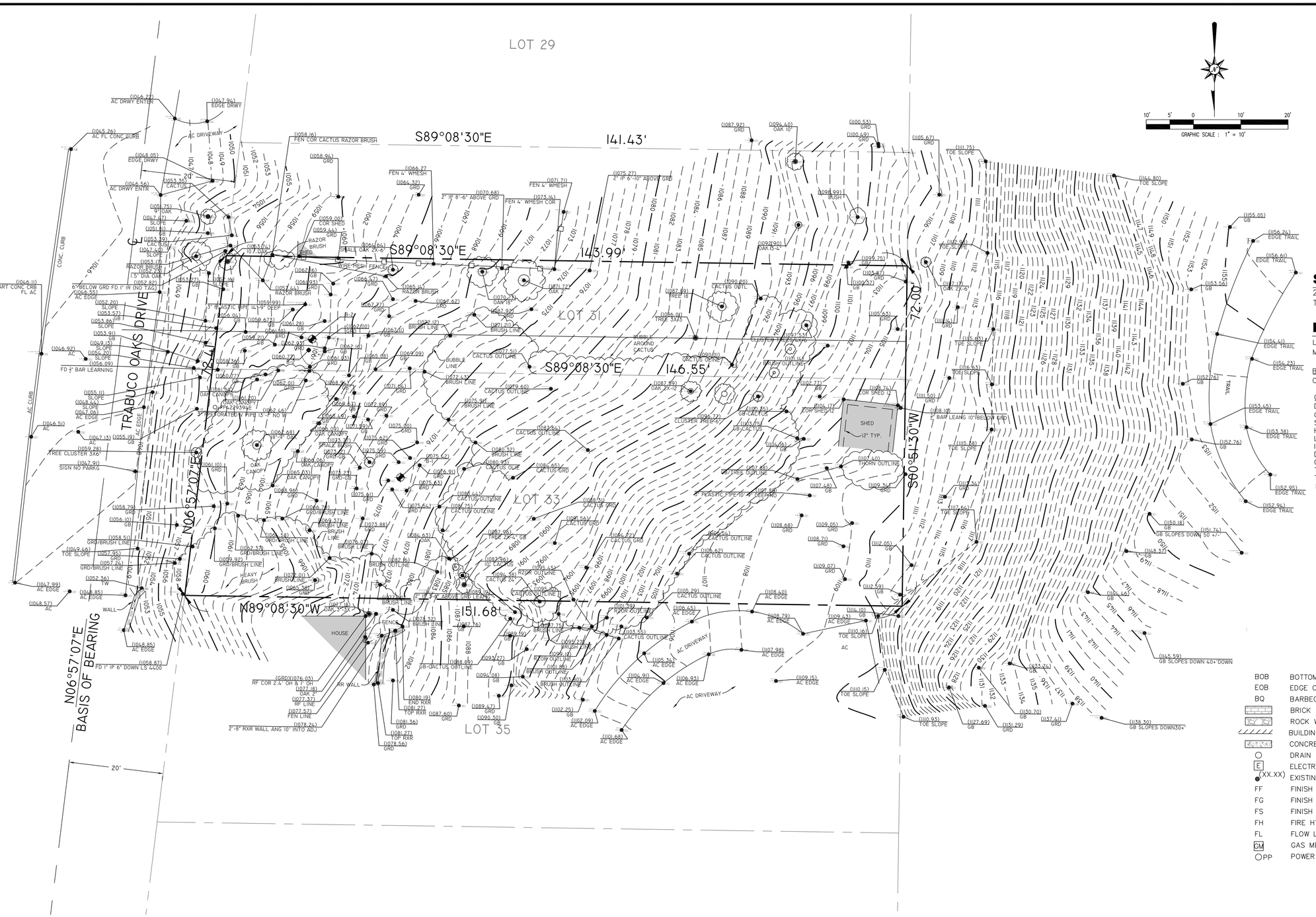
AQUAROBIC
MINI-PLANT
MODEL 54291-5-S

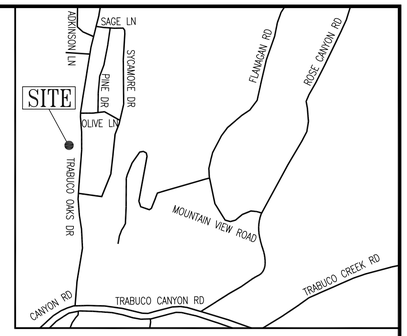
DWG BY: LJM
DATE: 12/29/20

SCALE:
NTS

5800 PRILLAMAN SWITCH RD. FERRUM, VA 24088
PH: 540-365-0154 FAX: 540-365-0155
WWW.AQUA-O2.COM
1-800-927-8304

SHEET P-1





VICINITY MAP
N.T.S.

SITE ADDRESS:
20601 TRABUCO OAKS DRIVE,
TRABUCO CANYON, CA 92679.

LEGAL DESCRIPTION:
LOT 33 AND NORTH½ OF LOT 31 TRACT 926, MM 29/20–21.

BENCH MARK:
OCSBM: 3W–61–90

OCSBM DESCRIPTION:
DESCRIBED BY ORANGE COUNTY SURVEY 2003FOUND 3 3\4" OCS ALUMINUM BENCHMARK DISK STAMPED "3W–61–90", SET IN THE NORTHWESTERLY CORNER OF A CONCRETE HEADWALL FOR AN 18 IN. PIPE CULVERT. MONUMENT IS LOCATED IN THE NORTHEASTERLY PORTION OF THE INTERSECTION OF TRABUCO CANYON ROAD AND TRABUCO OAKS DRIVE, 40 FT. EASTERLY OF THE CENTERLINE OF TRABUCO OAKS DRIVE AND 26 FT. NORTHERLY OF THE CENTERLINE OF TRABUCO CANYON ROAD. MONUMENT IS SET LEVEL WITH THE TOP OF THE WALL.
EL=995.132 NAVD88

BASIS OF BEARING:
CENTER LINE OF TRABUCO OAKS DRIVE BEING N06°57'07"E PER R/S 2014–1042

LEGEND:

BOB	BOTTOM OF BRICK
EOB	EDGE OF BRICK
BQ	BARBECUE
	BRICK
	ROCK WALL
	BUILDING LINE
	CONCRETE
	DRAIN
E	ELECTRICAL BOX
(XX.XX)	EXISTING SPOT ELEVATION
FF	FINISH FLOOR
FG	FINISH GRADE
FS	FINISH SURFACE
FH	FIRE HYDRANT
FL	FLOW LINE
GM	GAS METER
PP	POWER POLE
	GRASS
G	GRATE
HS	HORSE SHOE PIT
LSA	NATURAL GROUND/LANDSCAPE
PA	PLANTER AREA
SL	STREET LIGHT
TC	TOP OF CURB
	TILE
TOS	TOP OF STEPS
TS	TOP OF SLOPE
TW	TOP OF WALL
TOB	TOP OF BRICK
	WALL–MASONRY
WI	WATER IRRIGATION
WM	WATER METER
WS	WATER SPIGOT
WV	WATER VALVE
	WOOD FENCE
	CHAIN LINK FENCE

THIS MAP OR PLAT IS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION.

JEFFREY R. PAUL, P.L.S. 6887
LICENSE EXPIRES: 12/31/20

DATE

PROFESSIONAL LAND SURVEYOR JEFFREY R. PAUL No. 6887 EXP. 12/31/20 STATE OF CALIFORNIA

BY	REVISION	DESCRIPTION	APPROVED	DATE

SCALE: SCALE : 1" = 10'
ACAD FILE NO. 19S19008
PROJECT NO. 19S19008

DESIGNED: | DRAWN: PRIMA | CHECKED: JP
DATE

BENCHMARK
OCSBM 3W–61–92
ELEVATION = 995.132
YEAR LEVELED: 1990
NAVD 88/DATUM

A.P. NUMBER:
842–102–06

PLANS PREPARED BY:
PETER and ASSOCIATES ENGINEERS GEOLOGISTS & SURVEYORS, INC.
WWW.PETERASSOC.COM
1519 CALLE VALLE, SAN CLEMENTE, CA. 92672
Tel: (949) 492–3735 Fax: (949) 492–1891

TOPOGRAPHIC MAP
20601 TRABUCO CANYON DRIVE
TRABUCO CANYON, CA 92679
PREPARED FOR: MR. & MRS. ALEXANDER TCHOURBANOV

T-1

1 OF 1 SHEETS

PLOT DATE: 02–20–2019

Remove any non-native seasonal grasses.
The following native grasses are to remain.
- NASSELLA (STIPA) LEPIDA - FOOTHILL NEEDLEGRASS
- NASSELLA (STIPA) PULCHRA - PURPLE NEEDLEGRASS
All other grasses, groundcover and shrubs are to be removed

MAINTENANCE: Grasses will be cut to 4 inches high after annual seeding.

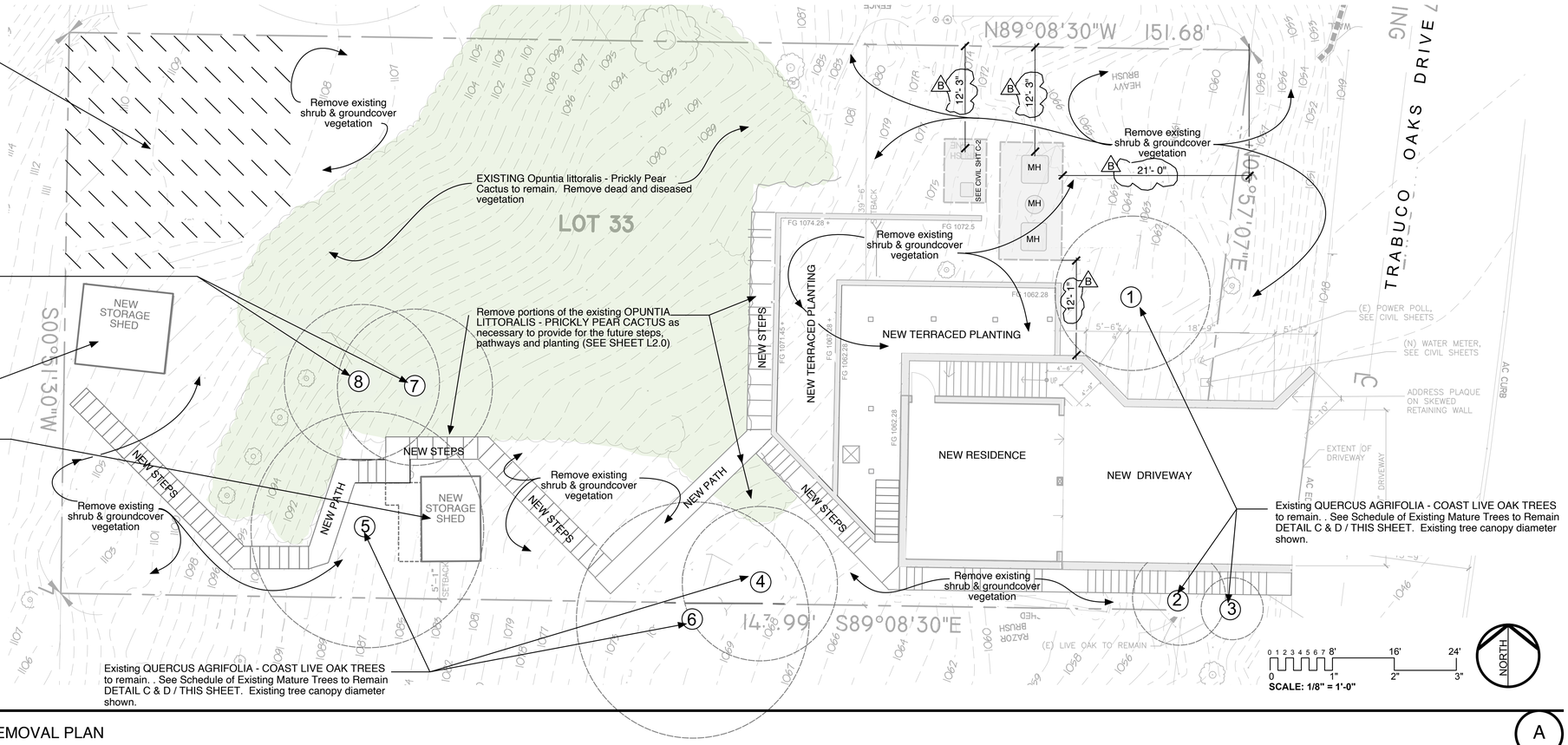
(2) Existing OLEA EUROPAEA - OLIVE TREES to remain. See Schedule of Existing Mature Trees to Remain DETAIL C / THIS SHEET

NEW STORAGE SHED #1 - See architect's plans

NEW STORAGE SHED #2 - See architect's plans

GENERAL NOTES

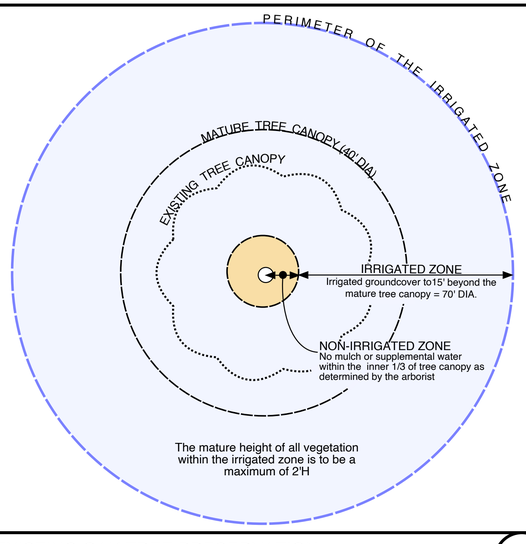
1) Removal of EXISTING PLANT MATERIAL - The existing site vegetation will be removed unless otherwise identified to remain.
2) Protect the existing mature trees identified on the SCHEDULE OF EXISTING MATURE TREES TO REMAIN according to the arborist's report. Existing tree canopy diameter shown.



Existing QUERCUS AGRIFOLIA - COAST LIVE OAK TREES to remain. . See Schedule of Existing Mature Trees to Remain DETAIL C & D / THIS SHEET. Existing tree canopy diameter shown.

EXISTING VEGETATION PRESERVATION & REMOVAL PLAN

A



EXISTING OAK TREE PRESERVATION DIAGRAM

SCALE: NTS

D

SCHEDULE - EXISTING MATURE TREES TO REMAIN

SYMBOL	BOTANICAL NAME -	COMMON NAME	HEIGHT / WIDTH
1	QUERCUS AGRIFOLIA -	COAST LIVE OAK;	24.5'H / 20'W *
2	QUERCUS AGRIFOLIA -	COAST LIVE OAK;	31'H / 12'W *
3	QUERCUS AGRIFOLIA -	COAST LIVE OAK;	23'H / 8'W *
4	QUERCUS AGRIFOLIA -	COAST LIVE OAK;	30.5'H / 19'W *
5	QUERCUS AGRIFOLIA -	COAST LIVE OAK;	CANOPY: 30'H/W *
6	QUERCUS AGRIFOLIA -	COAST LIVE OAK;	CANOPY: 28'H / 30' (40-70)'W *
7	OLEA EUROPAEA -	OLIVE;	20'-30' H/W
8	OLEA EUROPAEA -	OLIVE;	20' H/W

* SEE EXISTING OAK TREE PRESERVATION DIAGRAM (D)

EXISTING MATURE TREE PLANTING AND IRRIGATION DIAGRAM

C

SHEET#	TITLE	COUNT
L 1.0	EXISTING VEGETATION PRESERVATION & REMOVAL PLAN	1 OF 12
L 2.0	LANDSCAPE PLANTING PLAN	2 OF 12
L 2.1	LANDSCAP PLANTING LEGEND AND DETAILS	3 OF 12
L 2.2	LANDSCAPE DETAILS	4 OF 12
L 2.3	LANDSCAPE PLANTING SPECIFICATIONS	5 OF 12
L 3.0	IRRIGATION PLAN	6 OF 12
L 3.1	IRRIGATION LEGEND & NOTES	7 OF 12
L 3.2	IRRIGATION DETAILS	8 OF 12
L 3.3	IRRIGATION DETAILS	9 OF 12
L 3.4	IRRIGATION DETAILS	10 OF 12
L 3.5	IRRIGATION SPECIFICATIONS	11 OF 12
L 4.0	APPROVED PRECISE FUEL MODIFICATION ZONE PLAN REFERENCE DOCUMENT	12 OF 12

LANDSCAPE SHEET LEGEND

B

LICENSED LANDSCAPE ARCHITECT
FREDERICK T. HUME No. 6345
STATE OF CALIFORNIA
8/31/25
Renewal Date
6/3/25
Date

FREDERICK THOMAS HUME, FASLA
Landscape Architecture • Planning • Design
2984 Mountain View Dr. Studio A
Laguna Beach CA 92651
P. 949.376.3998 F. 949.715.9855

TCHOURBANOV RESIDENCE
20601 Trabuco Oaks Dr.
Trabuco Canyon, CA 92678

EXISTING VEGETATION PRESERVATION & REMOVAL PLAN

LND23-0047

REVISIONS:
B 4/26/24

DATE: 1/31/22

L 1.0

SHEET 1 OF 12

OC PUBLIC WORKS - Landscape Plan General Notes

1. Prior to final inspection, closure of a building or grading permit, and issuance of a Certificate of Use and Occupancy, the following shall be submitted to demonstrate compliance with section 7-9-68 of the Zoning Code (County of Orange Landscape Irrigation Code):

   a. Certification by either the signer of the landscape design plan, the signer of the irrigation design plan, or the licensed landscape contractor that the landscape project has been installed per the approved Landscape Documentation Package;

   b. documentation of the irrigation scheduling parameters used to set the controller(s);

   c. documentation of the specified landscape and irrigation maintenance schedule; and

   d. provisions for landscape maintenance practices that foster long-term landscape water conservation; and

   e. an irrigation system audit report.

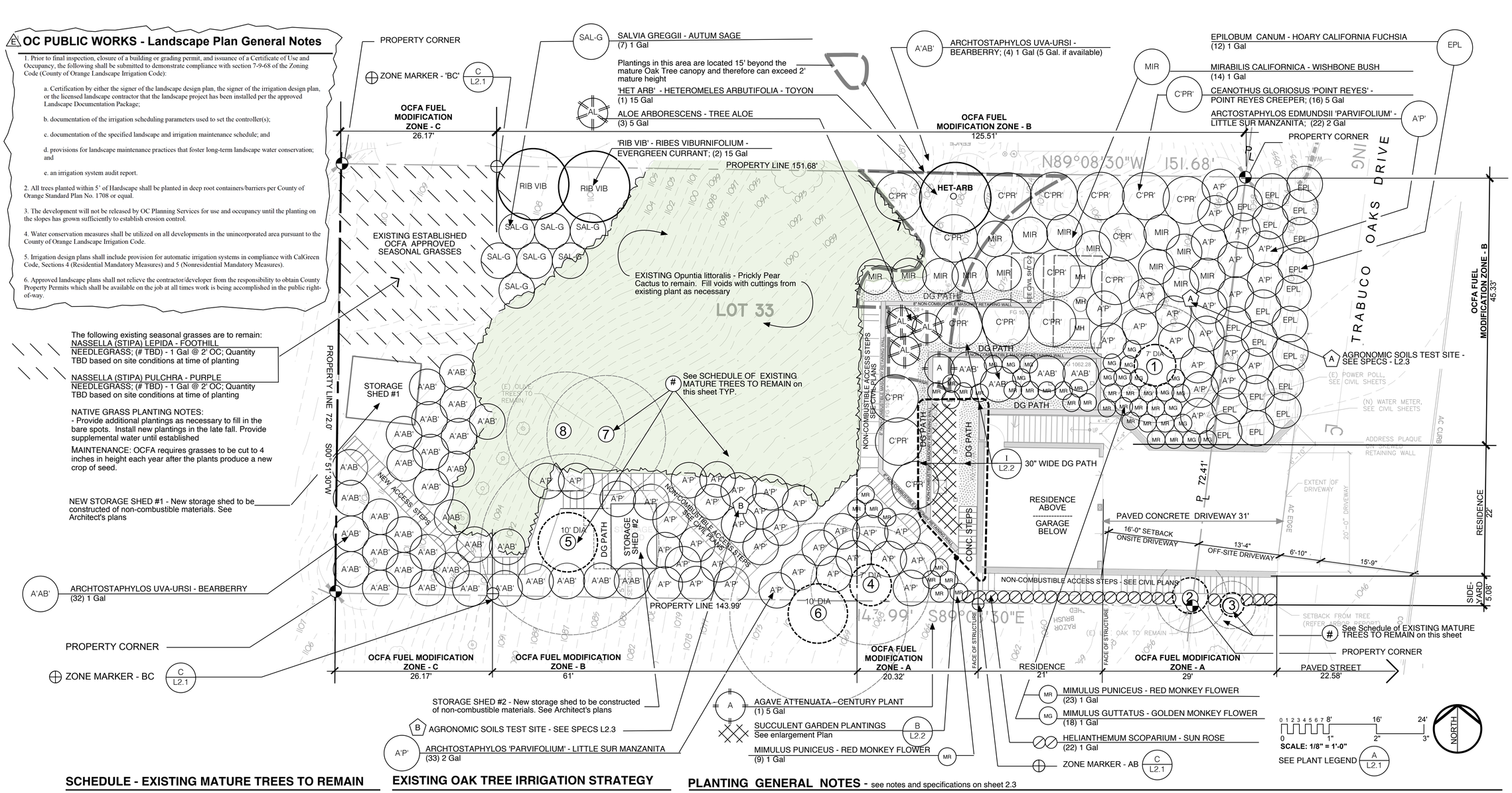
2. All trees planted within 5' of Hardscape shall be planted in deep root containers/barriers per County of Orange Standard Plan No. 1708 or equal.

3. The development will not be released by OC Planning Services for use and occupancy until the planting on the slopes has grown sufficiently to establish erosion control.

4. Water conservation measures shall be utilized on all developments in the unincorporated area pursuant to the County of Orange Landscape Irrigation Code.

5. Irrigation design plans shall include provision for automatic irrigation systems in compliance with CalGreen Code, Sections 4 (Residential Mandatory Measures) and 5 (Nonresidential Mandatory Measures).

6. Approved landscape plans shall not relieve the contractor/developer from the responsibility to obtain County Property Permits which shall be available on the job at all times work is being accomplished in the public right-of-way.



The following existing seasonal grasses are to remain:
NASSELLA (STIPA) LEPIDA - FOOTHILL NEEDLEGRASS; (# TBD) - 1 Gal @ 2' OC; Quantity TBD based on site conditions at time of planting

NASSELLA (STIPA) PULCHRA - PURPLE NEEDLEGRASS; (# TBD) - 1 Gal @ 2' OC; Quantity TBD based on site conditions at time of planting

NATIVE GRASS PLANTING NOTES:
- Provide additional plantings as necessary to fill in the bare spots. Install new plantings in the late fall. Provide supplemental water until established

MAINTENANCE: OCFA requires grasses to be cut to 4 inches in height each year after the plants produce a new crop of seed.

NEW STORAGE SHED #1 - New storage shed to be constructed of non-combustible materials. See Architect's plans

SCHEDULE - EXISTING MATURE TREES TO REMAIN

SYMBOL	BOTANICAL NAME - COMMON NAME	HEIGHT / WIDTH
1	QUERCUS AGRIFOLIA - COAST LIVE OAK;	24.5'H / 20'W
2	QUERCUS AGRIFOLIA - COAST LIVE OAK;	31'H / 12'W
3	QUERCUS AGRIFOLIA - COAST LIVE OAK;	23'H / 8'W
4	QUERCUS AGRIFOLIA - COAST LIVE OAK;	30.5'H / 19'W
5	QUERCUS AGRIFOLIA - COAST LIVE OAK;	CANOPY: 30'H/W
6	QUERCUS AGRIFOLIA - COAST LIVE OAK;	CANOPY: 28'H / 30' (40-70)'W
7	OLEA EUROPAEA - OLIVE;	20'-30' H/W
8	OLEA EUROPAEA - OLIVE;	20' H/W

EXISTING MATURE TREE NOTES:
1) EXISTING TREES - The project arborist's report titled: "TCHOURBANOV OAK TREE PRESERVATION REPORT" Dated: June 11, 2019, shall be considered a part of these construction drawings. The contractor shall be aware of the condition, care and protection of the existing trees. Any discrepancies between the report and these construction drawings shall be brought to the attention of the Owner's Representative and the Landscape Architect for resolution.

2) See OAK TREE PRESERVATION DIAGRAM - Detail D / Sheet L-1

EXISTING OAK TREE IRRIGATION STRATEGY

EXISTING OAK TREES - No irrigation or planting within diameter of inner 1/3 of tree canopy; SEE OAK TREE DIAGRAM - DETAIL - D / SHEET L1.0

#1 - Existing canopy 20' diameter
No irrigation or planting within 3.5' of the trunk (7' diameter)
Supplemental irrigation provided outside of the 7' inner ring
#4 - Existing Canopy 19' diameter
No irrigation or planting within 3.5' of trunk (7' dia)
Supplemental irrigation provided beyond the 7' dia. inner ring
#5 - Existing Canopy 30' diameter
No irrigation or planting within 5' of trunk (10' dia)
Supplemental irrigation provided beyond the 10' diameter inner ring
#6 - Existing Canopy 30' diameter
No irrigation or planting within 5' of trunk (10' dia)
Supplemental irrigation provided beyond the 10' diameter inner ring

EXISTING SMALL OAK TREES - No irrigation within diameter of inner 1/2 of tree canopy

#2 - Existing Canopy 12' diameter
No irrigation or planting within 3' of trunk (6' dia)
Supplemental irrigation provided beyond the 6' diameter inner ring
#3 - Existing Canopy 8' diameter
No irrigation or planting within 2' of trunk (4' dia)
Supplemental irrigation provided beyond the 4' diameter inner ring

EXISTING OAK TREE IRRIGATION NOTES
1) See Irrigation Plans Sheets L3.0 - 3.5
2) See OAK TREE PRESERVATION DIAGRAM - Detail D / Sheet L-1

PLANTING GENERAL NOTES - see notes and specifications on sheet 2.3

1) PLANT LEGEND - See "A" / Sheet L-2.1

2) OCFA PERMANENT ZONE MARKERS - see Detail: C; Sheet: L 2.1

3) Removal of **EXISTING PLANT MATERIAL** - The existing site vegetation will be removed unless otherwise identified to remain on the EXISTING VEGETATION PRESERVATION & REMOVAL PLAN - Sheet L1.0

4) **APPROVED OCFA FUEL MODIFICATION PLANS** - The contractor shall review the approved Precise Fuel Modification Plans. These construction drawings are intended to comply with the obligations of the fuel modification plans. If there are any discrepancies between these construction drawings and the approved fuel modification plans, the approved fuel modification plans shall prevail. Any conflicts or discrepancies shall be brought to the attention of the Landscape Architect for clarification and resolution.

4.1) The **PRECISE FUEL MODIFICATION PLAN** - OCFA SR#296203 with Alternative Materials and Methods (AM&M) has been reviewed and approved by the OCFA. Copies are available from the Owner's Representative and the Landscape Architect.

4.2) The following MITIGATION MEASURES will be implemented as specified in the APPROVED AM&M - ALTERNATIVE MEANS AND METHODS REPORT dated 11 June 2020:

- No combustible stairs, planter boxes, or garden features will be constructed in Zone "A".
- The use of combustible railroad ties is prohibited in Zone "A" and "B".
- Non-combustible steps and sidewalks will be constructed along the south side yard and along the west side of the upper retaining wall.
- No mulch within 5 ft of structure envelope, plantings not to exceed 2-feet.
- The non-combustible garden terrace retaining wall will serve as a radiant heat wall. See Architect's plans for more detail.

4.3) OCFA GUIDELINE B-09a - The thirty (30) foot building setback from the south (sideyard) property line and east (front yard) property line, required in OCFA Guideline B-09a, is not feasible due to the property's size, configuration, and topography. The following mitigating features are included in the plan to meet the same practical effect:

continue #4.3 - OCFA GUIDELINE B-09a:

A. LANDSCAPE

1. The retaining walls and garden walls surrounding the building will be noncombustible masonry walls. The wall heights vary. A longitudinal section through the building and walls is included on the approved Conceptual Fuel Modification package – Sheet FM-4.

2. The steps and sidewalks along the south side yard and along the west side of the upper retaining wall will be constructed of non-combustible materials. Railroad ties and similar combustible materials will not be used.

3. All plant material proposed to be planted within 5' of the structure was selected from the OCFA approved plant list. These plants naturally grow 2' high or less and will be fully irrigated.

4. No mulch will be placed within 5' of the structure.

B. SETBACKS

1. The house is setback 36'- 2" from the centerline of Trabuco Oaks Dr. The area between the house and the paved Trabuco Oaks Drive will consist of a paved, noncombustible, concrete driveway.

C. BUILDING STRUCTURE

1. One small 36" X 24" fixed, duel pane window is planned for the south side of the house facing the sideyard. Both window panes will be tempered glass.

5) MULCH - Refer to the LANDSCAPE MULCHING DIAGRAM for the placement of mulch after planting. (H / L2.2)

6) PLANTING SCHEDULE -

A. California native plant material is NOT to be installed during the hot summer months. The preferred planting period for native plantings is in the cool months in the late fall to spring.

7) PLANTING NOTES - See notes on L 2.3

8) PLANT SPACING - All plant groupings are to be planted in a triangular pattern. See detail (F / L2.2)

8) PLANTING DETAILS -

Shrub and Groundcover planting detail (A / L2.2)

Shrub and Groundcover planting details on slope (A&C / L2.2)

9) RHODENT & PEST PROTECTION

A. If necessary, install a temporary protective wire cloche canopy basket over each new plan where rabbits, deer and other foliage eating animals are a threat to the new plants. (D / L2.2)

B. If necessary, install a protective wire root guard in the plant pit if root eating rodents are a threat to the new plants (E / L2.2)

FREDERICK THOMAS HUME, FASLA
Landscape Architecture • Planning • Design
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P. 949.376.3998 F. 949.715.9855

TCHOURBANOV RESIDENCE
20601 Trabuco Oaks Dr.
Trabuco Canyon, CA 92678

LANDSCAPE PLANTING PLAN

LND23-0047

REVISIONS:
E 6/3/25

DATE: 1/31/22

L-2.0

SHEET 2 OF 12

LICENSED LANDSCAPE ARCHITECT
FREDERICK T. HUME No. 1934
STATE OF CALIFORNIA
Signature 8/31/25
Renewal Date 6/3/25
Date

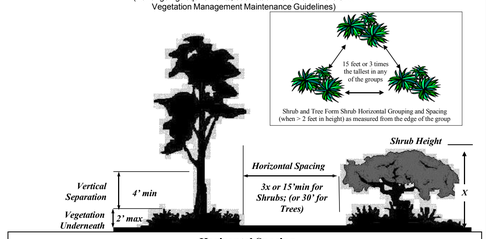
Orange County Fire Authority
Fuel Modification Plans Design: C-05

January 1, 2020

Attachment 6

Requirements for Planting Installation in Fuel Modification Zones

(For ongoing requirements, see Attachment 2 and the OCFA Vegetation Management Maintenance Guidelines)



Horizontal Spacing

Vegetation Less than 2 Feet in Height:

- No horizontal spacing or vertical separation is required. Ground cover shall not exceed 2 feet in height. In Zone "B" ground cover shall cover the entire ground between groups of shrubs, trees, or grasses and grasses are not considered ground cover. Limited compartments of grasses are acceptable as approved on the planting plans. In Zone "C/D" grasses can cover the entire area.

Shrubs and Trees 2 Feet in Height or Greater:

- Shrub and Tree Group Size:
  - All Shrubs and Trees can be in groups of 3 specimens or less. No horizontal spacing is required inside the group.
- Shrub/Tree-form Shrub Group Spacing:
  - Groups of shrubs shall be spaced by the greater of the following two measurements: A distance of 15 feet minimum (or) 3 times the height of the tallest specimen in any of the groups.
  - No vegetation over 2 feet in height is allowed within 15 feet from the edge of tree canopy(s).
- Tree Group Spacing:
  - Groups of Trees shall be spaced by a distance of 30 feet minimum regardless of height. In Zone "A" full growth tree branches are not allowed within 10 feet of enclosed combustible structures.

Vertical Separation

Shrubs and Trees Less than 10 Feet in Height:

- When the fuel modification zone is within 30 feet of the structure, a vertical separation of 2 feet minimum is required from the vegetation below. (Not required if shrubs are farther than 30 feet from structure).

Shrubs and Trees 10 Feet in Height or Greater:

- A vertical separation of 4 feet minimum is required to be maintained from the vegetation below
- Trees only: All vegetation located underneath trees, shall be a maximum of 2 feet in

OCFA PLANTING DETAIL **D**

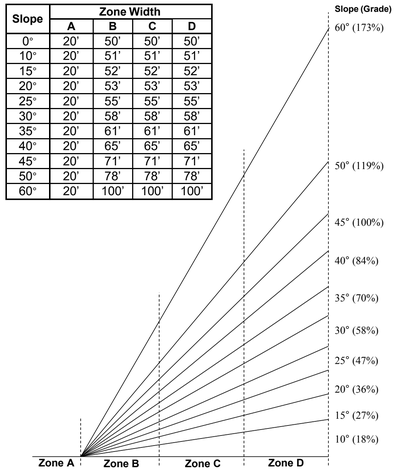
Orange County Fire Authority
Fuel Modification Plans Design: C-05

January 1, 2020

Attachment 3

INCLINE MEASUREMENT FOR SELECTED SLOPES (See Attachment 4)

Slope	Zone Width			
	A	B	C	D
0°	20'	50'	50'	50'
10°	20'	51'	51'	51'
15°	20'	52'	52'	52'
20°	20'	53'	53'	53'
25°	20'	55'	55'	55'
30°	20'	58'	58'	58'
35°	20'	61'	61'	61'
40°	20'	65'	65'	65'
45°	20'	71'	71'	71'
50°	20'	78'	78'	78'
60°	20'	100'	100'	100'



OCFA INCLINE MEASUREMENT DIAGRAM **B**

Orange County Fire Authority
Fuel Modification Plans Design: C-05

January 1, 2020

Attachment 7

UNDESIRABLE and INVASIVE PLANT SPECIES

Certain plants are considered to be undesirable and invasive due to their physical or chemical characteristics. Physical properties that would contribute to high flammability include large amounts of dead material retained within the plant, rough or peeling bark, and the production of copious amounts of litter. Chemical properties include the presence of volatile substances such as oils, resins, wax, and pitch. Certain native plants are notorious for containing these volatile substances.

Plants with these characteristics shall not be planted in any fuel modification zones or anywhere within the area covered by Alternate Methods & Materials agreements (see Section 4). Should these species already exist within these areas, they shall be removed because of their invasiveness or potential threat they pose to structures.

PLANT SPECIES (MANDATORY REMOVAL)

Botanical Name	Common Name
Adenostoma Fasciculatum	Chamise
Adenostoma Sparsifolium	Red Shanks
Anthemix Cotula	Mayweed
Artemisia Californica	California Sagebrush
Brassica Nigra	Black Mustard
Brassica Rapa	Wild Turnip, Yellow Mustard, Field Mustard
Cardaria Draba	Noary Cress, Perennial Peppergrass
Cirsium Vulgare	Wild Artichoke
Conyza Canadensis	Horseweed
Cortaderia Selloana	Pampas Grass
Cynara Cardunculus	Artichoke Thistle
Eriogonum Fasciculatum	Common Buckwheat
Heterothaca Grandiflora	Telegraph Plant
Lactuca Serriola	Prickly Lettuce
Nassella/Stipa tenuissima	Mexican Feathergrass
Nicotiana Bigelevil	Indian Tobacco
Nicotiana Glauca	Tree Tobacco
Ricinus Communis	Castor Bean Plant
Sacsola Austails	Russian Thistle/Tumblewood
Salvia Mellifera	Black Sage
Silybum Marianum	Milk Thistle
Urtica Urens	Burning Nettle
Ornamental:	
Arecaceae (all palm species)	Palms
Cortaderia	Pampas Grass
Cupressus sp	Cypress
Eucalyptus sp	Eucalyptus
Juniperus sp	Juniper
Pinus sp	Pine

OCFA PROHIBITED PLANT SPECIES **E**

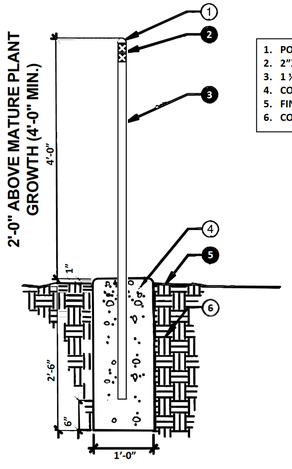
Orange County Fire Authority
Fuel Modification Plans Design: C-05

January 1, 2020

Attachment 4

ZONE MARKER DETAILS

(Marker Distances Shall Be Increased on Slopes to Accommodate Incline Measurements in Accordance With Attachment 3)



1. POST CAP
2. 2"X5" ZONE INDICATOR
3. 1 ¼" DIAMETER GALVANIZED POST
4. CONCRETE FOOTING 2500 PSI @ 28 DAYS
5. FINISH GRADE
6. COMPACTED SUBGRADE

SCALE: NTS

OCFA PERMANENT ZONE MARKER DETAIL **C**

TREES - EXISTING MATURE TREES TO REMAIN

SYMBOL	FORM	BOTANICAL NAME	COMMON NAME	OCFA PLANT NUMBER	OCFA SYMBOL CODE	EXPECTED MAX HEIGHT	EXPECTED MAX WIDTH	NOTES:
1	EXISTING TREE	QUERCUS AGRIFOLIA	COAST LIVE OAK	222	o	20-40'H	20-40'W	EXISTING MATURE SIZE: 24.5'H/20' W
2	EXISTING TREE	QUERCUS AGRIFOLIA	COAST LIVE OAK	222	o	20-40'H	20-40'W	EXISTING MATURE SIZE: 31'H / 12'W
3	EXISTING TREE	QUERCUS AGRIFOLIA	COAST LIVE OAK	222	o	20-40'H	20-40'W	EXISTING MATURE SIZE: 23'H / 8'W
4	EXISTING TREE	QUERCUS AGRIFOLIA	COAST LIVE OAK	222	o	20-40'H	20-40'W	EXISTING MATURE SIZE: 30.5'H / 19'W
5	EXISTING TREE	QUERCUS AGRIFOLIA	COAST LIVE OAK	222	o	20-40'H	20-40'W	EXISTING MATURE SIZE: 30'H/W
6	EXISTING TREE	QUERCUS AGRIFOLIA	COAST LIVE OAK	222	o	20-40'H	20-40'W	EXISTING MATURE SIZE: 28'H / 30' (40-70)'W
7	EXISTING TREE	OLEA EUROPAEA	OLIVE TREE	Approved on Conceptual Fuel Mod Plan		25-30'H	25-30'W	EXISTING MATURE SIZE: 20' H/W
8	EXISTING TREE	OLEA EUROPAEA	OLIVE TREE	Approved on Conceptual Fuel Mod Plan		25-30'H	25-30'W	EXISTING MATURE SIZE: 20' H/W

SHRUBS

SYMBOL	FORM	BOTANICAL NAME	COMMON NAME	# - SIZE	OCFA PLANT NUMBER	OCFA SYMBOL CODE	EXPECTED MAX HEIGHT	EXPECTED MAX WIDTH	NOTES:
AG	Succulent	Agave attenuata	Century Plant	(1) 5 GAL	8	W	4-5' H	6' W	Full Sun - Pt Shade (shade); H2O: Low, DT Background Plants outside the 2' height limit zone
AL	Shrub	Aloe arborescens	Tree Aloe	(3) - 5 GAL	14	N	6-8' H	6-8' W	Full Sun, Pt-Sun (shade); H2O: low; FLR:Red @ Fall to Winter Background Plants outside the 2' height limit zone
⊘	Shrub	Helianthemum scoparium	Sun Rose	(22) - 1 GAL	128	o	1-2' H	2-3' W	Sun to Part Shade; FLR: Yellow @ Spring; H2O: DT - Low 1X/M
'HET-ARB'	Shrub	Heteromeles arbutifolia	Toyon	(1) - 15 GAL	132	o n	8'-15' H	8'-15' W	Sun to Part Shade; FRT: Red berries; FLR: White @ Summer H2O: DT - Low 1X/M
MG	Flower	Mimulus guttatus	Golden Monkey Flower	(18) - 1 GAL	180	o *	1-3" H	3' W	Sun to Shade; Locally available at Tree of Life Nursery H2O: DT & adaptable to regular water 1-4X/M
MR	Flower	Mimulus puniceus	Red Monkey Flower	(32) - 1 GAL	180	o *	2' H	3' W	Sun to Part Sun Part Shade; Locally available at Tree of Life Nursery; H2O: DT to Low 1X/M
	Cactus (Existing)	Opuntia littoralis	Prickly Pear	EXIST'G FILL VOIDS W/ CUTTINGS AS NECESSARY	196	o *	1-2'(3') H	6-10' (30'W)	Existing mature stand of Coastal Prickly Pear Cactus; Full Sun; H2O: DT to low water; FLR: Yel to Red @ Summer
'RIB VIB'	Shrub	Ribes viburnifolium	Evergreen Current	((2) - 15 GAL	238	W	3-4'H	6'W	Full Sun - Pt. Sun; FLR: Red w/ White @ Sp
SAL-G	Shrub	Salvia greggii	Autum Sage	(7) - 1 GAL	242	W n	2-3"H	2-3'W	Full Sun - Pt. Shade; FLR: Colors vary by SS @ Sp - Fa; To be used as necessary when substitutions are required to replace poorly preforming vegetation outside oak tree ring only

GROUND COVER

SYMBOL	FORM	BOTANICAL NAME	COMMON NAME	# - SIZE	OCFA PLANT NUMBER	OCFA SYMBOL CODE	EXPECTED MAX HEIGHT	EXPECTED MAX WIDTH	NOTES:
A'P'	Ground Cover	Arctostaphylos edmundsii 'Parvifolium'	Little Sur Manzanita	(55) - 2 GAL	26	W	≤1' H	4-6' W	Part sun to shade; To be planted in the fall or winter; FLR: Pink/White @ Spring; H2O: Low / 1X/M
A'AB'	Ground Cover	Arctostaphylos uva-ursi	Bearberry	(36) - 2 GAL	31	W	1' H	4-6' W	Sub species: 'Anchor Bay' or 'Point Reyes' depending on availability; Full Sun to Shade; To be planted in the fall or winter; H2O: DT to Low 1X/M
C'PR'	Shrub	Ceanothus gloriosus 'Point Reyes'	Point Reyes Creeper	(16) - 5 GAL	48	W	1' H	4-6' W	Full Sun to Shade; FLR: Blue @ Spring; H2O: 1-2 X/M
EPL	Shrub	Epilobium canum (AKA: Zauschneria californica)	Hoary California Fuchsia	(12) - 1 GAL	98	o *	1-2'H	4'W	Full Sun - Pt. Shade; FLR: Red-Orange in Summer; Requires annual mowing in Fa or Winter to refresh; USE: landscape color & interest
MIR	Perennial	Mirabilis californica	Wishbone Bush	(14) - 1 GAL	181	o	2'H	3'W	Full Sun; Adaptable to poor soil; USE: Slope planting & landscape color

SUCCULENT & ACCENT GARDEN

SYMBOL	FORM	BOTANICAL NAME	COMMON NAME	# - SIZE	OCFA PLANT NUMBER	OCFA SYMBOL CODE	EXPECTED MAX HEIGHT	EXPECTED MAX WIDTH	NOTES:
.									
Groupings of Low Foreground Plants within the 2' height limit zone									
	Ground Cover	Aeonium decorum	Green Pinwheel Aeonium	(17) - 1 GAL	6	X	1'H	1-2'W	Full Sun; H2O: med; FLR: Pink @ Summer
	Ground Cover	Aeonium simsii	Sims Aeonium	(23) - 1 GAL	7	X	<1'H	<1' W	Full Sun, Pt-Sun, (Shade); H2O: low; FLR: Yellow @ Spring
	Ground Cover	Agave victoriae	NCN	(10) - 1 GAL	10	N	1' H	1.5' W	Full Sun; H2O: Low
	Perennial Accent	Anigozanthus flavidus	Kangaroo Paws (compact varieties)	(25) - 1 GAL	21	W	1' - 2'H	1-2' W	Full Sun; H2O: Low - Med; FLR: varies per variety
	Succulent	Dudleya lanceolata	Lance Leaved Dudlea	OMIT	94	o	1'H	1' W	Full Sun - Shade; H2O: DT - Low; FLR: Yel/Red spikes @ Sp No supplemental summer water
	Succulent	Dudleya pulverulenta	Chalk Dudleya	OMIT	95	o	1'H	1' W	Full Sun - Pt Sun; H2O: DT - Low: FLR: Red spikes @ Sp - Sm No supplemental summer water

GRASSES

SYMBOL	FORM	BOTANICAL NAME	COMMON NAME	# - SIZE	OCFA PLANT NUMBER	OCFA SYMBOL CODE	EXPECTED MAX HEIGHT	EXPECTED MAX WIDTH	NOTES:
	Ground Cover	Nassella (Stipa) lepida	Foothill Needlegrass	1 GAL AS NEEDED	186	O	2'H	2'W	Full Sun - Pt. Shade Install late fall
	Ground Cover	Nassella (Stipa) pulchra	Purple Needlegrass	1 GAL AS NEEDED	187	O	2'H	2'W	Full Sun - Pt. Shade Install late fall

PLANTING LEGEND **A**

LICENSED LANDSCAPE ARCHITECT
FREDERICK T. HUME No. 1084
Signature
8/31/23
Renewal Date
STATE OF CALIFORNIA

FREDERICK THOMAS HUME, FASLA
Landscape Architecture • Planning • Design
2984 Mountain View Dr. Studio A
Laguna Beach CA USA 92651
P. 949.376.3998 F. 949.715.9855

TCHOURBANOV RESIDENCE
20601 Trabuco Oaks Dr.
Trabuco Canyon, CA 92678

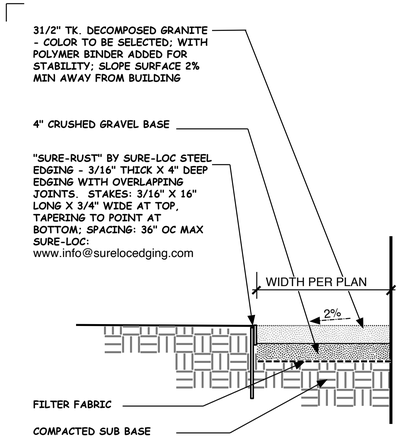
LANDSCAPE PLANT LEGEND & DETAILS
LND23-0047

REVISIONS:

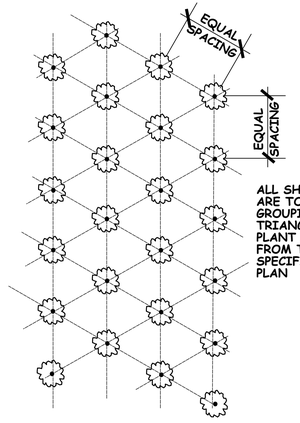
DATE: 1/31/22

L 2.1

SHEET 3 OF 12

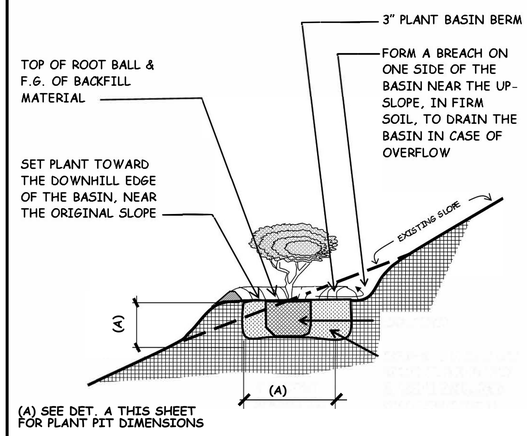


DG PATH | SCALE: 3/4" = 1' - 0" | I



ALL SHRUBS AND GROUNDCOVERS ARE TO BE PLANTED IN GROUPINGS ARRANGED IN TRIANGULAR PATTERNS; EACH PLANT IS TO BE EQUALLY SPACED FROM THE NEXT PLANT UNLESS SPECIFICALLY NOTED ON THE PLAN

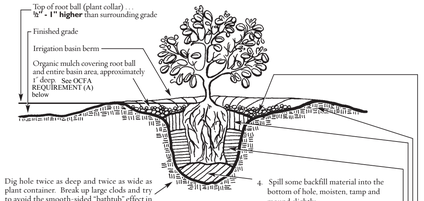
SPACING DIAGRAM FOR SHRUB AND GROUND COVER MASSING | SCALE: NTS | F



(A) SEE DET. A THIS SHEET FOR PLANT PIT DIMENSIONS

SHRUB PLANTING ON SLOPE | SCALE: NTS | C

PLANTING TECHNIQUE



1. Dig hole twice as deep and twice as wide as plant container. Break up large clods and try to avoid the smooth-sided "bathtub" effect in the hole.
2. **AMENDMENT**
   a) The native soil should be soft and friable. Eliminate large rocks and clods from the backfill soil
   b) For landscape soils requiring amendment, use approximately ¼ composted or nitrolized forest humus to ½ native soil, blending them in a pile outside the hole. This is your backfill mix.
   c) Slow release fertilizer granules or tabs may be incorporated with the backfill, or placed in the bottom of the hole. If tabs are used, make sure they are not touching the root ball. Most native plants are able to find nutrients even in poor soils. If a pre-plant fertilizer is used, application rates should be lower than those used for general landscape ornamentals.
3. Fill planting hole with water and allow to percolate (drain) into subsoil.
4. Spill some backfill material into the bottom of hole, moisten, tamp and mound slightly.
5. Set plant root ball atop the moistened backfill so that plant collar is **1" higher** than finished grade.
6. With water flowing slowly from a hose into the hole, replace backfill material up to about ⅓ the height of the root ball; moistening, tamping and settling all around.
7. Fill remaining portion surrounding the top of root ball with more backfill. Be sure collar is still higher than grade.
8. Create an irrigation basin berm, considerably outside the dimension of the hole using remaining backfill and native soil.
9. Apply a generous portion (approx. 2 -4" deep) coarse, organic weed and disease-free mulch; topdressing around exposed collar and inside the entire basin area.
10. Irrigate thoroughly, filling the basin with water and sprinkling around to settle backfill, mulch and berm.

Allow to soak in and repeat.

NOTES FOR WARM SEASON PLANTING AND WATERING:

1. Summer is the most difficult season to install native plants in the landscape (for best results, wait until fall through early spring). **2.** Pre-irrigate the planting hole and allow to drain. **3.** Carefully follow the planting instructions above. **4.** Upon completion, apply 2-4 inches of organic mulch around the root zone of each plant (away from the crown). **5.** Avoid watering during the heat of the day, and avoid overhead watering; prolonged leaf wetting can promote disease. **6.** Provide temporary shade to the most sensitive species to reduce the stress of exposure to direct sun. **7.** Do not allow the root ball to dry out; water 1-3 times a week by thoroughly soaking the soil. Infrequent, deep soaking is preferable to short, frequent waterings.

INITIAL MAINTENANCE

Like all nursery stock, container-grown California native plants need careful attention during their establishment period in the landscape.

WATERING - It is important that the root ball does not dry out during the first two or three months. Irrigate about once a week, trying not to oversoak the surrounding soil. After two months, be sure to water deeply. Do not allow the ground to remain soggy for long periods of time, as this encourages disease, especially during the dry season. Native plants need deep moisture and cool roots to find oxygen. Usually, one deep watering every two or three weeks is sufficient in summer and fall. Less frequent irrigations are required in the spring. During the winter, rainfall alone is adequate for most plantings. Avoid overhead watering during the hot part of the day in the warm season.

MULCHING - "Water in the bank" in the plant's water economy. Use organic mulch in late spring and fall to retain moisture, cool roots, discourage weeds and strengthen plants. See OCFA REQUIREMENT (A) below

FERTILIZING - Use "all purpose" type plant foods for cool season feedings (Oct. - May). One light application mid-summer. Usually, you can cut the rates given for general ornamental plants in half.

PRUNING - Depending on the type of plant, you will need to thin and "head back", to direct growth of the maturing plant. Remove any dead wood. Use sanitation procedures when pruning diseased branches.

TROUBLESHOOTING - Insect, disease, weed, pest or cultural problems? Please feel free to call us at the nursery.

Generally speaking, thin the plants in early summer and mulch, start feeding in the fall and mulch again. Head back branch tips as needed in winter and spring. Irrigate wisely during the warm season (see lower left). Native plants need love too.

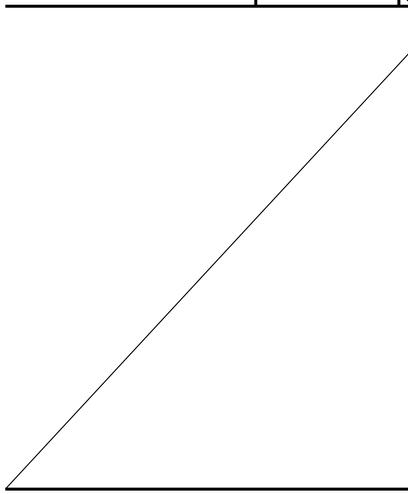
OCFA REQUIREMENTS:

(A) OCFA REQUIREMENT: No mulch is to be used within 5' of the building structure

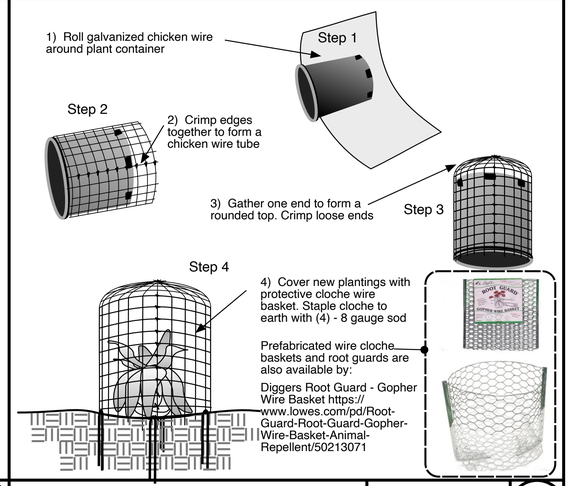
TREE OF LIFE NURSERY
San Juan Capistrano, CA
(949) 728-0685

CALIFORNIA ASSOCIATION OF NURSERY & GARDEN CENTERS
Planting Green in All the Right Places
MEMBER

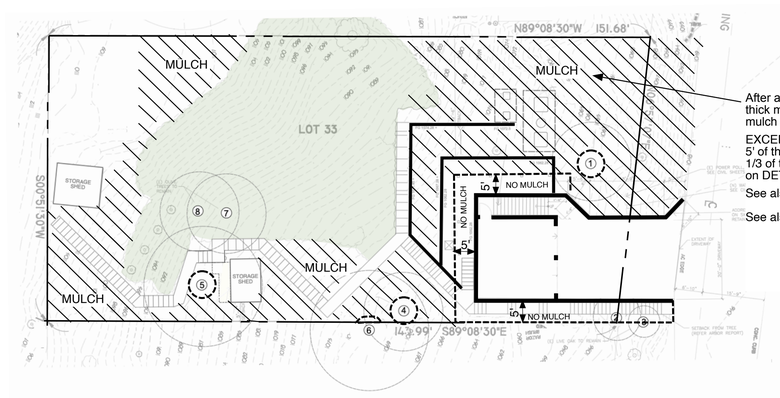
NATIVE PLANT PLANTING AND MAINTENANCE DETAIL | SCALE: NTS | A



WOOD EDGING DETAIL (FOR REFERENCE, NOT SPECIFIED) | SCALE: NTS | G



PROTECTIVE WIRE CLOCHE PLANT CANOPY BASKET | SCALE: NTS | D



After all the plants are installed, apply a 2" thick min layer of approved dark brown wood mulch to all of the shrub areas where shown.

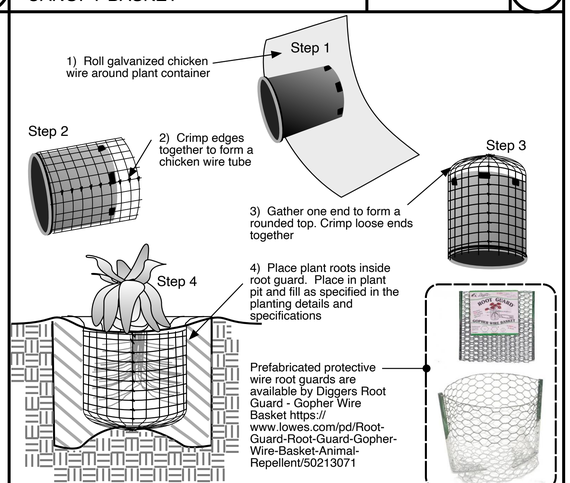
EXCEPTION: No mulch shall be placed within 5' of the building envelope and within the inner 1/3 of the existing oak tree canopy as noted on DETAIL "D / L1.0

See also mulching notes on sheet L2.3

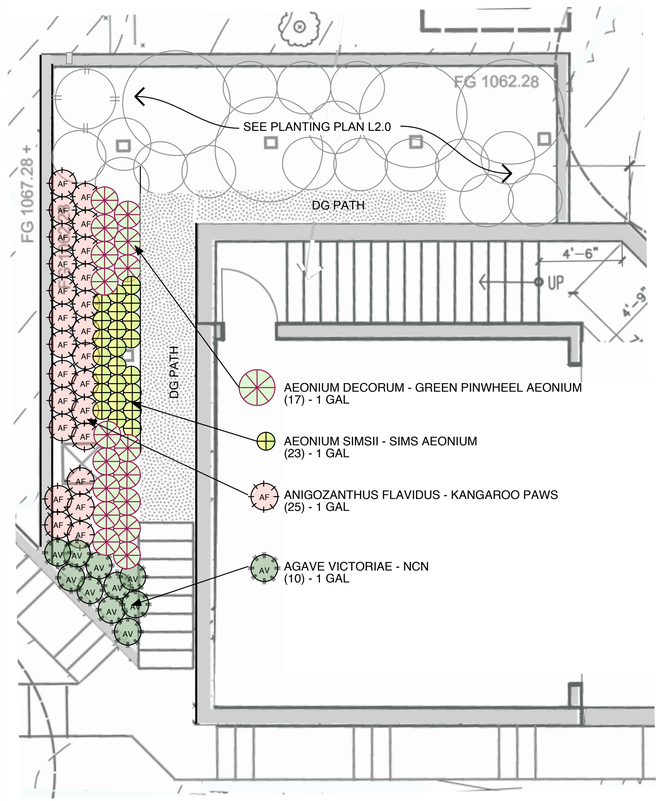
See also PLANTING DETAIL (A / ---)

NORTH

LANDSCAPE MULCHING DIAGRAM | SCALE: NTS | H



PROTECTIVE WIRE ROOT GUARD | SCALE: NTS | E



0 1 2 3 4' 8' 12'
0 1" 2" 3"
SCALE: 1/4" = 1'-0"

NORTH

SUCCULENT GARDEN PLANTING PLAN | SCALE: 1/4" = 1'-0" | B

LICENSED LANDSCAPE ARCHITECT
FREDERICK T. HUME No. 5124
Signature
8/31/23
Renewal Date
STATE OF CALIFORNIA

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TCHOURBANOV RESIDENCE
20601 Trabuco Oaks Dr.
Trabuco Canyon, CA 92678

LANDSCAPE DETAILS
LND23-0047

REVISIONS:

DATE: 1/31/22

L 2.2

SHEET 4 OF 12

PLANTING & LANDSCAPE MAINTENANCE NOTES

1. **FINE GRADING**

   All planting areas shall be cleared of stones 3 inches in diameter and larger, weeds, debris and other extraneous materials prior to amending existing soil, spreading stockpiled topsoil or spreading imported topsoil.

   Soil shall slope away from buildings and other structures at 2% min to drainage structures. There shall be no flat areas that would allow for puddles.

   See also the engineer's Grading Plans

2. **PLANTING LAYOUT** - The Planting Plan is diagrammatic and is intended to represent the general placement and groupings of all plant material. Contractor shall confirm the location of all construction items in and around the planting areas. If there are significant variations in the site conditions, the Contractor shall notify the Owner's Representative and Landscape Architect prior to commencing work.

3. **PLANT QUANTITIES** - All plant selections, quantities and sizes are identified on the plan. The tabulated summaries in the PLANTING LEGEND are for general reference only. The total quantity of plants shall be based upon the total number of plant symbols shown on the plan, or the square footage and spacing indicated on the plan. If there is a discrepancy in these quantities then the quantity of the plant symbols shown on the plan shall prevail.

4. **SHRUB & GROUNDCOVER MASSING** - Unless otherwise noted on the plans, shrubs which are shown in mass on the plans (more than 3 plants in a group) shall be planted in a triangular pattern - See DETAIL - F / SHEET L 2.2.

5. **HORTICULTURAL FERTILITY REPORT (Agronomic Soils Report)** –

   A. Prior to final grading and the installation of any plant material, the contractor must obtain site specific horticultural fertility report (agronomic soils report). The testing and reporting lab shall be advised that the plant palette consists of California native plant material and the recommendations of the native plant nursery (see NATIVE PLANT INSTALLATION specifications herein). If a report is not provided to the contractor prior to bidding, then the contractor shall have a report prepared by the following approved soils lab -

   Wallace Laboratories - https://wlabs.com/ ; 365 Coral Circle, El Segundo, Ca 90245; Phone 310-615-0116

   B. 3 Soils samples shall be taken from the following areas and sent to the approved soils lab -

   A — Planting area near Oak # 1

   B — Planting area between Oaks numbered 4, 5 & 6

   Samples shall be collected using a soils sampling tube (soil core sampler) that extracts soil to a depth of 12". Each sample shall be approximately 10-12 cubic inches of soil. Individual samples shall be sealed in a clean unused plastic bag (such as a new 1-gallon zip lock freezer bag). The location of the sample shall be noted on the outside of the bag. Samples may be hand delivered to the soils lab or shipped/mailed in a suitable shipping container to Wallace Labs at the address listed above for analysis.

   The horticultural fertility report (agronomic soils report) shall evaluate the soil and then provide recommendations regarding the horticultural requirements of the soil for the proposed CALIFORNIA NATIVE PLANTING SCHEME. The contractor's fine grading and planting installation means and methods must conform to the recommendations of the agronomic soils report.

   C. A copy of the report shall be provided to the Landscape Architect for review prior to commencement of fine grading or installation of plant material.

6. **PLANT MATERIAL**

   A. All plants shall be purchased from reputable growers who have grown and stored the plants in similar climactic conditions to the site. All or most of the native plant materials are available from Tree of Life Nursery - 33201 Ortega Highway, San Juan Capistrano CA 92675; Phone: 949-728-0685

   B. All plant material shall be healthy, vigorous and pest free.

   C. Plants shall be true to species and in conformance with the sizes and standards of the "USA Standard for Nursery Stock," by the American Nursery & Landscape Association (American Association of Nurserymen).

   D. All plants are to be delivered to the site in their nursery containers with their nursery-type identification labels clearly depicting the plants genus, species and variety.

   E. Plants shall be delivered to the site in a protected manner to avoid wind damage in transit. Deliveries shall be scheduled to minimize any need to store the plants in their containers on site.

   F. If the plants must be stored on site for a brief period of time, the staging area must be secure and the plants must be properly cared for and protected from undue or unhealthy exposure to environmental conditions.

   G. The Landscape Architect will review and approve the plant material on site after delivery and prior to planting. Rejected materials shall be immediately removed from the site at Contractor's expense.

   J. Plant Layout – The Landscape Architect shall approve the layout of all trees and container plantings prior to installation. The contractor shall place the plants in the locations as noted on plan. The Landscape Architect shall review these placements and direct the contractor to make adjustments as necessary.

   K. Landscape Site Inspections – Contractor shall inform the Landscape Architect when the progress of construction has reached the following plateaus and, with at least two days notice, request that the Landscape Architect attend a field review of the progress of the following –

   a) Soil preparation – To review soil after adding soil amendments, fertilizers, and conditioners
   b) Grading – To review final grades.
   c) Irrigation System Layout – To review irrigation mainline, piping and valve layout
   d) Irrigation Progress – As necessary to resolve problems and review the progress of the installation
   e) Irrigation Installation - Head coverage testing.
   f) Plant Material Delivery – To review plant species and quality after delivery
   g) Plant Material Placement - To confirm locations, prior to digging holes
   h) Plant Material Progress Planting – To review planting progress
   i) Final Planting Installation - To review compliance with the drawings and specifications, workmanship, and cleanup. Preparation of initial punch list
   j) Pre-Final and Final – To review progress on Punch List
   k) Other site meetings to review progress as may be necessary

   See also the OCFA NEW CONSTRUCTION INSPECTION REQUIREMENTS - Attachment 1 on this sheet

   L. Professional Services by Others - All sampling, testing, engineering and inspection costs that are provided by third parties shall be borne by Contractor. Contractor shall furnish a copy of the results of work by others to the Owner's Representative with a copy to the Landscape Architect.

7. **NATIVE PLANT INSTALLATION:**

   A. Healthy, quality nursery stock needs careful attention during the installation and establishment period to assure continued healthy and vigorous growth.

   B. Native plants should be installed in the cool months of late fall - early spring. Planting shall not take place in the hot summer months.

   C. PLANTING PROCESS:

   1. Dig a plant pit (hole) twice as deep and twice as wide as plant container. Break up large clods and scratch the sides of the plant pit to remove any smooth sides in the hole.

   2. After digging the plant pit, fill planting hole with water and allow to percolate (drain) into subsoil.

   3. Spill some backfill material into the bottom of hole, moisten, tamp and mound slightly.

   4. Set plant root ball atop the moistened backfill so that plant collar is 1" higher than finished grade.

   5. Backfill Soil Amendment:

   The native soil should be soft and friable. Eliminate large rocks and clods from your backfill soil.

   Some new native plantings do not require any soil amendment. However, this must be confirmed by the agronomic soils report.

   For bidding purposes, the contractor should assume a standard amendment for native plantings is 1/3 composted or nitrolized forest humus to 2/3 native soil, blended in a pile outside the hole; then used as the backfill mix.

   Slow release fertilizer granules or tabs are to be incorporated with the backfill, or placed in the bottom of the hole. If tabs are used, make sure they are not touching the root ball. Most native plants are able to find nutrients even in poor soils. If a pre-plant fertilizer is used, application rates should be lower than those used for general landscape ornamentals.

   Confirm the above recommended soils amendment with the agronomic soils testing lab.

   6. With water flowing slowly from a hose into the hole, replace backfill material up to about 2/3 the height of the root ball; moistening, tamping and settling all around.

   7. Fill remaining portion surrounding the top of root ball with more backfill. Be sure the root collar is still higher than grade.

   8. Create an irrigation basin berm, considerably outside the dimension of the hole using remaining backfill and native soil.

   9. Apply a generous portion (approx. 2-4" deep) coarse, organic weed and disease-free mulch; topdressing around exposed collar and inside the entire basin area.

   Note: OCFA requires that mulch shall NOT be used within 5' of the structure perimeter.

   10. Irrigate thoroughly, filling the basin with water and sprinkling around to settle backfill, mulch and berm. Allow to soak in and repeat.

   D. Warm Season Plant care and Watering:

   1. Native plants should be installed in the cool months of late fall - early spring. Planting shall not take place in the hot summer months.

   2. Prolonged leaf wetting can promote disease.

   3. Supplemental water should be provided in the cool early morning hours before sunrise. Avoid watering during the heat of the day. Avoid overhead watering.

   6. If necessary, provide temporary shade to the most sensitive species to reduce the stress of exposure to direct sun during the hot summer months, until the plants are fully established.

   7. Do not allow the root ball to dry out; water new plantings 1-3 times a week through the summer by thoroughly soaking the soil. Infrequent, deep soaking is preferable to short, frequent waterings.

   8. Initial Maintenance: Container-grown California native plants need careful attention during their establishment period in the landscape.

8. **MAINTENANCE PROCEEDURES** - The maintenance supervisor and staff must become familiar with the unique care and feeding requirements for each variety of native plant. Generally speaking however, thin native plants in early summer and mulch, start feeding in the fall and mulch again. Head back branch tips as needed in winter and spring. Irrigate wisely during the warm season.

   A. WATERING –

   It is important that the root ball does not dry out during the first two or three months after planting. Initially, irrigate about one or two times a week, trying not to oversoak the surrounding soil.

   Native plants need deep moisture and cool roots to find oxygen. After two or three months, continue to water deeply.

   As the plants mature and adapt to the local conditions, less water may be required

   Summer and early Fall - One deep watering every two or three weeks is generally sufficient. Avoid overhead watering during the hot part of the day in the warm season. Do not allow the ground to remain soggy for long periods of time as this encourages disease, especially during the warm, dry season.

   Spring - One deep watering every two or three weeks is generally sufficient. Less frequent waterings may be required given local conditions.

   Winter - Rainfall alone may be adequate for most plantings.

   B. MULCHING –
   After all the plants are installed, apply a 2" thick min layer of approved dark brown wood mulch to all of the shrub areas where shown on **DETAIL H / L2.2**

   Provide replacement organic mulch as necessary in late spring and fall to retain moisture, cool roots, discourage weeds and strengthen plants.

   Approved wood mulch: TVi-400 planter/flowerbed mulch; Available from TVI – Terra Verde Industries, 7913 N Marine Way, Irvine, CA 92618; phone 949-551-0363; Web http://cwlm.com/

   C. FERTILIZER – Use "all purpose" type plant foods for cool season feedings (Oct. – May). One light application mid-summer. Generally, the manufacturer's recommended application rate for non-native ornamental plants can be reduced by 1/2.

   D. PRUNING – Depending on the type of plant, many plants need to be thinned and "headed back," to train the new growth of a maturing native plant.

   All new plantings shall be pruned after installation by qualified personnel and shall be conducted according to standard horticultural practices to remove all dead wood, crossing branches, suckers, as well as broken or bruised branches; and to promote healthy growth, preserve the structural integrity of the plant, and to promote a desired shape.

   Special precautions shall be taken to avoid the transmission of transferable pests, viruses, or other harmful conditions during the pruning process.

   All specimen plantings shall be pruned to shape under the supervision of the Landscape Architect

   E. OCFA REQUIREMENTS - See OCFA Attachment 2 for OCFA Introductory Maintenance Responsibilities

   F. TROUBLESHOOTING – Insect, disease, weed, pest or cultural problems? Tree of Life nursery is a ready resource to help identify pests and diseases, and help with advice and recommended action.

9. **PLANT ESTABLISHMENT, WARRANTY & MAINTENANCE PERIODS**

   A. PLANT ESTABLISHMENT AND INITIAL MAINTANCE PERIOD

   Final Inspection - After all of the planting and related construction work is complete in accordance with the construction documents, the contractor shall request a final inspection prior to beginning the plant establishment period. The Owner's Representative or Landscape Architect will prepare a "Punch List" listing any outstanding work to be completed prior to beginning the plant establishment period.

   Start of Plant Establishment/Maintenance Period – After all punch list items are complete and the plant material and related construction items are installed to the satisfaction of the Landscape Architect and the Owners Representative, the Owner's Representative will issue a field notification to the contractor recognizing the completed work and establishing the beginning day of the Plant Establishment Period.

   Duration - The duration of the Plant Establishment/Maintenance Period shall be 90 days from the start of the plant establishment period, or until "Final Acceptance" by the Owner's Representative.

   Scope - Maintenance of the planting areas during the Plant Establishment Period shall include all of the services necessary to assure the establishment of all site plantings. This shall include the tasks listed in the "Maintenance" section below including fertilization, irrigation, mowing, soil cultivation, mulching, pruning, tree supports, and pest control.

   FINAL ACCEPTANCE AFTER PLANT ESTABLISHMENT – Upon completion of the Plant Establishment/Maintenance Period, Contractor shall request that Landscape Architect and Owner's Representative to review the maintained installations to confirm that they have been properly maintained during the Plant Establishment/Maintenance Period. If, at the discretion of the Landscape Architect and Owner's Representative, these areas have been properly maintained during this period and that all of the plant material is reasonably established, then Owner's Representative will provide written acknowledgment that the Plant Establishment Period is complete.

   When the Plant Establishment/Maintenance Period is complete and the installation is reasonably complete, the owner shall accept responsibility for maintaining the installation with the exception of any outstanding warranty items.

   B. WARRANTY AND REPLACEMENT

   Warranty Period

   All installations, mechanical systems and construction items under this contract are warrantied by the contractor for a period of one year after final acceptance. All trees, shrubs and vines planted under this Contract will be healthy and in flourishing condition, with active and vigorous growth, for one year following the date of Final Acceptance.

   Replacements

   All dead plants and all plants that are not in a vigorous/thriving condition, as determined by Landscape Architect or the Owner's Representative, must be replaced by the Contractor, without cost to Owner, as soon as weather conditions permit.

   Replacement plants shall be free of dead or dying branches and branch tips, and shall bear foliage that displays density, size and color that is standard for the industry and season.

   Replacement plants shall closely match adjacent plants of the same species and shall be subject to all of the provisions of the original specifications.

   Failures

   Contractor shall not be responsible for plant material that fails due to vandalism or neglect by Owner during the Plant Establishment Period. Contractor shall notify Owner immediately, in writing, if he notices any such conditions and/or failures.

   Owner-Supplied Plants - NA

   C. OWNER'S ONGOING MAINTENANCE RESPONSIBILITIES

   The Owner's maintenance responsibilities shall commence immediately after the Plant Establishment Period and final acceptance of the installed landscape.

   Contractor may submit a separate bid for ongoing maintenance of the completed work.

   Ongoing Maintenance of the landscape planting areas shall consist of:

   Fertilization – Apply fertilizers seasonally and as necessary to promote healthy productive growth of all plant material.

   Irrigation - Adjust and repairing the irrigation system as necessary. Adjust the irrigation controller seasonally to assure the proper amount of water is applied to the planting zones. Supplemental hand watering as necessary.

   Mowing – Lawn mowing to the appropriate seasonal height of all turf grasses as identified by the grower/supplier of the turf grass. In some instances, it may also be necessary to seasonally mow some ground covers.

   Soil Cultivation – Cultivate and weed the soil and provide a continuous layer of mulch to all planting beds to assure weed free plant beds. Also, maintain the proper ratio of air, water, granular material, humis and fertility in the soil.

   Mulch – maintain 2-3" of wood chip mulch in all planting beds at all times. Replace the mulch as necessary until the shrubs and ground covers are fully knitted together and the planting beds are completely filled in.

   Pruning – The vegetation shall be pruned by qualified personnel according to standard horticultural practices to remove all dead wood, crossing branches, suckers, as well as broken or bruised branches; and to promote healthy growth, preserve the structural integrity of the plant, and to promote a desired shape.

   Special precautions shall be taken to avoid the transmission of transferable pests, viruses, or other harmful conditions during the pruning process.

   Temporary Supports and Water Basin - Re-stake, adjust and tighten supports and guy wires to provide appropriate support of all trees. Lift or adjust the position of all vegetation as necessary to protect the root ball and keep the plants in its proper and upright position. Rebuild the water basins as necessary. After the vegetation is propely established and adapted to the site conditions, remove the temporary supports and water basins to allow the vegetation to grow naturally.

   Insect and Disease Control - Furnishing and applying all sprays, vitamins and appropriate pesticides as necessary to and invigorate plant growth and maintain the plantings in thriving condition and free of insects and diseases.

   Animal Pest Control - Contractor shall remove all gophers, ground squirrels, rodents, deer, rabbits and other pests as necessary by trapping or other standard industry practices. The contractor shall repair any areas that are damaged by the pest or pest control measures.

   Weed and Invasive Plants - All planting areas shall be weed free during the entire maintenance and plant establishment period. Manual weed control, or the use of an approved chemical herbicide, is at the option of the Contractor.

   Remedial Site Protection - When necessary, cordon off areas that need special protection with temporary protection fences, barriers and signs to prevent intrusion. When complete, remove the protective fencing.

ORANGE COUNTY FIRE AUTHORITY (OCFA) NOTES & ATTACHMENTS

1. The project is located in a State Responsibility Area Very High Fire Hazard Severity Zone
2. The Structure will be built to the 2019 CBC Chapter 7a requirement.
3. The OCFA Vegetation Management Guidelines: Technical Design for New Construction Fuel Modification Plans and Maintenance Program - Guideline C-05 (January 1, 2020 edition) are included herein:
   ATTACHMENT 1 - New Construction Inspection Requirements: SEE BELOW
   ATTACHMENT 2 - Introductory Maintenance Information: SEE BELOW
   ATTACHMENT 3 - Incline Measurement for Selected Slopes: DETAIL - B / SHEET L2.1
   ATTACHMENT 4 - Zone Marker Detail: DETAIL - C / SHEET L 2.1
   ATTACHMENT 5 - Sample CC& R Maintenance language: SEE BELOW
   ATTACHMENT 6 - Requirements for Planting Installation: Detail D / Sheet L 2.1
   ATTACHMENT 7 - Undesirable and Invasive Plant Species: Detail E / Sheet L 2.1
4. The proposed planting is based on the Approved Fuel Modification Plant List as specified in the OCFA Vegetation Management Guidelines: Technical Design for New Construction Fuel Modification Plans and Maintenance Program - Guideline C-05 (January 1, 2020 edition)
5. Refer to the Plans prepared by JOHN A. SALAT Architects for the full submittal to the Orange County Building Department

ATTACHMENT 1
New Construction Inspection Requirements

The Builder or Developer shall call OCFA Inspection Scheduling at 714-573-6150 for these 3 new construction inspections:

1. Prior to dropping of lumber: Schedule a Vegetation Clearance Inspection – the developer/builder shall provide a separation of combustible vegetation for a minimum distance of 100 feet from the location of the structures and lumber stock-pile, generators, and fuel tanks/dispensers. An inspection sign-off and/or release letter to the building department is required.

2. Prior to occupancy of the building: Schedule a Final Fuel Modification Inspection – the FMZ, SMA, and RPZ adjacent to structures must be installed, irrigated, and inspected. This includes physical installation of features identified in the approved precise fuel modification plans including, but not limited to, plant establishment, thinning, irrigation, zone markers, and access easements. An OCFA Inspector will provide written approval of completion at the time of this final inspection on the building card. A written disclosure will be requested by the OCFA Inspector indicating that the landowner is aware of the FMZ on their land.

3. Prior to Homeowners Association (HOA) or Landowner Maintenance Acceptance from Developer/Builder: Schedule an Owner Turnover Inspection – This inspection/ meeting must happen with OCFA staff prior to accepting the maintenance responsibility from the developer or builder.

A. The inspection/meeting must include the following representatives:
   1) Landscape architect
   2) Property manager or homeowner
   3) HOA board member
   4) Installing landscape company
   5) HOA landscape company

B. At the time of turnover, the fuel modification areas shall be maintained by the developer or builder as originally installed and approved.
C. The accepting landowner is responsible for ensuring the developer or builder sufficiently calculated the amount of revenue needed to perform the on-going maintenance of the FMZs and any SMAs per the approved plans.
D. A copy of the approved plans must be provided to the HOA representatives or homeowner at this time.
E. The Landscape Architect must convey ongoing maintenance requirements to HOA representatives or homeowner.
F. An OCFA written disclosure will be required to be signed by the HOA representatives or homeowner indicating that the HOA or homeowner is aware of the FMZ on their land and that they are aware of the importance of retaining the plans and the ongoing maintenance.
G. The responsibility and necessary language for maintenance must also be stated within the CC&R's (Refer to Attachment 5).

ATTACHMENT 2
Introductory Maintenance Information

The FMZ, SMA, RPZ shall be maintained in perpetuity for fire safety purposes, and shall cause a covenant to be recorded and referenced in the CC&Rs or on the property title when there is no HOA involvement.

Emergency access covenants shall be identified on the tract map indicating the reservation and restriction for permanent entry by the HOA or Fire Authority.

Select either Option #1 ~~or #2 below~~

Option #1 Maintenance Method:

A. On-going maintenance shall occur to preserve the originally approved design found on the approved plans. Attachment 6 spacing is required and only approved planting species and arrangements on the plans are perpetually preserved.
B. The property owner is responsible for all maintenance of FMZ, SMA, and RPZ.
C. **Two maintenance activities** shall be performed each year.
   - The first during middle- to late-Spring and the second in early- to middle-Fall.
D. Other activities include:
   - Grasses cut to 4 inches after annual seeding
   - Dead and dying, all vegetation litter, and Attachment 7 species removed from the zones
   - Maintenance of irrigation systems
   - Replacement of dead or dying vegetation with approved species (proposed changes shall be approved by OCFA)
   - Removal of trees and shrubs not on the approved plans
E. If maintained by an HOA, the landscape maintenance company and/or property manager shall inspect the FMZs throughout the year to identify where specific maintenance activities need to take place.
F. The OCFA may conduct inspections of established fuel modification areas. Ongoing maintenance shall be conducted a minimum of twice each year regardless of the dates of these inspections.
G. The property owner shall retain all approved fuel modification plans. The design and information on the plans shall be used as the basis for maintenance.

Not Applicable:
Option #2 Maintenance Method (when approved by OCFA):
Ongoing maintenance shall occur per the current posted OCFA Vegetation Management Maintenance Guidelines at www.ocfa.org. Distances of FMZ, SMA, and RPZ will always remain required and will be specific to approved Fuel Modification Plan.

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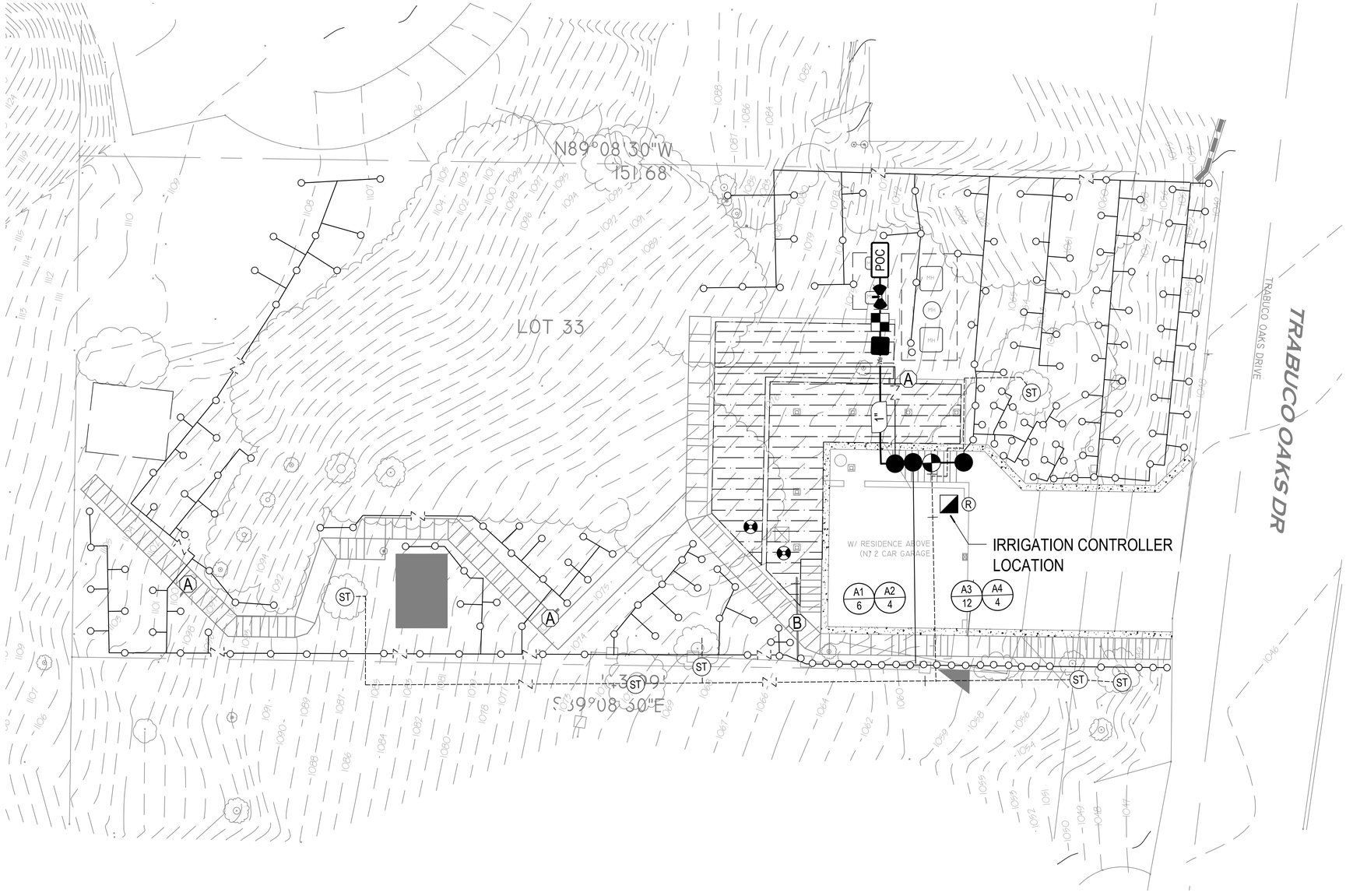
TCHOURBANOV RESIDENCE
20601 Trabuco Oaks Dr.
Trabuco Canyon, CA 92678

LANDSCAPE PLANTING NOTES & SPECIFICATIONS
LND23-0047

REVISIONS:

DATE: 1/31/22

L 2.3



LATERAL PIPE SIZING LEGEND

1/2" PIPE PROHIBITED
3/4" MINIMUM
1"
1-1/4"
1-1/2"
2"
2-1/2"
3"

SLEEVE SIZING LEGEND

REFER TO IRRIGATION LEGEND FOR SLEEVE SPECIFICATION AND DETAIL FOR BURIAL REQUIREMENTS.

A	(2) 2"	H	(2) 4"
B	(3) 2"	I	(3) 4"
C	(4) 2"	J	(4) 4"
D	(2) 3"	K	(5) 4"
E	(3) 3"	L	(1) 6" + (2) 4"
F	(4) 3"	M	(1) 6" + (3) 4"
		N	(1) 6" + (4) 4"

G — GALVANIZED SLEEVE
MINIMUM 2X DIAMETER OF PIPE OVER V-DITCH

SLEEVING NOTES

- SLEEVES TO BE MINIMUM TWICE THE DIAMETER OF THE PIPE SLEEVED.
- REFER TO LEGEND FOR SLEEVE SPECIFICATION AND PLAN FOR SLEEVE SIZE MATRIX
- IRRIGATION PIPE AND WIRE / CONDUIT SHALL BE SLEEVED UNDER PAVING.
- PRESSURE MAINLINE SLEEVES SHALL BE ACCOMPANIED WITH A MINIMUM 2" WIRE / CONDUIT SLEEVE.
- SEAL ALL SLEEVE ENDS TO PROHIBIT SOIL FROM ENTERING THE BURIED SLEEVE.
- SLEEVES TO EXTEND MINIMUM 12" BEYOND PAVING.
- IRRIGATION CONTRACTOR TO COORDINATE SLEEVING WITH THE HARDSCAPE CONTRACTOR AND SITE SUPERINTENDENT PRIOR TO INSTALLATION OF ANY HARDSCAPE.

SPARE WIRE NOTE

TWO (2) CONTINUOUS, SPARE WIRES SHALL BE PROVIDED FOR EACH MAINLINE DIRECTION. ALL SPARE WIRES SHALL BE LOOPED IN EACH VALVE BOX WITH 24" COIL. ALL SPARE WIRE SHALL BE ORANGE IN COLOR. COIL ALL SPARE WIRES IN BOTTOM OF CONTROLLER. TERMINATE SPARE WIRES IN THE LAST VALVE BOX.

EQUIPMENT LOCATION NOTES

ALL VALVE BOXES, ABOVE GRADE EQUIPMENT AND PIPING SHALL BE LOCATED IN LANDSCAPE AREAS. IRRIGATION EQUIPMENT SHALL NOT BE LOCATED IN HARDSCAPE / PAVED AREAS OR IN TURF AREAS WITHOUT WRITTEN PERMISSION FROM THE IRRIGATION CONSULTANT. LOCATE ALL VALVE BOXES IN SHRUB AREAS ONLY. CONTRACTOR WILL BE RESPONSIBLE TO RE-LOCATE VALVE BOXES INSTALLED IN TURF AREAS AT NO COST TO THE OWNER.

DIGALERT 811

811 DIGALERT

CONTACT DIGALERT BY DIALING 811 A MINIMUM OF (3) WORKING DAYS BEFORE EXCAVATION.

ARROYO
IRRIGATION CONSULTING
27762 ANTONIO PARKWAY L1-308
LADERA RANCH, CA 92694
(949) 430-7030

0 4 8 16

LICENSED LANDSCAPE ARCHITECT
FREDERICK T. HUME No. 5824
8/31/25
Renewal Date
6/3/25
Date
STATE OF CALIFORNIA

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TCHOURBANOV RESIDENCE

IRRIGATION PLAN

LND23-0047

REVISIONS:

DATE: 6/3/25

L-3.0

SHEET 6 OF 12

Water Efficient Landscape Worksheet

Water Meter #: A | **Controller ID:** A

CIMIS Zone or City: State Zone 6 | **Reference Evapotraspiration (ETo):** 49.70 | **Landscape Type:** Residential

Landscape Area

Hydrozone #	Plant Type	Plant Factor (PF)	Irrigation Method	Irrigation Efficiency (IE)	ETAF (PF/IE)	Landscape Area Sq. Ft.	Percent %	ETAF x Area	Estimated Total Water Use (ETWU) Gallons
1	Turf - Cool Season	0.8	HE Spray	73%	1.10				
2	Turf - Cool Season	0.8	Rotor	75%	1.07				
3	Turf - Cool Season	0.8	Inline Drip	81%	0.99				
4	Turf - Warm Season	0.6	HE Spray	73%	0.82				
5	Turf - Warm Season	0.6	Rotor	75%	0.80				
6	Turf - Warm Season	0.6	Inline Drip	81%	0.74				
7	Shrub - Mod Water Use	0.5	HE Spray	73%	0.68				
8	Shrub - Mod Water Use	0.5	Rotor	75%	0.67				
9	Shrub - Mod Water Use	0.5	Inline Drip	81%	0.62				
10	Shrub - Low Water Use	0.3	HE Spray	73%	0.41				
11	Shrub - Low Water Use	0.3	Rotor	75%	0.40				
12	Shrub - Low Water Use	0.3	Inline Drip	81%	0.37				
13	Shrub - Very Low Water Use	0.1	HE Spray	73%	0.14				
14	Shrub - Very Low Water Use	0.1	Rotor	75%	0.13				
15	Shrub - Very Low Water Use	0.1	Inline Drip	81%	0.12				
					Totals:				

Special Landscape Area

Hydrozone #	Plant Type	Plant Factor (PF)	Irrigation Method	Irrigation Efficiency (IE)	ETAF (PF/IE)	Landscape Area Sq. Ft.	Percent %	ETAF x Area	Estimated Total Water Use (ETWU) Gallons
Recycled Water	THIS SPACE LEFT BLANK PER MWELO				1.00	5,960	100%	5,960	183,651
Active Play									
Edible Garden									
Urban Forest									
					Totals:	**5,960**	**100%**	**5,960**	**183,651**

Total Area (Sq. Ft.)	**5,960**	**Sitewide Estimated Total Water Use (Gallons)**	**183,651**
Landscape Area Average ETAF	**0**	**Maximum Applied Water Allowance (Gallons)**	**183,651**
All Landscape Area Sitewide ETAF	**0**	**ETWU < MAWA**	**COMPLIANT**

2016 Model Water Efficient Landscape Ordinance Formulas

MAWA = Maximum Applied Water Allowance
ETWU = Estimated Total Water Use
LA = Landscape Area (Sq. Ft.)
SLA = Special Landscape Area (Sq. Ft.)
ETo = Reference Evapotranspiration
PF = Plant Water Use Factor
IE = Irrigation Efficiency
ETAF = ET Adjustment Factor

$$MAWA = ETo \times .62 \times [(LA \times ETAF) + SLA \times (1-ETAF)]$$

$$ETWU = \left(\frac{ETo \times 0.62 \times LA \times PF}{IE}\right)$$

Controller Programming Recommendation

Water Meter #: A | **Controller ID:** A | **Schedule Type:** Maturity
CIMIS Zone or City: Zone 6 | **Soil Type:** Sandy Loam | **Turf Root Depth:** 6 Inches
Peak ETo Per Day: 0.21 | **Shrub Root Depth:** 12 Inches

Station #	Hydrozone #	Exposure/ Aspect	Plant Type	Peak Landscape Coefficient	Sprinkler Type	Precipitation Rate	Efficiency	Cycles Per Week	Peak Runtime Per Cycle (Minutes)
1	12	Partial Sun - East	Shrub - Low	0.20	Drip	0.6	0.81	2	15
2	12	Partial Sun - East	Shrub - Low	0.20	Drip	0.6	0.81	2	15
3	18	Partial Sun - East	Trees - Low	0.20	Spray	1.7	0.71	4	3
4	12	Partial Sun - East	Shrub - Low	0.20	Drip	0.6	0.81	2	15

POINT SOURCE BUBBLER LEGEND

SYMBOL	EMITTER	PATTERN	FLOW	PRES
◯	GPSTCV2R	BUBBLER	2 GPH	30 PSI

POC NOTE

CONTRACTOR TO PURCHASE THE FOLLOWING WATER HARVESTING ASSEMBLY FROM SITEONE GREEN TECH:

SITEONE GREEN TECH:
WH1-6-11 / WHPC-2HSV-231 / GTINSTALL2-5

WATER HARVESTING INCLUDES A 11175 GALLON BELOW GRADE TANK, 2 HP PUMP 230 VOLT SINGLE PHASE AND INSTALLATION SERVICES.

CONTRACTOR TO VERIFY POWER (PHASE AND VOLTAGE) BEFORE ORDERING PUMP.

CONTRACTOR TO PROVIDE TRENCHES TO TANK LOCATION AND TANK PIT.

CONTACT ERIK ANDERSON AT SITEONE GREEN TECH AT (949) 285-4048

E. THE IRRIGATION SYSTEM IS A GREY WATER SYSTEM WITH DOMESTIC WATER FILL. THE SOURCE OF DOMESTIC WATER IS TRABUCO CANYON WATER DISTRICT.

IRRIGATION SYSTEM NOTES

DESIGN CLARIFICATIONS:
1. THE IRRIGATION PLANS ARE DIAGRAMMATIC. ALL EQUIPMENT AND PIPING SHOWN WITHIN HARDSCAPED LOCATIONS ARE FOR DESIGN CLARIFICATION ONLY AND SHALL BE INSTALLED IN LANDSCAPED LOCATIONS WHEREVER POSSIBLE.
2. THE IRRIGATION CONTRACTOR SHALL BECOME FAMILIAR WITH ALL GRADE DIFFERENCES AND LOCATION OF ALL WALLS, FENCES, STRUCTURES AND UTILITIES. THE IRRIGATION CONTRACTOR IS RESPONSIBLE FOR REPAIRING OR REPLACING ALL ITEMS DAMAGED BY THEIR WORK. WORK SHALL BE COORDINATED WITH THE SITE SUPERINTENDENT FOR THE LOCATION AND INSTALLATION OF PIPE SLEEVES THROUGH WALLS, UNDER STREETS, PARKING LOTS, AND PAVING, ETC.
3. THE IRRIGATION SYSTEM DESIGN IS BASED ON A MINIMUM OPERATING PRESSURE AS NOTED ON THE PLANS. THE IRRIGATION CONTRACTOR SHALL VERIFY WATER PRESSURE AT THE IRRIGATION POINT OF CONNECTION PRIOR TO START OF CONSTRUCTION. REPORT THE ONSITE MEASURED PRESSURE READING TO THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO START OF WORK.
4. DO NOT PURPOSEFULLY INSTALL THE IRRIGATION SYSTEM AS SHOWN ON THE PLANS WHEN IT IS CLEAR IN THE FIELD THAT UNKNOWN STRUCTURES, UTILITIES, GRADE DIFFERENCES, OR DIFFERENCES IN THE LANDSCAPE AREA EXIST THAT ARE NOT REPRESENTED ON THE PLANS. THE IRRIGATION CONTRACTOR SHALL NOTIFY THE OWNER'S AUTHORIZED REPRESENTATIVE OF THE OBSTRUCTIONS OR DIFFERENCES. IF A NOTIFICATION IS NOT PROVIDED, THE IRRIGATION CONTRACTOR SHALL ACCEPT FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY.
5. ALL IRRIGATION EQUIPMENT NOT DETAILED SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.

INSTALLATION NOTES:
1. THE LANDSCAPE ARCHITECT AND IRRIGATION CONSULTANT SHALL APPROVE THE FINAL LOCATION OF THE IRRIGATION CONTROLLER, BACKFLOW DEVICE, SIGNAGE AND ALL OTHER ABOVE GRADE EQUIPMENT PRIOR TO INSTALLATION.
2. 120 VAC ELECTRICAL SOURCE AT IRRIGATION CONTROLLER LOCATION SHALL BE PROVIDED BY OTHERS. THE IRRIGATION CONTRACTOR SHALL MAKE THE FINAL CONNECTION FROM THE ELECTRICAL SOURCE TO THE IRRIGATION CONTROLLER PER LOCAL ELECTRICAL CODES.
3. THE IRRIGATION CONTRACTOR IS RESPONSIBLE FOR VERIFYING ONSITE ELECTRICAL POWER TYPE (VOLTAGE AND PHASE) FOR IRRIGATION PUMPS BEFORE ORDERING / PURCHASING EQUIPMENT. IF ELECTRICAL POWER TYPE DIFFERS FROM THE PUMP SPECIFICATION, THEN IRRIGATION CONTRACTOR SHALL NOTIFY THE OWNER'S AUTHORIZED REPRESENTATIVE AND IRRIGATION CONSULTANT. IF A NOTIFICATION IS NOT PROVIDED, THE IRRIGATION CONTRACTOR SHALL ACCEPT FULL RESPONSIBILITY FOR ALL COSTS.
4. IF PUMP ASSEMBLY DOES NOT INCLUDE A WAFER CHECK VALVE, CONTRACTOR SHALL INSTALL A LINE SIZE WAFER CHECK VALVE IMMEDIATELY DOWNSTREAM OF PUMP.
5. INSTALL ALL PIPING BETWEEN THE POINT OF CONNECTION AND THE R.P. BACKFLOW DEVICE AS PER LOCAL CODES.
6. ALL MAINLINE / LATERAL LINE PIPING AND WIRES / CONDUITS UNDER PAVING SHALL BE INSTALLED IN SEPARATE SLEEVES. MAINLINE / LATERAL LINE SLEEVES SHALL BE A MINIMUM OF TWICE (2X) THE DIAMETER OF THE PIPE TO BE SLEEVED. WIRE / CONDUIT SLEEVES SHALL BE OF SUFFICIENT SIZE FOR THE REQUIRED NUMBER OF WIRES UNDER PAVING.
7. PIPE SIZES SHALL CONFORM TO THOSE SHOWN ON THE DRAWING. NO SUBSTITUTIONS OF SMALLER PIPE SIZES SHALL BE PERMITTED, BUT SUBSTITUTIONS OF LARGER SIZES MAY BE APPROVED. ALL DAMAGED PIPE SHALL BE IMMEDIATELY REMOVED FROM THE SITE.
8. ALL SPRINKLER / ROTOR HEADS SHALL BE SET PERPENDICULAR TO FINISH GRADE UNLESS OTHERWISE SPECIFIED.

SYSTEM ADJUSTMENT NOTES:
1. THE IRRIGATION CONTRACTOR SHALL FLUSH AND ADJUST ALL VALVES, SPRAY HEADS AND ROTORS FOR OPTIMUM COVERAGE WITH MINIMAL OVERSPRAY ONTO WALKS, STREETS, WALLS, ETC.
2. THE IRRIGATION CONTRACTOR SHALL INSTALL CHECK VALVES ON ALL HEADS IN AREAS WHERE FINISH GRADE EXCEEDS 4:1 AND WHERE POST VALVE SHUT-OFF LOW HEAD DRAINAGE OF THE IRRIGATION SYSTEM OCCURS OR AS DIRECTED BY THE OWNER'S AUTHORIZED REPRESENTATIVE.
3. THE CONTRACTOR SHALL PROVIDE PRESSURE COMPENSATION SCREENS (PCS) AS NECESSARY TO ELIMINATE OVERSPRAY ONTO WALKS, STREETS, WALLS, OR OTHER AREAS AS DIRECTED BY THE OWNER'S AUTHORIZED REPRESENTATIVE.
4. SHRUB RISER HEADS MAY BE SUBSTITUTED FOR SHRUB POP-UP HEADS IN LANDSCAPE AREAS EXCEPT WHERE ADJACENT TO PUBLIC AREAS SUCH AS WALKS, CURBS, TURF HEADERS, MONUMENTS, FOUNTAINS, OR SIGNAGE. REFER TO INSTALLATION DETAILS.

Irrigation Pressure Calculation

Water Meter #: A | **Controller ID:** A

Valve Information

Automatic Control Valve	A1
Size	1.00"
Demand	6 GPM
Elevation of Highest Head	1107'
Head Type	Drip

POC Friction Loss

QTY	SIZE (INCHES)	TYPE	ITEM	FLOW (GPM)	PRESSURE LOSS (PSI)

Pump Information

Pump Inlet Pressure	
Pump Boost Pressure	68.97 PSI
Pump Outlet Pressure	68.97 PSI

Friction Loss

QTY	SIZE (INCHES)	TYPE	ITEM	FLOW (GPM)	PRESSURE LOSS (PSI)
1	1.00"	EFB-CP	Master Valve	6 GPM	0.27 PSI
1	1.00"		Flow Sensor	6 GPM	0.02 PSI
1	1.00"		Isolation Valves	6 GPM	0.01 PSI
10'	1.00"	PVC	Mainline	6 GPM	0.09 PSI
1	1.00"	PESB-R	Automatic Control Valve	6 GPM	2.08 PSI
			Lateral Line Loss		4.00 PSI
			Fitting Loss (10%)		0.65 PSI
			Elevation Change		20.35 PSI
			Total System Losses		27 PSI
			Pressure to Operate Head		30 PSI
			Safety Factor	20%	11 PSI
			Static Pressure at Water Meter		
			Pressure Required with Safety Factor		69 PSI
			Residual Pressure		11 PSI

IRRIGATION EQUIPMENT LEGEND
RECYCLED WATER

SYMBOL	ITEM	MANUFACTURER - MODEL NUMBER - DESCRIPTION
POC	POINT OF CONNECTION ASSEMBLY	REFER TO POINT OF CONNECTION DETAIL FOR SPECIFICATION OF THE FOLLOWING EQUIPMENT INSTALLED IN VAULT
	MASTER VALVE	1" RAIN BIRD EFB-CP SERIES NORMALLY CLOSED BRASS MASTER VALVE
	FLOW SENSOR	REFER TO CONTROLLER NOTE
	BALL VALVE	SCHEDULE 80 PVC FULL PORT BALL VALVE • LINE SIZE UP TO 3"
	CONTROL VALVE	RAIN BIRD PESB-R SERIES CONTROL VALVE • REFER TO PLAN FOR SIZE
	CONTROL VALVE DRIP	RAIN BIRD 100-PESB-R 1" CONTROL VALVE. INCLUDE THE FOLLOWING: • **INLINE DRIP:** RAIN BIRD PRB-QKCHK-100 40 PSI PRESSURE REGULATING 200 MESH QUICK CHECK BASKET FILTER • **POINT SOURCE DRIP:** RAIN BIRD QKCHK-100, 200 MESH QUICK CHECK BASKET FILTER
	LATERAL LINE CHECK VALVE	NDS KSC-S SERIES LINE SIZE SWING CHECK FOR UPHILL FLOW DIRECTION NDS KC-S SERIES LINE SIZE SPRING CHECK FOR DOWNHILL FLOW DIRECTION
	FLUSH VALVE	SCHEDULE 40 PVC FULL PORT BALL VALVE • INCLUDE HUNTER ECO-ID DRIP OPERATION INDICATOR
ST	SPECIMEN TREE IRRIGATION	REFER TO SPECIMEN TREE IRRIGATION DETAIL
R	RAIN SENSOR	HUNTER WR-CLIK WIRELESS RAIN SENSOR WITH WIRELESS RECEIVER CONTROLLER INTERFACE • INCLUDE CLIK-DELAY 48-HOUR RAIN DELAY SENSOR
	CONTROLLER	HUNTER PHC-1200i 12 STATION INDOOR MOUNT • INCLUDE HUNTER HC-075-FLOW 3/4" HC FLOW METER
NOT SHOWN	SHRUB BUBBLER EMITTERS	GPH IRRIGATION SPEC-CHECK SERIES THREADED PRESSURE COMPENSATING BUBBLER WITH CHECK VALVE • INCLUDE HUNTER IH-18 RISER • REFER TO EMITTER LEGEND FOR EMITTER QUANTITY AND FLOW
RM	BELOW GRADE PRESSURE MAINLINE	RECYCLED WATER MAINLINE (RM) PURPLE SCHEDULE 40 PRESSURE MAINLINE FOR PIPE 1" THROUGH 1-1/2" PURPLE CLASS 315 PRESSURE MAINLINE FOR PIPE 2" THROUGH 3" • ALL PIPE TO BE SOLVENT WELD • REFER TO PLAN FOR SIZE • REFER TO TRENCHING DETAIL FOR DEPTHS
	BELOW GRADE LATERAL LINE	PURPLE SCHEDULE 40 SOLVENT WELD PVC LATERAL LINE • REFER TO PLAN FOR SIZE - 3/4" MINIMUM • REFER TO TRENCHING DETAIL FOR BURIAL DEPTHS
	TREE IRRIGATION LATERAL	PURPLE SCHEDULE 40 SOLVENT WELD PVC LATERAL LINE • REFER TO PLAN FOR SIZE - 3/4" MINIMUM • REFER TO TRENCHING DETAIL FOR BURIAL DEPTHS
	DRIP LATERAL	HUNTER HDL-R-06-12 SERIES WITH PURPLE STRIPE OPTION • 0.6 GPH EMITTERS SPACED AT 12" O.C. WITHIN TUBING • REFER TO DRIP DETAIL FOR ROW SPACING AND BURIAL DEPTH • INSTALL NETAFIM TLS6 TUBING STAPLES AT 4' O.C. • ALL FITTINGS SHALL BE HUNTER BARBED PLD SERIES
	SLEEVE	PURPLE SCHEDULE 40 PVC REFER TO SLEEVING LEGEND FOR QUANTITY AND SIZE
NOT SHOWN	IRRIGATION WIRE	PAIGE P7001D UL LISTED U.F. 600V DIRECT BURIAL • PILOT WIRE 14 AWG EACH CONTROLLER TO HAVE DIFFERENT COLOR • COMMON 14 AWG WHITE WITH STRIPE TO MATCH PILOT WIRE • EXTRA WIRE 14 AWG ORANGE
NOT SHOWN	WIRE CONNECTORS	3M DBR/Y-6 600 VAC WATERPROOF DIRECT BURY CONNECTORS • FOR USE WITH TWO-WIRE CABLE CONNECTIONS
NOT SHOWN	MAINLINE FITTINGS	PRESSURE MAINLINE FITTINGS TO BE SCHEDULE 40 PVC SOLVENT WELD
	LATERAL FITTINGS	NON-PRESSURE LATERAL LINE FITTINGS TO BE: • BURIED LATERAL: SCHEDULE 40 PVC SOLVENT WELD • ABOVE GRADE LATERAL: UVR SCHEDULE 40 PVC SOLVENT WELD
NOT SHOWN	VALVE BOX	**IRRIGATION VALVE BOXES** • 6" ROUND — BOX: SNAP ON — LID: T-COVER — SKU NUMBER: CARSON 07081138 • 10" ROUND — LID: T-COVER — CARSON 09101043 • 14" x 19" RECTANGULAR — LID: T-COVER — CARSON 14191430 • 12" x 20" JUMBO — LID: T-COVER — CARSON 12201070 BOX / LID COLOR: PURPLE - INCLUDES STANDARD HEX BOLT "RECYCLED WATER - DO NOT DRINK" MOLDED OR EMBOSSED ON THE LID **LOW VOLTAGE IRRIGATION WIRE VALVE BOXES** • 10" ROUND — LID: T-COVER — CARSON 09101037 • 14" x 19" RECTANGULAR — LID: T-COVER — CARSON 14191434 BOX / LID COLOR: BLACK - INCLUDES STANDARD HEX BOLT

A1 / XX — DENOTES STATION NUMBER; DENOTES STATION FLOW

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TCHOURBANOV RESIDENCE

IRRIGATION LEGENDS

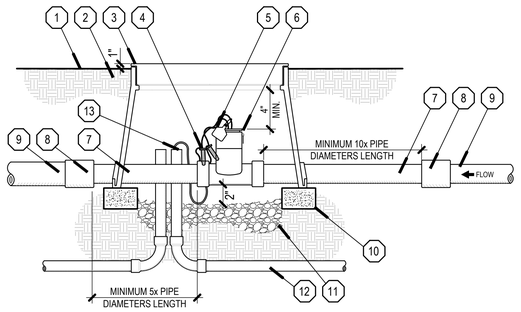
LND23-0047

REVISIONS:
E 6/3/25

DATE: 6/3/25

LICENSED LANDSCAPE ARCHITECT — FREDERICK T. HUME — No. 1624 — STATE OF CALIFORNIA — 8/31/25 Renewal Date — 6/3/25 Date

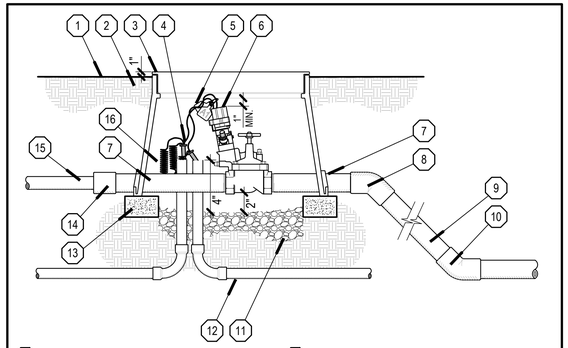
L-3.1



1. FINISH GRADE
2. SUBGRADE
3. RECTANGULAR VALVE BOX - LABEL PER BRANDING DETAIL
4. WATERPROOF WIRE CONNECTORS - REFER TO LEGEND
5. WATER IDENTIFICATION TAG - REFER TO LEGEND FOR COLOR AND TYPE
6. FLOW SENSOR - REFER TO LEGEND
7. SCHEDULE 40 PVC PIPE- SIZED TO MATCH FLOW SENSOR - LENGTH AS REQUIRED
8. SLIP COUPLING - PRESSURE MAINLINE FITTING WITH BUSHING TO ADAPT PIPE TO FLOW SENSOR SIZE
9. PRESSURE MAINLINE PIPE
10. BRICK SUPPORTS - FOUR REQUIRED
11. 3/4" CRUSHED GRAVEL - 6" DEPTH
12. 1-1/4" MASTER VALVE AND FLOW SENSOR CABLE CONDUIT WITH SWEEPS IN AND OUT OF EACH VALVE BOX
13. FLOW SENSOR CABLE 48" MINIMUM EXPANSION LOOP - REFER TO LEGEND

0.0 FLOW SENSOR - PVC

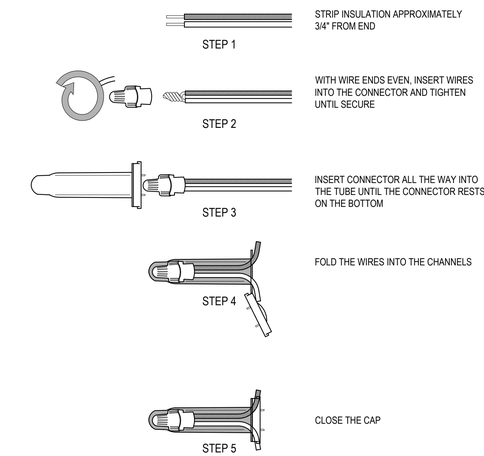
NO SCALE



1. FINISH GRADE
2. SUBGRADE
3. RECTANGULAR VALVE BOX - LABEL PER BRANDING DETAIL
4. WATERPROOF WIRE CONNECTORS - REFER TO LEGEND
5. STATION ID TAG AND WATER IDENTIFICATION TAG - LOCATE ON SOLENOID WIRES
6. MASTER VALVE - REFER TO LEGEND
7. SCHEDULE 80 PVC TOE NIPPLE - LENGTH TO CLEAR VALVE BOX
8. SLIP 45° ELL - PRESSURE MAINLINE FITTING WITH BUSHING TO ADAPT PIPE TO INLET SIZE OF VALVE
9. PRESSURE MAINLINE PIPE
10. PRESSURE MAINLINE FITTING - SLIP 45° ELL
11. 3/4" CRUSHED GRAVEL - 6" DEPTH
12. 1-1/4" MASTER VALVE AND FLOW SENSOR CABLE CONDUIT WITH SWEEPS IN AND OUT OF EACH VALVE BOX
13. BRICK SUPPORTS - FOUR REQUIRED
14. SLIP COUPLING - PRESSURE MAINLINE FITTING WITH BUSHING TO ADAPT PIPE TO PRESSURE MAINLINE SIZE
15. PRESSURE MAINLINE - SIZE OF PIPE TO MATCH FLOW SENSOR (IF SPECIFIED)
16. PAIGE 70001D 14 AWG BLUE AND YELLOW MASTER VALVE WIRE WITH 24" MINIMUM EXPANSION COIL

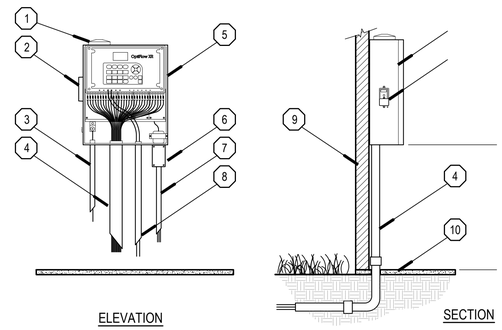
0.0 MASTER VALVE

NO SCALE



0.0 WATERPROOF WIRE CONNECTOR

NO SCALE



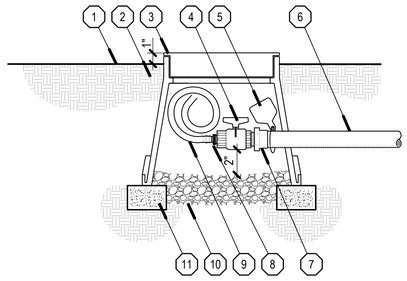
1. LOW PROFILE ANTENNA
2. RAIN SENSOR RECEIVER UNIT
3. #6 COPPER GROUND WIRE IN EMT CONDUIT. CONNECT TO BUILDING GROUND AS REQUIRED PER CODE
4. SCHEDULE 40 PVC CONTROL VALVE WIRE CONDUIT

CONTROLLER - REFER TO LEGEND

6. INDOOR RATED JUNCTION BOX FOR 120VAC POWER - INSTALL PER LOCAL ELECTRICAL CODE
7. 120VAC POWER WIRES IN EMT CONDUIT - INSTALL PER LOCAL ELECTRICAL CODE
8. SCHEDULE 40 PVC MASTER VALVE WIRE AND FLOW SENSOR CONDUIT
9. WALL
10. FLOOR

0.0 WALL MOUNT CONTROLER - INDOOR

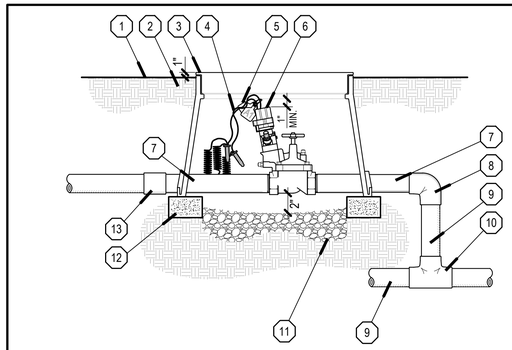
NO SCALE



1. FINISH GRADE
2. SUBGRADE
3. 6" ROUND VALVE BOX - LABEL PER BRANDING DETAIL
4. FULL PORT PVC T x T BALL VALVE - REFER TO LEGEND
5. WATER IDENTIFICATION TAG - REFER TO LEGEND FOR COLOR AND TYPE
6. DRIP LATERAL
7. SCHEDULE 40 MALE ADAPTER
8. MPT X BARBED DRIP FITTING
9. 24" BLANK DRIP TUBING
10. 3/4" CRUSHED GRAVEL - 6" DEPTH
11. BRICK SUPPORTS - FOUR REQUIRED

DRIP FLUSH VALVE

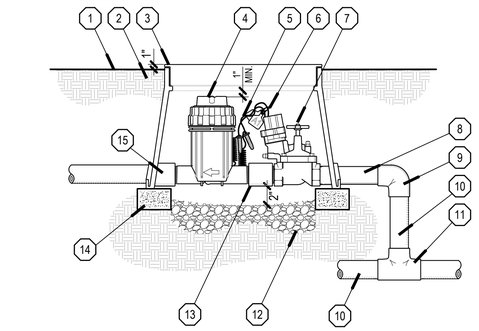
NO SCALE



1. FINISH GRADE
2. SUBGRADE
3. RECTANGULAR VALVE BOX - LABEL PER BRANDING DETAIL
4. VALVE WIRE AND COMMON WIRE WITH WATERPROOF WIRE CONNECTORS - PROVIDE 24" MIN. EXPANSION COIL
5. STATION ID TAG AND WATER IDENTIFICATION TAG - LOCATE ON SOLENOID WIRES
6. AUTOMATIC CONTROL VALVE - REFER TO LEGEND
7. SCHEDULE 80 PVC TOE NIPPLE - LENGTH TO CLEAR VALVE BOX
8. SLIP ELL - PRESSURE MAINLINE FITTING WITH BUSHING TO ADAPT PIPE TO INLET SIZE OF VALVE
9. PRESSURE MAINLINE PIPE
10. PRESSURE MAINLINE FITTING - SLIP TEE OR ELL
11. 3/4" CRUSHED GRAVEL - 6" DEPTH
12. BRICK SUPPORTS - FOUR REQUIRED
13. LATERAL FITTING - SLIP COUPLING

0.0 CONTROL VALVE

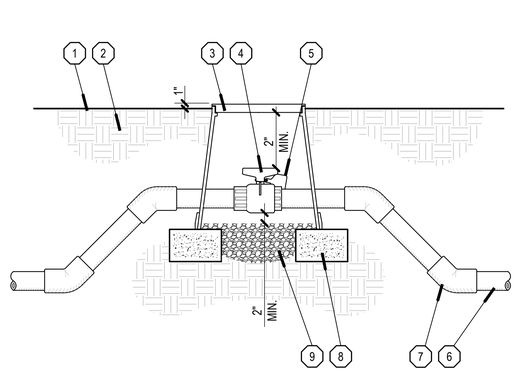
NO SCALE



1. FINISH GRADE
2. SUBGRADE
3. JUMBO VALVE BOX - LABEL PER BRANDING DETAIL
4. BASKET FILTER WITH PRESSURE REGULATOR
5. VALVE WIRE AND COMMON WIRE WITH WATERPROOF WIRE CONNECTORS - PROVIDE 24" MIN. EXPANSION COIL
6. STATION ID TAG AND WATER IDENTIFICATION TAG - LOCATE ON SOLENOID WIRES
7. AUTOMATIC CONTROL VALVE - REFER TO LEGEND
8. SCHEDULE 80 PVC TOE NIPPLE - LENGTH TO CLEAR VALVE BOX
9. SLIP ELL - PRESSURE MAINLINE FITTING WITH BUSHING TO ADAPT PIPE TO INLET SIZE OF VALVE
10. PRESSURE MAINLINE PIPE
11. PRESSURE MAINLINE FITTING - SLIP TEE OR ELL
12. 3/4" CRUSHED GRAVEL - 6" DEPTH
13. SCHEDULE 80 PVC T x T COUPLING WITH SCHEDULE 80 PVC CLOSE NIPPLE
14. BRICK SUPPORTS - FOUR REQUIRED
15. LATERAL FITTING - S x T COUPLING

0.0 CONTROL VALVE DRIP

NO SCALE



1. ROUND VALVE BOX - LABEL PER BRANDING DETAIL
2. BALL VALVE - REFER TO LEGEND
3. WATER IDENTIFICATION TAG - AS REQUIRED
4. FINISH GRADE
5. SUBGRADE
6. MAINLINE
7. PVC 45° ELL - REFER TO LEGEND
8. BRICK SUPPORTS - FOUR REQUIRED
9. 3/4" CRUSHED GRAVEL - 12" DEEP

0.0 BALL VALVE

NO SCALE

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LICENSED LANDSCAPE ARCHITECT
FREDERICK T. HUME No. 6324
8/31/25
Renewal Date
6/3/25
Date
STATE OF CALIFORNIA

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20601 Trabuco Oaks Dr.
TCHOURBANOV RESIDENCE

IRRIGATION DETAILS

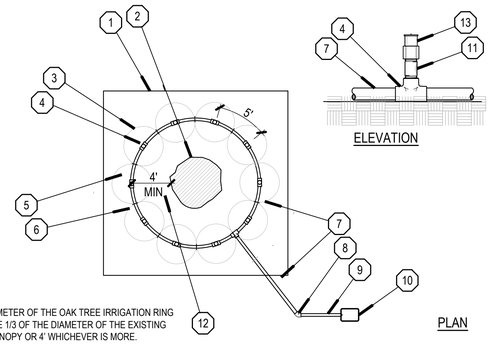
LND23-0047

REVISIONS:

DATE: 6/3/25

L-3.2

SHEET 8 OF 12

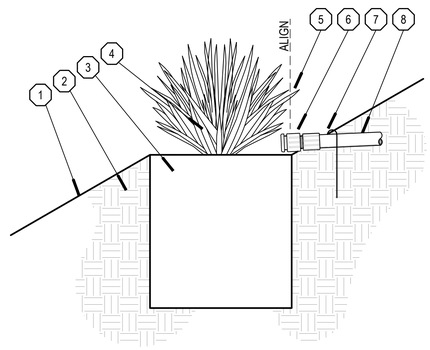


THE DIAMETER OF THE OAK TREE IRRIGATION RING SHALL BE 1/3 OF THE DIAMETER OF THE EXISTING TREE CANOPY OR 4' WHICHEVER IS MORE.

1. TREE BOX
2. TREE TRUNK
3. BUBBLER PATTERN
4. 1/2" SCHEDULE 40 UVR SST TEE
5. SEE NOTE ABOVE FOR IRRIGATION RING DIAMETER - VARIES PER TREE SIZE
6. #4 REBAR STAKE 5' O.C.
7. GPH DRIP PRODUCTS ALGAE RESISTANT 1/2" DIAMETER FLEXIBLE PVC PIPE
8. TRANSITION FROM BELOW GRADE TO ON GRADE PIPING. DO NOT TRENCH IN TREE BOX AREA.
9. PVC LATERAL
10. CONTROL VALVE ASSEMBLY WITH FILTER AND PRESSURE REGULATOR
11. 1/2" X 2" SCHEDULE 80 UVR PVC NIPPLE
12. MAINTAIN 4' MIN. CLEAR - TRUNK SHALL NOT BE SPRAYED BY IRRIGATION
13. RAINBIRD PABS WITH 1401 BUBBLER 0.25 GPM

0.0 OAK TREE IRRIGATION

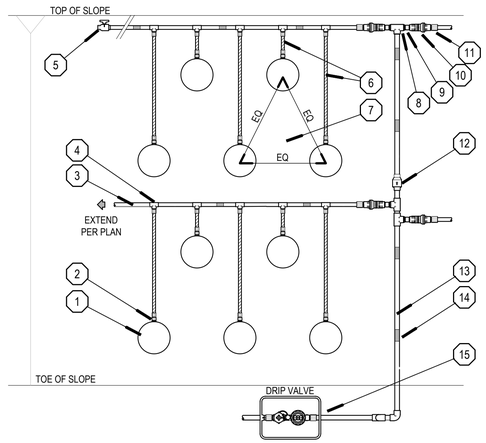
NO SCALE



1. FINISH GRADE
2. SUBGRADE
3. ROOTBALL
4. PLANT MATERIAL
5. ALIGN EMITTER WITH EDGE OF PLANT PIT
6. GPH EMITTER - REFER TO LEGEND
7. GPH 9" TUBING STAKE - GDTS30750 (1) REQUIRED PER SHRUB
8. HUNTER IH RISER - LENGTH AS REQUIRED (ASSEMBLY INCLUDES MALE ADAPTERS)

0.0 DRIP EMITTER ON SLOPE

NO SCALE



1. SHRUB LOCATION IN PLANTING GRID, REFER TO DRIP EMITTER ON SLOPE DETAIL
2. GPH THREADED EMITTER - REFER TO LEGEND
3. 3/4" SCHEDULE 40 UVR PVC LATERAL
4. SCHEDULE 40 PVC 3/4" SLIP X 3/4" SLIP X 1/2" FIPT TEE
5. SPEARS 3/4" SCHEDULE 80 PVC COMPACT 2000 SERIES BALL VALVE - MODEL # 6622-007
6. HUNTER IH RISER - LENGTH AS REQUIRED - (ASSEMBLY INCLUDES MALE ADAPTERS)
7. TRIANGULAR SPACING GRID
8. SCHEDULE 40 PVC 3/4" X INLET X 3/4" TxSxT TEE, INLET SIZE AS SHOWN ON PLAN
9. SCHEDULE 80 PVC 3/4" X 2" NIPPLE
10. 3/4" PRESSURE REGULATOR - REFER TO LEGEND
11. SCHEDULE 40 PVC 3/4" MALE ADAPTER
12. PVC IN-LINE CHECK VALVE - REFER TO LEGEND
13. SCHEDULE 40 PVC LATERAL LINE, SIZE PER PLAN
14. RECYCLED WARNING STICKERS AS REQUIRED
15. DRIP CONTROL VALVE ASSEMBLY - REFER TO LEGEND

0.0 DRIP IRRIGATION ON SLOPE DETAIL

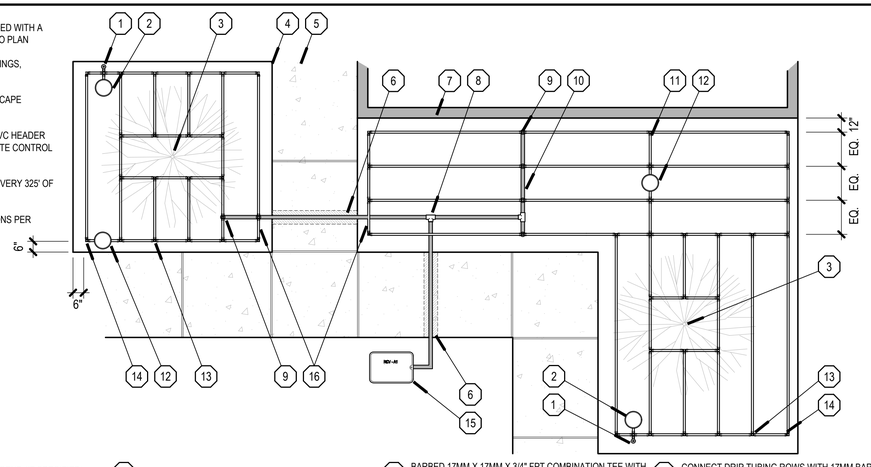
NO SCALE

TUBING SPACING / OFFSET:
- TUBING ROWS TO BE EQUALLY SPACED WITH A MAXIMUM SPACING OF 18" - REFER TO PLAN
- OFFSET TUBING 12" FROM ALL BUILDINGS, STRUCTURES, WALLS AND FENCES
- OFFSET TUBING 6" FROM ALL HARDSCAPE

NOTE:
ALL PLANTERS SHALL BE FEED BY A PVC HEADER CONNECTING DIRECTLY TO THE REMOTE CONTROL VALVE

A PVC HEADER SHALL BE INSTALLED EVERY 325' OF DRIP TUBING

A MINIMUM OF (2) HEADER CONFECTIONS PER PLANTER ARE REQUIRED



1. DRIP INDICATOR - REFER TO LEGEND (IF SPECIFIED)
2. FLUSH VALVE IN 6" ROUND VALVE BOX - ONE PER DETACHED PLANTER - REFER TO LEGEND
3. TREE / OBSTRUCTION IN LANDSCAPE - DRIP TUBING SHALL BE INSTALLED AS SHOWN
4. EDGE OF HARDSCAPE
5. HARDSCAPE
6. SLEEVE ALL LATERALS UNDER HARDSCAPE
7. BUILDING / STRUCTURE / WALL OR FENCE
8. SCHEDULE 40 PVC SLIP TEE FOR CONNECTION OF DRIP HEADER TO OTHER PLANTERS
9. BARBED 17MM X 17MM X 3/4" FPT COMBINATION TEE WITH 3/4" MALE ADAPTER
10. SCHEDULE 40 PVC LATERAL LINE DRIP HEADER - REFER TO HEADER DETAIL
11. AIR / VACUUM RELIEF HEADER - BLANK TUBING CONNECTING DRIP LATERAL ROWS
12. AIR / VACUUM RELIEF VALVE IN 6" ROUND VALVE BOX - REFER TO LEGEND (IF SPECIFIED)
13. CONNECT DRIP TUBING ROWS WITH 17MM BARBED TEE FITTING
14. CONNECT DRIP TUBING CORNERS WITH 17MM BARBED ELL FITTING
15. DRIP CONTROL VALVE ASSEMBLY - REFER TO LEGEND
16. INLINE DRIP TUBING - REFER TO LEGEND

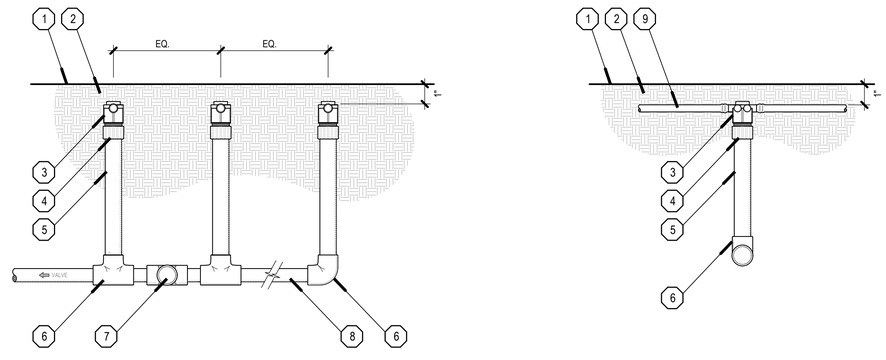
0.0 INLINE DRIP IRRIGATION

NO SCALE

NOTE:
A MINIMUM OF (2) HEADER CONFECTIONS PER PLANTER ARE REQUIRED

SECTION VIEW - PERPENDICULAR TO HEADER

SECTION VIEW - PARALLEL TO HEADER



1. FINISH GRADE
2. SUBGRADE
3. BARBED 17MM X 17MM X 3/4" FPT COMBINATION TEE
4. SCHEDULE 40 PVC MALE ADAPTER
5. 3/4" SCHEDULE 40 PVC LATERAL LINE DRIP HEADER RISER - REFER TO TRENCHING DETAIL FOR LENGTH
6. SCHEDULE 40 PVC SLIP TEE OR SLIP ELL CONNECTION TO DRIP HEADER RISER
7. SCHEDULE 40 PVC SLIP TEE CONNECTION TO ADDITIONAL DRIP PLANTERS
8. SCHEDULE 40 PVC LATERAL LINE DRIP HEADER - REFER TO PLAN FOR SIZE
9. INLINE DRIP TUBING - REFER TO LEGEND

0.0 INLINE DRIP HEADER

NO SCALE

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Ladera Ranch, CA 92694
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LICENSED LANDSCAPE ARCHITECT
FREDERICK T. HUME No. 4594
Signature
8/31/25
Renewal Date
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20601 Trabuco Oaks Dr.
TCHOURBANOV RESIDENCE

IRRIGATION DETAILS

LND23-0047

REVISIONS:

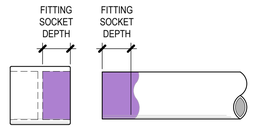
DATE: 6/3/25

L-3.3

STEP 1

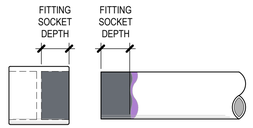
CUTTING PIPE
- CUT PVC PIPE WITH PVC CUTTER OR FINE TOOTH SAW
- REMOVE BURRS FROM INSIDE AND OUTSIDE OF PIPE USING A DEBURRING TOOL OR FILE
- BEVEL END OF PIPE AT A CONSISTENT 10° - 15° ANGLE USING CHAMFERING TOOL
- DRY FIT PIPE AND FITTING

STEP 2



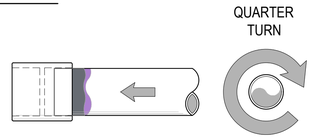
PRIMER
- APPLY PRIMER TO FITTING
- APPLY PRIMER TO PIPE TO MATCH DEPTH OF FITTING SOCKET
- REAPPLY PRIMER TO FITTING
- REPEAT PROCESS 2 - 3 TIMES
- WHILE THE PRIMER IS WET, APPLY SOLVENT CEMENT

STEP 3



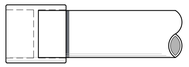
SOLVENT CEMENT
- APPLY SOLVENT CEMENT TO PIPE TO MATCH DEPTH OF FITTING SOCKET IN A CIRCULAR MOTION
- APPLY SOLVENT CEMENT TO FITTING - AVOID PUDDLING AND APPLYING CEMENT IN OTHER SOCKET OR THREADS
- REAPPLY SOLVENT CEMENT TO PIPES LARGER THAN 1-1/4" TO THE DEPTH OF THE FITTING SOCKET IN A CIRCULAR MOTION

STEP 4



JOINT ASSEMBLY
- IMMEDIATELY AFTER APPLYING SOLVENT CEMENT, INSERT PIPE INTO FITTING SOCKET WHILE ROTATING PIPE QUARTER TURN
- ALIGN FITTING TO PROPER ORIENTATION
- ENSURE PIPE BOTTOMS OUT AT FITTING STOP

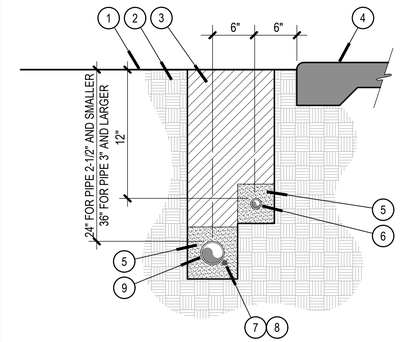
STEP 5



SET AND CURE TIMES
- HOLD ASSEMBLY FOR 30 SECONDS TO ENSURE INITIAL BOND AND TO PREVENT PIPE BACKING OUT OF FITTING
- VERIFY A BEAD OF CEMENT IS PRESENT AROUND THE ENTIRE PIPE AND FITTING JOINT
- DO NOT HANDLE JOINT UNTIL INITIAL SET TIME HAS PASSED - 30 MINUTES FOR PIPES < 8" @ 60° -100° F
- DO NOT PRESSURIZE IRRIGATION SYSTEM UNTIL CURE TIME HAS PASSED - 24 HOURS FOR PIPES < 8" @ 60° -100° F

NOTE:
- APPLY PRIMER AND SOLVENT CEMENT TO PIPE AND FITTING WITH AN APPLICATOR 1/2 THE PIPE DIAMETER

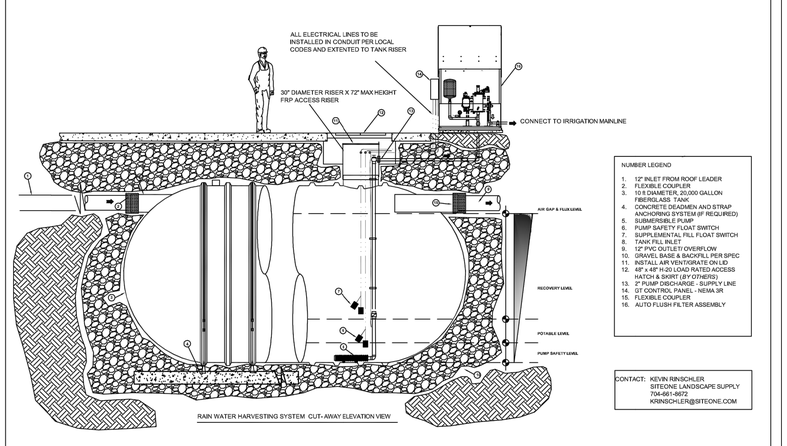
0.0	SOLVENT CEMENT JOINTS	NO SCALE



1. FINISH GRADE
2. SUBGRADE
3. COMPACTED BACKFILL
4. HARDSCAPE OR STRUCTURE
5. DEBRIS AND ROCK FREE BACKFILL (OR SAND) MINIMUM 2" ABOVE AND BELOW PIPING.
6. LATERAL PIPE
7. CONTROL WIRE BUNDLE ATTACH TO PIPE AT 10' INTERVALS
8. PROVIDE A 20" EXPANSION LOOP AT ALL CHANGE IN DIRECTIONS
9. PRESSURE MAINLINE

9.11	TRENCHING - RESIDENTIAL
NO SCALE	

"GENERIC LAYOUT DRAWING ONLY - NOT FOR CONSTRUCTION"



RAIN WATER HARVESTING SYSTEM CUT- AWAY ELEVATION VIEW

NUMBER LEGEND
1. 12" INLET FROM ROOF LEADER
2. FLEXIBLE COUPLER
3. 10 ft DIAMETER, 20,000 GALLON FIBERGLASS TANK
4. CONCRETE DEADMEN AND STRAP ANCHORING SYSTEM (IF REQUIRED)
5. SUBMERSIBLE PUMP
6. PUMP SAFETY FLOAT SWITCH
7. SUPPLEMENTAL FILL FLOAT SWITCH
8. TANK FILL INLET
9. 12" PVC OUTLET/ OVERFLOW
10. GRAVEL BASE & BACKFILL PER SPEC
11. INSTALL AIR VENT/GRATE ON LID
12. 48" x 48" H-20 LOAD RATED ACCESS HATCH & SKIRT (*BY OTHERS*)
13. 2" PUMP DISCHARGE - SUPPLY LINE
14. GT CONTROL PANEL - NEMA 3R
15. FLEXIBLE COUPLER
16. AUTO FLUSH FILTER ASSEMBLY

CONTACT: KEVIN RINSCHLER
SITEONE LANDSCAPE SUPPLY
704-661-4972
KRINSCHLER@SITEONE.COM

PROJECT:	MNAA - PARKING GARAGE RAINWATER HARVESTING - FIBERGLASS UNDERGROUND TANK INSTALLATION		
DRAWN: KPR	3/5/17	FILE: [redacted]	
CHECK:		SIZE: A3	SCALE:
QUOTATION NO.*		DIMENSIONS IN: INCH	
DO NOT SCALE DRAWING			

SITEONE GREEN TECH
3 Chrysler - Irvine, CA 92618
TEL: (800) 427-0779
FAX: (949) 455-7402

IRRIGATION CONSULTING
27762 Antonio Parkway L1-308
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(949) 430-7030

LICENSED LANDSCAPE ARCHITECT
FREDERICK T. HUME No. 1934
8/31/25
Professional Renewal
6/3/25
Date
STATE OF CALIFORNIA

FREDERICK THOMAS HUME, FASLA
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20601 Trabuco Oaks Dr.
TCHOURBANOV RESIDENCE

IRRIGATION DETAILS

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L-3.4

IRRIGATION SPECIFICATIONS

I. SCOPE OF WORK
A. the Contractor shall provide all labor, tools, machinery, and processes necessary to install a complete irrigation system as shown on the plans and/or specified herein. When completed the irrigation system shall be a 100 % coverage system in a total functioning manner.
II. GENERAL REQUIREMENTS
A. VERIFICATION OF DIMENSION
1. All scaled dimensions are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions. Spacing of irrigation heads, location of valves and vacuum breakers, and proposed P.O.C. Shall be as indicated on the drawings. Any deviation from the plans must have the approval of the Owner's Representative or the Landscape Architect.
B. VERIFICATION OF FINISH GRADE
1. The Contractor shall inspect the site and check all finish grades within the work area in order to insure the proper soil coverage (as specified) of irrigation system pipes.
C. WATER SUPPLY
1. The Contractor shall verify and be familiar with the source of water supply to the irrigation system as indicated on the drawings and verify available water pressure. If pressure is less than what has been designed with, the Contractor is to notify the Owner's Representative or the Landscape Architect.
D. PERMITS AND FEES
1. The Contractor shall apply and pay for all necessary permits and fees required in the pursuit of his work as required by the governing codes.
E. CARE OF EXISTING BUILDINGS AND SITE
1. The Contractor shall be held responsible for the care and preservation of all existing buildings and structures on the property and adjacent premises and contiguous property. Any part of them injured, damaged or disturbed because of his work shall be repaired, replaced or cleaned by him at his expense.
F. REVIEW OF DRAWINGS
1. It is the Contractor's responsibility to review irrigation drawings and note any areas he believes additional heads or valves are required prior to submitting a bid. If no changes are submitted, the Contractor is responsible for full coverage of the irrigation system and providing additional equipment as necessary at the Contractor's expense.
G. GOVERNING REGULATION
1. All local, municipal and state laws, rules and regulations governing or relating to any portion of this work are hereby incorporated into and made a part of these specifications, and their provisions shall be carried out by the irrigation contractor.
H. DIAGRAMMATIC DESIGN
1. This design is diagrammatic. All pipe, valves, etc. shown within paved areas are for design clarification only and shall be installed in planting areas where possible. Never install backflow preventers in lawn areas, always in shrub areas.
I. INSTALLATION
1. All irrigation materials shall be installed in accordance with the techniques and specifications set forth by each respective manufacturer. All pertinent descriptive literature issued by these manufacturers becomes part of these specifications after having been approved by the Owner's authorized representative. Such installation practices shall be followed only if the directions of the irrigation drawings and specifications do not thoroughly and completely order the methods or techniques to be followed. Install all equipment and materials as shown in details.
J. SITE PROBLEMS
1. The irrigation contractor shall not willfully install the sprinkler system as indicated on drawings when it is obvious in the field that there are unknown obstructions, grade differences, and/or discrepancies in the area dimensions until such conditions are brought to the attention of the Landscape Architect. I
II. MATERIALS Irrigation materials and equipment shall be of type, size and location as noted and indicated on the drawings. Unless permission to change is granted from the Landscape Architect or Owner's Representative, materials are to be new and in perfect condition. No deviations from the specifications shall be allowed. The decision of the Landscape Architect shall be final in the determination of the quality of materials.
A. PIPE TRENCHING
1. The Contractor shall verify exact locations of all existing subsurface utilities (mechanical and electrical) prior to excavation. Any A.C. paving concrete work, etc. Destroyed or damaged by any work under the contract shall be repaired or replaced at the Contractor's expense.
2. Trenches for pipe shall be cut to required grade line at a true gradient to provide uniform support for the full length of pipe.
3. Depth of trenches shall be sufficient to provide a minimum cover above the top of the pipe as noted on the drawings.
B. JOINING PIPE
1. The Contractor is responsible to be familiar with the methods of assembling, joining, and installing the various type of pipe to be used. He will adhere in strict accordance with the manufacturer's recommended procedures.
2. No PVC pipe shall be threaded and all transition from PVC to metal piping shall be by PVC male thread adaptor fitting.
C. BACKFLOW PREVENTER
1. The backflow prevention device specified herein shall be verified with Local Plumbing and Health Codes. In the event of any conflict on the device or installation methods the Landscape Architect shall be notified PRIOR TO BID OPENING.
D. TESTS
1. All main lines and lateral lines which have glued joists under paving in the system shall be capped and pressure tested at 150 psi.
2. Pressure shall be sustained in the lines for not less than two (2) hours. If leaks develop the joints shall be replaced and the test repeated until the entire system is watertight.
3. Tests shall be observed and approved by Owner's representative prior to backfill.
4. When the irrigation system is completed (and before planting is begun) the Contractor in the presence of the Owner's representative shall test the coverage of water afforded the lawn and planting areas as complete and adequate. The Contractor shall furnish all materials and perform all work required to correct any inadequacies of coverage disclosed.
5. The Contractor shall inform the Owner's representative of any deviation from the plan required by wind, planting, soil or site condition that bear on present coverage.
E. IRRIGATION HEAD INSTALLATION
1. Shrubbery or groundcover spray heads adjacent to curbs or walks shall be installed 6" away from the curb or walk and the nozzle shall be 6" above finished grade. Pop-up shrub heads are to be set flush with grade.
2. Shrubbery spray heads adjacent to buildings, fences, or similar structures shall be installed 6" away from the structure and the nozzle shall be 6" above finished grade. Shrubbery spray heads not near paving or structures shall be set 6" above finish grade, or as stated on drawings.
3. All irrigation heads are to have swing joints as detailed.
4. Install all irrigation heads per details.
F. IRRIGATION HEAD ADJUSTMENTS
1. The irrigation contractor shall flush and adjust all irrigation heads for optimum performance and to prevent overspray onto walks and buildings as much as possible. This shall include selecting the best degree of arc to fit existing site situations.
G. CLOSING IN UNINSPECTED WORK
1. The Contractor shall not allow or cause any of his work to be covered or enclosed until it has been inspected, tested and approved by an authorized representative of the Owner. Should any of his work be enclosed or covered before such inspection and test he shall uncover the work at his own expense and after it has been inspected, tested, and approved shall make all repairs with like materials necessary to restore all his work and that of other Contractors to its original condition.
H. BACKFILLING
1. Backfill shall not be placed until the installed sprinkler system has been inspected and approved by the Owner's representative.
2. Trenches shall be backfilled with a minimum of 4" of fine, granular materials to protect the pipe from the clods or rocks, the remaining excavated dirt can be used as backfill. The Contractor shall not place detrimental subsoil in the top 6" of backfill.
3. If settlement occurs and adjustments in pipes, valves, sprinkler heads or sod are necessary to bring the system to proper working order, the Contractor shall as a part of the work under this contract make all the necessary adjustments without extra cost to the Owner.
I. AUTOMATIC CONTROLLER AND VALVES
1. A 120 volt electrical power outlet to the controller shall be provided by others. The irrigation Contractor shall be responsible for making the hook-up from the outlet to the controller.
2. All wire from the controller to electric control valves shall be solid copper U.F. +14=600 volt direct burial. Use white wire for common, blue for lawn systems, black for shrub systems and red for moisture sensor control wire install in common trench with main line pipe where possible. Provide minimum 18" cover.
3. Wire connections shall be made with "Scotch-Look" wire connector sealing packs #3576 or equal.
4. There shall be a control wire from each control valve running to the controller and each control valve shall be connected to the common ground.
5. All electrical work shall comply with applicable codes.
6. Install all valves per details.
J. MOISTURE SENSOR INSTALLATION (IF APPLICABLE)
1. All installations and wiring is to be done by the Contractor in compliance with installation and Operating Instruction enclosed with the moisture sensors.
V. RECORD DRAWINGS (AS BUILTS)
1. The landscape contractor shall request in writing from the landscape architect the documents necessary to proceed with the preparation of the as-built.
2. The Contractor shall dimension from two (2) permanent points of reference, building corners, sidewalk, or road intersections, etc., the locations of the following items:
(1) Connection to existing water lines.
(2) Connection to existing electrical power.
(3) Gate valves.
(4) Routing of sprinkler pressure lines (dimension max. 100' along routing).
(5) Sprinkler control valves.
(6) Routing of control wiring.
(7) Quick coupling valves.
(8) Other related equipment as directed by the Architect.
3. On or before the date of the final inspection, the Contractor shall deliver the corrected and completed sepias to the Architect. Delivery of the sepias will not relieve the Contractor of the responsibility of furnishing required information that may be omitted from the prints.
A. CONTROLLER CHARTS
1. Do not prepare charts until record drawings have been approved by the Landscape Architect and/or Owner.
2. Provide one controller chart for each controller supplied.
3. The chart shall show the area controlled by the automatic controller and shall be the maximum size which the controller door will allow.
4. The chart is to be a reduced drawing of the actual as-built system. However in the event the controller sequence is not legible when the drawing is reduced, it shall be enlarged to a size that will be readable when reduced.
5. The chart shall be a reduced copy of irrigation as-built and the area of coverage for each station shall be clearly identified on each sheet.
6. When completed and approved, the chart shall be hermetically sealed between two pieces of plastic, each piece being a minimum 10 mils thick.
7. These charts shall be completed and approved prior to final inspection of the irrigation system.
B. OPERATION AND MAINTENANCE MANUALS
1. Provide one individually bound manual detailing operation and maintenance requirements for irrigation systems. Assemble material in vinyl covered 3-ring binders. Provide the following in each manual:
a. Catalog and parts sheets on every material and equipment installed under this Contract.
b. The Contractor shall submit a statement or guarantee and its duration.
c. Complete operating and maintenance instructions on all major equipment. Equipment list (provide the following for each item):
- Manufacturer's name.
- Make and model number.
- Name and address of local manufacturer's representative.
- Spare parts list in detail.

d. Detailed operating and maintenance instructions for major equipment.
e. In addition the above-mentioned maintenance manuals, provide the Owner's maintenance personnel with instructions for major equipment and show evidence in writing to the Architect as rendered.
f. Index sheet, stating irrigation contractor's name, address, telephone number and name of person to contact.
C. EQUIPMENT TO BE FURNISHED Supply as a part of this Contract the following tools:
1. two sets of special tools required for removing, disassembling and adjusting each type of sprinkler and valve supplied on this project.
2. Two five-foot valve keys for operation of gate valves.
3. Two keys for each automatic controller.
4. Six Quick coupler keys and matching hose swivels for each type of quick coupling valve installed. The above-mentioned equipment shall be turned over to the Owner at the conclusion of the project. Before final inspection can occur, evidence that the Owner has received material must be shown to the Architect.
VI. CLEAN-UP A. SCOPE AND FREQUENCY
A. After all installation operations have been completed remove all trash, excess soil and rubbish from the property. All scars, ruts or other marks in the area caused by this work shall be repaired and the ground left in a neat and orderly condition, throughout the site. The Contractor shall pick up all trash resulting from this work no less than each Friday before leaving the site, once a week and/or the last working day each week. All trash shall be removed completely from the site.
VII. GUARANTEE
A. The guarantee for the sprinkler irrigation shall be made in accordance with the form shown below. A copy of the guarantee form shall be included in the operations and maintenance manual. The guarantee form shall be re-typed onto the Contractor's letterhead and contain the following information:

GUARANTEE FOR SPRINKLER IRRIGATION SYSTEM We hereby guarantee that the sprinkler irrigation system we have furnished and installed is free from defects in materials and workmanship and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse or neglect expected. We agree to repair or replace any defects in material or workmanship which may develop during the period of one year from date of acceptance and also to repair or replace any damage resulting from the repairing or replacing of such defects at no additional cost to the Owner. We shall make such repairs or replacements within a reasonable time, as determined by the Owner, after receipt of written notice. In the event of our failure to make such repairs or replacements within a reasonable time after receipt of written notice from the Owner, we authorize the Owner to proceed to have said repairs made at our expense and we will pay the costs and charges therefore upon demand.
PROJECT:
LOCATION:
SIGNED:
Contractor
ADDRESS:
PHONE:
DATE OF ACCEPTANCE:

B. INSTRUCTION After the system has been completed and the connections made the Contractor shall instruct the Owner or his representative in the operations and maintenance of the system.
C. TEMPORARY REPAIRS The Owner reserves the right to make temporary repairs as necessary to keep the irrigation system equipment in operating condition. The exercise of this right by the Owner shall not relieve the Contractor of his responsibility under the terms of the guarantee as herein specified.

IRRIGATION CONSULTING
27762 Antonio Parkway L1-308
Ladera Ranch, CA 92694
(949) 430-7030

LICENSED LANDSCAPE ARCHITECT
FREDERICK T. HUME No. 1694
8/31/25
Renewal Date
6/3/25
Date
STATE OF CALIFORNIA

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IRRIGATION SPECIFICATIONS
LND23-0047

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L-3.5

GLOSSARY

AM&M - Alternative Means and Methods
CBC - California Building Code
FMZ - Fuel Modification Zone
LRA - Local Responsibility Area
OCFA - Orange County Fire Authority
RPZ - Roadside Protection Zone
SMA - Special Maintenance Area
SRA - State Responsibility Area

FUEL MODIFICATION NOTES

A. OCFA REQUIRED STANDARD NOTES:

SOURCE: OCFA Fuel Modification Guideline C-05, Dated: January 1, 2020 - Section 1 "Checklist" The following standard notes are provided as required by OCFA and are to be applied in their proper context

1. The developer will obtain planting plan approval from OCFA prior to receiving final approval from all other landscape permitting agencies within FMZ, interior slopes/common area landscaping SMA, and RPZ.

2. Fuel Modification Zones (FMZ), Special Maintenance Areas (SMA), and Roadside Protection Zones (RPZ) land areas were purchased and dedicated for the purposes of wildfire maintenance activities, beautification, and erosion control. Protected plants and habitat identified after fuel modification plan approval through surveys or other biological programs cannot be retrofitted back within the limits of these areas.

3. The developer is responsible for ensuring that the calculated revenue from homeowner dues is sufficient to cover the cost of future maintenance, based on the originally approved design. After the final landowner has accepted the long term maintenance responsibility, changes to the fuel modification areas or interrupted maintenance activities by the final landowner become the responsibility of the final landowner.

4. When a required maintenance area is located on commonly owned land, while the required Zone "A" is located on homeowners land, a written disclosure regarding the Zone "A" and vegetation requirement is required to be signed by the homeowner and the lot number referenced in the CC&Rs.

5. The FMZ, SMA, and RPZ shall be maintained in perpetuity for fire safety purposes, in accordance with recorded covenants, CC&Rs, and property title restrictions.

6. Prior to dropping of lumber, call for a Vegetation Clearance Inspection. The developer/builder shall provide a separation of combustible vegetation for a minimum distance of 100 feet from the location of the structures and lumber stock-pile. An inspection sign-off and/or release letter to the building department is required.

B. PROJECT NOTES:

1. OCFA GUIDELINES - All references to "Attachments" herein pertain to OCFA Guideline C-05 "Vegetation Management Guideline Technical Design for New Construction Fuel Modification Plans and Maintenance Program" UPDATED January 1, 2020

2. FIRE HYDRANT LOCATION - See Architect's Site Plan

3. PLANT MATERIAL
   A. All plants will be selected from Attachment 8 - FUEL MODIFICATION ZONE PLANT LIST

   B. If SMA and RPZs are required within the community, plants from Attachment 7 - UNDESIRABLE and INVASIVE PLANT SPECIES, shall not be included in these zones. See sheet FM-2

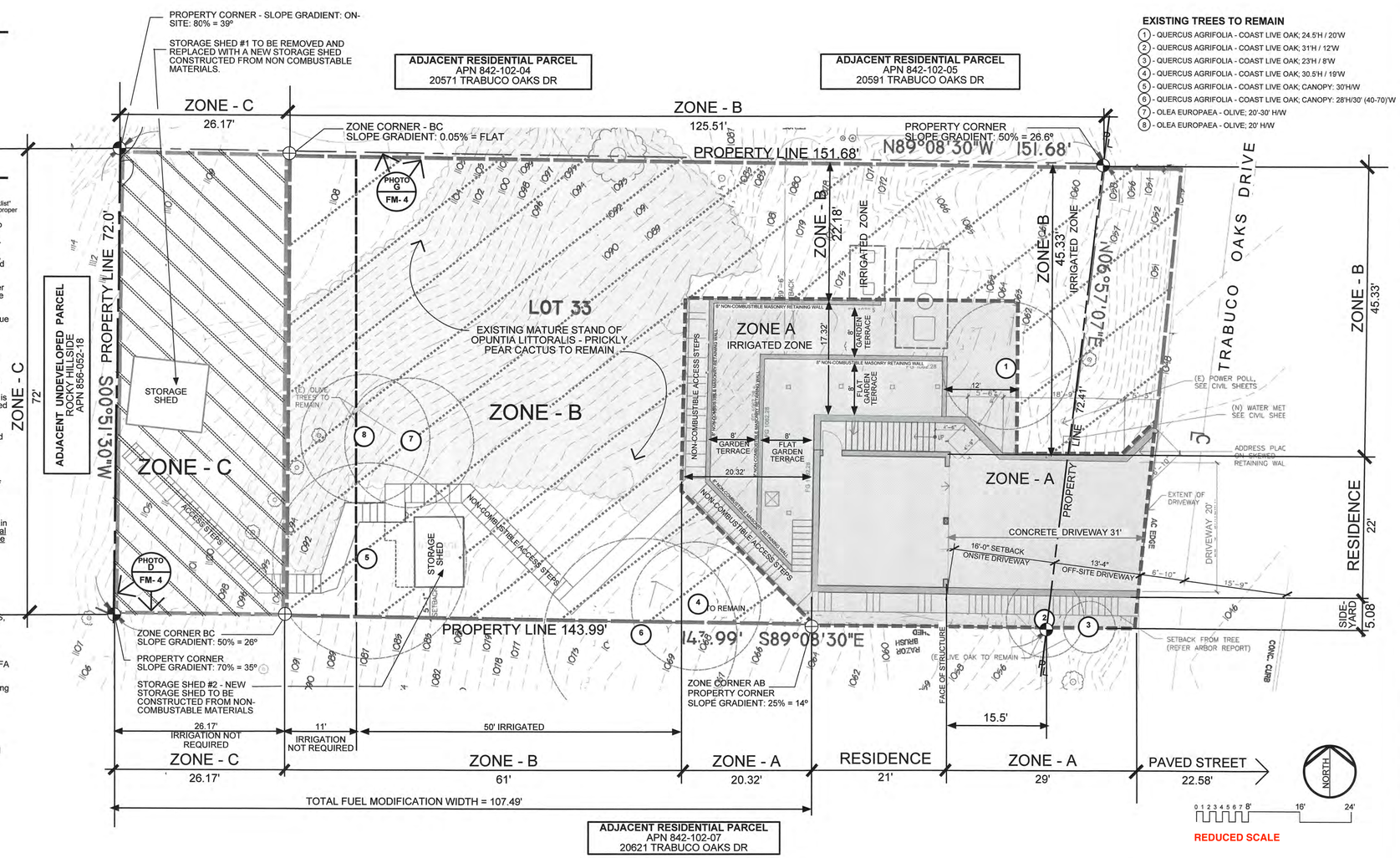
   C. If alternate plant species are proposed, the Landscape Architect will provide photographs, data on the size and fire resistive characteristics, and data on the invasiveness of each alternate plant species on the Precise Fuel Modification Plan in accordance with OCFA Guideline C-05, Section 3 - Plant Palette Information

4. MAINTENANCE - The homeowner will be responsible for maintaining the fuel modification zones

5. NA

6. The project will meet the requirements of OCFA guideline B-09

7. The project is in the Very High Fire Severity Zone (VHFSZ) State Responsibility Area (SRA) and the building construction features shall comply with 2019 California Building Code (CBC) Chapter 7A and Residential Code Section 337



EXISTING TREES TO REMAIN

1. QUERCUS AGRIFOLIA - COAST LIVE OAK; 24.5'H / 20'W
2. QUERCUS AGRIFOLIA - COAST LIVE OAK; 31'H / 12'W
3. QUERCUS AGRIFOLIA - COAST LIVE OAK; 23'H / 8'W
4. QUERCUS AGRIFOLIA - COAST LIVE OAK; 30.5'H / 19'W
5. QUERCUS AGRIFOLIA - COAST LIVE OAK; CANOPY: 30'H/W
6. QUERCUS AGRIFOLIA - COAST LIVE OAK; CANOPY: 28'H/30' (40-70)'W
7. OLEA EUROPAEA - OLIVE; 20'-30' H/W
8. OLEA EUROPAEA - OLIVE; 20' H/W

LEGEND

ZONE - A

1) ZONE WIDTH - The residence is terraced into the existing natural slope to retain the natural grades and preserve the existing oak trees.

The width of Zone A around the building is as follows:
- North Side of the Building - 4'-6" wide concrete steps plus two 8' wide irrigated garden terraces framed by 8" wide non-combustible masonry retaining walls
- East Side of Building – A 20' wide paved driveway extends 31' from the paved street to the east face of the structure (Length measured at the center of the driveway).
- South Side of the Building - 3' wide maintenance and emergency access steps are proposed within the sloping 5'-1" sideyard setback.
- West Side of the Building – two 8' wide irrigated garden terraces framed by two 8" wide non-combustible masonry retaining walls and a 3' wide non combustible walkway and steps.

2) IRRIGATION
A. An automatic irrigation system will be installed in the planting areas to maintain healthy vegetation, provide high moisture content and regular irrigation.

B. Irrigation within the drip line of the protected oak trees will conform to the horticultural requirements of the oak trees.

Continue Zone A:
3) PLANTING
A. All new planting and maintenance will be in accordance with OCFA Guideline C05, Dated January 1, 2020:
- Section 3 - Plant Palette Information
- Attachments 6 - REQUIREMENTS FOR PLANTING INSTALLATION IN FUEL MODIFICATION ZONES (See Sheet FM-2)
- Attachment 7 - UNDESIRABLE & INVASIVE PLANT SPECIES (See Sheet FM-2)
- Attachment 8 - FUEL MODIFICATION ZONE PLANT LIST (See Sheet FM-3)

B. No mulch or vegetation greater than 2' high will be planted within 5' of the building.

4) MAINTENANCE
A. Fuel modification maintenance programs are limited to the plants listed on the approved plans unless a revision is requested.

B. Zone A will be maintained by the homeowner

5) CONSTRUCTION
A. No combustible construction will be allowed in setback.
B. No combustible planter boxes, railroad tie stairs or garden features are allowed in Zone A

ZONE - B (On Slope)

1) ZONE WIDTH
A. INCLINE MEASUREMENT - The existing slope gradient within Zone B ranges from 26° - 34°. The Fuel Modification Plan assumes a 35° slope factor for the purposes of determining the width of Zone B.
B. WIDTH - Zone B is 61-feet wide as specified on Attachment 3 - INCLINE MEASUREMENT FOR SELECTED SLOPES (See Det. B Sheet L3)
The Width of Zone B extends:
- North - 22.18' from the north face of the upper garden wall to the north property line and 45.33' from the north face of the driveway wall to the north property line
- East - the driveway between the street and face of the house/garage is non-combustible
- West - 61' from the edge of the non-combustible steps & walkway to the edge of Zone C. The first 50' will be irrigated as needed to establish plantings and the remaining 11' will be non-irrigated unless required to establish and maintain new plantings

2) IRRIGATION
A. An automatic irrigation system will be installed to maintain healthy vegetation, provide high moisture content and regular irrigation.
B. Irrigation within the drip line of the existing protected oak trees and Opuntia cactus will conform to the horticultural requirements of the species in order to promote the health of the vegetation.
C. All of vegetation on the NORTH & EAST side Zone B will be irrigated
D. All of the vegetation within the first 50-feet of the WEST side of Zone B will be irrigated. The remaining 11' to the west within Zone B will be non-irrigated unless required to establish and maintain new plantings

Continue Zone B:
E. The irrigation shutoff valve will be shown when an irrigation system shutoff valve is required to separate and isolate non-required irrigation systems beyond the 50-foot wide FMZ "B".

3) PLANTING
A. All new planting and maintenance will be in accordance with OCFA Guideline C05, Dated January 1, 2020:
- Section 3 - Plant Palette Information
- Attachments 6 - REQUIREMENTS FOR PLANTING INSTALLATION IN FUEL MODIFICATION ZONES (See Sheet FM-2)
- Attachment 7 - UNDESIRABLE & INVASIVE PLANT SPECIES (See Sheet FM-2)
- Attachment 8 - FUEL MODIFICATION ZONE PLANT LIST (See Sheet FM-3)

B. A substantial portion of Zone B consists of a mature stand of existing Opuntia Cactus, which is proposed to remain.
C. No mulch or vegetation greater than 2' high will be planted within 5' of the building.
D. A portion of Zone B, adjacent to Zone A, will consist of approved irrigated vegetation, to provide a total of 12' from the structure where noted on the plan.

4) MAINTENANCE
A. Zone B will be maintained by the property owner
B. Existing fuel modification maintenance programs are limited to the plants listed on the approved plans unless a revision is requested.

5) CONSTRUCTION
A. No combustible construction is planned within Zone B.
B. The proposed auxiliary storage structures will be constructed of non-combustible material

ZONE C - (On-Slope)

1. ZONE WIDTH
A. Incline Measurement – Approximately 1/3 of the existing slope gradient in Zone C is flat. The remaining 2/3 of the existing slope gradient is 23°. The Fuel Modification Plan assumes a 25° slope in order to determine the width of Zone C.
B. Width - According to Attachment 3 - INCLINE MEASUREMENT FOR SELECTED SLOPES, the measurement for Zone C is 55-feet, which extends beyond the property line. In this case, Zone C is 26.17 wide and terminates at the property line.

2) RRIGATION - Zone C will be non-irrigated unless required to establish and maintain new plantings

3) PLANTING & MAINTENANCE
A. The existing vegetation that is to remain in Zone C is noted on the plan. See also Planting Legend on Sheet L3
B. New plantings (if any) and maintenance of all vegetation in Zone C will be in accordance with:
- Attachments 6 - REQUIREMENTS FOR PLANTING INSTALLATION IN FUEL MODIFICATION ZONES (See Sheet FM-2)
- Attachment 7 - UNDESIRABLE & INVASIVE PLANT SPECIES (See Sheet FM-2)
- Attachment 8 - FUEL MODIFICATION ZONE PLANT LIST (See Sheet FM-2)

4) No combustible construction is planned within Zone C.

LICENSED LANDSCAPE ARCHITECT FREDERICK T. HUME No. 1001 Signature 8/31/23 Renewal Date STATE OF CALIFORNIA

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OCFA SR# 296203
PRECISE FUEL MODIFICATION PLAN
FUEL MODIFICATION ZONE PLAN

REVISIONS:
1 OCFA Plan Check #2 Sept. 29, 2021

ORANGE COUNTY FIRE AUTHORITY REVIEWED CALIFORNIA 296203

PRECISE FUEL MOD SUBMITTAL
DATE: Aug. 4, 2021

OCFA FUEL MOD SHEET # **L-2.0**

SHEET 2 OF 10

This copy of the APPROVED Fuel Modification Zone Plan, is a part of the approved Precise Fuel Modification Package and is provided as a reference document in the landscape construction package. The contractor shall reviere the entire APPROVED Precise Fuel Modification Package. Copies are available from the Landscape Architect.

REFERENCE DOCUMENT
APPROVED OCFA FUEL MODIFICATION ZONE PLAN
LND23-0047

REVISIONS:

DATE:

L 4.0

SHEET 12 OF 12