COUNTY OF SANTA CLARA General Construction

GENERAL CONDITIONS

- 1. ALL CONSTRUCTION WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE SOILS AND/OR GEOTECHNICAL REPORT BY ROCK SOLID ENGINEERING INC, PROJECT #17049B AND DATED JUNE 7, 2023. THIS REPORT IS SUPPLEMENTED BY: 1) THESE PLANS AND SPECIFICATIONS. IN THE EVENT OF CONFLICT THE FORMÉR SHALL TAKE PRECEDENCE OVER THE LATTER. THE PERFORMANCE AND COMPLETION OF ALL WORK MUST BE TO THE SATISFACTION OF THE
- 2. DEVELOPER IS RESPONSIBLE FOR INSTALLATION OF THE IMPROVEMENTS SHOWN ON THESE PLANS AND HE OR HIS SUCCESSOR PROPERTY OWNERS
- ARE RESPONSIBLE FOR THEIR CONTINUED MAINTENANCE. DEVELOPER SHALL BE RESPONSIBLE FOR CORRECTION OF ANY ERRORS OR OMISSIONS IN THESE PLANS. THE COUNTY SHALL BE AUTHORIZED TO REQUIRE DISCONTINUANCE OF ANY WORK AND SUCH CORRECTION AND MODIFICATION OF PLANS AS MAY BE NECESSARY TO COMPLY WITH COUNTY STANDARDS OR CONDITIONS OF DEVELOPMENT APPROVAL
- 4. DEVELOPER SHALL OBTAIN ENCROACHMENT PERMITS FROM THE SANTA CLARA VALLEY WATER DISTRICT AND CALIFORNIA DEPARTMENT OF TRANSPORTATION WHERE NEEDED. COPIES OF THESE PERMITS SHALL BE KEPT AT THE JOB SITE FOR REVIEW BY THE COUNTY'S INSPECTOR.
- 5. DEVELOPER SHALL REMOVE OR TRIM ALL TREES TO PROVIDE AN UNOBSTRUCTED FIFTEEN (15) FOOT VERTICAL CLEARANCE FOR ROADWAY
- 6. THIS PLAN AUTHORIZES THE REMOVAL OF ONLY THOSE TREES WITH TRUNK DIAMETERS GREATER THAN 12 INCHES MEASURED 4.5 FEET ABOVE THE GROUND THAT ARE SHOWN TO BE REMOVED UNLESS AN AMENDED PLAN IS APPROVED OR A SEPARATE TREE REMOVAL PERMIT IS OBTAINED FROM THE PLANNING OFFICE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT
- 7. DEVELOPER SHALL PROVIDE ADEQUATE DUST CONTROL AS REQUIRED BY THE COUNTY INSPECTOR 8. ALL PERSONS MUST COMPLY WITH SECTION 4442 OF THE PUBLIC RESOURCES

REMOVAL OF ADDITIONAL TREES HAS BEEN PERMITTED.

- CODE AND SECTION 13005 OF THE HEALTH AND SAFETY CODE RELATING TO THE USE OF SPARK ARRESTERS. 9. UPON DISCOVERING OR UNEARTHING ANY BURIAL SITE AS EVIDENCED BY HUMAN SKELETAL REMAINS OR ARTIFACTS, THE PERSON MAKING SUCH DISCOVERY SHALL IMMEDIATELY NOTIFY THE COUNTY CORONER AT (408) 454-2520 AND LAND DEVELOPMENT ENGINEERING OFFICE AT (408) 299-5730. NO FURTHER DISTURBANCE OF THE SITE MAY BE MADE EXCEPT
- PROVISIONS OF THIS ORDINANCE (COUNTY ORDINANCE CODE SECTION B6-18). 10. THESE PLANS ARE FOR THE WORK DESCRIBED IN THE SCOPE OF WORK ONLY. A SEPARATE PERMIT WILL BE REQUIRED FOR THE SEPTIC LINE CONSTRUCTION. 11. ANY DEVIATION FROM THESE APPROVED PLANS SHALL BE RE-APPROVED IN

AS AUTHORIZED BY THE LAND DEVELOPMENT OFFICE IN ACCORD WITH

- WRITING BY THE COUNTY ENGINEER PRIOR TO CONSTRUCTION. THE DEVELOPER'S ENGINEER IS RESPONSIBLE FOR THE INITIAL PLACEMENT
- AND REPLACEMENT OF CONSTRUCTION GRADE STAKES. THE STAKES ARE TO BE ADEQUATELY IDENTIFIED, LOCATED, STABILIZED, ETC. FOR THE CONVENIENCE OF CONTRACTORS. LATERAL OFFSET OF STAKES SET FOR CURBS AND GUTTERS SHALL NOT EXCEED 2 1/2 FEET FROM BACK OF CURB. ANY PROPERTY LINE STAKES OR ROAD MONUMENTS DISTURBED DURING
- CONSTRUCTION SHALL BE REPLACED BY DEVELOPER'S ENGINEER AND LICENSED LAND SURVEYOR PROPERTY LINE STAKING MUST BE PERFORMED BY THE PROJECT ENGINEER OR LAND SURVEYOR TO ESTABLISH OR RE-ESTABLISH THE PROJECT BOUNDARY AND SHALL BE INSPECTED BY THE COUNTY INSPECTOR PRIOR TO THE
- BEGINNING OF THE WORK. PROPER CONSTRUCTION STAKES SHALL BE SET IN THE FIELD BY THE PROJECT ENGINEER OR LAND SURVEYOR AND VERIFIED BY THE COUNTY INSPECTOR PRIOR TO THE COMMENCEMENT OF GRADING.

CONSTRUCTION INSPECTION

- . CONTRACTOR SHALL NOTIFY PERMIT INSPECTION UNIT, SANTA CLARA COUNTY PRIOR TO COMMENCING WORK AND FOR FINAL INSPECTION OF WORK AND SITE. 2. THE COUNTY REQUIRES A MINIMUM OF 24 HOURS ADVANCE NOTICE FOR GENERAL INSPECTION, 48 HOURS FOR ASPHALT CONCRETE INSPECTION.
- . INSPECTION BY SANTA CLARA COUNTY SHALL BE LIMITED TO INSPECTION OF MATERIALS AND PROCESSES OF CONSTRUCTION TO OBSERVE THEIR COMPLIANCE WITH PLANS & SPECIFICATIONS BUT DOES NOT INCLUDE RESPONSIBILITY FOR THE SUPERINTENDENT OF CONSTRUCTION, SITE CONDITIONS, EQUIPMENT OR PERSONNEL, CONTRACTOR SHALL NOTIFY THE COUNTY LAND DEVELOPMENT INSPECTOR AT PHONE (408) 299-6868 AT LEAST 24 HOURS PRIOR TO COMMENCING WORK AND FOR FINAL INSPECTION
- 4. DEVELOPER AND/OR HIS AUTHORIZED REPRESENTATIVE MUST SUBMIT WRITTEN DIRECTED TO THE INSPECTION OFFICE NOTED ON THE PERMIT FORM.
- THE CONTRACTOR SHALL PROVIDE TO THE COUNTY CONSTRUCTION INSPECTOR WITH PAD ELEVATION AND LOCATION CERTIFICATES, PREPARED BY THE PROJECT ENGINEER OR LAND SURVEYOR, PRIOR COMMENCEMENT OF THE BUILDING FOUNDATION.

SITE PREPARATION (CLEARING AND GRUBBING)

- 1. EXISTING TREES AUTHORIZED FOR REMOVAL, ROOTS, AND FOREIGN MATERIAL IN AREAS TO BE IMPROVED WILL BE REMOVED TO AN AUTHORIZED DISPOSAL SITE AS FOLLOWS: A) TO A MINIMUM DEPTH OF TWO FEET BELOW THE FINISHED GRADE OF PROPOSED ROADWAYS (EITHER PRIVATE OR TO BE DEDICATED TO
- B) FROM AREAS AFFECTED BY THE PROPOSED GRADING EXCEPT WHERE
- 2. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO MOVE OR RELOCATE UTILITY POLES AND OTHER OBSTRUCTIONS IN THE WAY OF CONSTRUCTION.
- UTILITY LOCATION, TRENCHING & BACKFIL . CONTRACTOR SHALL NOTIFY USA (UNDERGROUND SERVICE ALERT) AT 1-800-277-2600 A MINIMUM OF 24 HOURS BEFORE BEGINNING UNDERGROUND WORK FOR VERIFICATION OF THE LOCATION OF UNDERGROUND
- ACCURATE VERIFICATION AS TO SIZE, LOCATION, AND DEPTH OF EXISTING UNDERGROUND CONDUITS OR FACILITIES SHALL BE THE INDIVIDUAL CONTRACTORS RESPONSIBILITY. PLAN LOCATIONS ARE APPROXIMATE AND FOR
- GENERAL INFORMATION ONLY. ALL UNDERGROUND INSTALLATIONS SHALL BE IN PLACE AND THE TRENCH BACKFILLED AND COMPACTED BEFORE PLACING AGGREGATE BASE MATERIAL OR SURFACE STRUCTURES. SURFACING MAY BE DONE IF THE UTILITY COMPANY CONCERNED INDICATES BY LETTER THAT IT WILL BORE. UNLESS SPECIFICALLY AUTHORIZED BY THE COUNTY, GAS AND WATER MAINS SHALL BE
- INSTALLED OUTSIDE THE PAVED AREAS. TRENCH BACKFILL IN EXISTING PAVEMENT AREAS SHALL BE SAND MATERIAL IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE STATE SPECIFICATIONS. THE STRUCTURAL SECTION FOR TRENCH REPLACEMENT SHALL CONSIST OF NOT LESS THAN 12 INCHES OF APPROVED AGGREGATE BASE MATERIAL COMPACTED TO A RELATIVE COMPACTION OF AT LEAST 95% AND 4 INCHES OF HOT ASPHALT CONCRETE PLACED IN TWO LIFTS. TRENCH RESTORATION FOR HIGHER TYPE PAVEMENTS SHALL BE MADE IN KIND OR AS
- TRENCH BACKFILL IN NEW CONSTRUCTION AREAS SHALL BE SAND MATERIAL COMPACTED TO A RELATIVE COMPACTION OF AT LEAST 90%. THE REQUIREMENT FOR SELECT MATERIAL MAY BE WAIVED BY COUNTY IF THE NATIVE SOIL IS SUITABLE FOR USE AS TRENCH BACKFILL BUT THE COMPACTION REQUIREMENTS WILL NOT BE THEREBY WAIVED.
- 6. BACKFILL AND TRENCH RESTORATION REQUIREMENTS SHALL APPLY AS MINIMUM STANDARDS TO ALL UNDERGROUND FACILITIES INSTALLED BY OTHER FIRMS OR PUBLIC AGENCIES.

DIRECTED BY THE COUNTY

1. EXCAVATED MATERIAL SHALL BE PLACED IN THE FILL AREAS DESIGNATED OR SHALL BE HAULED AWAY FROM THE SITE. WHERE FILL MATERIAL IS TO BE PLACED ON NATURAL GROUND, IS SHALL BE STRIPPED OF ALL VEGETATION. TO ACHIEVE A PROPER BOND WITH THE FILL MATERIAL, THE SURFACE OF THE GROUND SHALL BE SCARIFIED TO DEPTH OF 6" BEFORE FILL IS PLACED. WHERE NATURAL GROUND IS STEEPER THAN 5:1, IT SHALL BE BENCHED AND THE FILL KEYED IN TO ACHIEVE STABILITY. WHERE NEW FILL IS TO BE PLACED ON EXISTING FILL THE EXISTING FILL SHALL BE REMOVED UNTIL MATERIAL COMPACTED TO 90% RELATIVE COMPACTION IS EXPOSED. THEN THE NEW FILL MATERIAL SHALL BE PLACED AS PER THESE CONSTRUCTION NOTES. FILL MATERIAL SHALL BE PLACED IN UNIFORM LIFTS NOT EXCEEDING 6" IN UNCOMPACTED THICKNESS. BEFORE COMPACTION BEGINS, THE FILL SHALL BE BROUGHT TO A WATER CONTENT THAT WILL PERMIT PROPER COMPACTION BY FITHER 1) AERATING THE FILL IF IT IS TOO WET OR 2) MOISTENING THE FILL WITH WATER IF IT IS TOO DRY. EACH LIFT SHALL BE THOROUGHLY MIXED BEFORE COMPACTION TO ENSURE A UNIFORM DISTRIBUTION OF MOISTURE.

GRADING (CONTINUED)

- 2. SURPLUS EARTH FILL MATERIAL SHALL BE PLACED IN A SINGLE (8" MAX) THICK LAYER COMPACTED TO WITHSTAND WEATHERING IN THE AREA(S) DELINEATED ON
- REMOVED OUTSIDE OF CUT, FILL OR ROADWAY AREAS. 4. THE UPPER 6" OF SUBGRADE BELOW DRIVEWAY ACCESS ROAD OR PARKING
- AREA SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY. 5. MAXIMUM CUT SLOPE SHALL BE 2 HORIZONTAL TO 1 VERTICAL. MAXIMUM FILL SLOPE SHALL 2 HORIZONTAL TO 1 VERTICAL.

3. NO ORGANIC MATERIAL SHALL BE PLACED IN ANY FILL. NO TREES SHALL BE

ESTIMATED VOLUME OF CUT <u>0</u> FILL 42 CUBIC YARDS

- NOTE: FILL VOLUMES INCLUDE 10% SHRINKAGE. EXCESS MATERIAL SHALL BE OFF HAULED TO A COUNTY APPROVED DUMP SITE. NOTIFY SOILS ENGINEER TWO (2) DAYS PRIOR TO COMMENCEMENT OF ANY GRADING WORK TO COORDINATE THE WORK IN THE FIELD
- ALL MATERIALS FOR FILL SHOULD BE APPROVED BY THE SOILS ENGINEER BEFORE IT IS BROUGHT TO THE SITE 8. THE UPPER 6" OF THE SUBGRADE SOIL SHALL BE SCARIFIED, MOISTURE CONDITIONED AND COMPACTED TO A MINIMUM RELATIVE COMPACTION OF 95%

9. ALL AGGREGATE BASE MATERIAL SHALL BE COMPACTED TO A MINIMUM 95%

10. THE PROJECT GEOTECHNICAL ENGINEER SHALL PERFORM COMPACTION TESTING AND PRESENT THE RESULTS TO THE COUNTY ENGINEERING INSPECTOR PRIOR TO THE CONSTRUCTION OF ANY PAVED AREA.

AIR QUALITY, LANDSCAPING AND EROSION CONTROL

AREAS AT CONSTRUCTION SITES

- WATER ALL ACTIVE CONSTRUCTION AREAS AT LEAST TWICE DAILY. 2. COVER ALL TRUCKS HAULING SOIL, SAND, AND OTHER LOOSE MATERIALS OR REQUIRE ALL TRUCKS TO MAINTAIN AT LEAST TWO FEET OF FREEBOARD. 3. PAVE, APPLY WATER THREE TIMES DAILY, OR APPLY (NON-TOXIC) SOIL STABILIZERS ON ALL UNPAVED ACCESS ROADS, PARKING AREAS AND STAGING
- 4. SWEEP DAILY (WITH WATER SWEEPERS) ALL PAVED ACCESS ROADS, PARKING AREAS AND STAGING AREAS AT CONSTRUCTION SITES. THE USE OF DRY POWDER SWEEPING IS PROHIBITED.
- SWEEP STREETS DAILY (WITH WATER SWEEPERS) IF VISIBLE SOIL MATERIAL IS CARRIED ONTO ADJACENT PUBLIC STREETS. THE USE OF DRY POWDER SWEEPING IS PROHIBITED 6. ALL CONSTRUCTION VEHICLES, EQUIPMENT AND DELIVERY TRUCKS SHALL HAVE A
- MAXIMUM IDLING TIME OF 5 MINUTES (AS REQUIRED BY THE CALIFORNIA AIRBORNE TOXIC CONTROL MEASURE TITLE 13, SECTION 2485 OF CALIFORNIA CODE OF REGULATIONS (CCR)). ENGINES SHALL BE SHUT OFF IF CONSTRUCTION REQUIRES LONGER IDLING TIMÉ UNLESS NECESSARY FOR PROPER OPERATION OF THE VEHICLE 7. ALL VEHICLE SPEEDS ON UNPAVED ROADS SHALL BE LIMITED TO 15 MILES PER
- 8. ALL CONSTRUCTION EQUIPMENT SHALL BE MAINTAINED AND PROPERLY TUNED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. ALL EQUIPMENT SHALL BE CHECKED BY A CERTIFIED MECHANIC AND DETERMINED TO BE RUNNING IN PROPER CONDITION PRIOR TO OPERATION.
- 9. POST A SIGN THAT IS AT LEAST 32 SQUARE FEET MINIMUM 2 INCHES LETTER HEIGHT VISIBLE NEAR THE ENTRANCE OF CONSTRUCTION SITE THAT IDENTIFIES THE FOLLOWING REQUIREMENTS. OBTAIN ENCROACHMENT PERMIT FOR SIGN FROM ROADS DEPARTMENT OR OTHER APPLICABLE AGENCY IF REQUIRED. 15 MILES PER HOUR (MPH) SPEED LIMIT
- 5 MINUTES MAXIMUM IDLING TIME OF VEHICLES TELEPHONE NUMBER TO CONTACT THE BAY AREA AIR QUALITY
- MANAGEMENT DISTRICT REGARDING DUST COMPLAINTS. NOTE PHONE NUMBER OF THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT AIR POLLUTION COMPLAIN HOTLINE OF 1-800-334-6367. 10. ALL FILL SLOPES SHALL BE COMPACTED AND LEFT IN A SMOOTH AND FIRM
- CONDITION CAPABLE OF WITHSTANDING WEATHERING. 11. ALL EXPOSED DISTURBED AREAS SHALL BE SEEDED WITH BROME SEED SPREAD AT THE RATE OF 5 LB. PER 1000 SQUARE FEET (OR APPROVED EQUAL). SEEDING AND WATERING SHALL BE MAINTAINED AS REQUIRED TO ENSURE
- 12. ALL DITCHES SHALL BE LINED PER COUNTY STANDARD SD8. 13. ALL STORM DRAINAGE STRUCTURES SHALL BE INSTALLED WITH EFFECTIVE ENTRANCE & OUTFALL EROSION CONTROLS E.G. SACKED CONCRETE RIP-RAP.

REDUCE THE POTENTIAL FOR EROSION OF THE SUBJECT SITE.

- ENERGY DISSIPATERS SHALL BE INSTALLED AT ALL DITCH OUTFALLS. WHERE SHALL BE RELEASED TO SHEET FLOW. 14. PRIOR TO GRADING COMPLETION AND RELEASE OF THE BOND, ALL GRADED AREAS SHALL BE RESEEDED IN CONFORMANCE WITH THE COUNTY GRADING ORDINANCE TO MINIMIZE THE VISUAL IMPACTS OF THE GRADE SLOPES AND
- 15. PERMANENT LANDSCAPING SHOWN ON THE ATTACHED LANDSCAPE PLAN MUST BE INSTALLED AND FIELD APPROVED BY THE COUNTY PLANNING OFFICE PRIOR TO FINAL APPROVAL BY THE COUNTY ENGINEER, AND FINAL OCCUPANCY RELEASE BY THE BUILDING INSPECTION OFFICE. 16. THE OWNER SHALL PREPARE AND PRESENT A WINTERIZATION REPORT TO THE COUNTY INSPECTOR FOR REVIEW PRIOR TO OCTOBER 15TH OF EVERY YEAR. 17. THE OWNER / OWNER'S CONTRACTOR, AGENT AND/OR ENGINEER SHALL INSTALL AND MAINTAIN CONSTRUCTION BEST MANAGEMENT PRACTICES (BMPS) WITHIN THE
- SANTA CLARA COUNTY ROAD RIGHT-OF-WAY AND ANY PORTION OF THE SITE WHERE STORM WATER RUN-OFF IS DIRECTLY FLOWING INTO THE SANTA CLARA COUNTY ROAD RIGHT-OF-WAY. THE BMPS SHALL BE USED THROUGHOUT DURATION OF THE CONSTRUCTION AND UNTIL THE ESTABLISHMENT OF PERMANENT STABILIZATION AND SEDIMENT CONTROL TO PREVENT CONSTRUCTION MATERIALS, EXCAVATED MATERIALS, WASTE MATERIALS, AND SEDIMENT CAUSAED BY EROSION FROM CONSTRUCTION ACTIVITIES ENTERING THE STORM DRAIN SYSTEM, WATERWAYS, AND ROADWAY INFRASTRUCTURE. BMPS SHALL INCLUDE,
- BUT NOT BE LIMITTED TO THE FOLLOWING; A. REDUCTION OF POLLUTANTS IN STORM WATER DISCHARGES FROM THE CONSTRUCTION SITE AND THE CONTRACTOR'S MATERIAL AND EQUIPMENT LAYDOWN / STAGING AREAS.
 - B. PREVENTION OF TRACKING OF MUD, DIRT, AND CONSTUCTION MATERIALS ONTO THE PUBLIC ROAD RIGHT-OF-WAY. C. PREVENTION OF DISCHARGE OF WATER RUN-OFF DURING DRY AND WET WEATHER CONDITIONS ONTO THE PUBLIC ROAD RIGHT-OF-WAY.

COUNTY OF SANTA CLARA

ISSUANCE OF A PERMIT AUTHORIZING CONSTRUCTION DOES NOT RELEASE THE DEVELOPER, PERMITTEE OF

PLANS. IF, DURING THE COURSE OF CONSTRUCTION, THE PUBLIC INTEREST REQUIRES A MODIFICATION OF

R.C.E. NO.

(OR DEPARTURE FROM) THE SPECIFICATIONS OF THE PLANS, THE COUNTY SHALL HAVE THE AUTHORITY

ENGINEER FROM RESPONSIBILITY FOR THE CORRECTION OF ERRORS OR OMISSIONS CONTAINED IN THE

TO REQUIRE THE SUSPENSION OF WORK, AND THE NECESSARY MODIFICATION OR DEPARTURE AND TO

LAND DEVELOPMENT ENGINEERING & SURVEYING

18. THE OWNER / OWNER'S CONTRACTOR, AGENT, AND / OR ENGINEER SHALL ENSURE THAT ALL TEMPORARY CONSTRUCTION FACILITIES, INCLUDING BUT NOT LIMITTED TO CONSTRUCTION MATERIALS, DELIVERIES, HAZARDOUS AND NON-HAZARDOUS MATERIAL STORAGE, EQUIPMENT, TOOLS, PORTABLE TOILETS, CONCRETE WASHOUT, GARBAGE CONTAINERS, LAYDOWN YARDS, SECONDARY CONTAINMENT AREAS, ETC. ARE LOCATED OUTSIDE THE SANTA CLARA COUNTY ROAD RIGHT-OR-WAY AND ANY PORTION OF THE SITE WHERE STORM WATER RUN-OFF IS DIRECTLY FLOWING INTO THE SANTA CLARA COUNTY ROAD

CONSTRUCTION PERMIT NO.

COUNTY ENGINEER'S NOTE

GRADING PERMIT NO.

ISSUED BY: ____

ACCESS ROADS AND DRIVEWAYS

- 1. DRIVEWAY LOCATIONS SHALL BE AS SHOWN ON THE IMPROVEMENT PLANS WITH CENTERLINE STATIONING. THE MINIMUM CONCRETE THICKNESS SHALL BE 6 INCHES
- THROUGHOUT (WITH A MAXIMUM APPROACH SLOPE OF 1 1/4 INCHES PER FOOT). 2. ALL DRIVEWAY OR COMMON ACCESS ROAD SECTIONS IN EXCESS OF 15% LONGITUDINAL SLOPE MUST BE PAVED WITH A MINIMUM 2-INCH ASPHALT LIFT OR FULL DEPTH CONCRETE LIFT PRIOR TO ANY COMBUSTIBLE FRAMING
- 3. ROADWAYS DESIGNATED AS NOT COUNTY MAINTAINED ROADS AS SHOWN ON THE PLAN WILL NOT BE ELIGIBLE FOR COUNTY MAINTENANCE UNTIL THE ROADWAYS ARE IMPROVED (AT NO COST TO THE COUNTY) TO THE PUBLIC MAINTENANCE ROAD STANDARDS APPROVED BY THE BOARD OF SUPERVISORS AND IN EFFECT AT SUCH TIME THAT THE ROADWAYS ARE CONSIDERED FOR ACCEPTANCE INTO THE COUNTY'S ROAD SYSTEM.

RETAINING WALLS

- 1. REINFORCED CONCRETE AND CONCRETE MASONRY UNIT RETAINING WALLS SHALL HAVE FOUNDATION AND REINFORCEMENT INSPECTED BY THE COUNTY ENGINEERING INSPECTOR AND ENGINEER OF RECORD PRIOR TO POURING THE FOUNDATION AND
- 2. SEGMENTAL BLOCK RETAINING WALLS SHALL HAVE FOUNDATION AND REINFORCEMENT INSPECTED BY THE COUNTY ENGINEERING INSPECTOR.

STORM DRAINAGE

- . DEVELOPER IS RESPONSIBLE FOR ALL NECESSARY DRAINAGE FACILITIES WHETHER SHOWN ON THE PLANS OR NOT AND HE OR HIS SUCCESSOR PROPERTY OWNERS ARE RESPONSIBLE FOR THE ADEQUACY AND CONTINUED MAINTENANCE OF THESE FACILITIES IN A MANNER WHICH WILL PRECLUDE ANY HAZARD TO LIFE, HEALTH, OR DAMAGE TO ADJOINING PROPERTY
- . DROP INLETS SHALL BE COUNTY STANDARD TYPE 5 UNLESS OTHERWISE NOTED ON THE PLANS. THE DEVELOPER'S ENGINEER SHALL BE RESPONSIBLE FOR THE PROPER LOCATION OF DROP INLETS. WHERE STREET PROFILE GRADE EXCEEDS 6% DROP INLETS SHALL BE SET AT 500 ANGLE CURB LINE TO ACCEPT WATER OR AS
- WHERE CULVERTS ARE INSTALLED THE DEVELOPER SHALL BE RESPONSIBLE FOR GRADING THE OUTLET DITCH TO DRAIN TO AN EXISTING SWALE OR TO AN OPEN AREA FOR SHEET FLOW.
- 4. UPON INSTALLATION OF DRIVEWAY CONNECTIONS, PROPERTY OWNERS SHALL PROVIDE FOR THE UNINTERRUPTED FLOW OF WATER IN ROADSIDE DITCHES. 5. THE COUNTY ENGINEERING INSPECTOR SHALL INSPECT UNDERGROUND DRAINAGE

IMPROVEMENTS PRIOR TO BACKFILL.

PORTLAND CEMENT CONCRETE

1. CONCRETE USED FOR STRUCTURAL PURPOSES SHALL BE CLASS "A" (6 SACK PER CUBIC YARD) AS SPECIFIED IN THE STATE STANDARD SPECIFICATIONS. CONCRETE PLACED MUST DEVELOP A MINIMUM STRENGTH FACTOR OF 2800 PSI IN A SEVEN-DAY PERIOD. THE CONCRETE MIX DESIGN SHALL BE UNDER THE CONTINUAL CONTROL OF THE COUNTY INSPECTOR.

<u>AS-BUILT PLANS STATEMENT</u>

THIS IS A TRUE COPY OF THE AS-BUILT PLANS. THERE (___ WERE) (___ WERE NOT) MINOR FIELD CHANGES - MARKED WITH THE SYMBOL (^). THERE (___ WERE) (___ WERE NOT) PLAN REVISIONS INDICATING SIGNIFICANT CHANGES REVIEWED BY THE COUNTY ENGINEER AND MARKED WITH THE SYMBOL

SIGNATURE

NOTE: THIS STATEMENT IS TO BE SIGNED BY THE PERSON AUTHORIZED BY THE COUNTY ENGINEER TO PERFORM THE INSPECTION WORK. A REPRODUCIBLE COPY OF THE AS-BUILT PLANS MUST BE FURNISHED TO THE COUNTY ENGINEER AFTER

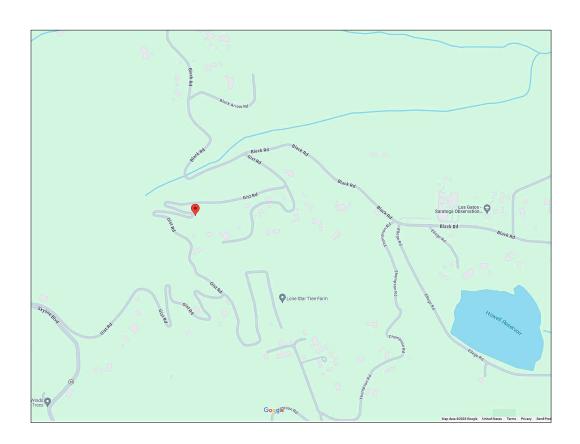
1. A CONSTRUCTION OBSERVATION LETTER FROM THE RESPONSIBLE GEOTECHNICAL ENGINEER DETAILING CONSTRUCTION OBSERVATIONS AND CERTIFYING THAT THE WORK WAS DONE IN ACCORDANCE WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORTS SHALL BE SUBMITTED PRIOR TO THE GRADING COMPLETION AND RELEASE OF THE BOND.

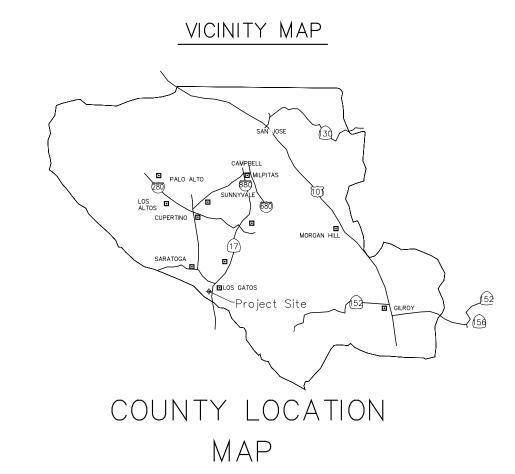
SCOPE OF WORK

- 1. NEW RETAINING WALLS DRIVEWAY PAVING
- DRAINAGE

NEW RETAINING WALLS LANDS OF **ROSENQUIST** 20246 GIST ROAD, LOS GATOS

APN 544-23-008

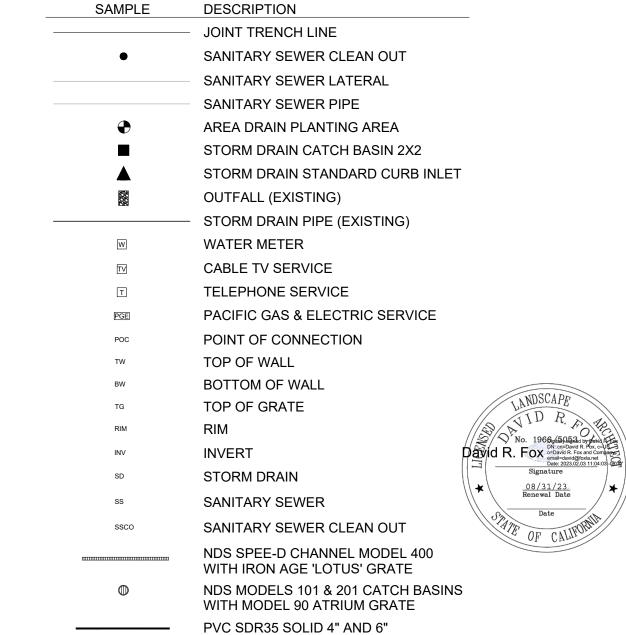


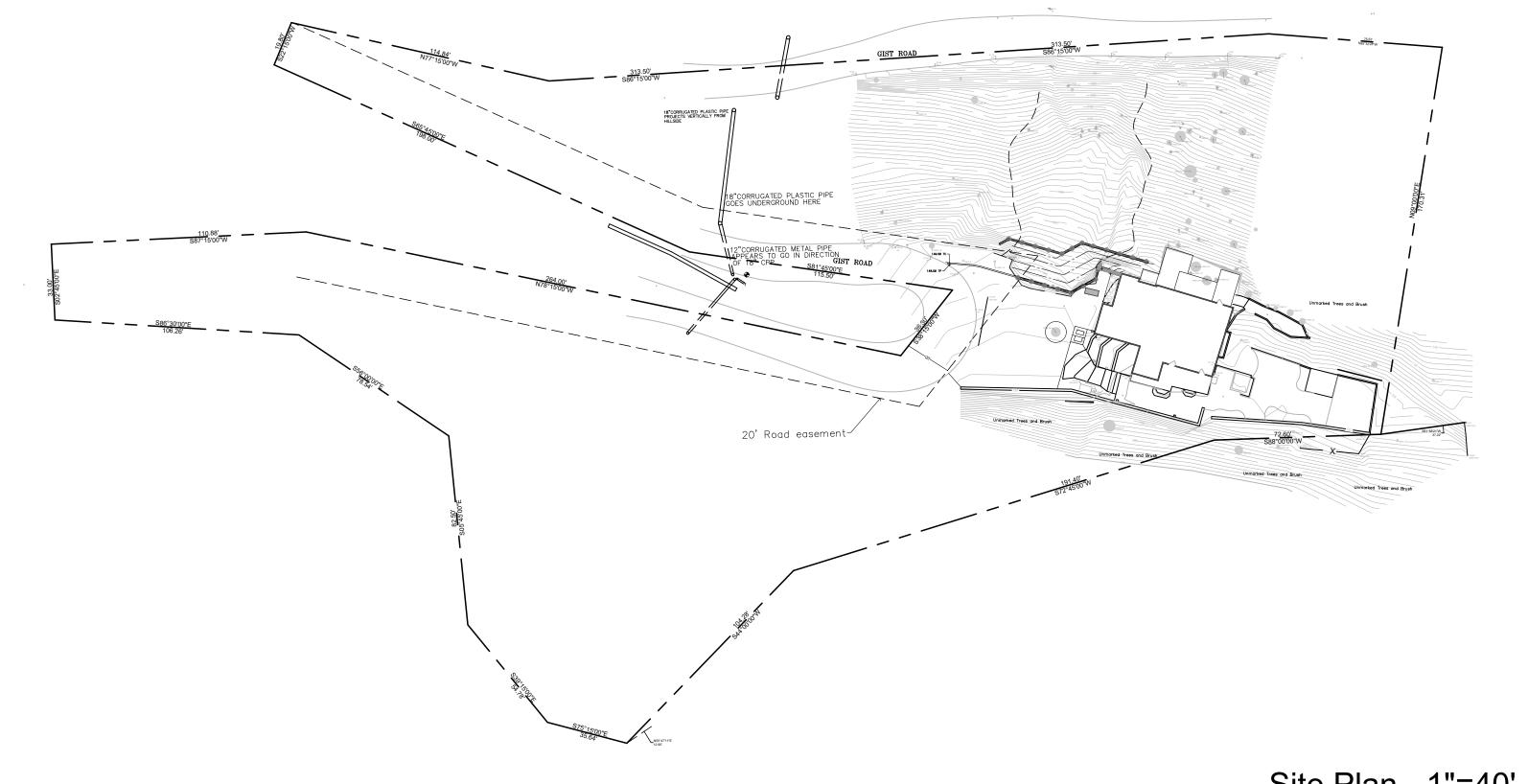


Sheet Legend

- Current Topo (for reference)
- L1.0 Grading Plan
- Drainage Plan
- L1.2 Erosion Control Plan
- L2.0 Layout Plan
- L3.0 Details
- Structural Notes
- **Structural Notes**

LEGEND AND SYMBOLS





Site Plan - 1"=40'-0"

APPLICANT: DAVID FOX

SPECIFY THE MANNER IN WHICH THE SAME IS TO BE MADE.

ROAD: GIST ROAD

EXPIRATION DATE

COUNTY FILE NO .:

REVISIONS

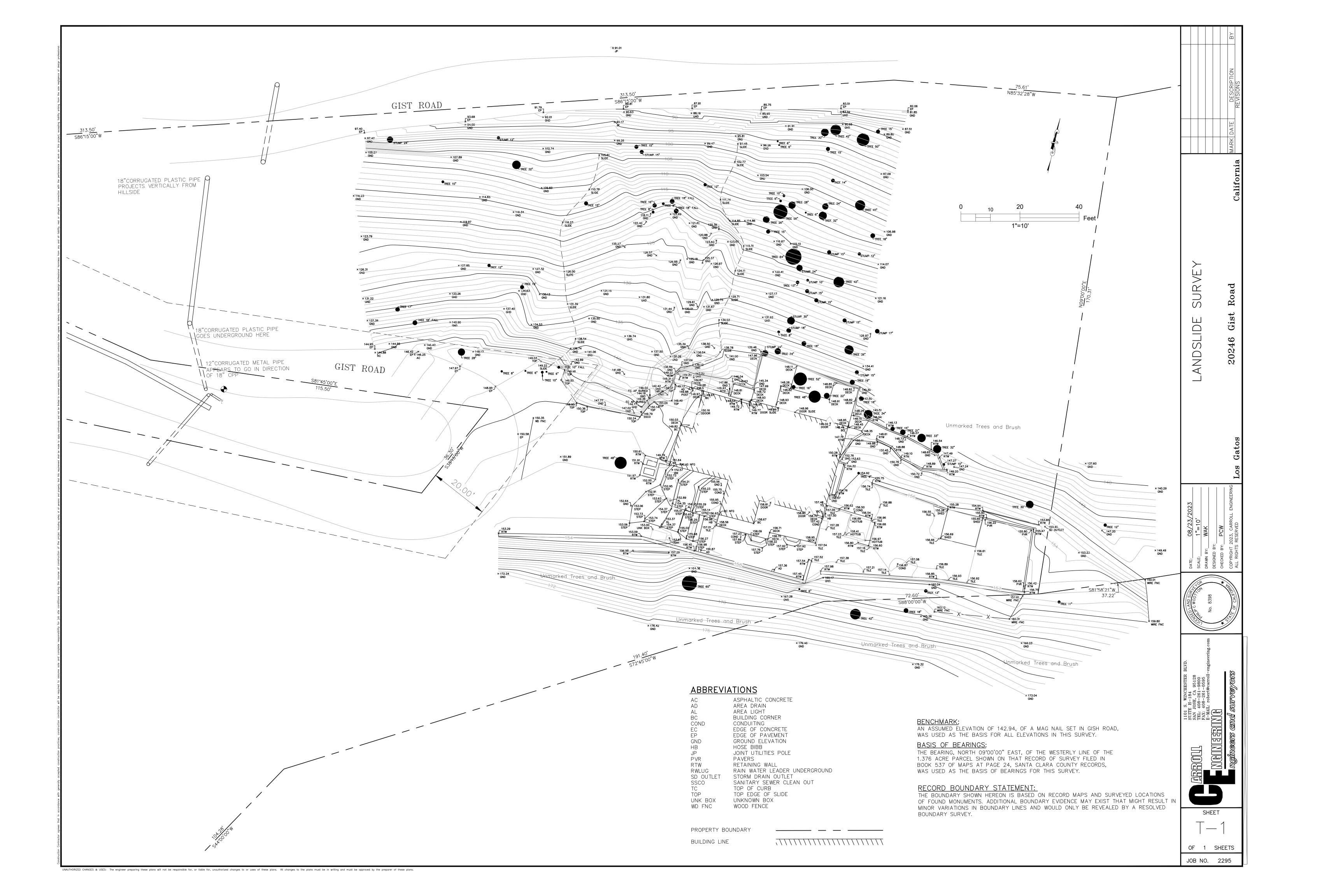
Revised per

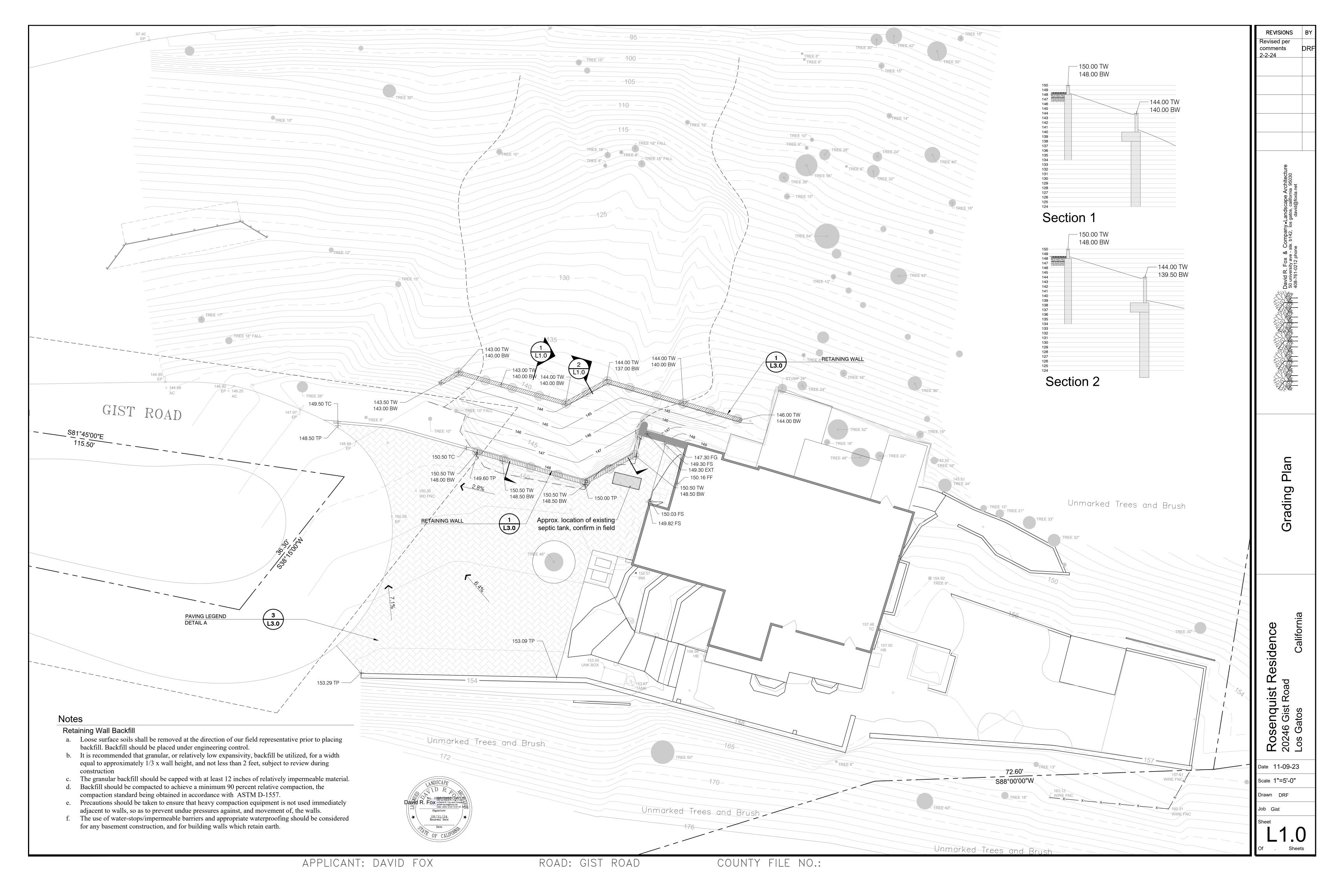
comments 2-2-24

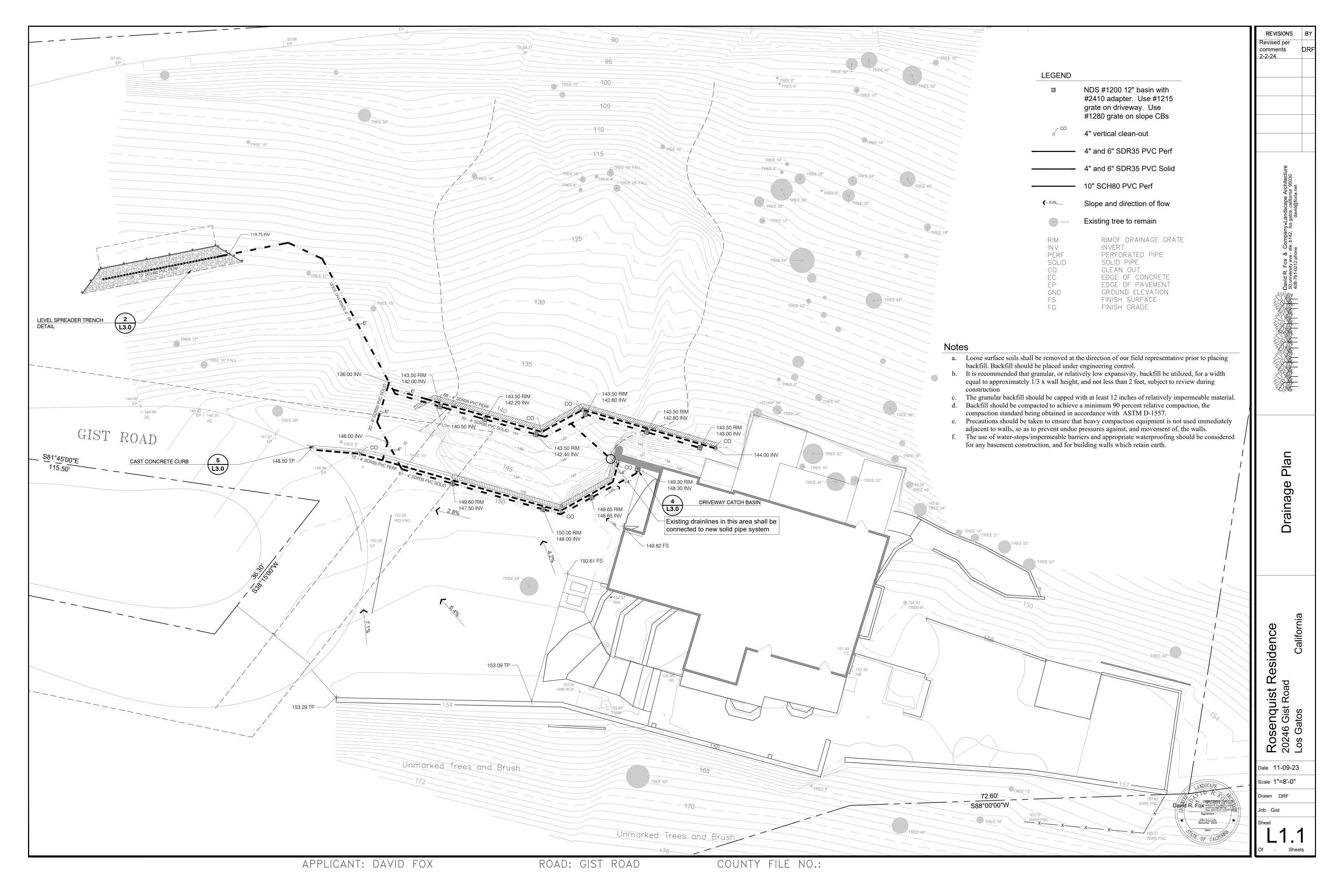
> 0 nquist Gist Ro

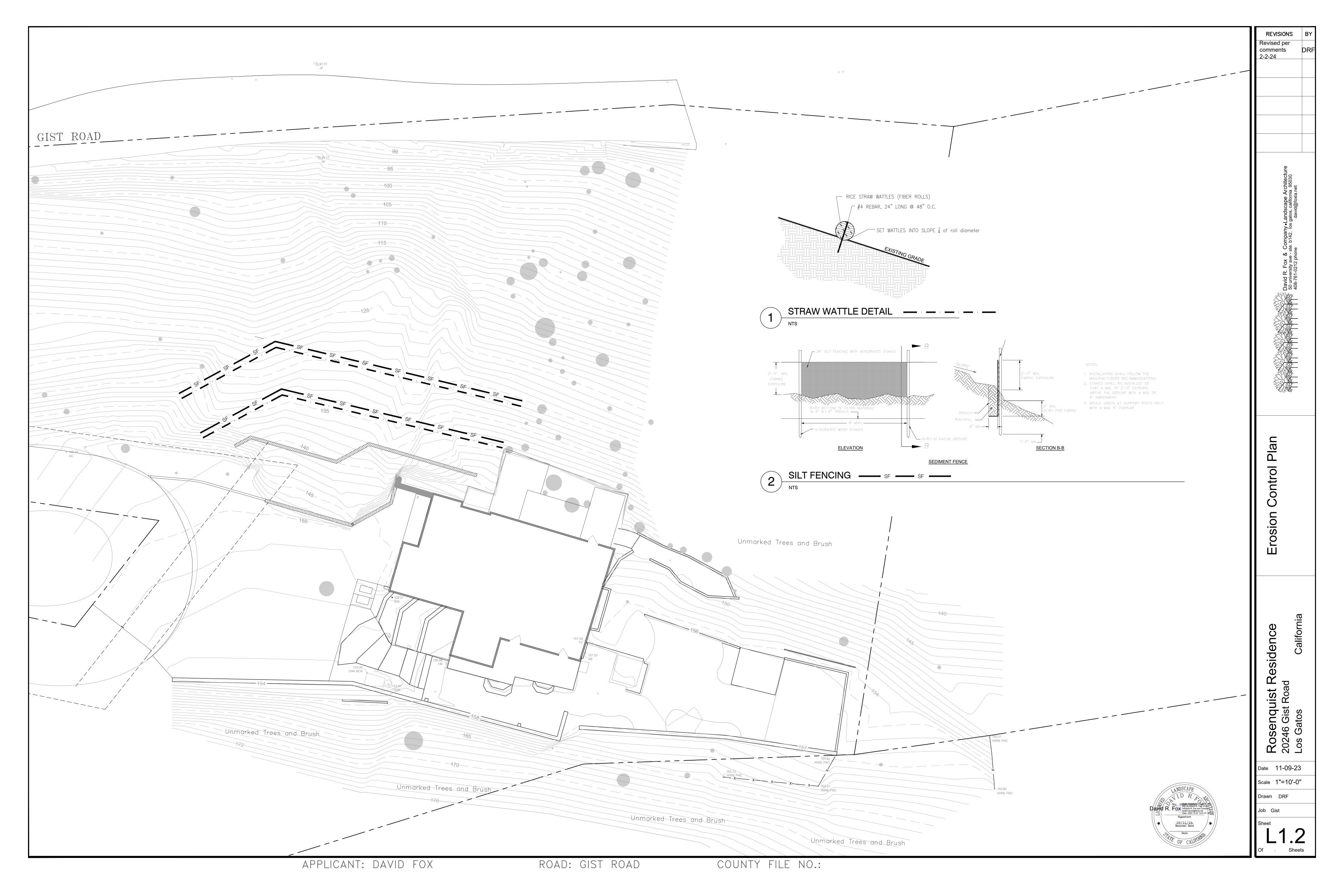
Ro 202, Los Date 1-30-23

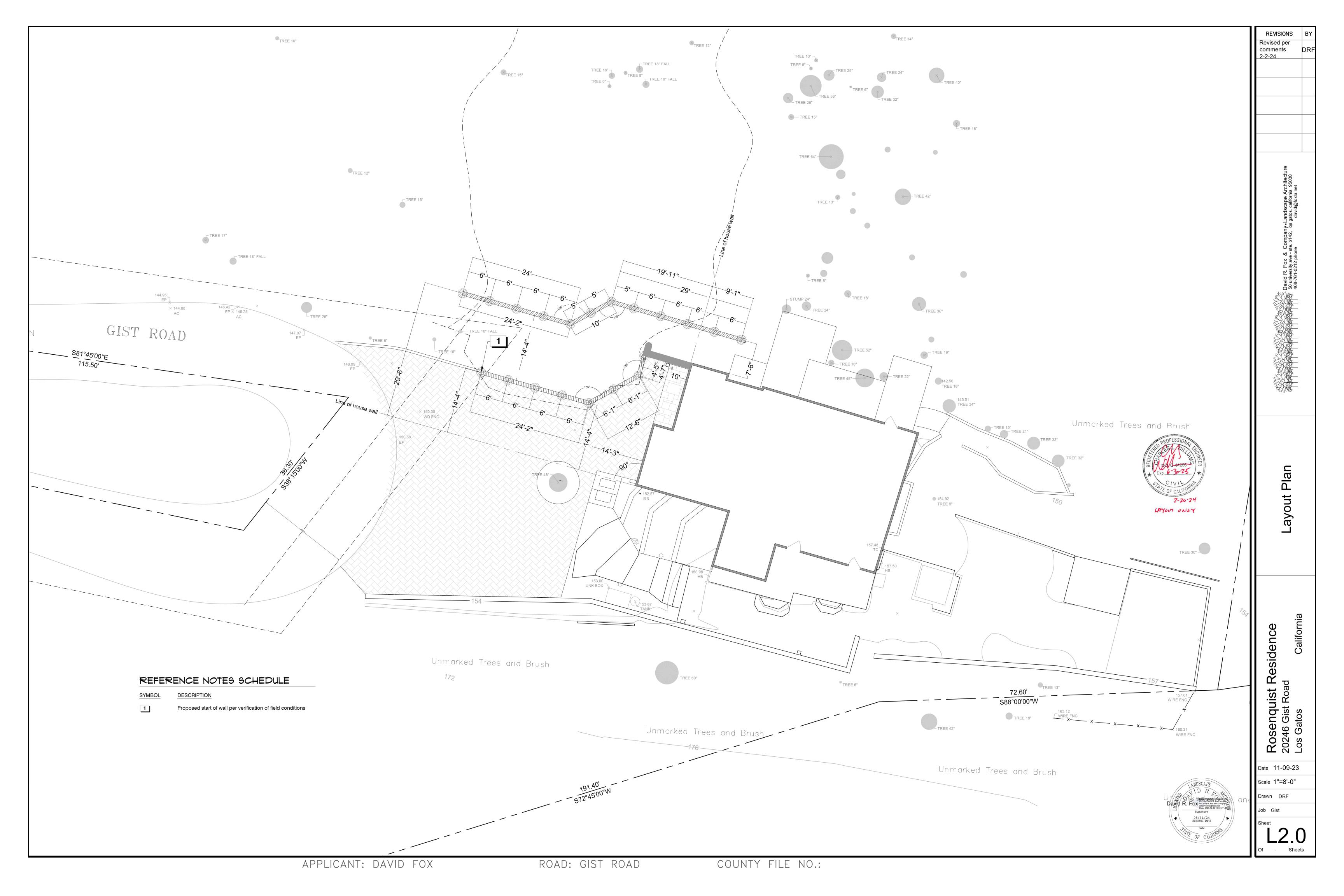
Drawn DRF Job Gist

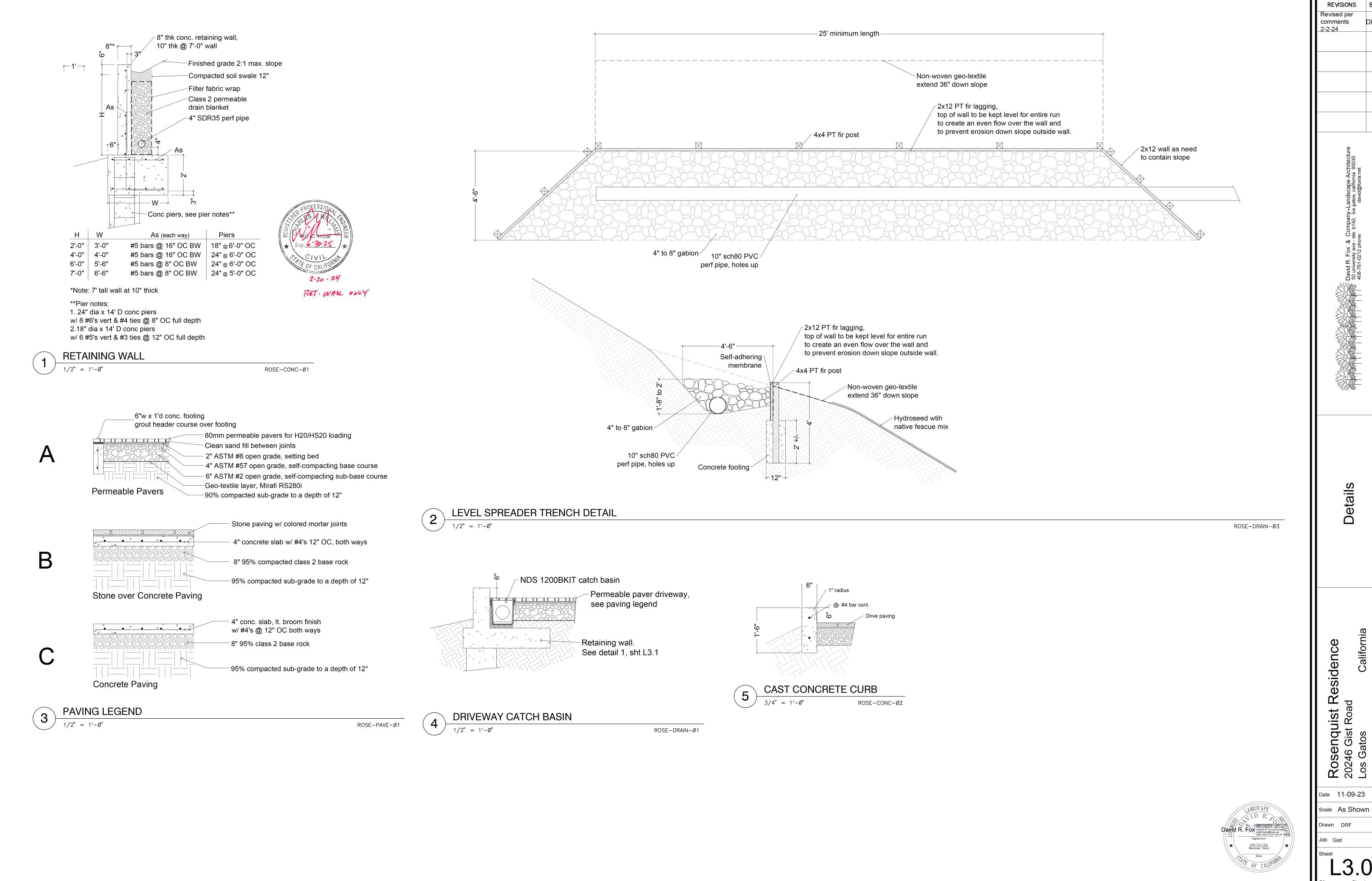












APPLICANT: DAVID FOX

ROAD: GIST ROAD

COUNTY FILE NO .:

A. GENERAL STRUCTURAL NOTES

- 1 Contractor shall verify ALL dimensions & confirm existing conditions & report all discrepancies and/or field conditions which are different than those indicated on the Structural Plans to the Structural Engineer of Record and Architect/Designer prior to commencement of construction
- 2 Architectural information shown on the Structural Plans, such as floor elevations, plate heights, roof heights/slopes, etc shall be verified and compared to the "Architectural Drawings" Report all discrepancies to both the Structural Engineer of Record
- 3 Structural Drawings are intended to provide information regarding the structural framing & foundation and their elements only
- Non structural elements such as decorative architectural details, stair framing, concrete pads, etc. may not be covered in the Structural Plans Contractors are advised to review all other plans in the Construction Document set for non structural items which may be embedded in, attached to, or otherwise interfering with the structural elements 4 Structural Engineer of Record is not responsible for the ventilation of underfloor, joist and/or attic. The Structural Engineer of
- Record is not responsible for any concrete flat work including driveways, walkways, door pads and other similar items Contractors shall follow the architectural plans and/or owner's specifications for final locations, geometry & dimensions of 5 All drawings and subsequent revisions, if any, shall be approved by the Structural Engineer of Record prior to the
- commencement of construction. No structural members shall be substituted, relocated, and/or omitted without written approval of the Structural Engineer of Record 6 Contractor and/or subcontractors shall be responsible for the order and means of construction and all temporary shoring,
- bracing and erection during construction The Contractor shall provide ALL third party designs (Prefabricated Trusses, Stair Railings/Guardrails, etc.) to the Structural Engineer of Record for review and approval prior to fabrication to assure conformance with the structural design

CBC CHAPTER 16: STRUCTURAL DESIGN 1604 1 General Building structures and parts thereof shall be designed and constructed in accordance with strength design load. and resistance factor design, allowable stress design, empirical design or conventional construction methods, as permitted by the

CBC CHAPTER 17: STRUCTURAL TESTS & SPECIAL INSPECTIONS

Section 1703: Approvals

1703 1 Approved agency An approved agency shall provide all information as necessary for the building official to determine that the agency meets the applicable requirements specified in Sections 1703 1 1 through 1703 1 3 1703 2 Written approval Any material, appliance, equipment, system or method of construction meeting the requirements of this code shall be approved in writing after satisfactory completion of the required tests and submission of required test reports

Section 1704: Special inspections and tests, contractor responsibility and structural observation 1704 1 General Special inspections and tests, statements of special inspections, responsibilities of contractors, submittals to the building official and structural observations shall meet the applicable requirements of this section 1704 2 Special inspections and tests. Where application is made to the building official for construction as specified in Sections 105 or 1 8 4, as applicable, the owner or the owner's authorized agent, other than the contractor, shall employ one or more approved agencies to provide special inspections and tests during construction on the types of work specified in Section 1705 and

dentify the approved agencies to the building official. These special inspections and tests are in addition to the inspections by the

- building official that are identified in Section 11 Special inspections and tests are not required for construction of a minor nature or as warranted by conditions in the
- 2 Unless otherwise required by the building official, special inspections and tests are not required for Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in Section 312 1
- Special inspections and tests are not required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of Section 221 1 7 or the conventional light-frame construction provisions of Section2308 [OSHPD2] Not permitted by OSHPD The contractor is permitted to employ the approved agencies where the contractor is also the owner [HCD1] The provisions of Health and Safety Code Division 13, Part 6 and the California Code of Regulations, Title 25, Division
- 1, Chapter 3, commencing with Section 3000, shall apply to the construction and inspection of factory-built housing as defined 1704.2.5 Special inspection of fabricated Items Where fabrication of structural, load-bearing or lateral load- resisting members or assemblies is being conducted on the premises of a fabricator's shop, special inspections of the fabricated items shall be performed during fabrication
- Special inspections during fabrication are not required where the fabricator maintains approved detailed fabrication and quality control procedures that provide a basis for control of the workmanship and the fabricator's ability to conform to

approved construction documents and this code Approval shall be based upon review of fabrication and quality control procedures and periodic inspection of fabrication practices by the building official Special inspections are not required where the fabricator is registered and approved in accordance with Section

1704 3 Statement of special inspections Where special inspections or tests are required by Section 1705, the registere design professional in responsible charge shall prepare a statement of special inspections in accordance with Section 1704 3 1 for submittal by the applicant in accordance with Section 1704 2 3 Exception The statement of special inspections is permit-ted to be prepared by a qualified person approved by the building ifficial for construction not designed by a registered design professional Section 1705: Required special inspections and tests

(See CBC Sections 1705, 1706, 1707, 1708 & 1709 for required inspections and tests 1705 1 General Special inspections and tests of elements and nonstructural components of buildings and structures shall meet

- the applicable requirements of this section 1705.1.1 Special cases Special inspections and tests shall be required for proposed work that is, in the opinion of the building official, unusual in its nature, such as, but not limited to, the following examples
- Construction materials and systems that are alternatives to materials and systems prescribed by this code Unusual design applications of materials described in this code 3 Materials and systems required to be installed in accordance with additional manufacturer's instructions that prescribe
- requirements not contained in this code or in standards referenced by this code **CBC CHAPTER 18: SOILS AND FOUNDATIONS**

Section 1801 General

1801 1 Scope The provisions of this chapter shall apply to building and foundation systems

1801 2 Design basis Allowable bearing pressures, allowable stresses and design formulas provided in this chapter shall be used with the allowable stress design load combinations specified in Section 1605.3. The quality and design of materials used structurally in excavations and foundations shall comply with the requirements specified in Chapters 16, 19, 21, 22 and 23 of this code Excavations and fills shall also comply with Chapter 33 Section 1803 Geotechnical investigations

1803 1 General Geotechnical investigations shall be conducted in accordance with Section 1803 2 and reported in accordance with Section 1803 6. Where required by the building official or where geotechnical investigations involve in-situ testing, laboratory testing or engineering calculations, such investigations shall be conducted by a registered design professional

1803.1.1 General and where required for applications listed in Section 1.8.2.1.1 regulated by the Department of Housing and Community Development [HCD 1] Foundation and soils investigations shall be conducted in conformance with Health and Safety Code Sections 17953 through 17957

1803 2 Investigations required Geotechnical investigations shall be conducted in accordance with Sections 1803 3 through Exception The building official shall be permitted to waive the requirement for a geotechnical investigation where satisfactory data m adjacent areas is available that demonstrates an investigation is not necessary for any of the conditions in Sections 1803 5 1 through 1803 5 6 and Sections 1803 5 10 and 1803 5 11

1803 3 Basis of investigation Soil classification shall be based on observation and any necessary tests of the materials disclosed by borings, test pits or other subsurface exploration made in appropriate locations. Additional studies shall be made as necessary to evaluate slope stability, soil strength, position and adequacy of load-bearing soils, the effect of moisture variation on soil-bearing capacity, compressibility, liquefaction and expansiveness 1803 4 Qualified representative The investigation procedure and apparatus shall be in accordance with generally accepted

engineering practice. The registered design professional shall have a fully qualified representative on site during all boring or sampling operations 803 5 Investigated conditions Geotechnical investigations shall be conducted as indicated in Sections 1803 5 1 through

1803 6 Reporting Where geotechnical investigations are required, a written report of the investigations shall be submitted to the building official by the permit applicant at the time of permit application. This geotechnical report shall include, but need not be limited to, the following information

A plot showing the location of the soil investigations 2 A complete record of the soil boring and penetration test logs and soil samples 3 A record of the soil profile

- Elevation of the water table, if encountered
- Recommendations for foundation type and design criteria, including but not limited to bearing capacity of natural or compacted soil, provisions to mitigate the effects of expansive soils, mitigation of the effects of liquefaction, differential settlement and varying soil strength, and the effects of adjacent loads 6 Expected total and differential settlement
- 7 Deep foundation information in accordance with Section 1803 5 5
- Special design and construction provisions for foundations of structures founded on expansive soils, as necessary 9 Compacted fill material properties and testing in accordance with Section 1803 5 8
- O Controlled low-strength material properties and testing in accordance with Section 1803 5 9 11 [OSHPD 2] The report shall consider the effects of seismic hazard in accordance with Section 1803 7 1803 7 Geo-hazard reports [OSHPD 2] Geo-hazard reports shall be required for all proposed construction
- Reports are not required for one-story, wood-frame and light-steel-frame buildings of Type V construction and 4,000 square feet (371 m2) or less in floor area, not located within Earthquake Fault Zones or Seismic Hazard Zones as shown in the most recently published maps from the California Geological Survey (CGS), nonstructural, associated structural or voluntary
- structural alterations and incidental structural additions or alterations, and structural repairs for other than earthquake 2 A previous report for a specific site may be resubmitted, provided that a reevaluation is made and the report is found to be currentiv appropriate

The purpose of the geo-hazard report shall be to identify geologic and seismic conditions that may require project mitigations. The reports shall contain data which provide an assessment of the nature of the site and potential for earthquake damage based on ippropriate investigations of the regional and site geology, project foundation conditions and the potential seismic shaking at the site The report shall be prepared by a California-certified engineering geologist in consultation with a California-registered geotechnical engineer The preparation of the geo-hazard report shall consider the most recent CGS Note 48, Checklist for the eview of Engineering Geology and Seismology Reports for California Public School, Hospitals, and Essential Services Buildings In addition, the most recent version of CGS Special Publication 42, Fault Rupture Hazard Zones in California, shall be considered for project sites proposed within an Alguist-Priolo Earthquake Fault Zone. The most recent version of CGS Special Publication 17, Guidelines for Evaluating and Mitigating Seismic Hazards in California, shall be considered for project sites proposed within a Seismic Hazard Zone All conclusions shall be fully supported by satisfactory data and analysis

Section 1804 Excavation, grading and fill

1804 1 Excavation near foundations Excavation for any purpose shall not reduce lateral support from any foundation or adjacent foundation without first underpinning or protect- ing the foundation against detrimental lateral or vertical movement, or 1804 2 Underpinning Where underpinning is chosen to provide the protection or support of adjacent structures, the underpinning

system shall be designed and installed in accordance with provisions of this chapter and Chapter 33 1804 2.1 Underpinning sequencing Underpinning shall be installed in a sequential manner that protects the neighboring structure and the working construction site. The sequence of installation shall be identified in the approved construction

1804.3 Placement of backfull The excavation outside the foundation shall be backfulled with soil that is free of organic material, construction debris, cobbles and boulders or with a controlled low-strength material (CLSM). The backfill shall be placed in lifts and compacted in a manner that does not damage the foundation or the waterproofing or damp-proofing material Exception CLSM need not be compacted

1804 4 Site grading The ground immediately adjacent to the foundation shall be sloped away from the building at a slope of not less than one unit vertical in 20 units horizontal (5-per- cent slope) for a minimum distance of 10 feet (3048 mm) measured perpendicular to the face of the wall If physical obstructions or lot lines prohibit 10 feet (3048 mm) of horizontal distance, a 5percent slope shall be provided to an approved alternative method of diverting water away from the foundation Swales used for this purpose shall be sloped a minimum of 2 percent where located within 10 feet (3048 mm) of the building foundation Impervious surfaces within 10 feet (3048 mm) of the building foundation shall be sloped a minimum of 2 percent away from the

Exception Where climatic or soil conditions warrant, the slope of the ground away from the building foundation shall be permitted to be reduced to not less than one unit vertical in 48 units horizontal (2-percent slope) The procedure used to establish the final ground level adjacent to the foundation shall account for additional settlement of the

1804.6 Compacted fill material Where shallow foundations will bear on compacted fill material, the compacted fill shall comply with the provisions of an approved geotechnical report, as set forth in Section 1803 Exception Compacted fill material 12 inches (305 mm) in depth or less need not comply with an approved report, provided the inplace dry density is not less than 90 percent of the maximum dry density at optimum moisture content determined in accordance with ASTM D1557 The compaction shall be verified by special inspection in accordance with Section 1705 6 1804 7 Controlled low-strength material (CLSM) Where shallow foundations will bear on controlled low-strength material

(CLSM), the CLSM shall comply with the provisions of an approved geotechnical report, as set forth in Section 1803 Section 1805. Damp-proofing and waterproofing

1805 1 General Walls or portions thereof that retain earth and enclose interior spaces and floors below grade shall be waterproofed and damp-proofed in accordance with this section, with the exception of those spaces containing groups other than

esidential and institutional where such omission is not detrimental to the building or occupancy Ventilation for crawl spaces shall comply with Section 1203 4 1805 2 Damp-proofing Where hydrostatic pressure will not occur as determined by Section 1803 5 4, floors and walls for other

than wood foundation systems shall be damp-proofed in accordance with this section. Wood foundation systems shall be constructed in accordance with AWC PWF

1805 3 Waterproofing Where the ground-water investigation required by Section 1803 5 4 indicates that a hydrostatic pressure condition exists, and the design does not include a ground-water control system as described in Section 1805 1 3, walls and floors shall be waterproofed in accordance with this section 1805 4 Subsoil drainage system. Where a hydrostatic pressure condition does not exist, damp-proofing shall be provided and a base shall be installed under the floor and a drain installed around the foundation perimeter. A subsoil drainage system designed and constructed in accordance with Section 1805 1 3 shall be deemed adequate for lowering the ground-water table

Section 1806. Presumptive load bearing values of soils 1806 1 Load combinations The presumptive load-bearing values provided in Table 1806 2 shall be used with the allow- able stress design load combinations specified in Section 1605.3 The values of vertical foundation pressure and lateral bearing

pressure given in Table 1806 2 shall be permitted to be increased by one-third where used with the alternative basic load combinations of Section 1605 3 2 that include wind or earthquake loads 1806 2 Presumptive load-bearing values The load-bearing values used in design for supporting soils near the surface shall not exceed the values specified in Table 1806 2 unless data to substantiate the use of higher values are submitted and approved

Where the building official has reason to doubt the classification, strength or compressibility of the soil, the requirements of Section 1803 5 2 shall be satisfied Presumptive load-bearing values shall apply to materials with similar physical characteristics and dispositions Mud, organic silt, organic clays, peat or unprepared fill shall not be assumed to have a presumptive load-bearing capacity unless data to

substantiate the use of such a value are submitted Exception A presumptive load-bearing capacity shall be permitted to be used where the building official deems the load-bearing capacity of mud, organic silt or unprepared fill is adequate for the support of lightweight or temporary structures 1806 3 Lateral load resistance Where the presumptive values of Table 1806 2 are used to determine resistance to lateral loads,

he calculations shall be in accordance with Sections 1806 3 1 through 1806 3 4 Section 1807 Foundation walls, retaining walls and embedded posts and poles

1807 1 Foundation walls Foundation walls shall be designed and constructed in accordance with Sections 1807 1 1 through 1807 1 6 Foundation walls shall be supported by foundations designed in accordance with Section 1808 1807.1.1 Design lateral soil loads Foundation walls shall be designed for the lateral soil loads set forth in Section 1610 1807.1.2 Unbalanced backfill height Unbalanced backfill height is the difference in height between the exterior finish ground level and the lower of the top of the concrete footing that supports the foundation wall or the interior finish ground level. Where

an interior concrete slab on grade is provided and is in contact with the interior surface of the foundation wall, the unbalanced backfill height shall be permitted to be measured from the exterior finish ground level to the top of the interior concrete slab 1807.1.3 Rubble stone foundation walls Foundation walls of rough or random rubble stone shall not be less than 16 inches (406 mm) thick Rubble stone shall not be used for foundation walls of structures assigned to Seismic Design Category C, D, 1807 1 5 Concrete and masonry foundation walls Concrete and masonry foundation walls shall be designed in

Exception Concrete and masonry foundation walls shall be permitted to be designed and constructed in accordance with 1807 1 6 Prescriptive design of concrete and masonry foundation walls. Concrete and masonry foundation walls that are laterally supported at the top and bottom shall be permitted to be designed and constructed in accordance with this section 1807 1 6.1 Foundation wall thickness. The thickness of prescriptively designed foundation walls shall not be less than the thickness of the wall supported, except that foundation walls of at least 8-inch (203 mm) nominal width shall be permitted to support brick-veneered frame walls and 10 inch wide (254 mm) cavity walls provided the requirements of

Section 1807 1 6 2 or 1807 1 6 3 are met 1807.1.6.2 Concrete foundation walls. Concrete foundation walls shall comply with the following 1 The thickness shall comply with the requirements of Table 1807 1 6 2

accordance with Chapter 19 or 21, as applicable

- 2 The size and spacing of vertical reinforcement shown in Table 1807 1 6 2 are based on the use of reinforcement with a minimum yield strength of 60,000 pounds per square inch (psi) (414 MPa) Vertical reinforcement with a minimum yield strength of 40 000 psi (276 MPa) or 50 000 psi (345 MPa) shall be permitted, provided the same size bar is used and the spacing shown in the table is reduced by multiplying the spacing by 0 67 or 0 83.
- 3 Vertical reinforcement, when required, shall be placed nearest the inside face of the wall a distance, d, from the outside face (soil face) of the wall. The distance, d, is equal to the wall thickness, t, minus 1 25 inches (32 mm)

plus one-half the bar diameter, d_0 , $(d = t - 1.25 + d_0/2)$ The reinforcement shall be placed within a tolerance of + 3/8 inch (9 5 mm) where d is less than or equal to 8 inches (203 mm) or ± 1/2 inch (12 7 mm) where d is greater

- 4 In lieu of the reinforcement shown in Table 1807 1 6 2, smaller reinforcing bar sizes with closer spacings that provide an equivalent cross- sectional area of reinforcement per unit length shall be permitted 5 Concrete cover for reinforcement measured from the inside face of the wall shall not be less than 3/4 inch (19 1
- mm) Concrete cover for reinforcement measured from the outside face of the wall shall not be less than 1-1/2 inch (38 mm) for No 5 bars and smaller, and not less than 2 inches (51 mm) for larger bars 6 Concrete shall have a specified compressive strength, f'c, of not less than 2,500 psi (17 2 MPa) 7 The un-factored axial load per linear foot of wall shall not exceed 1.2 t f'c where t is the specified wall thickness in

1807 2 Retaining walls. Retaining walls shall be designed in accordance with Sections 1807 2.1 through 1807 2.3 1807.3 Embedded posts and poles Designs to resist both axial and lateral loads employing posts or poles as columns embedded in earth or in concrete footings in earth shall be in accordance with Sections 1807 3 1 through 1807 3 3

Section 1808. Foundations 1808 1 General Foundations shall be designed and constructed in accordance with Sections 1808 2 through 1808 9 Shallow foundations shall also satisfy the requirements of Section 1809 Deep foundations shall also satisfy the requirements of Section

1808.2 Design for capacity and settlement. Foundations shall be so designed that the allowable bearing capacity of the soil is not exceeded, and that differential settlement is minimized. Foundations in areas with expansive soils shall be designed in accordance with the provisions of Section 1808 6 1808 3 Design loads Foundations shall be designed for the most unfavorable effects due to the combinations of loads specified in Section 1605.2 or 1605.3. The dead load is permitted to include the weight of foundations and overlying fill. Reduced live loads,

as specified in Sections 1607 10 and 1607 12, shall be permitted to be used in the design of foundations 1808 4 Vibratory loads Where machinery operations or other vibrations are transmitted through the foundation, consideration shall be given in the foundation design to prevent detrimental disturbances of the soil 1808 5 Shifting or moving soils Where it is known that the shallow subsoils are of a shifting or moving character, foundations shall be carried to a sufficient depth to ensure stability

1808.6 Design for expansive soils Foundations for buildings and structures founded on expansive soils shall be designed in accordance with Section 1808 6 1 or 1808 6 2 Exception Foundation design need not comply with Section 1808 6 1 or 1808 6 2 where one of the following conditions is

The soil is removed in accordance with Section 1808 6 3 The building official approves stabilization of the soil in accordance with Section 1808 6 4 1808 7 Foundations on or adjacent to slopes The placement of buildings and structures on or adjacent to slopes steeper than one unit vertical in three units horizontal (33.3- percent slope) shall comply with Sections 1808 7.1 through 1808 7.

1808 8 Concrete foundations The design, materials and construction of concrete foundations shall comply with Sections 1808 8 1 through 1808 8 6 and the provisions of Chapter 19 Exception Where concrete footings supporting walls of light-frame construction are designed in accordance with Table 1809 7, a c design in accordance with Chapter 19 is not required 1808.8 1 Concrete or grout strength and mix proportioning Concrete or grout in foundations shall have a specified

compressive strength (f'c not less than the largest applicable value indicated in Table 1808 8 1 Where concrete is placed through a funnel hopper at the top of a deep foundation element, the concrete mix shall be designed and proportioned so as to produce a cohesive workable mix having a slump of not less than 4 inches (102 mm) and not more than 8 inches (204 mm) Where concrete or grout is to be pumped, the mix design including slump shall be adjusted to produce a pump-able mixture 1808 8.2 Concrete cover. The concrete cover provided for prestressed and non-prestressed reinforcement in foundations shall be no less than the largest applicable value specified in Table 1808 8.2. Longitudinal bars spaced less

than 1-1/2 inches (38 mm) clear distance apart shall be considered bundled bars for which the concrete cover provided shall also be no less than that required by Section 20 8 1 3 4 of ACI 318 Concrete cover shall be measured from the concrete surface to the outermost surface of the steel to which the cover requirement applies. Where concrete is placed in a temporary or permanent casing or a mandrel, the inside face of the casing or mandrel shall be considered the concrete surface 1808.8.3 Placement of concrete Concrete shall be placed in such a manner as to ensure the exclusion of any foreign matter and to secure a full-size foundation. Concrete shall not be placed through water unless a tremie or other method approved by the building official is used. Where placed under or in the presence of water, the concrete shall be deposited by approved means to ensure minimum segregation of the mix and negligible turbulence of the water. Where depositing concrete from the top of a deep foundation element, the concrete shall be chuted directly into smooth-sided pipes or tubes or placed in a rapid and continuous operation through a funnel hopper centered at the top of the element

1808 8.4 Protection of concrete Concrete foundations shall be protected from freezing during depositing and for a period of not less than five days thereafter. Water shall not be allowed to flow through the deposited concrete 1808 8 5 Forming of concrete Concrete foundations are permitted to be cast against the earth where, in the opinion of the building official, soil conditions do not require formwork. Where formwork is required, it shall be in accordance with Section 26 10 of ACI 318

1808 8 6 Seismic requirements See Section 1905 for additional requirements for foundations of structures assigned to Seismic Design Category C, D, E or F For structures assigned to Seismic Design Category D, E or F, provisions of Section 18 13 of ACI 318 shall apply where not in conflict with the provisions of Sections 1808 through 1810

1 Detached one-and two-family dwellings of light-frame construction and two stories or less above grade plane are not required to comply with the provisions of Section 18 13 of ACI 318 2 Section 18 13 4 3(a) of ACI 318 shall not apply

Section 1809. Shallow foundations

1809 1 General Shallow foundations shall be designed and constructed in accordance with Sections 1809 2 through 1809 13 1809 2 Supporting soils Shallow foundations shall be built on undisturbed soil, compacted fill material or controlled low-strength material (CLSM) Compacted fill material shall be placed in accordance with Section 1804.5 CLSM shall be placed in accordance 1809 3 Stepped footings The top surface of footings shall be level. The bottom surface of footings shall be permitted to have a

slope not exceeding one unit vertical in 10 units horizontal (10-percent slope). Footings shall be stepped where it is necessary to change the elevation of the top surface of the footing or where the surface of the ground slopes more than one unit vertical in 10 1809 4 Depth and width of footings The minimum depth of footings below the undisturbed ground surface shall be 12 inches

(305 mm) Where applicable, the requirements of Section 1809 5 shall also be satisfied. The minimum width of footings shall be 12 inches (305 mm) 1809 5 Frost protection Except where otherwise protected from frost, foundations and other permanent supports of buildings and structures shall be protected from frost by one or more of the following methods

Extending below the frost line of the locality 2 Constructing in accordance with ASCE 32 3 Erecting on solid rock Exception Free-standing buildings meeting all of the following conditions shall not be required to be protected 1 Assigned to Risk Category 1

2 Area of 600 square feet (56 m2) or less for light-frame construction or 400 square feet (37 m2) or less for other than lightframe construction 3 Eave height of 10 feet (3048mm) or less Shallow foundations shall not bear on frozen soil unless such frozen condition is of a permanent character

1809 6 Location of footings Footings on granular soil shall be so located that the line drawn between the lower edges of adjoining footings shall not have a slope steeper than 30 degrees (0.52 rad) with the horizontal, unless the material supporting the nigher footing is braced or retained or otherwise laterally supported in an approved manner or a greater slope has been properly stablished by engineering analysis 1809 7 Prescriptive footings for light-frame construction Where a specific design is not provided, concrete or masonry-unit ootings supporting walls of light-frame construction shall be permitted to be designed in accordance with Table 1809 7 1809 8 Plain concrete footings The edge thickness of plain concrete footings supporting walls of other than light-frame

construction shall not be less than 8 inches (203 mm) where placed on soil or rock Exception For plain concrete footings supporting Group R-3 occupancies, the edge thickness is permitted to be 6 inches (152 mm), provided that the footing does not extend beyond a distance greater than the thickness of the footing on either side of the

Section 1810 Deep foundations 1810 1 General Deep foundations shall be analyzed, designed, detailed and installed in accordance with Sections 1810 1

1810 2 Analysis The analysis of deep foundations for design shall be in accordance with Sections 1810 2 1 through 1810 2 5 **1810 3 Design and detailing** Deep foundations shall be designed and detailed in accordance with Sections 1810 3 1 through 1810.4 Installation Deep foundations shall be installed in accordance with Section 1810.4 Where a single deep foundation element comprises two or more sections of different materials or different types spliced together, each section shall satisfy the

applicable conditions of installation **CBC CHAPTER 19: CONCRETE**

Section 1901. General

1901.1 Scope The provisions of this chapter shall govern the materials, quality control, design and construction of concrete used

Section 2303 Minimum standards and quality

1901 2 Plain and reinforced concrete Structural concrete shall be designed and constructed in accordance with the equirements of this chapter and ACI 318 as amended in Section 1905 of this code Except for the provisions of Sections 1904 and 1907, the design and construction of slabs on grade shall not be governed by this chapter unless they transmit vertical loads or lateral forces from other parts of the structure to the soil

1901.3 Anchoring to concrete Anchoring to concrete shall be in accordance with ACI 318 as amended in Section 1905, and applies to cast-in (headed bolts, headed studs and hooked J or L bolts), post-installed expansion (torque-controlled and placement-controlled), undercut and adhesive anchors 1901 4 Composite structural steel and concrete structures Systems of structural steel acting compositely with reinforced

concrete shall be designed in accordance with Section 2206 of this code 1901.6 Special inspections and tests. Special inspections and tests of concrete elements of buildings and structures and concreting operations shall be as required by Chapter 17 Section 1902 Definitions

1902 1 General The words and terms defined in ACI 318 shall, for the purposes of this chapter and as used elsewhere in this code for concrete construction, have the meanings shown in ACI 318 as modified by Section 1905 1 1 Section 1903. Specifications for tests and materials

1903.1 General Materials used to produce concrete, concrete itself and testing thereof shall comply with the applicable standards Exception The following standards as referenced in Chapter 35 shall be permitted to be used

ASTM C1157 1903.2 Special inspections Where required, special inspections and tests shall be in accordance with Chapter 17 1903 3 Glass fiber-reinforced concrete Glass fiber-reinforced concrete (GFRC) and the materials used in such concrete shall be in accordance with the PCI MNL 128 standard 1903 4 Flat wall insulating concrete form (ICF) systems Insulating concrete form material used for forming fiat concrete walls

Section 1904. Durability requirements 1904 1 Structural concrete Structural concrete shall conform to the durability requirements of ACI 318

Exception For Group R-2 and R-3 occupancies not more than three stories above grade plane, the specified compressive strength, f'c, for concrete in basement walls, foundation walls, exterior walls and other vertical surfaces exposed to the weather shall be not less than 3.000 psi (20 7 MPa) 1904.2 Nonstructural concrete The registered design professional shall assign nonstructural concrete a freeze-thaw exposure class, as defined in ACI 318, based on the anticipated exposure of nonstructural concrete. Nonstructural

concrete shall have a minimum specified compressive strength, f'c, of 2,500 psi (17 2 MPa) for Class FO, 3,000 psi (20 7 MPa) for

Class F1, and 3,500 psi (24 1 MPa) for Classes F2 and F3. Nonstructural concrete shall be air entrained in accordance with ACI

Section 1905 Modifications to ACI 318

Section 1907, Minimum slab provisions

2 ASTM C595

1905 1 General The text of ACI 318 shall be modified as indicated in Sections 1905 1 1 through 1905 1 8 Section 1906. Structural plain concrete

1906.1 Scope The design and construction of structural plain concrete, both cast-in-place and precast, shall comply with the minimum requirements of ACI 318, as modified in Section 1905 Exception For Group R-3 occupancies and buildings of other occupancies less than two stories above grade plane of light-frame construction, the required footing thickness of ACI 318 is permitted to be reduced to 6 inches (152 mm), provided that the footing does not extend more than 4 inches (102 mm) on either side of the supported wall

1907.1 General The thickness of concrete floor slabs supported directly on the ground shall not be less than 3-1/2 inches (89 mm) A 6-mil (0 006 inch, 0 15 mm) polyethylene vapor retarder with joints lapped not less than 6 inches (152 mm) shall be placed between the base course or sub-grade and the concrete floor slab, or other approved equivalent methods or materials shall be used to retard vapor transmission through the floor slab Exception A vapor retarder is not required

For detached structures accessory to occupancies in Group R-3, such as garages, utility buildings or other unheated facilities For unheated storage rooms having an area of less than 70 square feet (6 5 m2) and carports attached to occupancies in For buildings of other occupancies where migration of moisture through the slab from below will not be detrimental to the intended occupancy of the building

4 For driveways, walks, patios and other flatwork that will not be enclosed at a later date 5 Where approved based on local site conditions

Additional concrete and foundation notes

1 If a Soil Report is provided, the Soils Engineer of Record shall review grading & drainage plans, foundation plans, & details & provide written documentation indicating their conformance with his/her Soil Repor The Soil Engineer of Record (as applicable), shall be present at the project site to observe & inspect all earthwork, grading, foundation excavations & provide written documentation of their observations to the local building official prior to pouring of

Compressive strength Concrete shall be in compliance with Chapter 19 & shall comply with the durability criteria per CBC

Section 1904 For concrete designed & constructed in accordance with the codes notes above, the compressive strength of concrete (f'c) shall be not less than 2500 psi @ 28 days 4 Reinforcement See plans and details for specific reinforcement Lap all reinforcing bars per CBC but in no case less than 40 Wet set anchor bolts Provide anchorage of wood framing members per CBC Use 5/8" diameter by 12 inch anchor bolts,

spaced at 48"OC maximum. Use 229" x 3" x 3" plate washers at each anchor bolt. See Structural Engineer of Record's designated Shear Wall Schedule for anchor bolt spacing requirements at identified braced wall panel lines (Shear Walls) Retrofit anchor bolts Provide 5/8", 7/8", 1" or greater threaded rods (per Foundation Plan) with 229" x 3" x 3" plate washers Anchors set into existing foundations/stem walls with "Simpson SET-XP" epoxy system (ICC-ESR 2508) Threaded rods shall be A36 steel (UNO) If in contact with PTDF lumber, threaded rods shall be stainless steel or hot dipped,

Hold downs shall be installed per manufacturers' installation instructions. See Foundation & Framing Plan(s) for hold down type & locations Do not scale off of Structural Plans Coordinate their location with dimensions provided on Architectural 9 All specified retrofit hold downs shall require a Special Inspection per CBC Chapter 17

zinc coated galvanized. If installed as retrofit anchors, use "Simpson" Epoxy SET XP system (ICC #2508).

CBC CHAPTER 21: MASONRY

Section 2101 General

2101 1 Scope This chapter shall govern the materials, design, construction and quality of masonry 2101 2 Design methods Masonry shall comply with the provisions of TMS 402/ACI 530/ASCE 5 or TMS 403 as well as 2101 3 Special inspection The special inspection of masonry shall he as defined in Chapter 17, or an itemized testing and inspection program shall he provided that meets or exceeds the requirements of Chapter 17

Section 2103 Masonry construction materials 2103 1 Masonry units Concrete masonry units, clay or shale masonry units, stone masonry units, glass unit masonry and AAC masonry units shall comply with Article 2.3 of TMS 602/ACL 503.1/ASCE 6. Architectural cast stone shall con-form to ASTM CL

Exception Structural clay tile for nonstructural use in fireproofing of structural members and in wall furring shall not be required to meet the compressive strength specifications. The fire-resistance rating shall be determined in accordance with ASTM E119 or UL. 263 and shall comply with the requirements of Table 602 2103 2 Mortar Mortar for masonry construction shall comply with Section 2103 2 1, 2103 2 2, 2103 2 3 or 2103 2 4 2103 4 Metal reinforcement and accessories Metal reinforcement and accessories shall conform to Article 2 4 of TMS 602/ACI 530 1/ASCE 6 Where unidentified reinforcement is approved for use, not less than three tension and three bending tests shall be made on representative specimens of the reinforcement from each shipment and grade of reinforcing steel proposed for use in the

REBAR METRIC CONVERSION TABLE			
Bar Sıze	Inches (Diameter)	Millimeter (Diameter)	Centimeter (Diameter)
#3	3/8"	9 52 MM	0 95 CM
#4	1/2"	12 70 MM	1 27 CM
#5	5/8"	15 87 MM	1 58 CM
#6	3/4"	19 05 MM	1 90 CM

REBAR METRIC CONVERSION TABLE					
1*	25 40 MM	2 54 CM			

22 22 MM

2.22 CM

CBC CHAPTER 22: STEEL

Section 2203 Identification and protection of steel for structural purposes

2203 1 Identification Identification of structural steel elements shall be in accordance with AISC 360 Identification of cold-formed steel members shall be in accordance with AISI SI00 Identification of cold-formed steel light-frame construction shall also comply with the requirements contained in AISI S200 or AISI S220, as applicable. Other steel furnished for structural load-carrying purposes shall be properly identified for conformity to the ordered grade in accordance with the specified ASTM standard or other specification and the provisions of this chapter. Steel that is not readily identifiable as to grade from marking and test records shall be tested to determine conformity to such standards 2203 2 Protection Painting of structural steel elements shall be in accordance with AISC 360 Painting of open-web steel joists

AISI S100 Protection of cold-formed steel light-frame construction shall be in accordance with AISI S200 or AISI S220, as

Section 2204 Connections 2204 1 Welding The details of design, workmanship and technique for welding and qualification of welding personnel shall be in accordance with the specifications listed in Sections 2205, 2206, 2207, 2208, 2210 and 2211 For special inspection of welding, see Section 1705 2

and joist girders shall be in accordance with SJI CJ, SJI JG, SJI K and SJI LH/DLH Individual structural members and assembled

panels of cold-formed steel construction shall be protected against corrosion in accordance with the requirements contained in

2204 2 Bolting The design, installation and inspection of bolts shall be in accordance with the requirements of Sections 2205, 2206, 2207, 2210 and 2211 For special inspection of the installation of high-strength bolts, see Section 1705 2 2204.3 Anchor rods Anchor rods shall be set in accordance with the approved construction documents. The protrusion of the threaded ends through the connected material shall fully engage the threads of the nuts but shall not be greater than the length of

Section 2205 Structural steel 2205 1 General The design, fabrication and erection of structural steel elements in buildings, structures and portions thereof shall be in accordance with AISC 360 2205 2 Seismic design. Where required, the seismic design, fabrication and erection of buildings, structures and portions thereof shall be in accordance with Section 2205 2 1 or 2205 2 2, as applicable

Section 2211 Cold-formed steel light frame construction 2211 1 General The design and installation of structural and nonstructural members utilized in cold-formed steel light-frame construction where the specified minimum base steel thickness is not greater than 0 1180 inches (2 997 mm) shall be in accordance with AISI S200 and Sections 2211 2 through 2211 7, or AISI S220, as applicable

Steel Shape	ASTM/Grade	Fy	Fu
"W" (I-Beam)	A36	36 ksı	58 ksi
M", "S", "HP", "C", "MC" & "L"	A36	36 ksi	58 ksi
Rectangular/Square "HSS"	A500, Grade B	46 ksı	58 ksı
Round "HSS"	A500, Grade B	48 ksı	58 ksı
Steel Pipe	A53, Grade B	35 ksi	60 ksi
All Other Shapes	A36	36 ksi	58 ksi

CBC CHAPTER 23: WOOD

2303 1 General Structural sawn lumber, end-jointed lumber, prefabricated wood I-joists, structural glued-laminated timber, wood structural panels, fiberboard sheathing (when used structurally), hardboard siding (when used structurally), particleboard, preservative-treated wood, structural log members, structural composite lumber, round timber poles and piles, fire-retardanttreated wood, hardwood plywood, wood trusses, joist hangers, nails, and staples shall conform to the applicable provisions of this

2303 1.1 Sawn lumber Sawn lumber used for load-supporting purposes, including end-jointed or edge-glued lumber, machine stress-rated or machine-evaluated lumber, shall be identified by the grade mark of a lumber grading or inspection agency that has been approved by an accreditation body that complies with DOC PS 20 or equivalent. Grading practices and identification shall comply with rules published by an agency approved in accordance with the procedures of DOC PS 20 or equivalent procedures

and grade issued by a lumber grading or inspection agency meeting the requirements of this section is permitted to be accepted for precut, remanufactured or rough-sawn lumber and for sizes larger than 3 inches (76 mm) nominal 2303 1 1.2 End-jointed lumber Approved end-jointed lumber is permitted to be used interchangeably with solidsawn members of the same species and grade. End-jointed lumber used in an assembly required to have a fireresistance rating shall have the designation "Heat Resistant Adhesive" or "HRA" included in its grade mark

2303 1.1 1 Certificate of inspection. In lieu of a grade mark on the material, a certificate of inspection as to species

Mud Sill	PTDF/Redwood/PSL Plus
Roof Rafters	DF#2 or better
Floor Joists	DF#2 or better
Ceiling Joists	DF#2 or better
4x Beams	DF#1 or better
6x Beams/Larger	DF#1 or better
Studs (2x4/3x4)	DF#2 or better
Studs (2x6/Larger)	DF#2 or better
Studs (Balloon Framed Walls)	2x6 DF#2 or better
Posts (4x4/Larger)	DF#1 or better
Posts (6x6/Larger)	DF#1 or better

2303 1 2 Prefabricated Wood I-joists Structural capacities and design provisions for prefabricated wood I-joists shall be established and monitored in accordance with ASTM D5055 Parallam, Micro-Lam, TJI Joists, etc. shall be specified on drawings & installed per manufacturers'/Structural Engineer's specifications and/or details. ICC ESR-1153 & 1387 2303.1 3 Structural Glued-Laminated Timber Glued-laminated timbers shall be manufactured and identified as required in ANSI/AITC A 190 1 and ASTM D 3737 Structural Engineer shall specify sizes/grades on plans (UNO), Glu-Lam members

a the following stress values	
Bending (Fb)	2400 psi
Horizontal Shear (Fv)	165 psi
Tension (Ft)	1150 psi
Compression (Fc)	1650 psi
Bearing Stress	450 psi
Modulus of Elasticity @	1800 ksi

structurally, shall be identified by an approved agency as conforming to ASTM C208

or UL 723, a listed flame spread index of 25 or less and

monitored in accordance with ASTM D 5456

2308 unless a specific design is furnished

2303 1 4 Structural glued cross-laminated timber Cross-laminated timbers shall be manufactured and identified in

2303.1 5 Wood Structural Panels Wood structural panels, when used structurally (including those used for siding, roof and vall sheathing, sub-flooring, diaphragms and built-up members), shall conform to the requirements for their type in DOC PS 1, DOC PS 2 or ANSI/APA PRP 210 Each panel or member shall be identified for grade, bond classification, and Performance Category by the trademarks of an approved testing and grading agency The Performance Category value shall be used as the "nominal panel thickness" or "panel thickness" whenever referenced in this code. Wood structural panel components shall be designed and fabricated in accordance with the applicable standards listed in Section 2306 1 and identified by the trademarks of an approved testing and inspection agency indicating conformance to the applicable standard. In addition,

wood structural panels when permanently exposed in outdoor applications shall be of Exterior type, except that wood structural panel roof sheathing exposed to the outdoors on the underside is permitted to be Exposure 1 type Minimum sizes

> 3/4" T&G (48/24) or 23/32" T&G OSB 3/8" Min CDX (16/0) or 15/32" OSB Wall Sheathing 1/2" Min CDX (24/0) or 19/32" OS Roof Sheathing

2303.1.6 Fiberboard Fiberboard for its various uses shall conform to ASTM C208 Fiberboard sheathing, when used

2303.1 7 Hardboard Hardboard siding used structurally shall be identified by an approved agency conforming to CPA/ANSI AOS 6 Hardboard underlayment shall meet the strength requirements of 7/32 inch (5 6 mm) or 1/4 inch (6 4 mm) service class hardboard planed or sanded on one side to a uniform thickness of not less than 0 200 inch (5 1 mm) Pre-finished hardboard paneling shall meet the requirements of CPA/ANSI AOS 5. Other basic hardboard products shall meet the requirements of CPA/ANSI A05 4 Hardboard products shall be installed in accordance with manufacturer's recommendations 2303 1.8 Particleboard Particleboard shall conform to ANSI A208 1 Particleboard shall be identified by the grade mark or certificate of inspection issued by an approved agency Particleboard shall not be utilized for applications other than indicated in this section unless the particleboard complies with the provisions of Section 2306 3

2303.1 9 Preservative-treated wood Lumber, timber, plywood, piles and poles supporting permanent structures required by Section 2304 12 to be preservative treated shall conform to the requirements of the applicable AWPA Standard U1 and M4 for the species, product, preservative and end use Preservatives shall be listed in Section 4 of AWPA U1 Lumber and plywood

2303.1 10 Structural composite lumber Structural capacities for structural composite lumber shall be established and monitored in accordance with ASTM D5456 2303.1.11 Structural log members Stress grading of structural log members of non-rectangular shape, as typically used in log buildings, shall be in accordance with ASTM D3957 Such structural log members shall be identified by the grade mark of an approved lumber grading or inspection agency. In lieu of a grade mark on the material, a certificate of inspection as to species and grade issued by a lumber grading or inspection agency meeting the requirements of this section shall be 2303 1.12 Round timber poles and piles. Round timber poles and piles shall comply with ASTM D3200 and ASTM D25.

2303.1 13 Engineered wood rim board Engineered wood rim boards shall conform to ANSI/APA PRR 410 or shall be evaluated in accordance with ASTM D7672 Structural capacities shall be in accordance with ANSI/ APA PRR 410 or established in accordance with ASTM D7672 Rim boards conforming to ANSI/APA PRR 410 shall be marked in accordance 2303 2 Fire-retardant-treated wood Fire-retardant-treated wood is any wood product which, when impregnated with chemicals by a pressure process or other means during manufacture, shall have, when tested in accordance with ASTM E84

show no evidence of significant progressive combustion when the test is continued for an additional 20-minute peri Additionally, the flame front shall not progress more than 10-1/2 feet (3200 mm) beyond the centerline of the burners at any 2303 1.8 Preservative-Treated Wood Lumber, timber, plywood, piles and poles supporting permanent structures required by Section 2304 11 to be preservative treated shall conform to the requirements of the applicable AWP A Standard UI and M4 for the species, product, preservative and end use Preservatives shall be listed in Section 4 of AWPA U1. Lumber and plywood used in wood foundation systems shall conform to Chapter 18

2303 3 Hardwood and plywood Hardwood and decorative plywood shall be manufactured and identified as required in HPVA 2303 4 Trusses. Wood trusses shall comply with Sections 2303 4 1 through 2303 4 7 2303 4 1 Design Wood trusses shall be designed in accordance with the provisions of this code and accepted engineering practice Members are permitted to be joined by nails, glue, bolts, timber connectors, metal connector plates or other

2303 1.9 Structural Composite Lumber Structural capacities for structural composite lumber shall be established and

2303.4.2 Truss Placement Diagram The truss manufacturer shall provide a truss placement diagram that identifies the proposed location for each individually designated truss and references the corresponding truss design draw- ing. The truss placement diagram shall be provided as part of the truss submittal package, and with the shipment of trusses delivered to the job site. Truss placement diagrams that serve only as a guide for installation and do not deviate from the permit submittal drawings shall not be required to bear the seal or signature of the truss designer 2303.4.3 Truss Submittal Package The truss submittal package provided by the truss manufacturer shall consist of each individual truss design drawing, the truss placement diagram, the permanent individual truss member restraint/bracing method and details and any other structural details germane to the trusses, and, as applicable, the cover/truss index sheet

NOTE The Structural Engineer of Record shall be provided the opportunity to review the individual truss designs & the truss placement diagram prior to fabrication and/or installation

Section 2304 General construction requirements 2304 1 General The provisions of this section apply to design methods specified in Section 2301 2 2304.2 Size of Structural Members Computations to deter- mine the required sizes of members shall be based on the net dimensions (actual and not nominal sizes 2304 3 Wall Framing The framing of exterior and interior walls shall be in accordance with the provisions specified in Section

2304.3.1 Bottom plates Studs shall have full bearing on a 2-inch thick (actual 1-1/2 inch, 38 mm) or larger plate or sill having a width at least equal to the width of the studs 2304 3 2 Framing Over Openings Headers, double joists, trusses or other approved assemblies that are of adequate size to transfer loads to the vertical members shall be provided over window and door openings in load-bearing walls and partitions 2304.4 Floor and Roof Framing The framing of wood- joisted floors and wood framed roofs shall be in accordance with the provisions specified in Section 2308 unless a specific design is furnished 2304.5 Framing Around Flues and Chimneys Combustible framing shall be a minimum of 2 inches (51 mm), but shall not be

fireplaces, and 6 inches (152 mm) away from flue openings 2304.6 Exterior wall sheathing Wall sheathing on the outside of exterior walls, including gables, and the connection of the sheathing to framing shall be designed in accordance with the general provisions of this code and shall be capable of resisting wind pressures in accordance with Section 1609 2304 8 Floor and roof sheathing Structural floor sheathing and structural roof sheathing shall comply with Sections 2304 8 1 and 2304 8 2, respectively

less than the distance specified in Sections 2111 and 2113 and the California Mechanical Code, from flues, chimneys and

2304 9 Lumber decking Lumber decking shall be designed and installed in accordance with the general provisions of this code and Sections 2304 9 1 through 2304 9 5 3 2304.10 Connectors and fasteners Connectors and fasteners shall comply with the applicable provisions of Sections 2304 10 1 2304.10.1 Fastener requirements Connections for wood members shall be designed in accordance with the appropriate nethodology in Section 2301 2 The number and size of fasteners connecting wood members shall not be less than that set

2304 10 1.1 Additional requirements [DSA-SS and OSHPD1,2&4] Fasteners used for the attachment of exterior wall coverings shall be of hot-dipped zinc- coated galvanized steel, mechanically deposited zinc- coated steel, stainless steel, silicon bronze or copper. The coating weights for hot-dipped zinc-coated fasteners shall be in accordance with ASTM A153 The coat- ing weights for mechanically deposited zinc coated fasteners shall be in accordance with ASTM B695,

<u>Table 2304.10 1 Fastening Schedule</u> (The following are minimum requirements UNO)

	nooi	
Blocking between ceiling joists, rafters or trusses to top plate or other framing below	(3) 8d common, or (3) 10d box, or (3) 3" x 0 131" nails	Each end, toenail
Blocking between rafters or truss not at the wall top plate, to rafter or truss	(2) 8d common (2) 3" x 0 131" nails	Each end, toenail
	(2) 16d common (3) 3" x 0 131" nails	End nail
Flat blocking to truss & web filler	16d common @ 6"OC 3" x 0 131" nails @ 6"OC	Face nail
Ceiling joists to top plate	(3) 8d common, or (3) 10d box, or (3) 3" x 0 131" nails	Each joist, toenail
Ceiling joist, not attached to parallel rafter, laps over partition (no thrust) See Section 2308 7 3 1, Table 2308 7 3 1	(3) 16d common, or (4) 10d box, or (4) 3" x 0 131" nails	Face nail

Ceiling joist attached to parallel rafter heel joint) See Section 2308 7 3 1, Table 2308 7 3 1	Per Table 2308 7 3 1	Face naul
Collar tie to rafter	(3) 10d common, or (3) 16d box, or (4) 3" x 0 131" nails	Face nail
elafter or roof truss to top plate See Section 2308 7 5, Table 2308 7 5	(3) 10d common, or (3) 16d box, or (3) 10d box, or (3) 3" x 0 131" nails	Toenail
noof rafters to ridge valley or hip rafters, or roof rafter to 2 inch ridge beam	(2) 16d common, or (3) 10d box, or (3) 3" x 0 131" nails, or	End nail
	(3) 10d common, or (3) 16d box, or (4) 10d box, or (4) 3" x 0 131" nails	Toenail
	Wall	
	16d common	24°OC Face nail
Stud to stud (not at braced wall panels)	10d box, or (3) 3" x 0 131" nails	16"OC Face nail
Stud to stud and abutting studs at intersecting wall corners (@ braced wall anels)	16d common	16"OC Face nail
	16d box	12"OC Face nail
	(3) 3" x 0 131" natis	12"OC Face nail
Built-up header (2" to 2" header)	16d common, or	16"OC each edge, face nail
	16d box	12"OC each edge, face nail
Continuous header to stud	(4) 8d common, or (4) 10d box	Toenail
op plate to top plate	16d common, or	16"OC Face nail
	10d box, or (3) 3" x 0 131" nails	12"OC Face nail
op plate to top plate, at end joints	(8) 16d common, or (12) 10d box, or (12) 3" x 0 131" nails	Each side of end joint, face nail (minimum 24" lap splice length each side of end joint)
Sottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d common, or	16*OC Face nail
	16d box, or 3" x 0 131" nails	12"OC Face nail
Sottom plate to joist, nm joist, band joist or blocking at braced wall panels	(2) 16d common, or (3) 16d box, or (4) 3" x 0 131" nails	16"OC Face nail

(4) 3" x 0 131" nails (2) 16d common, or (3) 10d box, or (3) 3" x 0 131" nails (2) 16d common, or (3) 3" x 0 131" nails (2) 16d common, or (3) 3" x 0 131" nails (2) 16d common, or (3) 3" x 0 131" nails (2) 16d common, or (3) 3" x 0 131" nails (2) 16d common, or (3) 3" x 0 131" nails (2) 16d common, or (3) 3" x 0 131" nails (2) 8d common, or (2) 10d box, or (2) 3" x 0 131" nails (2) 8d common, or (2) 10d box, or (3) 3" x 0 131" nails (2) 8d common, or (3) 10d box, or (3) 3" x 0 131" nails (2) 8d common, or (3) 10d box (4) 3" x 0 131" nails (5) 3" x 0 131" nails (6) 3" x 0 131" nails (7) 3" x 0 131" nails (8) 4 common, or (9) 3" x 0 131" nails (9) 8d common, or (1) 10d box, or (2) 10d box (1) 10d box (2) 10d box (3) 10d box (4) 10d box (4) 10d box (5) 10d box (6) 10d box (7) 10d box (8) 10d box (8) 10d box (9) 10d box (1) 10			I
(3) 10d box, or (3) 3" x 0 131" nails po or bottom plate to stud (2) 16d common, or (3) 3" x 0 131" nails po plates, laps at comers and (2) 16d common, or (3) 10d box, or (2) 10d box or (2) 10d box or (2) 10d box Face nail **Y 8" and wider sheathing to each (3) 8d common, or (3) 10d box or (4) 10d box	tud to top or bottom plate	(4) 10d box, or	Toenail
po priests, laps at comers and (3) 10d box, or (3) 3" x 0 131" nails (2) 16d common, or (3) 10d box, or (3) 3" x 0 131" nails (2) 16d common, or (3) 10d box, or (3) 3" x 0 131" nails (2) 10d box, or (2) 3" x 0 131" nails (2) 10d box, or (2) 3" x 0 131" nails (2) 10d box, or (2) 3" x 0 131" nails (2) 10d box, or (2) 3" x 0 131" nails (2) 10d box (2) 10d box, or (3) 3" x 0 131" nails (2) 10d box, or (3) 3" x 0 131" nails (2) 10d box (2)		(3) 10d box, or	End nail
(3) 10d box, or (2) 3" x 0 131" nails (3) 3" x 0 131" nails (3) 3" x 0 131" nails (2) 8d common, or (2) 10d box (2) 8d common, or (2) 10d box (3) 8d common, or (3) 10d box, or (3) 10d box (4) 8d common, or (2) 10d box (5) 8d common, or (3) 10d box (6) 8d common, or (3) 10d box (7) 8d common, or (3) 10d box, or (3) 3" x 0 131" nails (8) 8d common, or (3) 10d box, or (3) 3" x 0 131" nails (8) 8d common, or (3) 10d box, or (3) 3" x 0 131" nails (8) 8d common, or (3) 131" nails (8) 8d common, or (3) 131" nails (9) 8d common, or (3) 131" nails (1) 8d common, or (3) 131" nails (2) 8d common, or (3) 131" nails (2) 8d common, or (3) 131" nails (3) 8d common, or (3) 131" nails (4) 10d box (5) 16d common (6) 16d common (7) 16d box (8) 16d common (9) 16d common (9) 16d common (10d box, or (2) 10d box (10d box, or (3) 131" nails (10d box, or (4) 13" x 0 131" nails (10d box, or (4) 13" x 0 131" nails (10d box, or (4) 13" x 0 131" nails (10d box, or (4) 13" x 0 131" nails (10d box, or (4) 13" x 0 131" nails (10d box, or (4) 13" x 0 131" nails (10d box, or (4) 13" x 0 131" nails (10d box, or (4) 13" x 0 131" nails (10d box, or (4) 13" x 0 131" nails (10d box, or (4) 13" x 0 131" nails (10d box, or (4) 13" x 0 131" nails (10d box, or (4) 13" x 0 131" nails (10d box, or (4) 13" x 0 131" nails (10d box, or (4) 13" x 0 131" nails (10d box, or (4) 13" x 0 131" nails (10d box, or (4) 13" x 0 131" nails (10d box, or (4) 13" x 0 131" nails (10d box, or (4) 13" x 0 131" nails	op or bottom plate to stud	(3) 10d box, or	End nail
'brace to each stud and plate (2) 10d box, or (2) 3" x 0 131" nails (2) 8d common, or (2) 10d box Face nail (3) 8d common, or (3) 10d box Face nail (4) 8d common, or (3) 10d box Face nail (5) 8d common, or (3) 10d box Face nail (6) 8d common, or (3) 10d box Face nail (7) 8d common, or (3) 10d box, or (3) 10d box, or (3) 3" x 0 131" nails (8) 8d common, or (3) 3" x 0 131" nails (9) 8d common, or (10d box, or (2) 10d box, or (2) 10d box, or (3) 3" x 0 131" nails (1) 8d common, or (2) 10d box (2) 8d common, or (3) 3" x 0 131" nails (3) 8d common, or (4) 10d box, or (2) 10d box (4) 10d box, or (2) 10d box (5) 10d box Face nail (6) CC Toenail (7) 10d box Face nail (8) 8d common, or (2) 10d box (9) 10d box, or (2) 10d box Face nail (1) 10d box, or (3) 3" x 0 131" nails (2) 20d common, or (3) 10d box, or (3) 3" x 0 131" nails (2) 20d common, or (3) 10d box, or (4) 10d box, or (4) 3" x 0 131" nails (8) 16d common, or (4) 10d box, or (4) 3" x 0 131" nails (9) 8d common, or (4) 10d box, or (4) 3" x 0 131" nails (1) 10d box, or (2) 10d box, or (3) 3" x 0 131" nails (2) 8d common, or (3) 10d box, or (4) 3" x 0 131" nails (2) 8d common, or (4) 10d box, or (4) 3" x 0 131" nails (2) 8d common, or (4) 10d box, or (4) 3" x 0 131" nails (2) 8d common, or (3) 10d box, or (4) 3" x 0 131" nails (2) 8d common, or (4) 10d box, or (4) 3" x 0 131" nails		(3) 10d box, or	Face nail
(2) 10d box Face nail (3) 8d common, or (3) 10d box Face nail (3) 8d common, or (3) 10d box, or (4) 10d box, or (3) 10d box Face nail Fac	brace to each stud and plate	(2) 10d box, or	Face nail
Floor Floor (3) 8d common, or (3) 10d box, or (3) 3° x 0 131° nails Import, band joist, or blocking to top late, sill or other framing below "x 6° subfloor or less to each joist "x 6° subfloor to joist or girder (2) 8d common, or (2) 10d box "x 6° subfloor to joist or girder (2) 16d common Face nail "planks (plank & beam - floor & roof) (2) 16d common Face nail 20d common Face nail 20d common 10d box, or 3° x 0 131° nails 20d common Face nail 20d common Face nail © T&B staggered on opposite side 10d box, or 3° x 0 131° nails (2) 20d common, or (3) 10d box, or (3) 3° x 0 131° nails edger strip supporting joists or rafters (3) 16d common, or (4) 10d box, or (4) 3° x 0 131° nails (2) 8d common, or (4) 10d box, or (4) 3° x 0 131° nails Each joist or rafter, face nail End nail (2) 8d common, or (4) 10d box, or (4) 3° x 0 131° nails End nail (2) 8d common, or (4) 10d box, or (4) 3° x 0 131° nails End nail	'x 6" sheathing to each bearing		Face nail
(3) 8d common, or (3) 10d box, or (3) 3" x 0 131" nails Im joist, band joist, or blocking to top ate, sill or other framing below " x 6" subfloor or less to each joist " x 6" subfloor to joist or girder (2) 16d common " planks (plank & beam - floor & roof) (2) 16d common (2) 16d common Face nail " planks (plank & beams 2" lumber luft-up girders & staggered on opposite side (2) 20d common, or (3) 10d box, or (3) 3" x 0 131" nails edger strip supporting joists or rafters (3) 16d common, or (4) 10d box, or			Face nail
Dist to sill, top plate, or girder (3) 10d box, or (3) 3" x 0 131" nails 8d common, or 10d box, or 3" x 0 131" nails 8d common, or 10d box, or 3" x 0 131" nails (2) 8d common, or (2) 10d box (2) 16d common (3) 10d box (4) 10d box (5) 16d common (5) 16d common (6) 16d common (7) 16d box, or 10d box, or 10d box (8) 16d common (9) 16d common (10) 16d		Floor	
Iff joist, and joist, of blocking to top late, sill or other framing below 10d box, or 3" x 0 131" nails 20d common, or (2) 16d common Face nail 20d common Face nail 20d common Each bearing, face nail 20d common Each bearing, face nail 20d common 32"OC, face nail @ T&B staggered on opposite side staggered on opposite side staggered on opposite side (2) 20d common, or (3) 10d box, or (3) 3" x 0 131" nails 20d common, or (3) 16d common Each bearing, face nail @ T&B staggered on opposite side staggered on opposite side staggered on opposite side (2) 20d common, or (3) 10d box, or (3) 13" nails Ends and @ each splice, face nail 31 16d common, or (4) 10d box, or (4) 13" x 0 131" nails Each joist or rafter, face nail (2) 8d common, or (4) 10d box, or (4) 3" x 0 131" nails (2) 8d common, or (4) 10d box, or (4) 3" x 0 131" nails	oist to sill, top plate, or girder	(3) 10d box, or	Toenail
"subfloor to joist or girder (2) 16d common Face nail planks (plank & beam - floor & roof) (2) 16d common Each bearing, face nail planks (plank & beams 2" lumber tyers 20d common 20d common 22°CC, face nail @ T&B staggered on opposite side staggered on opposite side staggered on opposite side (2) 20d common, or (3) 10d box, or (4)		10d box, or	6"OC Toenail
"planks (plank & beam - floor & roof) (2) 16d common Each bearing, face nail 20d common 32°OC, face nail @ T&B staggered on opposite side 10d box, or 3" x 0 131" nails (2) 20d common, or (3) 10d box, or (3) 10d box, or (3) 3" x 0 131" nails edger strip supporting joists or rafters (3) 16d common, or (4) 10d box, or (4) 3" x 0 131" nails (3) 16d common, or (4) 10d box, or (5) 16d common, or (6) 3" x 0 131" nails (3) 16d common, or (6) 3" x 0 131" nails (3) 16d common, or (4) 10d box, or (5) 16d common, or (6) 13" x 0 131" nails (6) 8d common, or	x 6" subfloor or less to each joist		Face nail
20d common 32°OC, face nail @ T&B staggered on opposite side 10d box, or 3° x 0 131° nails (2) 20d common, or (3) 10d box, or (3) 3° x 0 131° nails edger strip supporting joists or rafters (3) 16d common, or (4) 10d box, or (4) 3° x 0 131° nails (3) 16d common, or (4) 10d box, or (4) 3° x 0 131° nails (3) 16d common, or (4) 10d box, or (4) 3° x 0 131° nails (3) 16d common, or (4) 10d box, or (4) 3° x 0 131° nails (3) 16d common, or (4) 10d box, or (4) 3° x 0 131° nails (3) 16d common, or (4) 10d box, or (4) 3° x 0 131° nails (2) 8d common, or	subfloor to joist or girder	(2) 16d common	Face nail
staggered on opposite side 10d box, or 3° x 0 131° nails (2) 20d common, or (3) 10d box, or (3) 10d box, or (3) 3° x 0 131° nails edger strip supporting joists or rafters (3) 16d common, or (4) 10d box, or (4) 3° x 0 131° nails (3) 16d common, or (4) 3° x 0 131° nails (3) 16d common, or (4) 3° x 0 131° nails (3) 16d common, or (4) 10d box, or (4) 10d box, or (5) 16d common, or (6) 17d box, or (7d) 18d common, or (8d) 18d common, or (9d) 18d common, or (9d) 18d common, or	planks (plank & beam - floor & roof)	(2) 16d common	Each bearing, face nail
3° x 0 131° nails staggered on opposite side (2) 20d common, or (3) 10d box, or (3) 3° x 0 131° nails edger strip supporting joists or rafters (3) 16d common, or (4) 10d box, or (4) 3° x 0 131° nails (3) 16d common, or (4) 3° x 0 131° nails (3) 16d common, or (4) 10d box, or (4) 10d box, or (4) 10d box, or (5) 16d common, or (6) 17d box, or (9) 18d common, or (10) 18d common, or (11) 18d common, or (12) 18d common, or		20d common	32°OC, face nail @ T&B staggered on opposite sides
(3) 10d box, or (3) 3* x 0 131* nails (3) 16d common, or (4) 10d box, or (4) 3* x 0 131* nails (3) 16d common, or (4) 13* x 0 131* nails (3) 16d common, or (4) 10d box, or (4) 10d box, or (5) 16d common, or (6) 10d box, or (7) 10d box, or (8) 10d box, or (9) 10d box, or (10d			24"OC face nail @ T&B staggered on opposite sides
edger strip supporting joists or rafters (4) 10d box, or (4) 3" x 0 131" nails (3) 16d common, or (4) 10d box, or (4) 10d box, or (4) 10d box, or (4) 3" x 0 131" nails (2) 8d common, or		(3) 10d box, or	Ends and @ each splice, face nail
oist to band joist or rim joist (4) 10d box, or (4) 3° x 0 131° nails (2) 8d common, or	edger strip supporting joists or rafters	(4) 10d box, or	Each joist or rafter, face nail
	oist to band joist or rim joist	(4) 10d box, or	End nail
(2) 3" x 0 131" nails	ndging or blocking to joist, rafter or truss	(2) 10d box, or	Each end, toenail
Wood structural panels (WSP), subfloor, roof & interior wall sheathing to framing. (Unless otherwise specified on Shear Wall Schedule or plans) (a)			

C. WILLIAMS P.E. 650.279.8756 (cell) clwrce@aol.com

> O O **W** 0 ~ S S \sim

Professional Stamp

Jurisdiction Stamps and/or Red Line Notes

3/8" - 1/2"	6d common or deformed (subfloor & wall)	6"OC Edge, 12"OC Field
	8d box or deformed (roof)	6"OC Edge, 12"OC Field
3/8" - 1/2"	2-3/8" x 0 113" nails (subfloor & wall)	6"OC Edge, 12"OC Field
	2-3/8" x 0 113" nails (roof)	4"OC Edge, 8"OC Field
19/32" - 3/4"	8d common, or 6d deformed	6"OC Edge, 12"OC Field
	2-3/8" x 0 113" naıl	4"OC Edge, 8"OC Field
7/8" - 1-1/4"	10d common or 8d deformed	6"OC Edge, 12"OC Field

(a) Nails spaced at 6 inches at intermediate supports where spans are 48 inches or more For nailing of wood structural panel and particleboard diaphragms and shear walls, refer to Section 2305 Nails for wall sheathing are permitted to be common, box or casing

2304 10 2 Sheathing fasteners Sheathing nails or other approved sheathing connectors shall be driven so that their head or crown is flush with the surface of the sheathing
2304 10 3 Joist hangers and framing anchors. Connections depending on joist hangers or framing anchors, ties and other mechanical fastenings not otherwise covered are permitted where approved. The vertical load-bearing capacity, torsional moment capacity and deflection characteristics of joist hangers shall be determined in accordance with ASTM D7147
2304 10 4 Other fasteners. Clips, staples, glues and other approved methods of fastening are permitted where approved
2304.10 5 Fasteners and connectors in contact with preservative-treated and fire-retardant-treated wood. Fasteners, including nuts and washers, and connectors in contact with preservative-treated and fire-retardant-treated wood shall be in accordance with Sections 2304 10 5 1 through 2304 10 5 4. The coating weights for zinc-coated fasteners shall be in

2304.10.5 I Fasteners and connectors for preservative-treated wood Fasteners, including nuts and washers, in contact with preservative-treated wood shall be of hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper Fasteners other than nails, timber rivets, wood screws and lag screws shall be permitted to be of mechanically deposited zinc- coated steel with coating weights in accordance with ASTM B695, Class 55 minimum. Connectors that are used in exterior applications and in contact with preservative-treated wood shall have coating types and weights in accordance with the treated wood or connector manufacturer's recommendations. In the absence of manufacturer's recommendations, a minimum of ASTM A653, Type G185 zinc-coated galvanized steel, or equivalent, shall be used Exception. Plain carbon steel fasteners, including nuts and washers, in SBX/DOT and zinc borate preservative-treated.

wood in an interior, dry environment shall be permitted

2304.10 5.2 Fastenings for wood foundations Fastenings, including nuts and washers, for wood foundations shall be as required in AWC PWF

2304 10 5.4 Fasteners for fire-retardant-treated wood used in interior applications. Fasteners, including nuts and

2304 10 5 3 Fasteners for fire-retardant-treated wood used in exterior applications or wet or damp locations
Fasteners, including nuts and washers, for fire-retardant-treated wood used in exterior applications or wet or damp
locations shall be of hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper Fasteners other
than nails, timber rivets, wood screws and lag screws shall be permitted to be of mechanically deposited zinc-coated steel
with coating weights in accordance with ASTM B695. Class 55 minimum

washers, for fire-retardant-treated wood used in interior locations shall be in accordance with the manufacturer's recommendations. In the absence of manufacturer's recommendations. Section 2304.10.5.3 shall apply.

2304.10.6 Load path. Where wall framing members are not continuous from the foundation sill to the roof, the members shall be secured to ensure a continuous load path. Where required, sheet metal clamps, ties or clips shall be formed of galvanized steel or other approved corrosion-resistant material not less than 0.0329-inch (0.836 mm) base metal thickness.

2304.10.7 Framing requirements. Wood columns and posts shall be framed to provide full end bearing. Alternatively, column-and-post end connections shall be designed to resist the full compressive loads, neglecting end-bearing capacity. Column-and-post end connections shall be fastened to resist lateral and net induced uplift forces.

2304.12 Protection against decay and termites. Wood shall be protected from decay and termites in accordance with the

2304 12 1 Locations requiring water-borne preservatives or naturally durable wood. Wood used above ground in the locations specified in Sections 2304 12 1 1 through 2304 12 1 5, 2304 12 3 and 2304 12 5 shall be naturally durable wood or preservative-treated wood using water-borne preservatives, in accordance with AWPA U for above-ground use 2304 12 1.1 Joists, girders and subfloor. Wood joists or wood structural floors that are closer than 18 inches (457 mm) or wood girders that are closer than 12 inches (305 mm) to the exposed ground in crawl spaces or un-excavated areas located within the perimeter of the building foundation shall be of naturally durable or preservative-treated wood.

applicable provisions of Sections 2304 12 1 through 2304 12 7

2304 12 1.2 Wood supported by exterior foundation walls Wood framing members, including wood sheathing, that are in contact with exterior foundation walls and are less than 8 inches (203 mm) from exposed earth shall be of naturally durable or preservative-treated wood

Exception [DSA-SS and OSHPD 1,2 & 4] At exterior walls where the earth is paved with an asphalt or concrete slab at

least 18 inches (457 mm) wide and draining away from the building, the bottom of sills are permitted to be 6 inches (152 mm) above the top of such slab. Other equivalent means of termite and decay protection may be accepted by the enforcement agency

2304 12 1 3 Exterior walls below grade. Wood framing members and furring strips in direct contact with the interior of exterior masonry or concrete walls below grade shall be of naturally durable or preservative- treated wood.

2304 12 1 4 Sleepers and sills Sleepers and sills on a concrete or masonry slab that is in direct contact with earth shall be of naturally durable or preservative- treated wood 2304 12 1.4.1 Additional requirements [DSA-SS and OSHPD 1, 2 & 4] Stud walls or partitions at shower or toilet rooms with more than two plumbing fixtures, excluding floor drains, and stud walls adjacent to unroofed paved areas shall rest on a concrete curb extending at least 6 inches (152 mm) above finished floor or pavement level 2304 12 1 5 Wood siding Clearance between wood siding and earth on the exterior of a building shall not be less than 6 inches (152 mm) or less than 2 inches (51 mm) vertical from concrete steps, porch slabs, patio slabs and similar horizontal surfaces exposed to the weather except where siding, sheathing and wall framing are of naturally durable or

preservative-treated wood

2304 12 2 Other locations Wood used in the locations specified in Sections 2304 12 2 1 through 2304 12 2 5 shall be
naturally durable wood or preservative-treated wood in accordance with AWPAU1 Preservative-treated wood used in interior
locations shall be protected with two coats of urethane, shellac, latex epoxy or varnish unless water-borne preservatives are
used Prior to application of the protective finish, the wood shall be dried in accordance with the manufacturer's

2304.12 2.1 Girder ends The ends of wood girders entering exterior masonry or concrete walls shall be provided with a 1/2 inch (12 7 mm) airspace on top, sides and end, unless naturally durable or preservative-treated wood is used 2304.12 2 Posts or columns Posts or columns sup- porting permanent structures and supported by a concrete or masonry slab or footing that is in direct contact with the earth shall be of naturally durable or preservative-treated wood Exception Posts or columns that are not exposed to the weather, are supported by concrete piers or metal pedestals projected at least 1 inch (25 mm) above the slab or deck and 8 inches (152 mm) above exposed earth and are separated.

Exception Posts or columns that are not exposed to the weather, are supported by concrete piers or metal pedestals projected at least 1 inch (25 mm) above the slab or deck and 8 inches (152 mm) above exposed earth and are separated by an impervious moisture barrier

2304.12.2.3 Supporting member for permanent appurtenances. Naturally durable or preservative- treated wood shall be utilized for those portions of wood members that form the structural supports of buildings, balconies, porches or similar permanent building appurtenances where such members are exposed to the weather without adequate protection from a

roof, eave, overhang or other covering to prevent moisture or water accumulation on the surface or at joints between members

Exception When a building is located in a geographical region where experience has demonstrated that climatic conditions preclude the need to use durable materials where the structure is exposed to the weather 2304.12.2.4 Laminated timbers The portions of glued-laminated timbers that form the structural supports of a building

2304.12.2.4 Laminated timbers The portions of glued-laminated timbers that form the structural supports of a building of other structure and are exposed to weather and not fully protected from moisture by a roof, eave or similar covering shall be pressure treated with preservative or be manufactured from naturally durable or preservative-treated wood 2304.12.2.5 Supporting members for permeable floors and roofs. Wood structural members that support moisture-permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs, shall be of naturally durable or preservative-treated wood unless separated from such floors or roofs by an impervious moisture barrier 2304.12.3 Wood in contact with the ground or fresh water. Wood used in contact with exposed earth shall be naturally durable for both decay and termite resistance or preservative treated in accordance with AWPAU1 for soil or fresh water use Exception. Untreated wood is permitted where such wood is continuously and entirely below the ground-water level or

2304.12.3 Posts or columns Posts and columns that are supporting permanent structures and embedded in concrete that is exposed to the weather or in direct contact with the earth shall be of preservative-treated wood 2304.12.4 Termite protection. In geographical areas where hazard of termite damage is known to be very heavy, wood floor framing in the locations specified in Section 2304.12.2.1 and exposed framing of exterior decks or balconies shall be of naturally durable species (termite resistant) or preservative treated in accordance with AWPA.U1 for the species, product preservative and end use or provided with approved methods of termite protection 2304.12.5 Wood used in retaining walls and cribs. Wood installed in retaining or crib walls shall be preservative treated in accordance with AWPA.U1 for soil and fresh water use

2304 12 6 Attic ventilation For attic ventilation, see Section 1203 2 (See also CRC R806) 2304.12.7 Under-floor ventilation (crawl space) For under-floor ventilation (crawl space), see Section 1203 4

Section 2305 General design requirements for lateral force-resisting systems

2305 1 General Structures using wood-frame shear walls or wood-frame diaphragms to resist wind, seismic or other lateral loads shall be designed and constructed in accordance with AF&PA SDPWS and the applicable provisions of Sections 2305, 2306 and

2305 1 1 Openings in Shear Panels Openings in shear panels that materially affect their strength shall be detailed on the plans, and shall have their edges adequately reinforced to transfer all shearing stresses

2305 2 Diaphragm deflection The deflection of wood-frame diaphragms shall be determined in accordance with AF&PA SDPWS The deflection of a blocked wood structural panel diaphragm uniformly fastened throughout with staples is permitted to

be calculated in accordance with Equation 23-1. If not uniformly fastened, the constant 0.188 (For SI 1/1627) in the third term

Section 2306 Allowable stress design
2306.1 Allowable stress design The design and construction of wood elements in structures using allowable stress design shall be in accordance with the applicable standards outlined in this section

shall be modified by an approved method

Section 2307 Load and resistance factor design

2307.1 Load and resistance factor design. The design and construction of wood elements and structures using load and resistance factor design shall be in accordance with AWC NDS and AWC SDPWS.

Section 2308. Conventional light-frame construction.

2308 1 General The requirements of this section are intended for conventional light-frame construction. Other construction methods are permitted to be used, provided a satisfactory design is submitted showing compliance with other provisions of this code. Interior non load-bearing partitions, ceilings and curtain walls of conventional light-frame construction are not subject to the limitations of Section 2308.2

2308 1 1 Portions exceeding limitations of conventional light-frame construction. When portions of a building of otherwise conventional light-frame construction exceed the limits of Section 2308 2, those portions and the sup-porting load path shall be designed in accordance with accepted engineering practice and the provisions of this code. For the purposes of this section, the term "portions" shall mean parts of buildings containing volume and area such as a room or a series of rooms. The extent of such design need only demonstrate compliance of the non-conventional light-framed elements with other applicable provisions of this code and shall be compatible with the performance of the conventional light-framed system 2308.1.2 Connections and fasteners. Connectors and fasteners used in conventional construction shall comply with the requirements of Section 2304 10

2308.2 Limitations Buildings are permitted to be constructed in accordance with the provisions of conventional light-frame construction, subject to the limitations in Sections 2308 2 1 through 2308 2 6

2308 3 Foundations and footings Foundations and footings shall be designed and constructed in accordance with Chapter 18 Connections to foundations and footings shall comply with this section

2308 3.1 Foundation plates or sills Foundation plates or sills resting on concrete or masonry foundations shall comply with Section 2304 3.1 Foundation plates or sills shall be bolted or anchored to the foundation with not less than 1/2 inch-diameter (12.7 mm) steel bolts or approved anchors spaced to provide equivalent anchorage as the steel bolts. Bolts shall be embedded at least 7 inches (178 mm) into concrete or masonry. Bolts shall be spaced not more than 6 feet (1829 mm) on center and there shall be not less than two bolts or anchor straps per piece with one bolt or anchor strap located not more than 12 inches (305 mm) or less than 4 inches (102 mm) from each end of each piece. A properly sized nut and washer shall be tightened on each bolt to the plate.

Along braced wall lines in structures assigned to Seismic Design Category E, steel bolts with a minimum nominal diameter of 5/8 inch (15 9 mm) or approved anchor straps load-rated in accordance with Section 2304 10 3 and spaced to provide equivalent anchorage shall be used
 Bolts in braced wall lines in structures over two stories above grade shall be spaced not more than 4 feet (1219 mm) on

center

2308 3.2 Braced wall line sill plate anchorage in Seismic Design Categories D and E. Sill plates along braced wall lines in buildings assigned to Seismic Design Category D or E shall be anchored with anchor bolts with steel plate washers between the foundation sill plate and the nut, or approved anchor straps load-rated in accordance with Section 2304 10 3 Such washers shall be a minimum of 0 229 inch by 3 inches by 3 inches (5 82 mm by 76 mm by 76 mm) in size. The hole in the plate washer is permitted to be diagonally slotted with a width of up to 3/16 inch (4 76 mm) larger than the bolt diameter and a slot length not to exceed 1-3/4 inches (44 mm), provided a standard cut washer is placed between the plate washer and

2308.4 Floor framing Floor framing shall comply with this section
2308.4 Floor framing Floor framing shall comply with this section
2308.4 Girders Girders for single-story construction or girders supporting loads from a single floor shall be not less than 4 inches by 6 inches (102 mm by 152 mm) for spans 6 feet (1829 mm) or less, provided that girders are spaced not more than 8 feet (2438 mm) on center Other girders shall be designed to support the loads specified in this code. Girder end joints shall occur over supports. Where a girder is spliced over a support, an adequate tie shall be provided. The ends of beams or girders supported on masonry or concrete shall not have less than 3 inches (76 mm) of bearing.

girders supported on masonry or concrete shall not have less than 3 inches (76 mm) of bearing

2308.4.1 1 Allowable girder spans The allowable spans of girders that are fabricated of dimension lumber shall not
exceed the values set forth in Table 2308 4 1 1(1) or 2308 4 1 1(2)

2308 4.2 Floor joists Floor joists shall comply with this section
2308 4.2 Span Spans for floor joists shall be in accordance with Table 2308 4 2 1(1) or 2308 4 2 1(2) or the AWC

2308 4.2.2 Bearing The ends of each joist shall have not less than 1-1/2 inches (38 mm) of bearing on wood or metal, or not less than 3 inches (76 mm) on masonry, except where supported on a 1 inch by 4 inch (25 mm by 102 mm) ribbon strip and nailed to the adjoining stud

2308 4 2.3 Framing details Joists shall be supported laterally at the ends and at each support by solid blocking except where the ends of the joists are nailed to a header, band or rim joist or to an adjoining stud or by other means Solid blocking shall be not less than 2 inches (51 mm) in thickness and the full depth of the joist Joist framing from opposite

where the ends of the joists are nailed to a neader, band of rim joist or to an adjoining stud or by other means. Solid blocking shall be not less than 2 inches (51 mm) in thickness and the full depth of the joist. Joist framing from opposite sides of a beam, girder or partition shall be lapped at least 3 inches (76 mm) or the opposing joists shall be tied together in an approved manner. Joists framing into the side of a wood girder shall be supported by framing anchors or on ledger strips not less than 2 inches by 2 inches (51 mm by 51 mm).

2308 4.2.4 Notches and holes. Notches on the ends of joists shall not exceed one-fourth the joist depth. Notches in the top or bottom of joists shall not be located in the middle third of the shall. Holes.

top or bottom of joists shall not exceed one-sixth the depth and shall not be located in the middle third of the span. Holes bored in joists shall not be within 2 inches (51 mm) of the top or bottom of the joist and the diameter of any such hole shall not exceed one-third the depth of the joist.

2308 4.3 Engineered wood products. Engineered wood products shall be installed in accordance with manufacturer's recommendations. Cuts, notches and holes bored in trusses, structural composite lumber, structural glued-laminated members or I-joists are not permitted except where permitted by the manufacturer's recommendations or where the effects of

such alterations are specifically considered in the design of the member by a registered design professional

2308 4 4 Framing around openings Trimmer and header joists shall be doubled, or of lumber of equivalent cross section, where the span of the header exceeds 4 feet (1219 mm) The ends of header joists more than 6 feet (1829 mm) in length shall be supported by framing anchors or joist hangers unless bearing on a beam, partition or wall Tail joists over 12 feet (3658 mm) in length shall be sup- ported at the header by framing anchors or on ledger strips not less than 2 inches by 2 inches (51 mm by 51 mm)

2308 4 5 Joists supporting bearing partitions Bearing partitions parallel to joists shall be supported on beams, girders,

2308 4 5 Joists supporting bearing partitions. Bearing partitions parallel to joists shall be supported on beams, girders, doubled joists, walls or other bearing partitions. Bearing partitions perpendicular to joists shall not be off-set from supporting girders, walls or partitions more than the joist depth unless such joists are of sufficient size to carry the additional load 2308.4.6 Lateral support. Floor and ceiling framing with a nominal depth-to-thickness ratio not less than 5 to 1 shall have one edge held in line for the entire span. Where the nominal depth-to-thickness ratio of the framing member exceeds6to1, there shall be one line of bridging for each 8 feet (2438 mm) of span, unless both edges of the member are held in line. The bridging shall consist of not less than 1-inch by 3-inch (25 mm by 76 mm) lumber, double nailed at each end, or equivalent metal bracing of equal rigidity, full-depth solid blocking or other approved means. A line of bridging shall also be required at supports where equivalent lateral support is not otherwise provided.

2308 4.7 Structural floor sheathing Structural floor sheathing shall comply with the provisions of Section 2304 8 1
2308 4.8 Under-floor ventilation. For under-floor ventilation, see Section 1203 4
2308.4.9 Floor framing supporting braced wall panels. Where braced wall panels are supported by cantilevered floors or are set back from the floor joist support, the floor framing shall comply with Section 2308 6.7
2308.4.10 Anchorage of exterior means of egress components in Seismic Design Categories D and E. Exterior egress balconies, exterior starrways and ramps and similar means of egress components in structures assigned to Seismic Design.

Category D or E shall be positively anchored to the primary structure at not more than 8 feet (2438 mm) on center or shall be designed for lateral forces. Such attachment shall not be accomplished by use of toenails or nails subject to withdrawal 2308 5 Wall construction. Walls of conventional light-frame construction shall be in accordance with this section 2308 5.1 Stud size, height and spacing. The size, height and spacing of studs shall be in accordance with Table 2308 5.1 Studs shall be continuous from a support at the sole plate to a support at the top plate to resist loads perpendicular to the wall. The support shall be a foundation or floor, ceiling or roof diaphragm or shall be designed in

Exception Jack studs, trimmer studs and cripple studs at openings in walls that comply with Table 2308 4 1 1(1) or 2308 4 1 1(2)

2308 5 2 Framing details Studs shall be placed with their wide dimension perpendicular to the wall Not less than three studs shall be installed at each corner of an exterior wall

In Interior nonbearing walls and partitions, studs are permitted to be set with the long dimension parallel to the wall
At corners, two studs are permitted, provided that wood spacers or backup cleats of 3/8 inch-thick (9 5 mm) wood structural panel, 3/8 inch (9 5 mm) Type M "Exterior Glue" particleboard, 1 inch-thick (25 mm) lumber or other approved devices that will serve as an adequate backing for the attachment of facing materials are used. Where fire-resistance ratings or shear values are involved, wood spacers, backup cleats or other devices shall not be used unless executivally approved for such use.

2308.5 3 Plates and sills Studs shall have plates and sills in accordance with this section

2308 5.3.1 Bottom plate or sill Studs shall have full bearing on a plate or sill Plates or sills shall be not less than 2 inches (5 1 mm) nominal in thickness and have a width not less than the width of the wall studs 2308 5 3 2 Top plates Bearing and exterior wall studs shall be capped with double top plates installed to pro-vide overlapping at corners and at intersections with other partitions. End joints in double top plates shall be offset not less than 48 inches (1219 mm), and shall be nailed in accordance with Table 2304 10 1. Plates shall be a nominal 2 inches (51 mm) in depth and have a width not less than the width of the studs.

Exception A single top plate is permitted, provided that the plate is adequately tied at corners and intersecting walls by not less than the equivalent of 3- inch by 6-inch (76 mm by 152 mm) by 0.036-inch- thick (0.914 mm) galvanized steel plate that is nailed to each wall or segment of wall by (6) 8d [2-1/2 inch x 0 113 inch (64 mm x 2 87 mm)] box nails or equivalent on each side of the joint. For the butt-joint splice between adjacent single top plates, not less than the equivalent of a 3 inch by 12 inch (76 mm by 304 mm) by 0 036-inch-thick (0 914 mm) galvanized steel plate that is nailed to each wall or segment of wall by (12) 8d [2-1/2 inch x 0 113 inch (64 mm by 2 87 mm)] box nails on each side of the joint shall be required, provided that the rafters, joists or trusses are centered over the studs with a tolerance of not more than 1 inch (25 mm). The top plate shall not be required over headers that are in the same plane and in line with the upper surface of the adjacent top plates and are tied to adjacent wall sections as required for the butt joint splice between adjacent single top plates. Where bearing studs are spaced at 24-inch (610 mm) intervals, top plates are less than two 2 inch by 6 inch (51 mm by 152 mm) or two 3 inch by 4 inch (76 mm by 102 mm) members and the floor joists, floor trusses or roof trusses that they support are spaced at more than 16 inch (406 mm) intervals, such joists or trusses shall bear within 5 inches (127 mm) of the study beneath or a third plate shall be installed 2308.5.4 Non load-bearing wails and partitions. In non load-bearing walls and partitions, that are not part of a braced wall panel, studs shall be spaced not more than 24 inches (610 mm) on center. In interior non load-bearing walls and partitions, studs are permitted to be set with the long dimension parallel to the wall. Where studs are set with the long dimensions parallel to the wall, use of utility grade lumber or studs exceeding 10 feet (3048 mm) is not permitted. Interior non load-bearing partitions shall be capped with not less than a single top plate installed to provide overlapping at corners and at intersections with other walls and partitions. The plate shall be continuously tied at joints by solid blocking not less than 16 inches (406 mm) in length and equal in size to the plate or by 1/2 inch by 1-1/2 inch (12 7 mm by 38 mm) metal

ties with spliced sections fastened with (2) 16d nails on each side of the joint

2308 5 5 Openings in walls and partitions. Openings in exterior and interior walls and partitions shall comply with

Sections 2308 5 5 1 through 2308 5 5 3

2308 5 5 1 Openings in exterior bearing walls. Headers shall be provided over each opening in exterior bearing walls. The size and spans in Table 2308 4 1 1(1) are permitted to be used for one-and two-family dwellings. Headers for other buildings shall be designed in accordance with Section 2301 2, Item 1 or 2. Headers shall be of two pieces of

nominal 2 inch (51 mm) framing lumber set on edge as permitted by Table 2308 4 1 1(1) and nailed together in accordance with Table 2304 10 1 or of solid lumber of equivalent size. Wall studs shall support the ends of the header in accordance with Table 2308 4 1 1(1). Each end of a lintel or header shall have a bearing length of not less than 1-1/2 inches (38 mm) for the full width of the lintel. 2308.5.5.2 Openings in interior bearing partitions. Headers shall be provided over each opening in interior bearing partitions as required in Section 2308 5 5 1. The spans in Table 2308 4 1 1(2) are permitted to be used. Wall studs shall support the ends of the header in accordance with Table 2308 4 1 1(1) or 2308 4 1 1(2), as applicable.

2308 5 5.3 Openings in interior non-bearing partitions. Openings in non-bearing partitions are permitted to be framed with single studs and headers. Each end of a lintel or header shall have a bearing length of not less than 1-1/2 inches (38 mm) for the full width of the lintel.
 2308.5.6 Cripple walls. Foundation cripple walls shall be framed of studs that are not less than the size of the studding above and not less than 14 inches (356 mm) in length, or shall be framed of solid blocking. Where exceeding 4 feet (1219)

mm) in height, such walls shall be framed of studs having the size required for an additional story. See Section 2308 6.6 for cripple wall bracing.

2308 5.7 Bridging. Unless covered by interior or exterior wall coverings or sheathing meeting the minimum requirements of this code, stud partitions or walls with studs having a height-to-least-thickness ratio exceeding 50 shall have bridging that is not less than 2 inches (51 mm) in thickness and of the same width as the studs fitted snugly and nailed thereto to provide adequate lateral support. Bridging shall be placed in every stud cavity and at a frequency such that no stud so braced shall have a height-to-least-thickness ratio exceeding 50 with the height of the stud measured between horizontal framing and bridging or between bridging, whichever is greater.

framing and bridging or between bridging, whichever is greater

2308 5.8 Pipes in walls. Stud partitions containing plumbing, heating or other pipes shall be framed and the joists underneath spaced to provide proper clearance for the piping. Where a partition containing piping runs parallel to the floor joists, the joists underneath such partitions shall be doubled and spaced to permit the passage of pipes and shall be bridged. Where plumbing, heating or other pipes are placed in, or partly in, a partition, necessitating the cutting of the soles or plates, a metal tie not less than 0.058 inch (1.47 mm) (16 galvanized gage) and 1-1/2 inches (38 mm) in width shall be fastened to each plate across and to each side of the opening with not less than (6) 16d nails.

2308 5 9 Cutting and notching. In exterior walls and bearing partitions, wood studs are permitted to be cut or notched to a depth not exceeding 25 percent of the width of the stud. Cutting or notching of studs to a depth not greater than 40 percent of the width of the stud is permit-ted in nonbearing partitions supporting no loads other than the weight of the partition.

2308 5 10 Bored holes Bored holes not greater than 40 percent of the stud width are permitted to be bored in any wood stud. Bored holes not greater than 60 percent of the stud width are permitted in nonbearing partitions or in any wall where each bored stud is doubled, provided not more than two such successive doubled studs are so bored. In no case shall the edge of a bored hole be nearer than 5/8 inch (15.9 mm) to the edge of the stud. Bored holes shall not be located at the same section of stud as a cut or notch.

2308 5 11 Exterior wall sheathing. Except where stucco construction that complies with Section 2510 is installed, the

outside of exterior walls, including gables, of enclosed buildings shall be sheathed with one of the materials of the nominal thickness specified in Table 2308 5 11 with fasteners in accordance with the requirements of Section 2304 10 or fasteners designed in accordance with accepted engineering practice. Alternatively, sheathing materials and fasteners complying with Section 2304 6 shall be permitted.

2308 6 Wall bracing. Buildings shall be provided with exterior and interior braced wall lines as described in Sections 2308 6 1.

through 2308 6 10 2
2308 7 Roof and ceiling framing The framing details required in this section apply to roofs having a slope of not less than three units vertical in 12 units horizontal (25-percent slope) Where the roof slope is less than three units vertical in 12 units horizontal (25-percent slope), members supporting rafters and ceiling joists such as ridge board, hips and valleys shall be designed as beams

2308 7 1 Ceiling joist spans Spans for ceiling joists shall be in accordance with Table 2308 7 1(1) or 2308 7 1(2) For other grades and species, and other loading conditions, refer to the AWC STIR

2308 7 2 Rafter spans Spans for rafters shall be in accordance with Table 2308 7 2(1), 2308 7 2(2), 2308 7 2(3), 2308 7 2(4), 2308 7 2(5) or 2308 7 2(6) For other grades and species and other loading conditions, refer to the AWC STIR The span of each rafter shall be measured along the horizontal projection of the rafter

2308 7 3 Ceiling joist and rafter framing Rafters shall be framed directly opposite each other at the ridge There shall be a ridge board not less than 1-inch (25 mm) nominal thickness at ridges and not less in depth than the cut end of the rafter At valleys and hips, there shall be a single valley or hip rafter not less than 2-inch (5 1 mm) nominal thickness and not less in depth than the cut end of the rafter

2308.7.3.1 Ceiling joist and rafter connections Ceiling joists and rafters shall be nailed to each other and the assembly shall be nailed to the top wall plate in accordance with Tables 2304 10 1 and 2308 7 5 Ceiling joists shall

be continuous or securely joined where they meet over interior partitions and be fastened to adjacent rafters in

accordance with Tables 2304 10 1 and 2308 7 3 1 to provide a continuous rafter tie across the building where such joists are parallel to the rafters. Ceiling joists shall have a bearing surface of not less than 1-1/2 inches (38 mm) on the top plate at each end. Where ceiling joists are not parallel to rafters, an equivalent rafter tie shall be installed in a manner to provide a continuous tie across the building, at a spacing of not more than 4 feet (1219 mm) on center. The connections shall be in accordance with Tables and 2304 10 1, or connections of equivalent capacities shall be provided. Where ceiling joists or rafter ties are not provided at the top of the rafter support walls, the ridge formed by these rafters shall also be supported by a girder conforming to Section 2308 8. Rafter ties shall be spaced not more than 4 feet (1219 mm) on center.

Rafter tie connections shall be based on the equivalent rafter spacing in Table 2308 7 3 1. Rafter-to-ceiling joist connections and rafter tie connections shall be of sufficient size and number to prevent splitting from nailing. Roof framing member connection to braced wall lines shall be in accordance with Section 2308 6 7 2.

2308 7 4 Notches and holes. Notching at the ends of rafters or ceiling joists shall not exceed one-fourth the depth. Notches in the top or bottom of the rafter or ceiling joist shall not exceed one-sixth the depth and shall not be located in the middle one-third of the span, except that a notch not more than one-third of the depth is permitted in the top of the rafter or ceiling joist not further from the face of the support than the depth of the member. Holes bored in rafters or ceiling

joists shall not be within 2 inches (51 mm) of the top and bottom and their diameter shall not exceed one-third the depth of the member 2308 7 5 Wind uplift. The roof construction shall have rafter and truss ties to the wall below. Resultant uplift loads shall be transferred to the foundation using a continuous load path. The rafter or truss to wall connection shall comply with Tables 2304 10.1 and 2308 7.5.

Tables 2304 10 1 and 2308 7 5

2308.7.6 Framing around openings Trimmer and header rafters shall be doubled, or of lumber of equivalent cross section, where the span of the header exceeds 4 feet (1219 mm) The ends of header rafters that are more than 6 feet (1829 mm) in length shall be supported by framing anchors or rafter hangers unless bearing on a beam, partition or wall 2308.7 7 Purlins Purlins to support roof loads are permitted to be installed to reduce the span of rafters within allowable limits and shall be supported by struts to bearing walls The maximum span of 2-inch by 4-inch (51 mm by 102 mm) purlins shall be 4 feet (1219 mm) The maximum span of the 2-inch by 6-inch (51 mm by 152 mm) purlin shall be 6 feet (1829 mm), but in no case shall the purlin be smaller than the supported rafter Struts shall be not less than 2-inch by 4-inch (51 mm by 102 mm) members The unbraced length of struts shall not exceed 8 feet (2438 mm) and the slope of the struts shall be not less than 45 degrees (0 79 rad) from the horizontal

2308.7 8 Blocking Roof rafters and ceiling joists shall be supported laterally to prevent rotation and lateral displacement in accordance with Section 2308 4 6 and connected to braced wall lines in accordance with Section 2308 6 7 2 2308.7.9 Engineered wood products Prefabricated wood I-joists, structural glued-laminated timber and structural composite lumber shall not be notched or drilled except where permitted by the manufacturer's recommendations or

where the effects of such alterations are specifically considered in the design of the member by a registered design

professional

2308 7 10 Roof sheathing Roof sheathing shall be in accordance with Tables 2304 8(3) and 2304 8(5) for wood structural panels, and Tables 2304 8(1) and 2304 8(2) for lumber and shall comply with Section 2304 8 2

2308 7 11 Joints Joints in lumber sheathing shall occur over supports unless approved end-matched lumber is used, in which case each piece shall bear on at least two supports

2308.7 12 Roof planking Planking shall be designed in accordance with the general provisions of this code. In lieu of such design, 2-inch (51 mm) tongue-and groove planking is permitted in accordance with Table 2308 7 12. Joints in such planking are permitted to be randomly spaced, provided the system is applied to not less than three continuous spans, planks are center matched and end matched or splined, each plank bears on at least one support, and joints are separated by not less than 24 inches (610 mm) in adjacent pieces.

2308.7 13 Wood trusses. Wood trusses shall be designed in accordance with Section 2303 4. Connection to braced wall.

2308 7 14 Attic ventilation For attic ventilation, see Section 1203 2
2308 8 Design of elements Combining of engineered elements or systems and conventionally specified elements or systems shall be permitted subject to the limits of Sections 2308 8 1 and 2308 8 2

Additional floor framing notes

Spans > 13'-3" < 16'-3"

lines shall be in accordance with Section 2308 6 7 2

The <u>General Contractor</u> shall verify all dimensions shown on the architectural drawing(s) & notify the designer and Structural Engineer of Record of any discrepancies that cannot be adjusted in the field. If existing conditions differ from that which is specified, the <u>General Contractor</u> and/or subcontractors shall notify the designer and Structural Engineer of Record.
 Double all floor joists under bearing wall above, parallel to floor joist direction. Provide 2x/4x solid blocking (per Framing Plan(s), perpendicular to floor joist direction.
 Double all floor framing members @ perimeter of floor diaphragm openings and side edges of of cantilevered floor framing.

Provide 4x/6x DF#1 (or equal) solid compression blocking in floor assemblies under all concentrated loads from above Verify all loads from above and confirm/verify footing, isolated pier locations or calculated framing accordingly Recommended option for subfloor fastening Glue and use wood screws @ 6"OC edges and 10"OC field for a "squeak-less" floor

Rough Opening/Span	Application	Size/Grade
Spans up to 4'-0"	Header @ 2x4 Wall (Single Trimmer) Header @ 2x6 Wall (Single Trimmer)	4x6 DF#1 6x8 DF#1
Spans up to 6'-0"	Header @ 2x4 Wall (Double Trimmer) Header @ 2x6 Wall (Double Trimmer)	4x8 DF#1 6x8 DF#1
Spans up to 10'-0"	Header @ 2x4 Wall (Double Trimmer) Header @ 2x6 Wall (Double Trimmer)	4x10 DF#1 or 3 5" x 9 5" PSL 6x10 DF#1 or 5 25" x 9 5" PSL
Spans up to 12'-0"	Header @ 2x4 Wall (4x4 DF#1 Post) Header @ 2x6 Wall (4x6 DF#1 Post)	4x12 DF#1 or 3 5" x 11 88" PSL 6x12 DF#1 or 5 25" x 11 88" PSL
Spans > 12'-0"	Header @ 2x4 Wall (4x4 DF#1 Post) Header @ 2x6 Wall (4x6 DF#1 Post)	See Framing Plans for size
2		
Spans up to 12'-10"	Ceiling Joists @ 16"OC	2x6 DF#2
Spans > 12'-10" < 16'-3"	Ceiling Joists @ 16"OC	2x8 DF#2
Spans > 16'-3" < 19'-10"	Ceiling Joists @ 16"OC	2x10 DF#2
Spans > 19'-10"	Ceiling Joists @ 16"OC	See Framing Plans for size(s)
Spans up to 10'-6"	Ceiling Joists @ 24"OC	2x6 DF#2
Spans > 10'-6" < 13'-3"	Ceiling Joists @ 24*OC	2x8 DF#2

Spans > 16'-3"	Ceiling Joists @ 24"OC	See Framing Plans for size(s)	
lotes			
This table applies to	all headers & ceiling joists not specifically	dentified by number or letter on the Framing Plan(s)	
See typical header fi	aming details FR5 & FR6 @ Sheet SD 1	for installation of headers	
Where 2x ridge boar	de and ceiling joiets are specified, provide	2x collar ties @ 48"OC (UNO) @ mid-height of rafter	2

2x10 DF#2

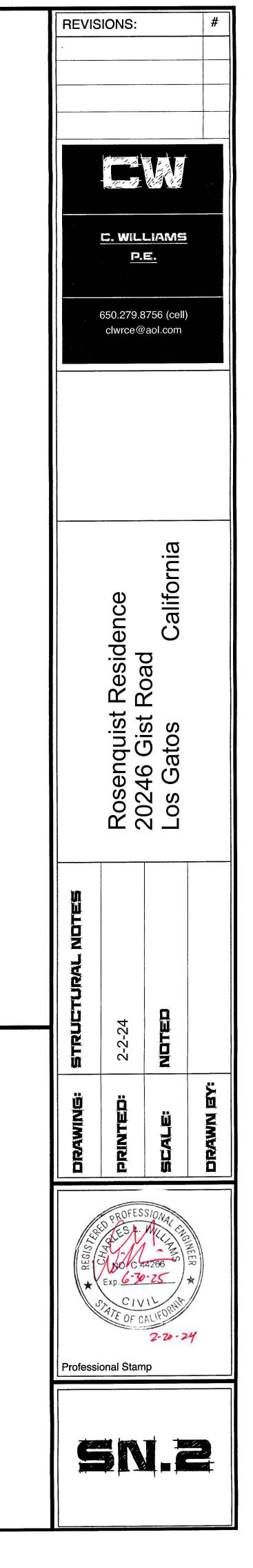
Ceiling Joists @ 24"OC

See typical header framing details FR6 @ Sheet SD 1 for installation of headers

Where 2x ridge boards and ceiling joists are specified, provide 2x collar ties @ 48°OC (UNO) @ mid-height of rafters

See typical eave construction details and ceiling splice details for lap nailing requirements

See Sheets SN 1 and SN 2 for structural notes and additional minimum nailing requirements



Jurisdiction Stamps and/or Red Line Notes