

REVISION	BY

1. GENERAL NOTES

- A. THE GENERAL NOTES APPLY TO ALL STRUCTURAL WORK EXCEPT WHERE THEY CONFLICT WITH DETAILS AND NOTES SPECIFICALLY SHOWN.
- B. RESOLVE CONFLICTS AND AMBIGUITIES ON PLANS AND SPECIFICATIONS WITH THE ENGINEER BEFORE PROCEEDING WITH THE CONSTRUCTION.
- C. DETAILS AND DIMENSIONS NOT SHOWN SHALL BE OF SIMILAR CHARACTER AS SHOWN FOR SIMILAR CONDITIONS.
- D. THIS PROJECT WAS DESIGNED IN ACCORDANCE WITH THE CBC 2022.
- E. EXISTING CONDITIONS: CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PERTINENT TO HIS WORK PRIOR TO MATERIAL, FABRICATION AND/OR CONSTRUCTION. FIELD CONDITIONS DIFFERENT FROM THOSE NOTED ON THE DRAWINGS SHALL BE PROMPTLY BROUGHT TO THE ENGINEER'S ATTENTION.

2. DESIGN LOADS

- A. VERTICAL LOADS
  1. ROOF LIVE LOAD: 20 PSF
  2. ROOF DEAD LOAD: AS CALCULATED
  3. FLOOR LIVE LOAD: 40 PSF
  4. FLOOR DEAD LOAD: AS CALCULATED

3. CONCRETE

- A. AT 28 DAYS, CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 3000 PSI
- B. CEMENT SHALL CONFORM TO ASTM C150, TYPE II.
- C. REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60.
- D. WELDING OF REINFORCING BARS SHALL CONFORM WITH "STRUCTURAL WELDING CODE REINFORCING STEEL", AWS D1.4.
- E. AGGREGATES SHALL CONFORM TO ASTM C33 AND SHALL HAVE MAXIMUM SIZE OF ¾".
- F. UNLESS OTHERWISE SHOWN ON THE DRAWINGS:
  1. MINIMUM CONCRETE PROTECTION FOR REINFORCING STEEL SHALL BE:
    - a. 3" FOR SURFACES CAST AGAINST EARTH.
    - b. 2" FOR FORMED SURFACES EXPOSED TO EARTH OR WEATHER.
    - c. ¾" FOR SLABS.
    - d. 1 ½" FOR ALL OTHER SURFACES
  2. CHAMFER ALL EXPOSED CONCRETE EDGES ¾", U.O.N.
  3. EXCEPT WHERE SHOWN OTHERWISE ON THE DRAWINGS, LAP SPLICES FOR BARS SHALL BE 48 DIAMETERS OR 24" WHICHEVER IS GREATER.
- G. HORIZONTAL CONSTRUCTION JOINTS SHALL BE ROUGHENED TO ¼" AMPLITUDE.
- H. REMOVE LAITANCE AND BELOW THE SURFACE CLEAN BEFORE PLACEMENT OF ADJACENT CONCRETE.

5. SOIL AND FOUNDATIONS

- 1. ALL SOILS WORK SHOULD BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS AND THE REQUIREMENTS OF THE GEOTECHNICAL REPORT NOTED BELOW, AND ANY SUBSEQUENT RECOMMENDATIONS BY THE GEOTECHNICAL ENGINEER. GEOTECHNICAL REPORT BY:
  - a. MILLER PACIFIC ENGINEERING GROUP
  - b. REPORT NO. 3445.001
  - c. DATED OCTOBER 20, 2022
- 2. ALLOWABLE BEARING CAPACITY:
  - a. DL+LL= 1,500 PSF (SOIL), 3500 PSF (ROCK)
  - b. DL+LL+WIND/ SEISMIC= 2,000 PSF (SOIL), 4666 PSF (ROCK)
- 3. GEOTECHNICAL ENGINEER TO REVIEW AND APPROVED SITE PLANS, FOUNDATION PLANS, AND FOUNDATION DETAILS FOR CONFORMANCE WITH DESIGN INTENT OF GEOTECHNICAL REPORT PRIOR TO ALL SITE WORK.
- 4. SEE GEOTECHNICAL REPORT FOR ALL GRADING, DRAINAGE, FILL PLACEMENT, AND BUILDING PAD PREPARATION REQUIREMENTS.
- 5. GEOTECHNICAL ENGINEER TO REVIEW AND APPROVE ALL FOOTING/ PIER DEPTHS BEFORE PLACEMENT OF REINFORCEMENT AND FORMS.
- 6. ALL FOOTING/ PIER EXCAVATIONS TO BE NEAT. OVER-EXCAVATIONS TO BE FILLED WITH CONCRETE. ALL LOOSE SOILS/ WATER TO BE REMOVED FROM EXCAVATIONS PRIOR TO PLACEMENT OF CONCRETE.

4. ROUGH CARPENTRY

- A. GRADING RULES AND REGULATIONS IN ACCORDANCE WITH THE WESTERN WOOD PRODUCTS, LATEST EDITION. ALL EXPOSED TIMBER SHALL BE PRESSURE TREATED.
- B. ALL STUDS SHALL BE GRADE MARKED D.F. CONSTRUCTION GRADE OR BETTER.
- C. COLUMNS SHALL BE D.F. NO.1.
- D. HORIZONTAL RAFTERS AND JOISTS SHALL BE GRADE NO. 2 OR BETTER.
- E. ALL HEADERS AND BEAMS SHALL BE GRADE NO. 1 OR BETTER.
- F. 2X SILLS RESTING ON CONCRETE SHALL BE PRESSURE TREATED DOUGLAS FIR.
- G. NAILING (COMMON GALVANIZED) AS SHOWN ON PLANS, MINIMUM NAILING SHALL BE PER 2022 CBC TABLE 2304.10.1.
- H. FRAMING HARDWARE SHALL BE OF SIMPSON COMPANY, OR APPROVED EQUAL. ALL FRAMING ANCHORS SHALL HAVE NAILS IN ALL NAIL HOLES. ALL TIMBER SHALL BE AT 19% MOISTURE CONTENT OR LESS.
- I. PLYWOOD SHALL BE API RATED, APA EXPOSURE I CD PS 195.
- J. BOLTS FOR TIMBER SHALL CONFORM TO ASTM A307, AND WASHERS SHALL CONFORM TO ASTM A36. BOLT HOLES SHALL BE DRILLED THE SAME DIAMETER AS THE BOLT. A WASHER SHALL BE USED UNDER THE BOLT HEAD AND UNDER THE NUT WHERE THERE IS DIRECT CONTACT WITH THE WOOD.
- K. PLYWOOD SHEATHING
  1. CENTER PLYWOOD JOINTS ON FRAMING MEMBER OR BLOCKING
  2. SPACE PANELS 1/8" AT SIDES AND ENDS.
  3. PROVIDE ½" SPACE BETWEEN UNTREATED PLYWOOD AND CONCRETE OR MASONRY.

LATERAL ANALYSIS

Wind Analysis

91 mph  $h_t = 22$   $\phi = 26^\circ$   $K_d = .85$   $K_z = .70$   
 Exp. B  $q = .00256 \times 91^2 \times .85 \times .70 = 12.6$   
 $a = 0.10 \times 11 = 1.1$   $a = .4 \times 22 = 8.8$  psf  
 $a = .04 \times 11 = .44$  USE  $a = 3.0$

E/W Dir.

$P_{roof} = 12.6 \text{ psf} \times .80 \times 2 \times 6 \times (4 + 6/2)$   
 $+ 12.6 \text{ psf} \times .53 \times 14 \times (6/2 + 4)$   
 $+ 12.6 \text{ psf} \times .66 \times 2 \times 6 \times (4 + 6/2)$   
 $+ 12.6 \text{ psf} \times .43 \times 14 \times (6/2 + 4)$   
 $= 2710 \#$

$P_{up} = 12.6 \text{ psf} \times .80 \times 2 \times 6 \times (6/2 + 4/2)$   
 $+ 12.6 \text{ psf} \times .53 \times 14 \times (6/2 + 4/2)$   
 $= 2100 \#$   $P_{TOTAL} = 2710 + 2100 = 4850 \#$

N/S Dir.

$P_{roof} = 12.6 \text{ psf} \times .61 \times 2 \times 3 \times (1.5 + 6/2)$   
 $+ 12.6 \text{ psf} \times .40 \times 5 \times (2 + 6/2)$   
 $+ 12.6 \text{ psf} \times .43 \times 2 \times 3 \times (1.5 + 6/2)$   
 $+ 12.6 \text{ psf} \times .29 \times 5 \times (2 + 6/2) = 571$

$P_{R.R.} = 12.6 \text{ psf} \times .61 \times 2 \times 3 \times (6/2 + 14/2)$   
 $+ 12.6 \text{ psf} \times .40 \times 5 \times (6/2 + 14/2)$   
 $+ 12.6 \text{ psf} \times .43 \times 2 \times 3 \times (4/2 + 14/2)$   
 $+ 12.6 \text{ psf} \times .29 \times 5 \times (6/2 + 14/2) = 1221$   
 $P_{TOTAL} = 571 + 1221 = 1792$

2. SEISMIC LOADS

TYPE	VALUE	DESCRIPTION
S <sub>S</sub>	1.5	MCE <sub>R</sub> GROUND MOTION (FOR 0.2 SECOND PERIOD)
S <sub>1</sub>	0.6	MCE GROUND MOTION (FOR 1.0 SECOND PERIOD)
S <sub>DS</sub>	1.2	NUMERIC SEISMIC DESIGN VALUE AT 0.2 SECOND SA
S <sub>D1</sub>	0.56	NUMERIC SEISMIC DESIGN VALUE AT 1.0 SECOND SA

RISK CATEGORY II

**DAVID McNUTT, Owner - Builder**  
 PLAN PREPARER  
**DRAFTECH** (of Marin County), SCOTT R. TROWBRIDGE  
 15 SCHOOL TERRACE, NOVATO, CA 94945  
 draftech@yahoo.com ph: (415) 897-0042

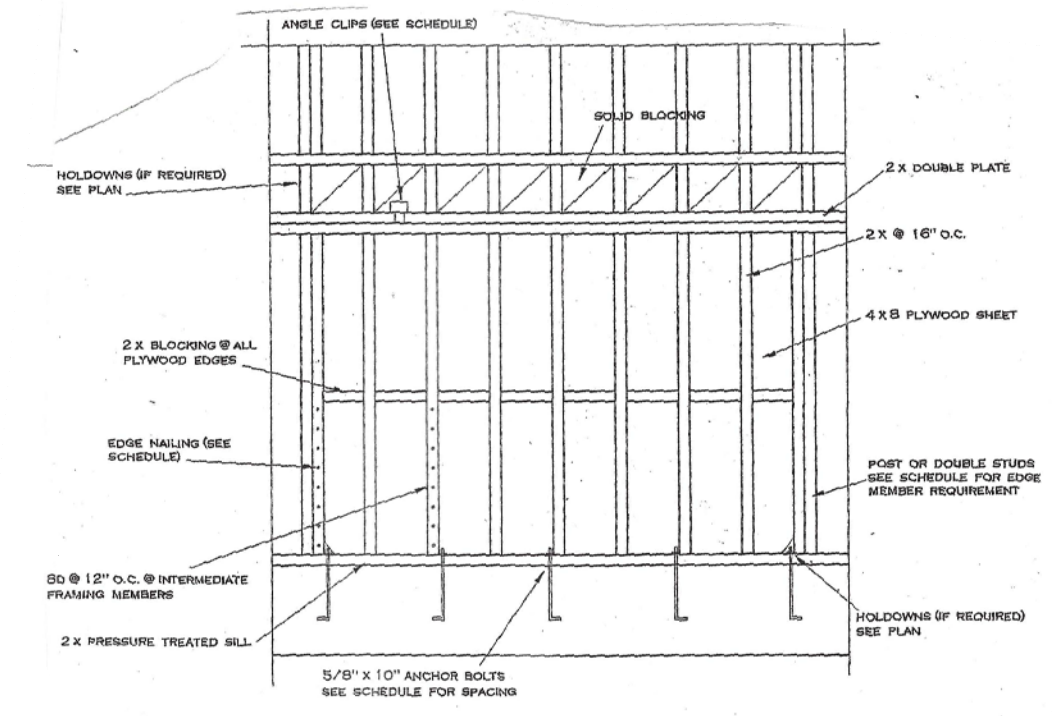
**STRUCTURAL NOTES**

REBUILD & ADDITION DRAWINGS FOR THE:  
**McNUTT RESIDENCE**  
 30 PARK LANE  
 FAIRFAX, CALIFORNIA 94930  
 (415) 250-0293 APN 001-032-12

Date: 04/11/2023  
 Scale: 1/4"=1'-0"  
 Drawn by: SRT/VGT  
 Project: McNUTT



**S-0**



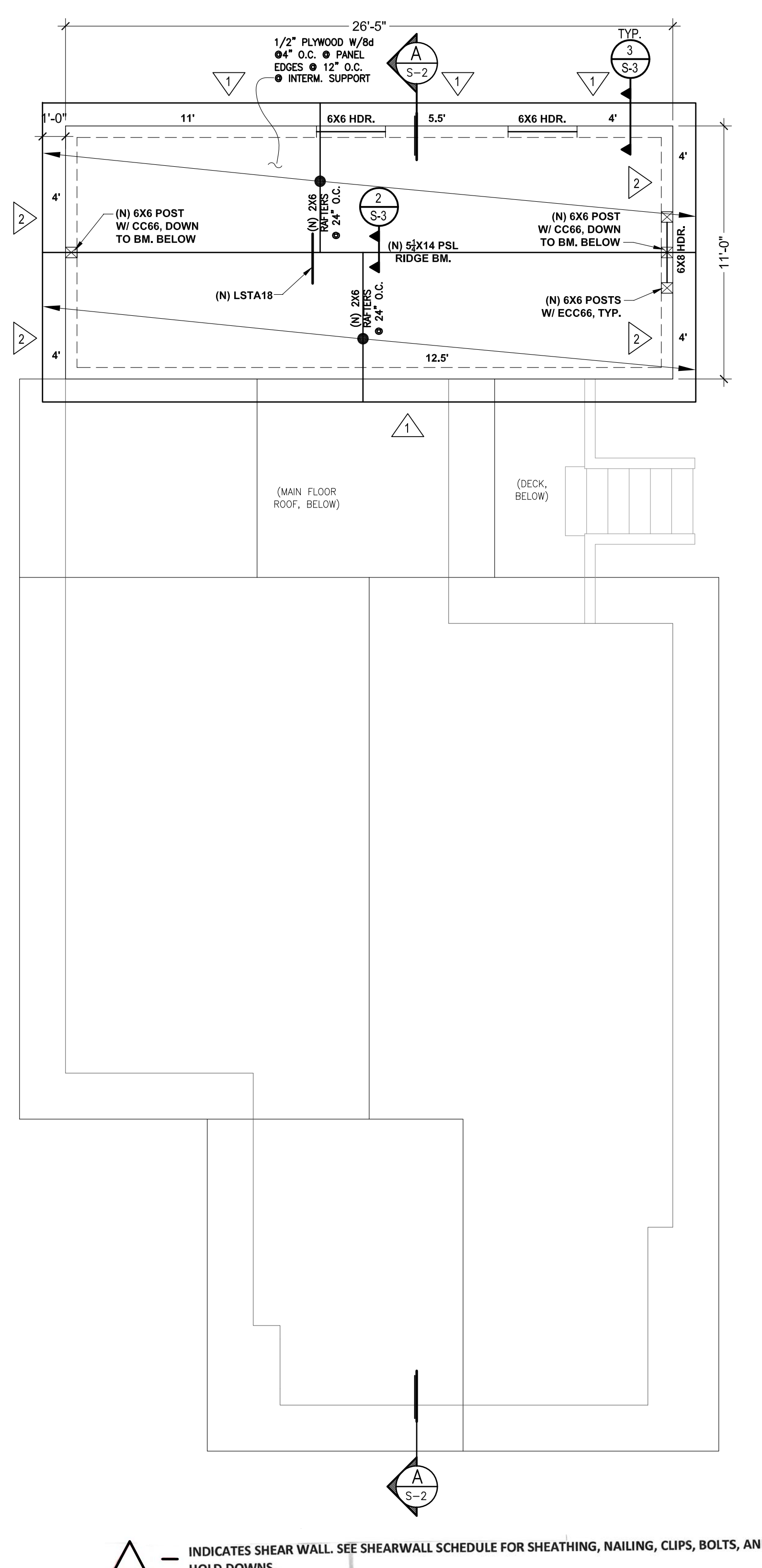
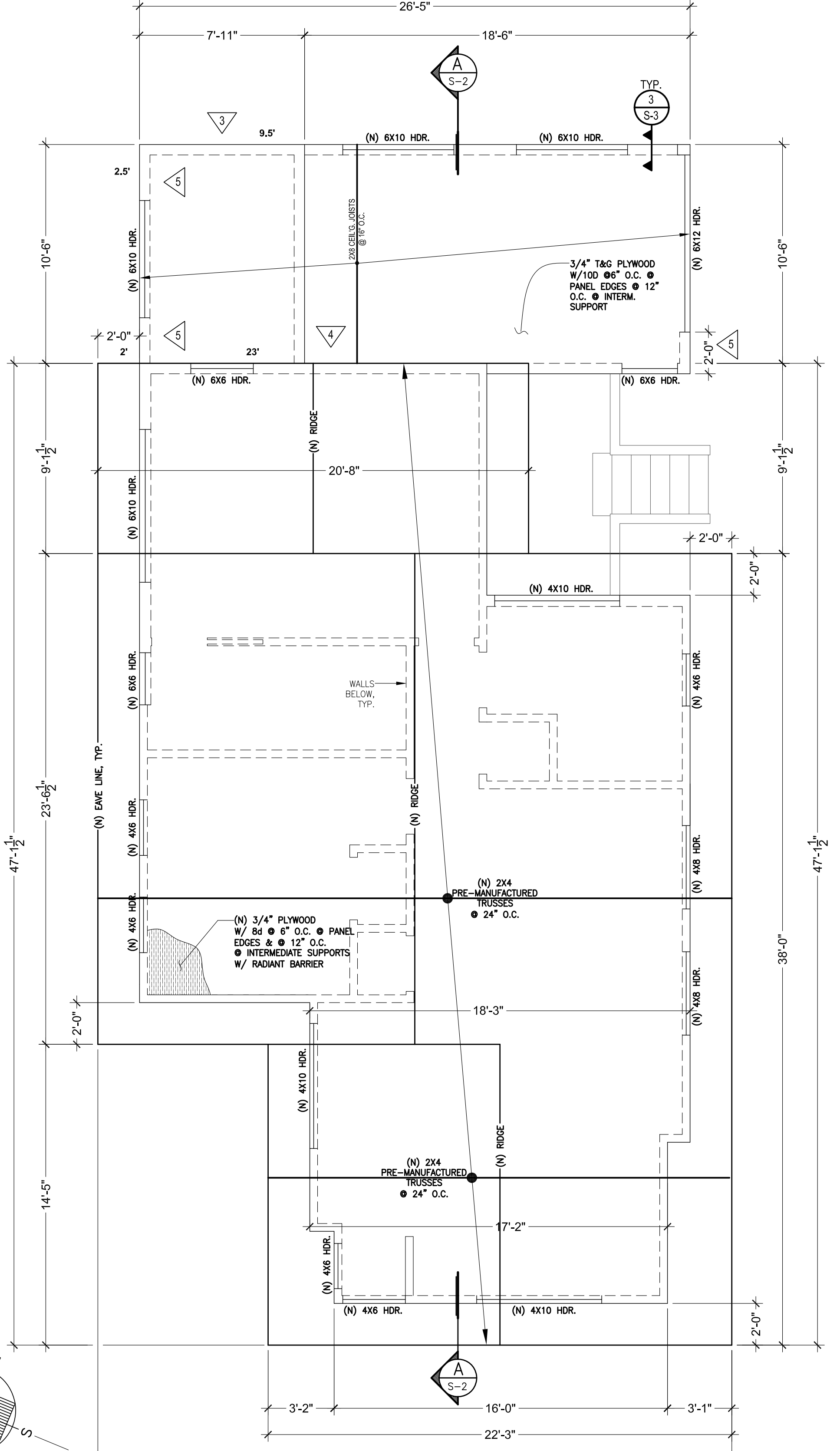
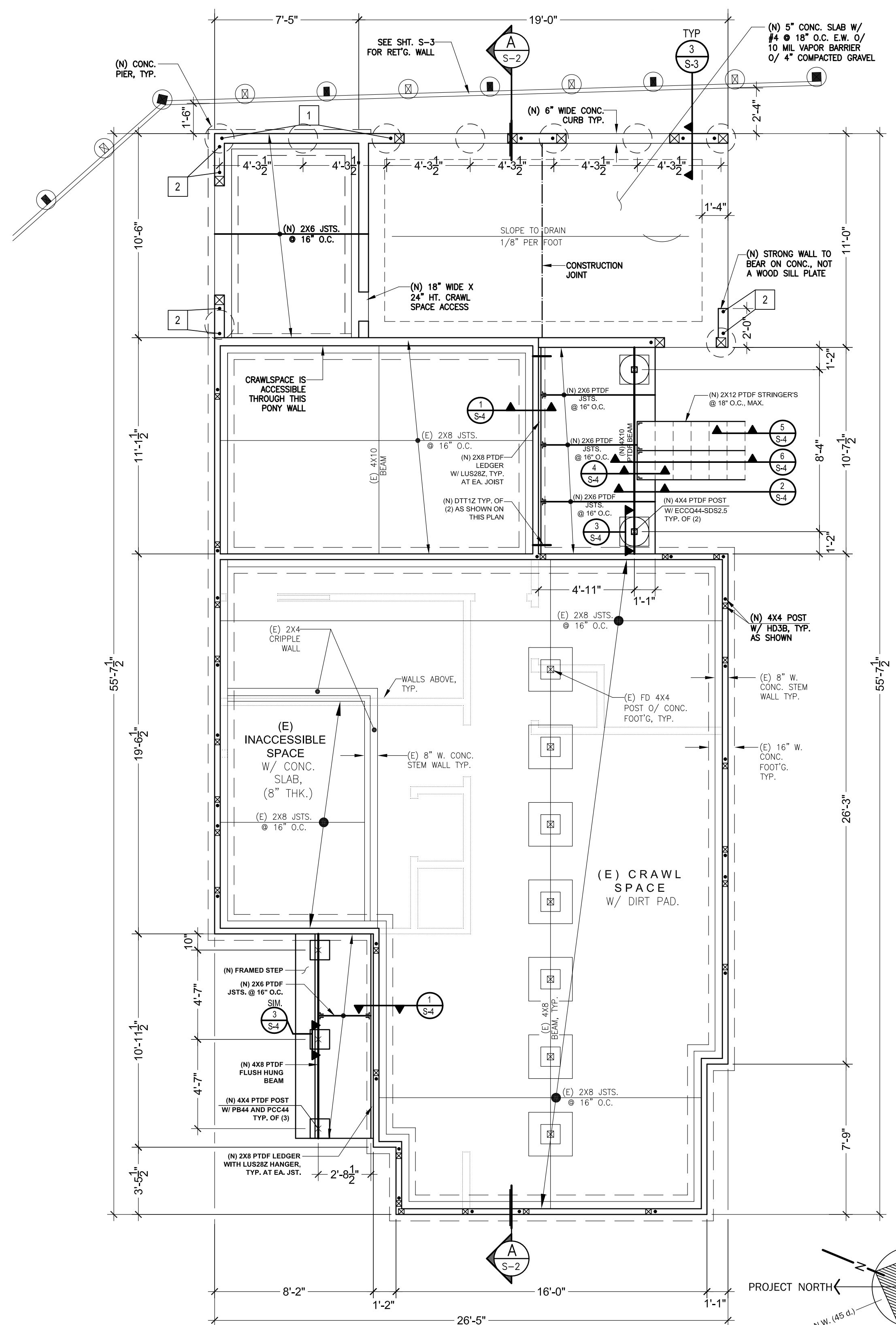
SHEAR WALL HOLD DOWN SCHEDULE

- 1 - 5/8" Ø, SSTB16, 13" EMBED.
- S.W. HOLD-DOWN ANCHOR SCHEDULE
- 2 - 1" Ø, SSWAB1, 16" EMBED INTO GRADE BEAM

MARK	SHEATH EDGE NAILING	CLIPS	SILL NAILING/BOLTING	HOLD-DOWNS	REMARKS
1	1/2" PLYWD. W/ 8d@6"	L30@24"	16d@8" O.C.		
2	1/2" PLYWD. W/ 8d@6"	L30@16"	16d@4" O.C.	HD3B	
3	1/2" PLYWD. W/ 8d@6"	L30@16"	16d@8" O.C. 5/8" DIA @ 48" O.C.	HD3B	
4	1/2" PLYWD. W/ 8d@6"	L30@16"	16d@8" O.C. 5/8" DIA @ 48" O.C.		
5					SSW24X13

ANCHOR BOLTS SHALL BE PROVIDED WITH A .229" x 3"x3" PLATE WASHER GALV.  
BOLTS AND WASHERS SHALL BE HOT DIPPED GALVANIZED.

SHEARWALL SCHEDULE



REVISION	BY

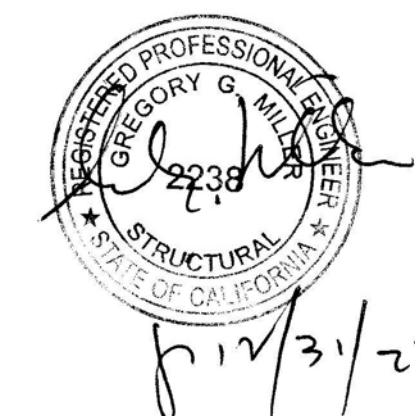
DAVID McNUTT, Owner - Builder  
 PLAN PREPARER  
 DRAFTECH (of Marin County), SCOTT R. TROWBRIDGE  
 15 SCHOOL TERRACE, NOVATO, CA 94945  
 drafsch@yahoo.com ph: (415) 897-0842

REBUILD & ADDITION DRAWINGS FOR THE:  
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Date 04/11/2023  
 Scale 1/4"=1'-0"  
 Drawn by SRT/VGT  
 Project McNUTT

**S-1**

McNUTT-S-I-FND-FRMG PLANS.DWG



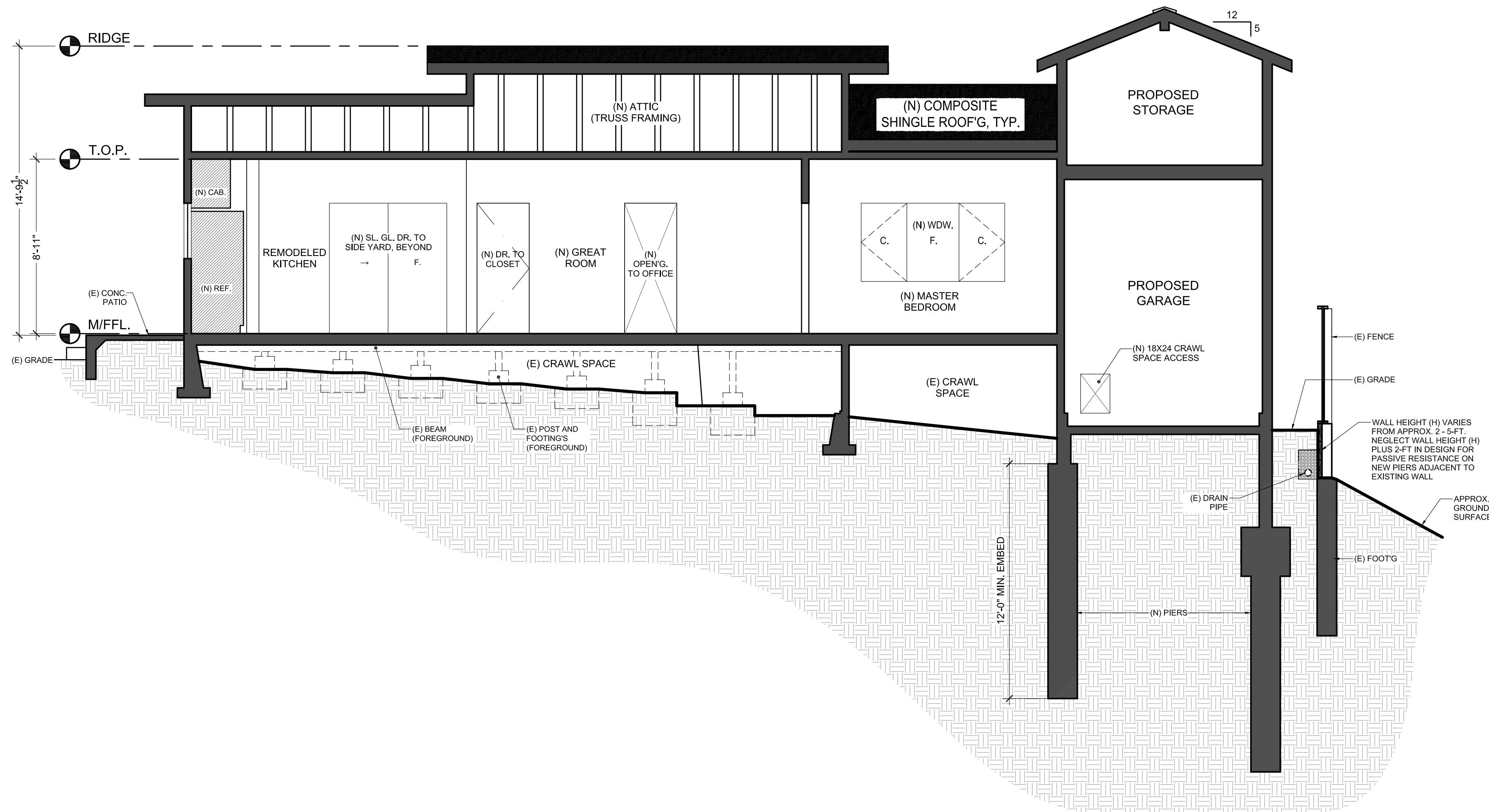
**ATTIC VENTILATION CALCULATION**

AREA OF ATTIC = 1,031 sq. ft.  
 AREA OF ATTIC VENT REQUIREMENT IS  
 DIVIDING EXISTING ATTIC BY 150.  
 $1,031 / 150 = 6.87 \text{ sq. ft.} = 989.76 \text{ SQ. IN.}$   
 OF REQUIRED VENT AREA

PROVIDE (2) 2" Ø EAVE VENTS  
 AT (6) RAFTER BAYS EA. SIDE OF ATTIC (2X6=12)  
 (12X2=24) VENTS TOTAL  
 @ 3.14 SQ. IN. PER VENT (75.36 SQ. IN.)  
 PROVIDE (1) 14.5'X1.5" RIDGE VENT (261 SQ. IN.),  
 PROVIDE (1) 23.5'X1.5" RIDGE VENT (423 SQ. IN.)  
 PROVIDE (1) 9'X1.5" RIDGE VENT (162 SQ. IN.)  
 AND PROVIDE (1) 30.5'X1.5" RIDGE VENT (549 SQ. IN.)

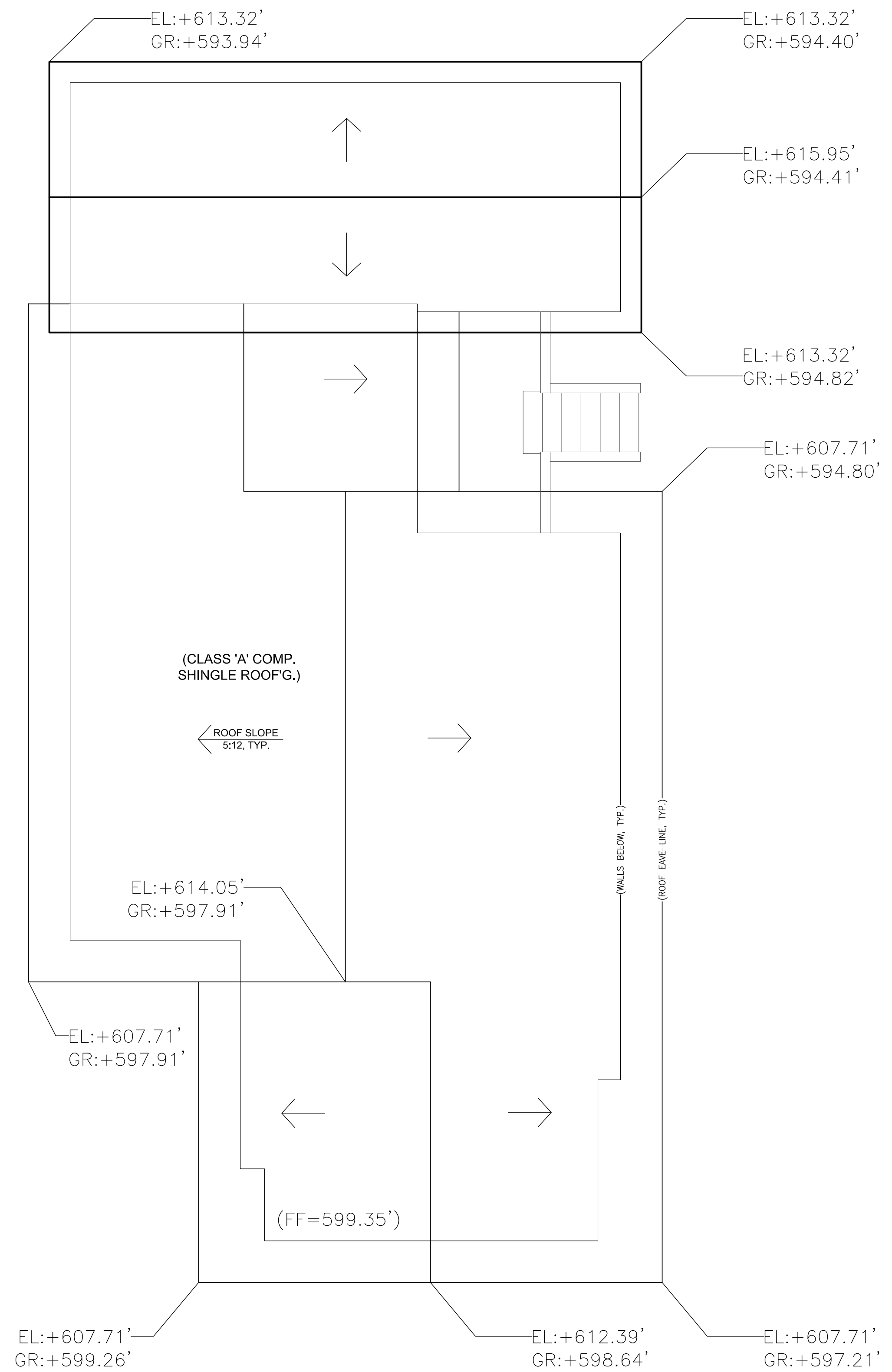
PROVIDED VENT AREA 1,470 SQ. IN.  
 IS GREATER THAN REQUIRED AREA 989.76 SQ. IN.  
 SO PROVIDED VENTING SHOWN ABOVE IS OK

**W.U.I. VENT NOTE:**  
 ALL EAVE VENTS, RIDGE VENTS AND CRAWL SPACE  
 VENTS ARE "VULCAN" W.U.I. APPROVED.



PROPOSED SECTION 'A'

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



PROPOSED ROOF/ STORY POLE PLAN

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

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 PLAN PREPARER  
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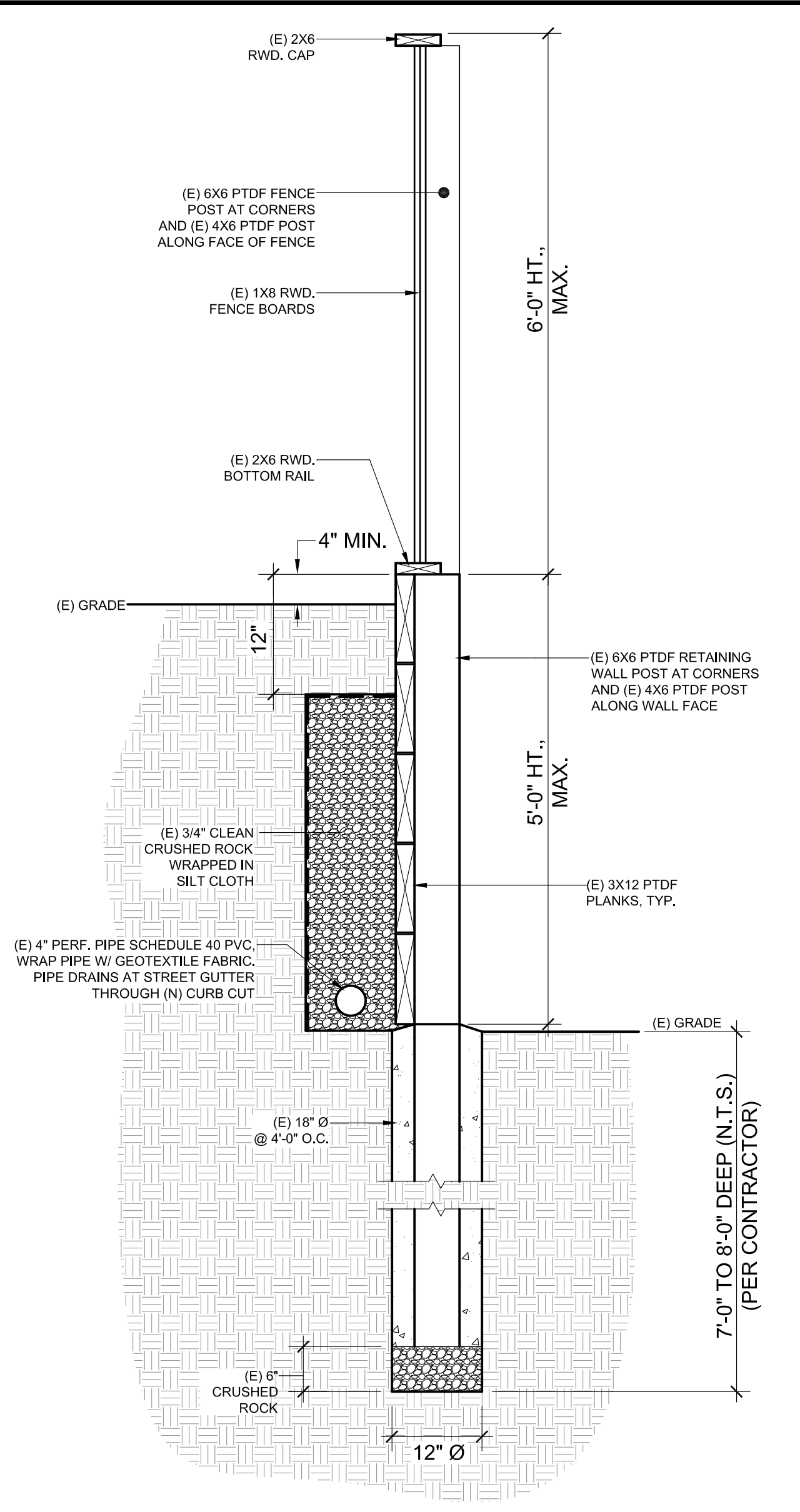
**PROPOSED SECTION 'A',  
 PROPOSED ROOF PLAN  
 AND VENTILATION CALC'S**

REBUILD & ADDITION DRAWINGS FOR THE:  
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 30 PARK LANE  
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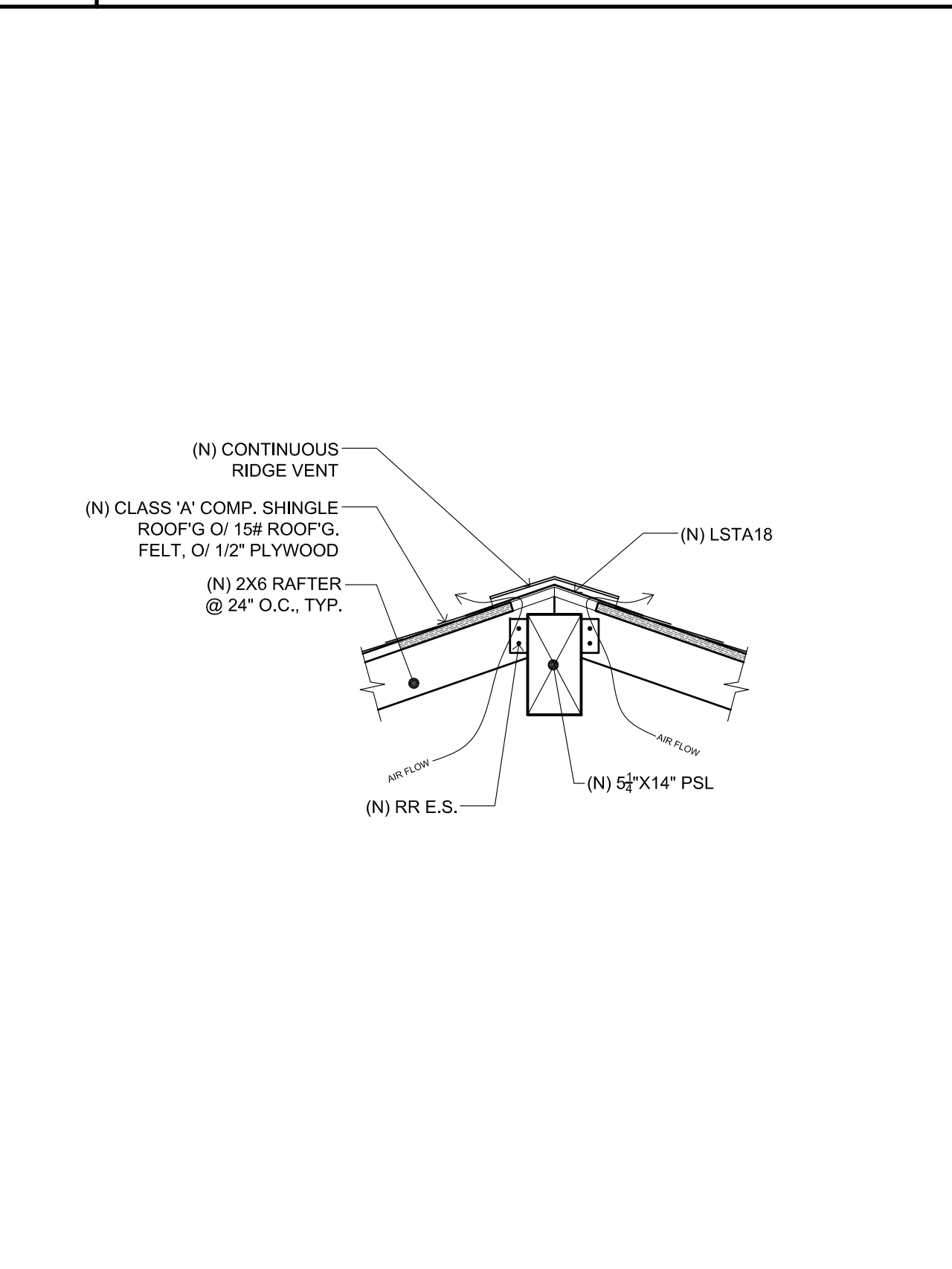
Date 04/11/2023  
 Scale AS SHOWN  
 Drawn by SRT/VGT  
 Project McNUTT

McNUTT-4-S-S2-4-ELEV&SEC-FRMG-DTLS.DWG

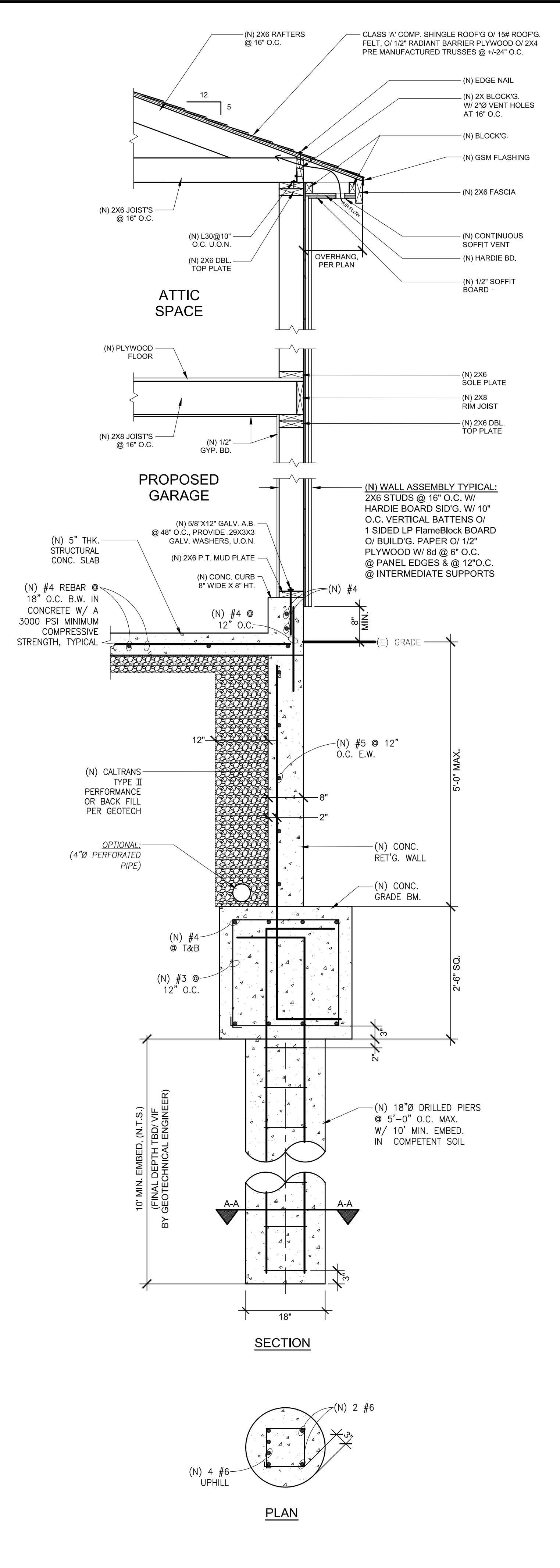
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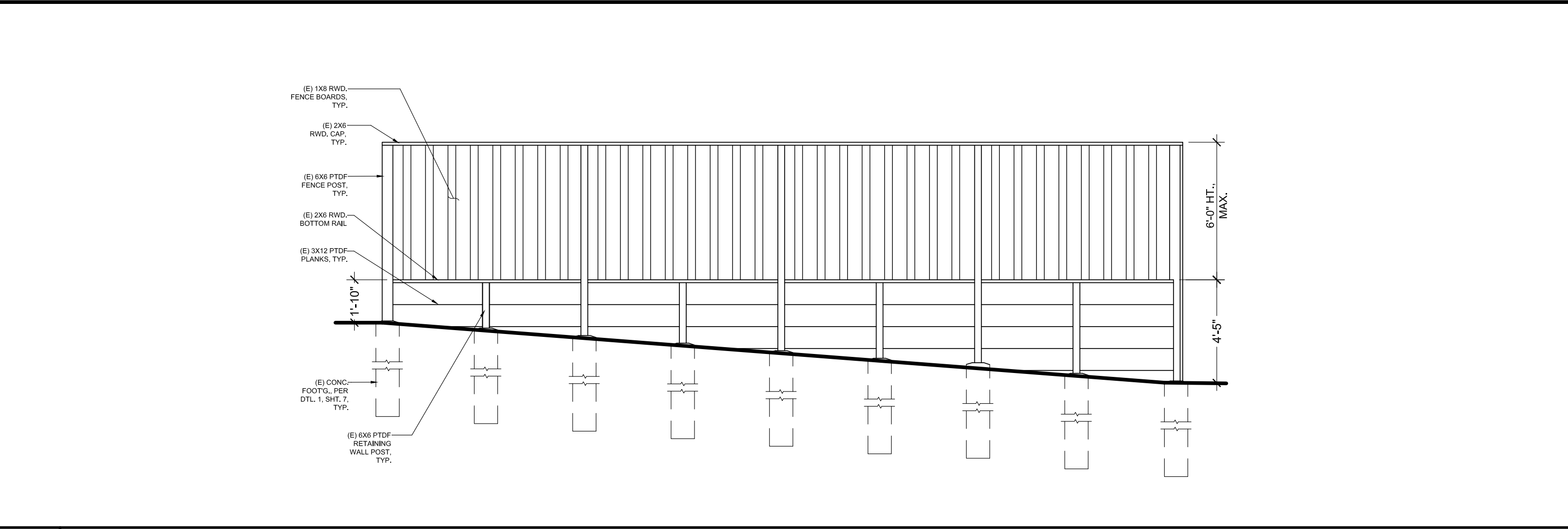
1 S-3 RETAINING WALL SECTION SCALE: 3/4"=1'-0"



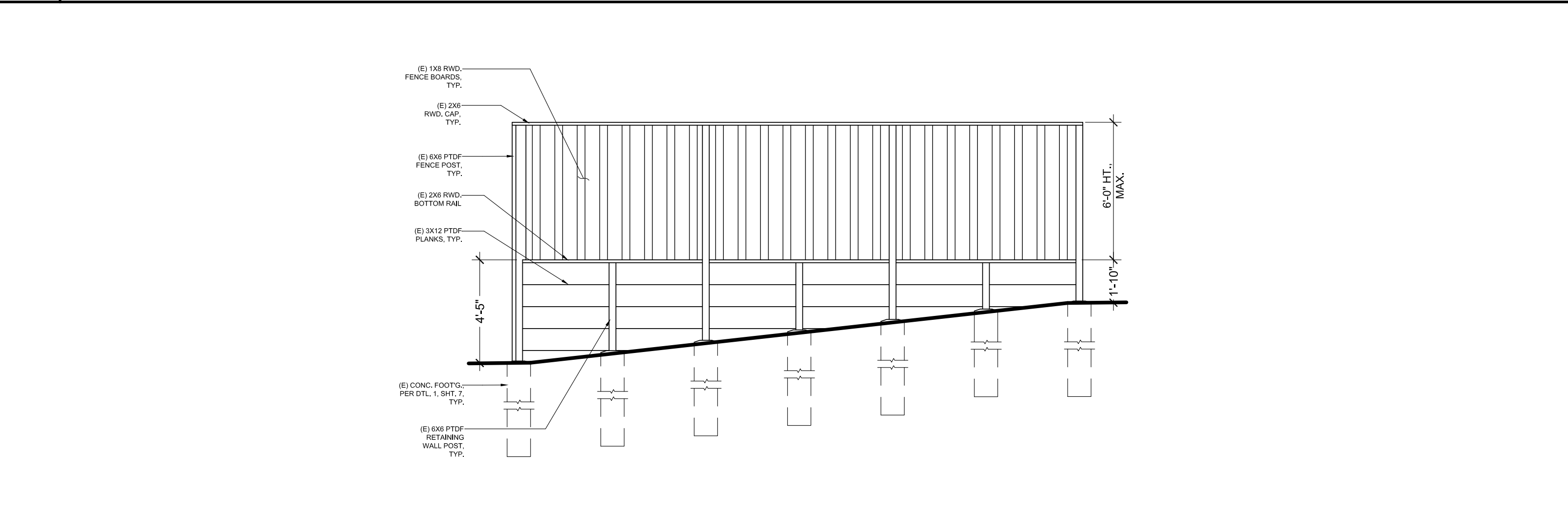
2 S-3 RIDGE BEAM DETAIL AT GARAGE (SIMILAR DETAIL AT HOUSE ROOF) SCALE: 3/4"=1'-0"



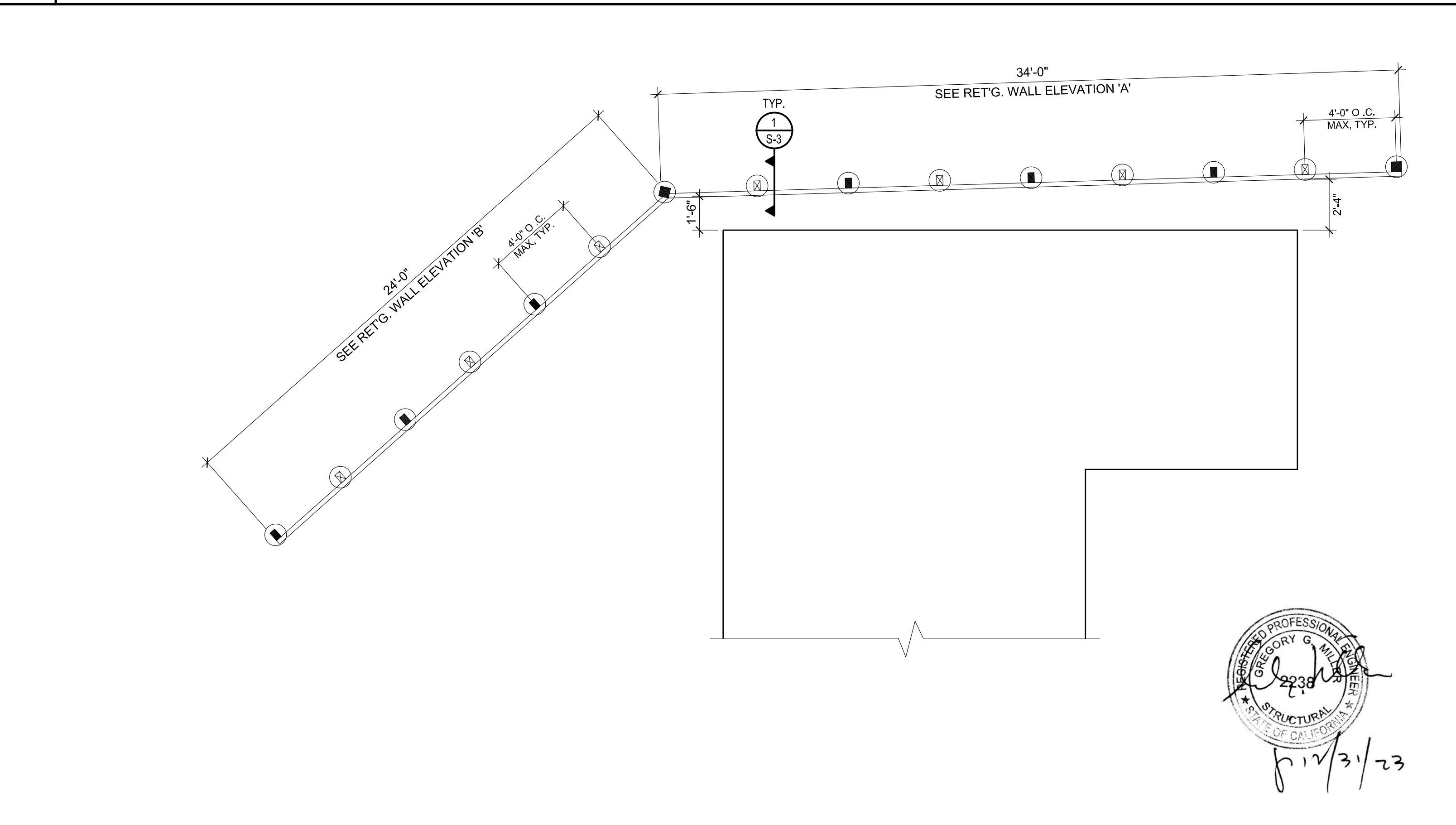
3 S-3 FULL WALL DETAIL AT GARAGE ADJACENT TO (E) RET'G. WALL, TYP. SCALE: 3/4"=1'-0"



A S-3 RETAINING WALL/ FENCE ELEVATION, PER PLAN SCALE: 3/4"=1'-0"



B S-3 RETAINING WALL/ FENCE ELEVATION, PER PLAN SCALE: 3/4"=1'-0"



RETAINING WALL PLAN SCALE: 1/4"=1'-0"

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DAVID McNUTT, Owner - Builder  
 PLAN PREPARER  
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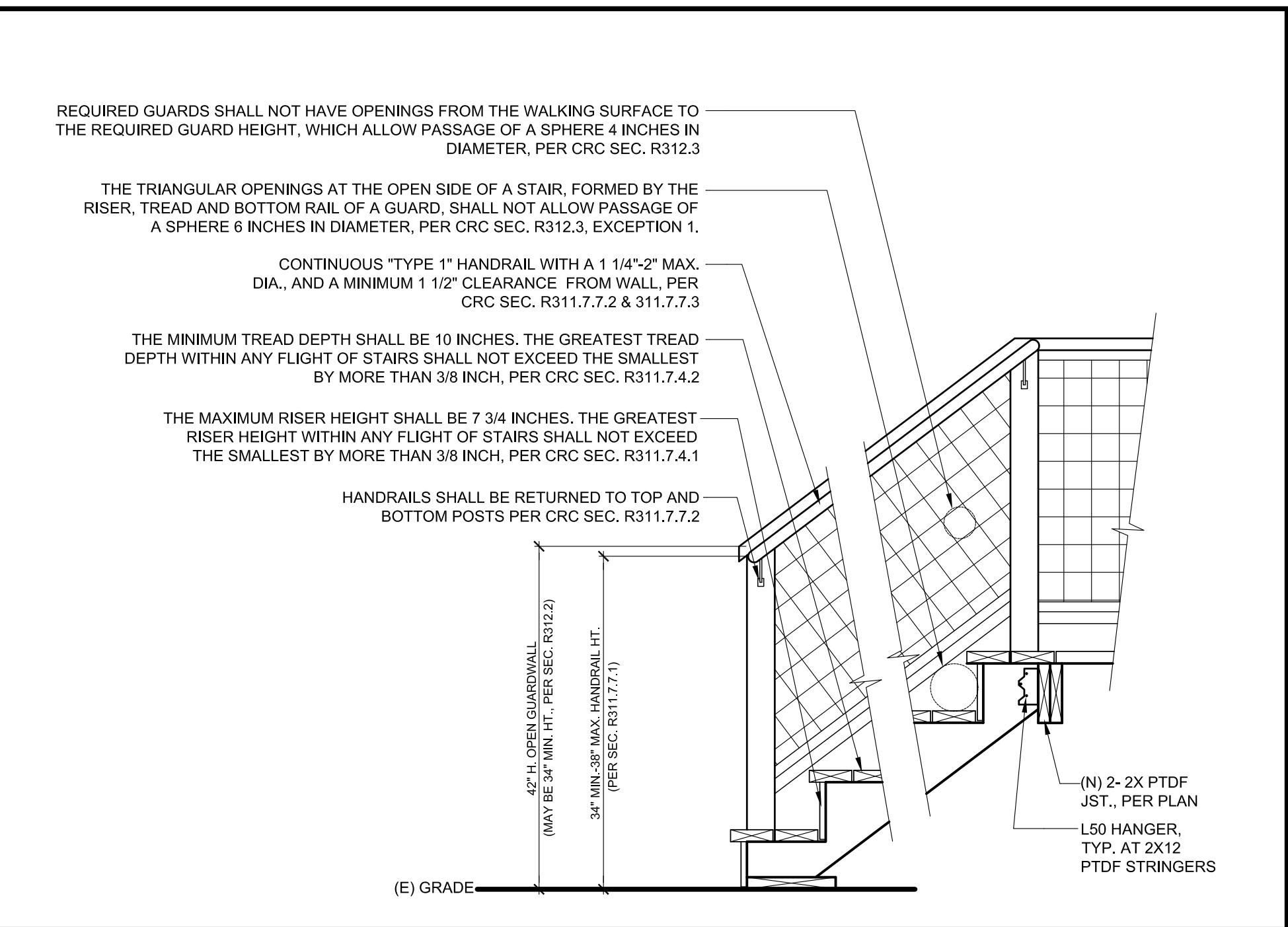
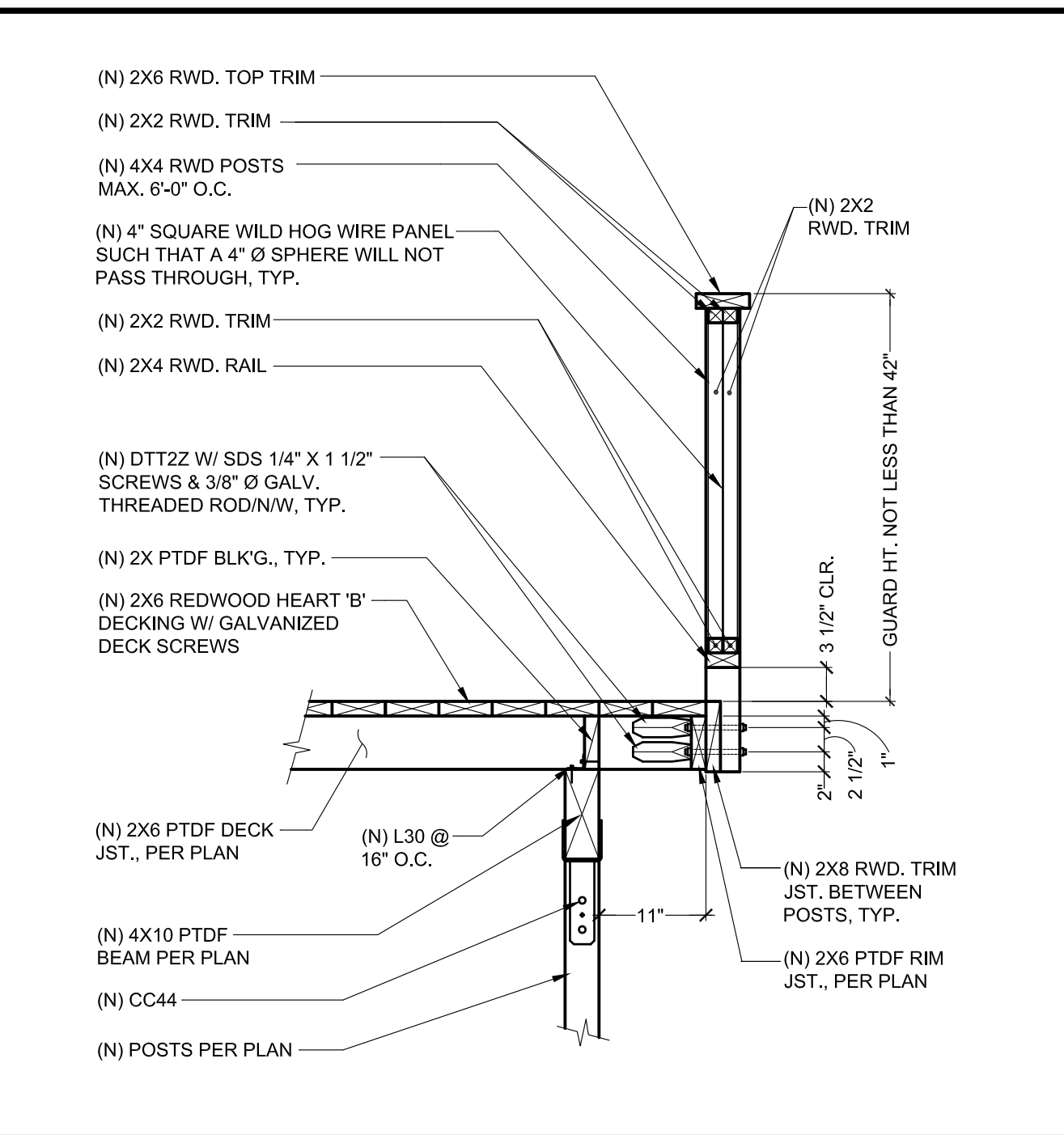
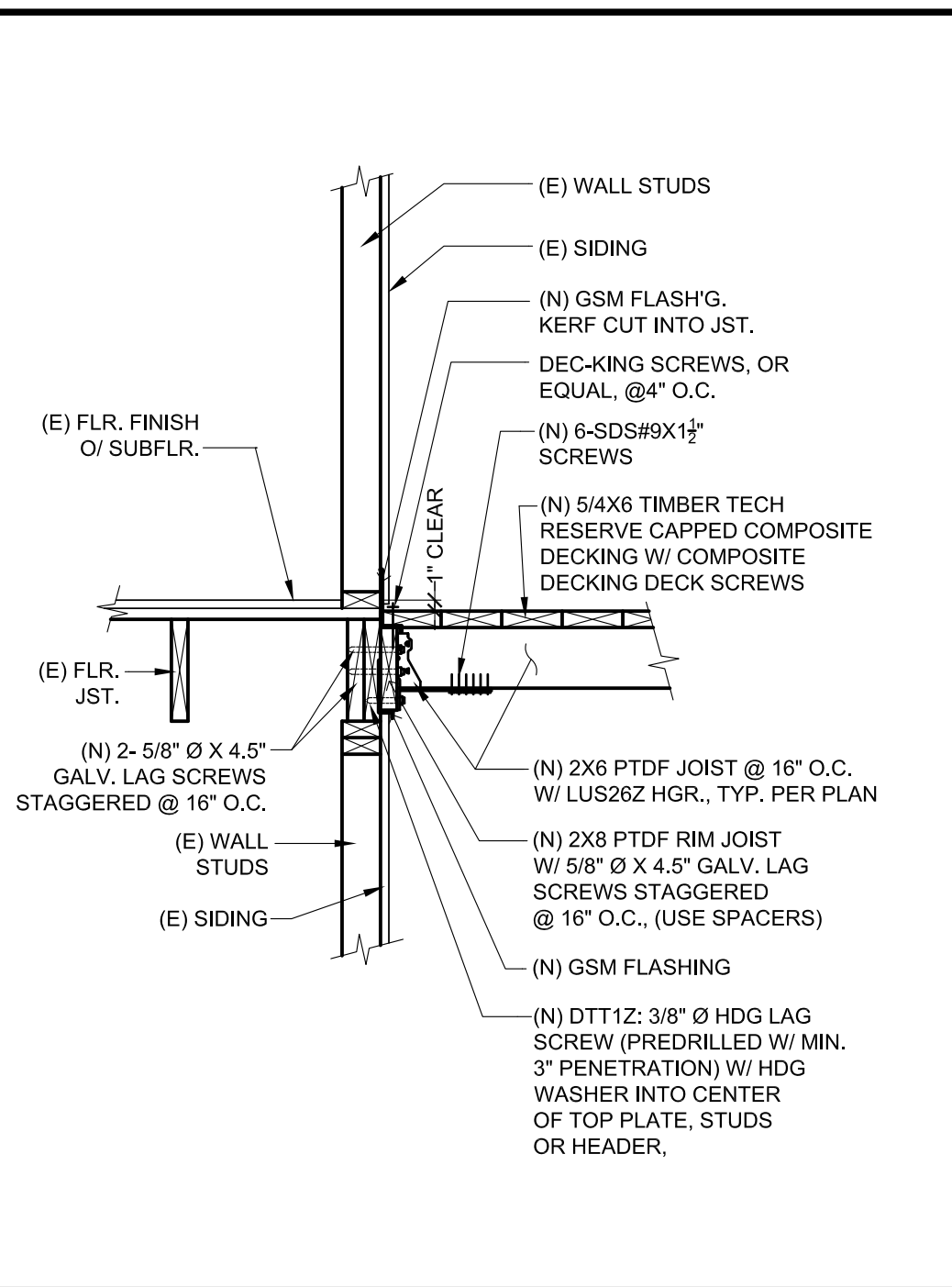
**RETAINING WALL CONSTRUCTION DETAILS, PLAN AND ELEVATIONS AND GARAGE CONSTRUCTION DETAILS**

REBUILD & ADDITION DRAWINGS FOR THE:  
**McNUTT RESIDENCE**  
 30 PARK LANE  
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 (415) 250-0293 APN 001-032-12

Date: 04/11/2023  
 Scale: AS SHOWN  
 Drawn by: SRT/VGT  
 Project: McNUTT



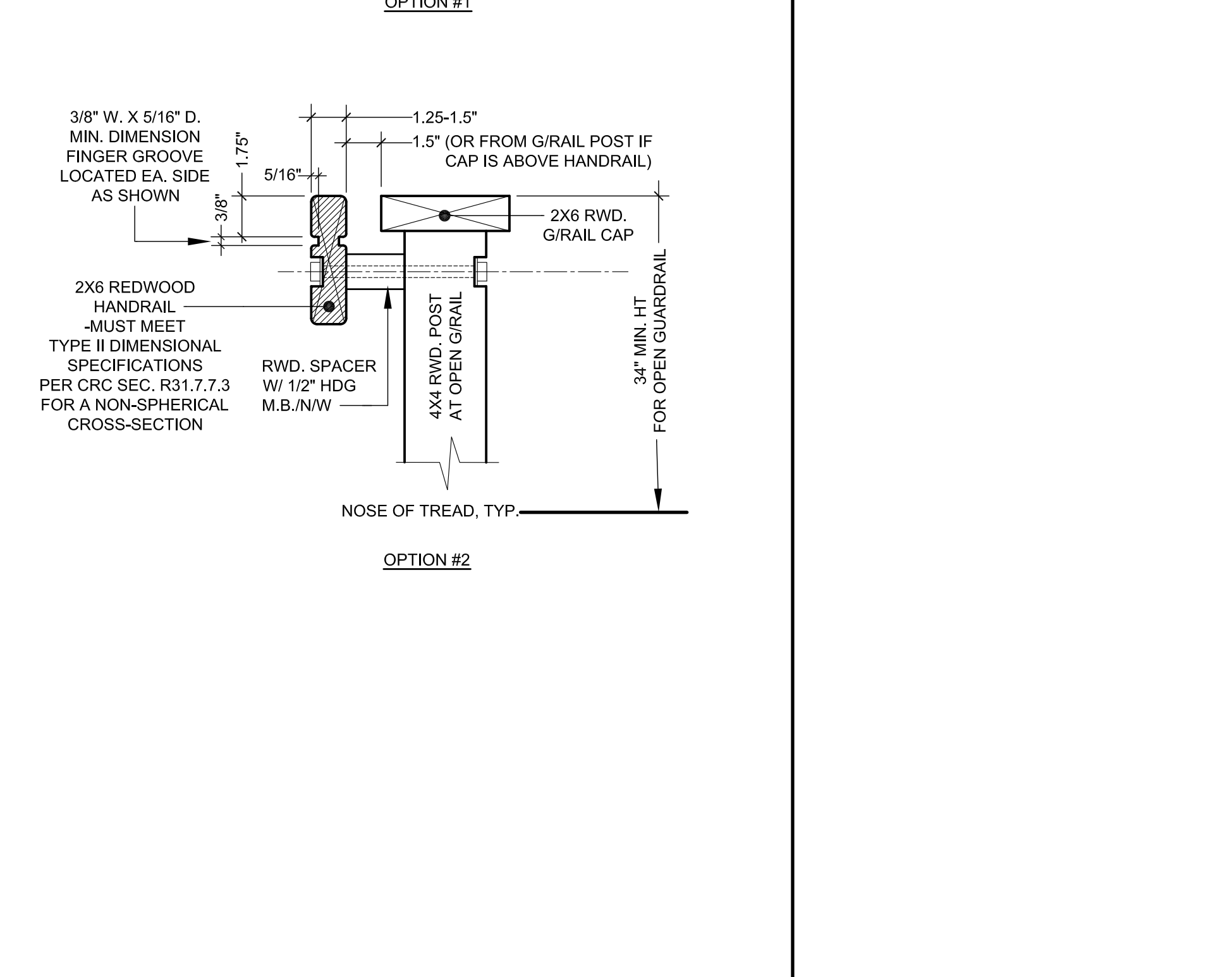
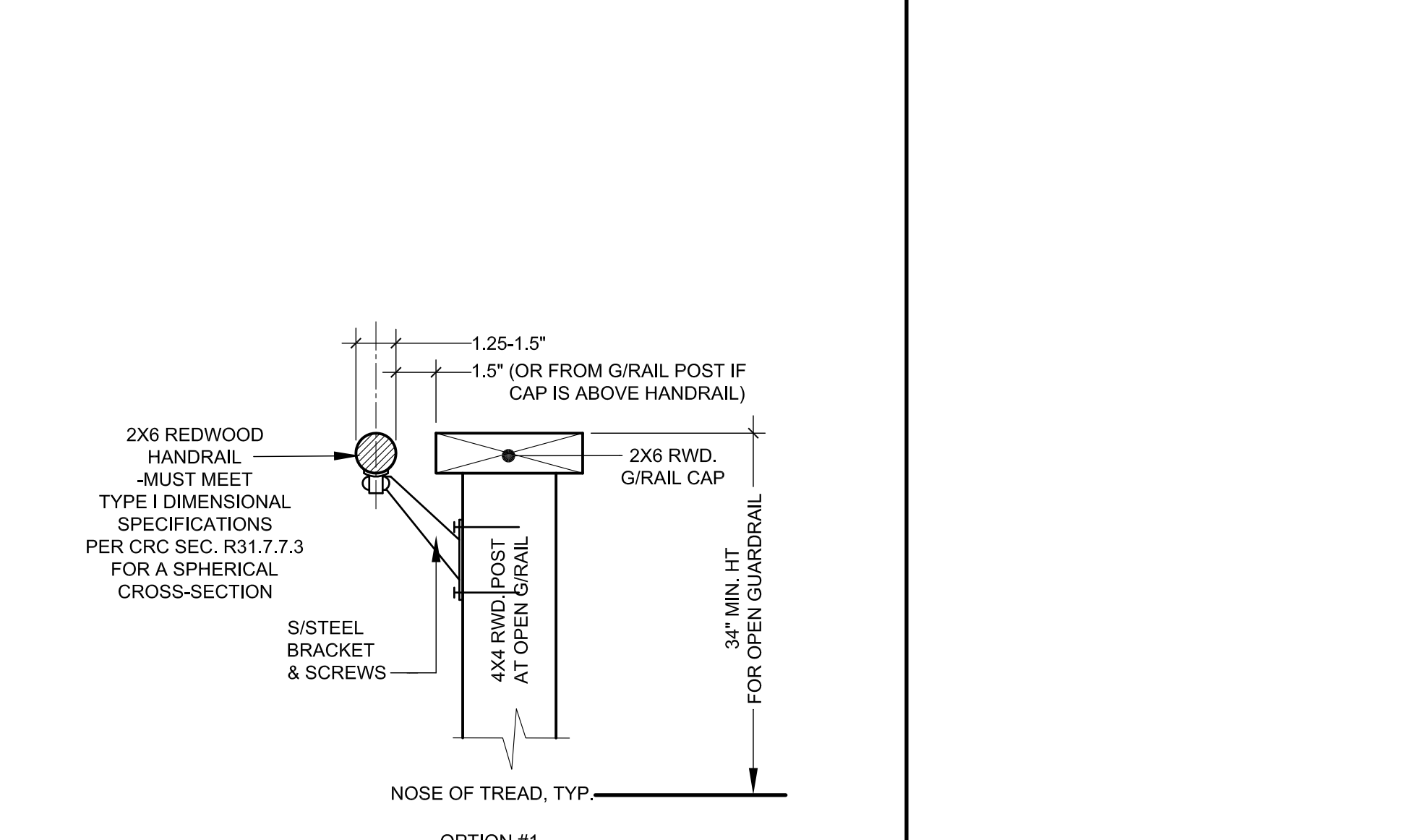
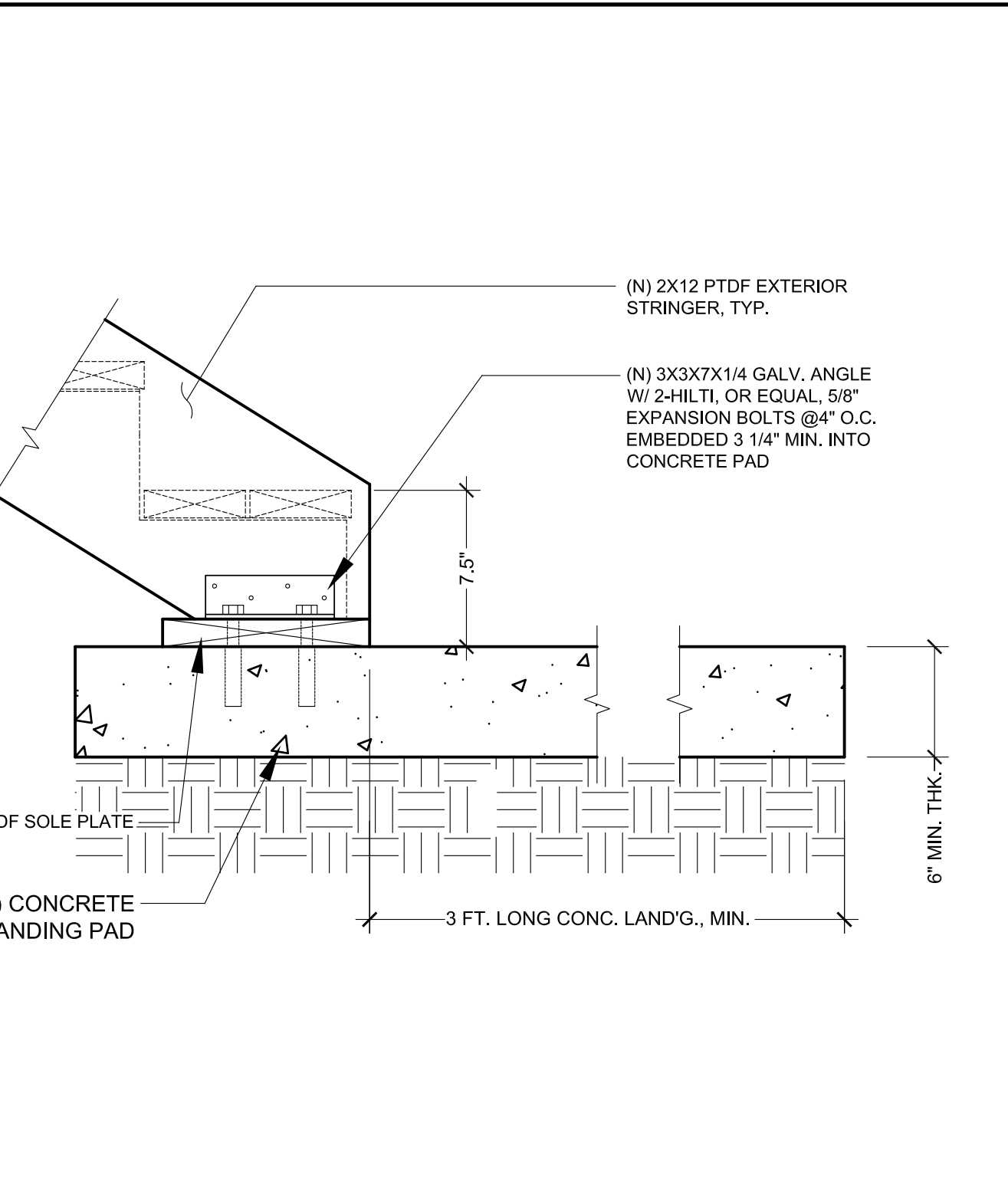
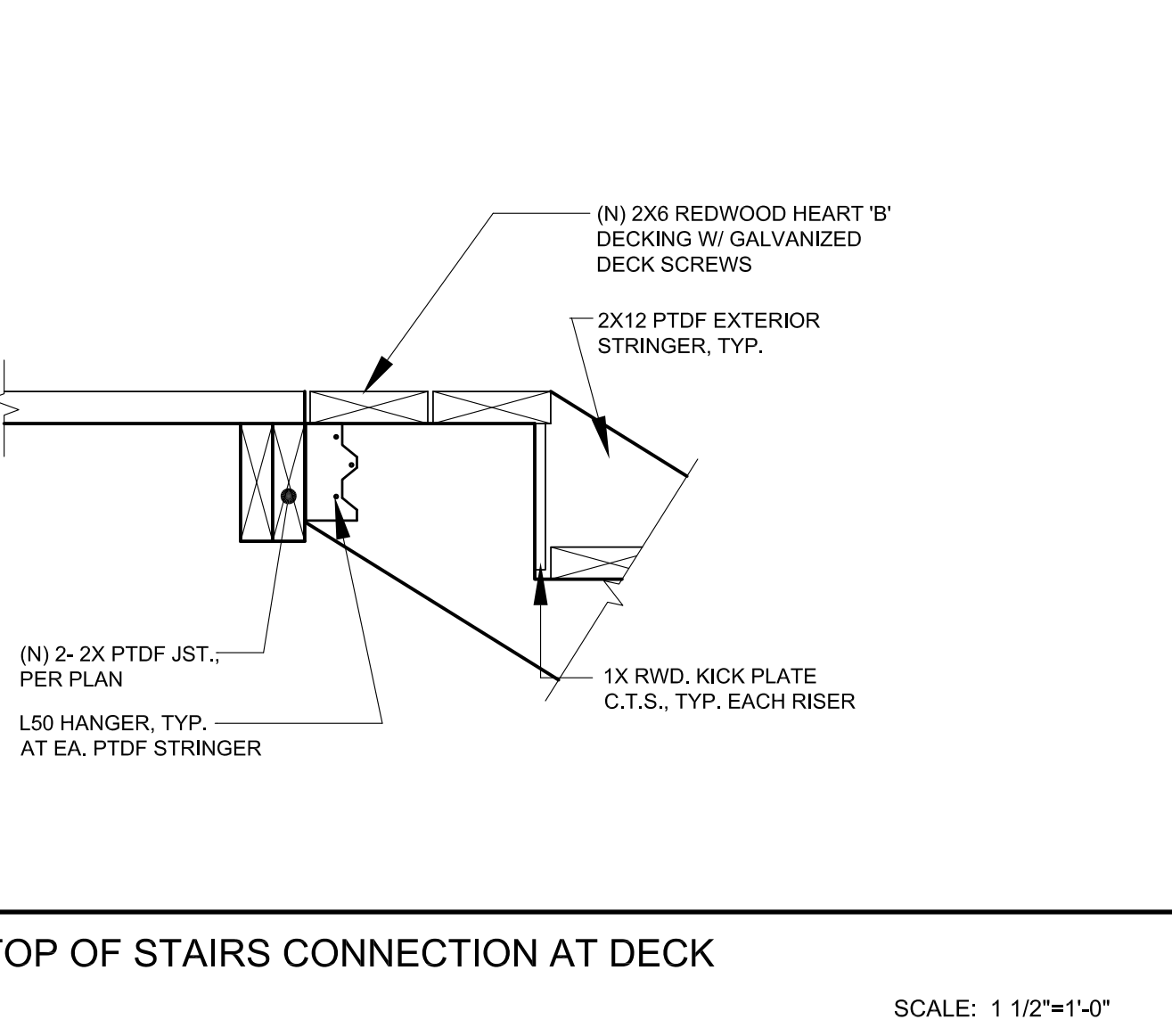
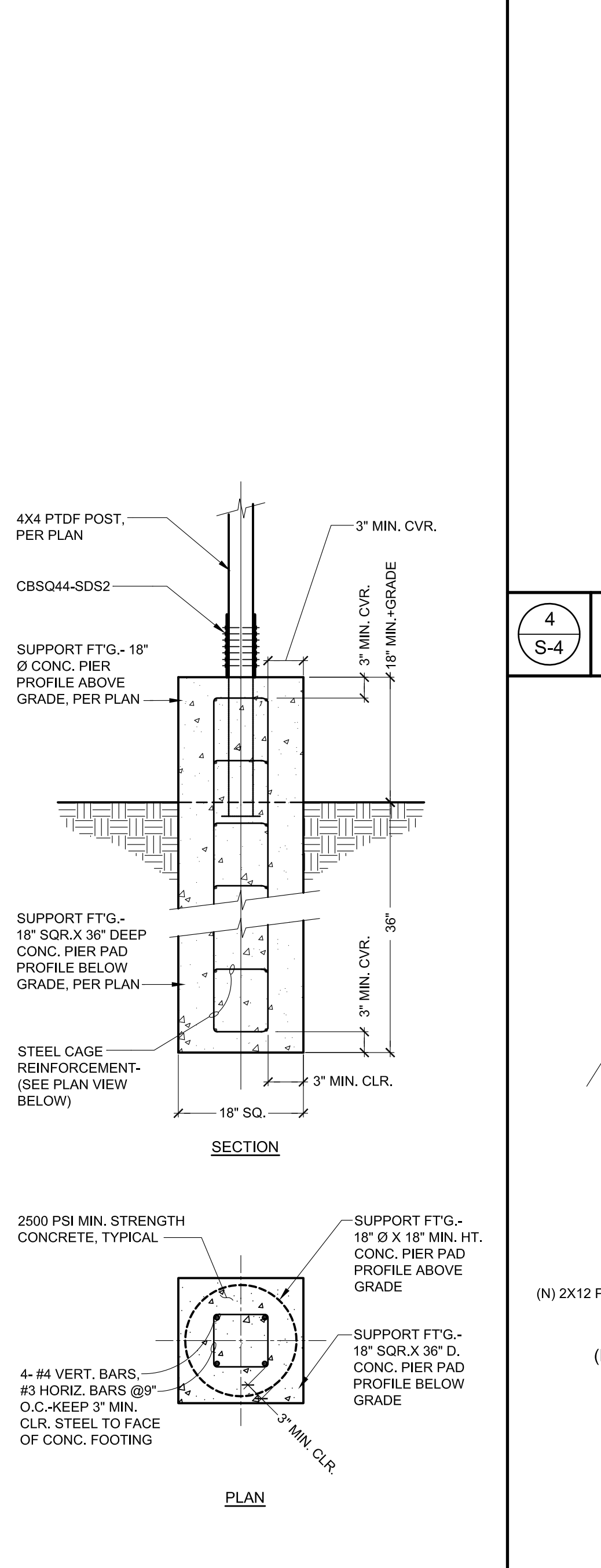
McNUTT-4-S-4-ELEV-S-SEC-FRMG-DTL5.DWG



**1**  
S-4  
**LEDGER DETAIL**  
SCALE: 3/4"=1'-0"

**2**  
S-4  
**GUARDRAIL PERPENDICULAR TO JOIST'S**  
SCALE: 3/4"=1'-0"

**6**  
S-4  
**STAIRS SECTION**



**3**  
S-4  
**POST AND CONCRETE FOOTING**  
SCALE: 3/4"=1'-0"

**5**  
S-4  
**BOTTOM OF STAIRS ON CONCRETE LANDING**  
SCALE: 1 1/2"=1'-0"

**7**  
S-4  
**HANDRAIL OPTIONS**  
SCALE: 3/4"=1'-0"

REVISION	BY

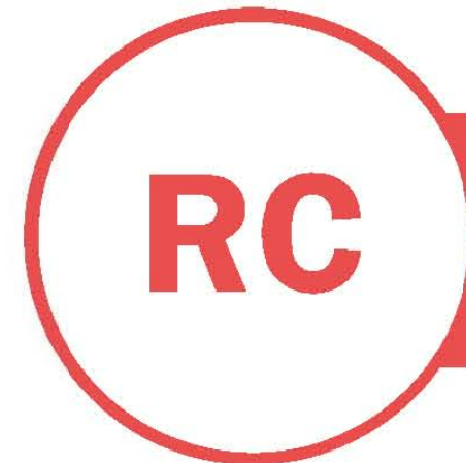
**DAVID McNUTT, Owner - Builder**  
 PLAN PREPARER  
**DRAFTECH** (of Marin County), SCOTT R. TROWBRIDGE  
 15 SCHOOL TERRACE, NOVATO, CA 94945  
 draftech@yahoo.com ph: (415) 897-0842

**DECK FRAMING PLAN AND CONSTRUCTION DETAILS**

REBUILD & ADDITION DRAWINGS FOR THE:  
**McNUTT RESIDENCE**  
 30 PARK LANE  
 FAIRFAX, CALIFORNIA 94930  
 (415) 250-0293 APN 001-032-12

**S-4**





# RAM CONSTRUCTION

BUILDER-CONTRACTOR | JOHN MOWERS  
CSTL#677910

## CONTACT

25 Hamilton Dr Suite I  
Novato CA, 94949  
Ram93construction@gmail.com  
415-686-6698

## TO: MILLER ENGINEERING

Dear Zoe,

Hello, my name is John Mowers. I am the contractor and builder helping David McNutt at the project site 30 Park Ln. I have been in coordination with David and additionally helping him with the design and build of what has been done so far. The fence/retaining wall that runs on the downhill side and then diagonally towards the west I built with David. I can confirm that the piers were drilled at the depths between 72"-84". The material used for the wall was as follows:

- 2-6x6 Pressure treated post at each corner
- 12-4x6 pressure treated post
- 145' of rough cut 3x12 boards on the retained side
- All post were set at 48" on center apart from each other laterally and set with high pressure cement. The wall also Miradrain that runs the entire square footage of the wall. I also ran 4" perforated drain at the base of the wall and got backfilled with gravel from top to bottom to ensure no soil sits against the Miredrain or wall. Let me know if you have any questions.

Sincerely,  
Ram Construction



EMAIL



TWITTER HANDLE



TELEPHONE



LINKEDIN URL

CONTRACTOR LETTER



April 10, 2023  
File: 3445.001altr.doc

David McNutt  
30 Park Lane  
Fairfax, CA 94930

Re: Geotechnical Plan Review  
30 Park Lane  
Fairfax, CA 94930

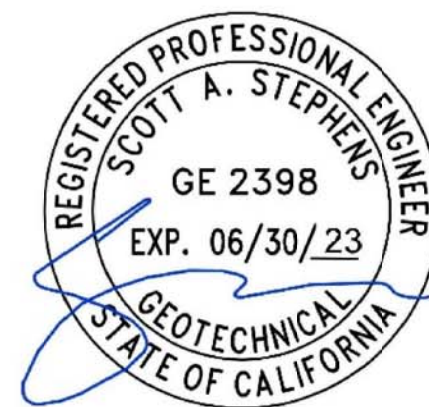
### Introduction

This letter presents the results of our geotechnical review of Structural Plans<sup>1</sup> for the new residence at 30 Park Lane in Fairfax, California. The project generally consists of demolition of the existing residence and construction of a new single-family residence in roughly the same footprint. A new addition along the north side of the home is also planned. We provided geotechnical recommendations for the project as part of our Geotechnical Investigation Report<sup>2</sup> dated December 7, 2022.

### Plan Review

Based on discussions with the Structural Engineer and review of the geotechnical portions of the drawings, we judge the project has been designed in substantial accordance with our geotechnical recommendations for the site. During construction, we should observe and/or test foundation and retaining wall excavations to form an opinion regarding the Contractor's conformance with the project plans, and to recommend modifications to the geotechnical design if conditions are different than what is expected. We trust that this letter contains the information you require at this time. If there are any questions or if we can be of further assistance, please call.

Yours very truly,  
MILLER PACIFIC ENGINEERING GROUP



Scott Stephens  
Geotechnical Engineer No. 2398  
(Expires 6/30/23)

<sup>1</sup>DraftTech (Reviewed by Greg Miller, S.E. 2238 (Exp. 12/31/23) "Rebuild Drawings for the McNutt Residence, 30 Park Lane, Fairfax CA 94930." February 27 2023.

<sup>2</sup>Miller Pacific Engineering Group, "Geotechnical Investigation, 30 Park Lane Improvements, 30 Park Lane, Fairfax, California 94930," dated December 7, 2022.

Mailing Address: P.O. Box 2802 Novato, California 94948-2802  
Phone Number: (415) 382-3444  
Fax Number: (415) 382-3450  
Physical Address: 504 Redwood Blvd., Suite 220 Novato, California 94947

GEOTECHNICAL LETTER

GREGORY G. MILLER  
STRUCTURAL ENGINEER

12/21/22

Zoe Stephens, PG  
Miller Pacific Engineering Group

RE: 30 Park Lane, Fairfax

I have reviewed the plans for 30 Park Lane, Fairfax, and have concluded that the existing shallow foundations meet or exceed the geotechnical criteria.

Sincerely,  
Greg Miller, S.E.

433 CALLE DE LA MESA  
NOVATO, CA 94949  
415 382-1109



012/31/23

STRUCTURAL LETTER



012/31/23

REVISION	BY

DAVID McNUTT, Owner - Builder  
PLAN PREPARER  
DRAFTTECH (of Marin County), SCOTT R. TROWBRIDGE  
15 SCHOOL TERRACE, NOVATO, CA 94945  
drafttechinc@yahoo.com ph: (415) 897-0842  
Scott Trowbridge  
S. E. T. R. O. W. B. R. I. D. G. E.

LETTERS FROM CONTRACTOR,  
GEOTECHNICAL AND  
STRUCTURAL ENGINEERS

REBUILD & ADDITION DRAWINGS FOR THE:  
McNUTT RESIDENCE  
30 PARK LANE  
FAIRFAX, CALIFORNIA 94930  
(415) 250-0293 APN 001-032-12

Date: 04/11/2023  
Scale: AS SHOWN  
Drawn by: SRT/VGT  
Project: McNUTT

S-5

CALCULATIONS FOR ADDITION  
AT 30 PARK LANE  
FAIRFAX

2/16/23

CALCULATIONS BY

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ROOF Framing

$D+L = 10+20 = 30 \text{ psf}$

5' RAFTERS

$W = 2 \times 30 = 60 \text{ plf}$   $M = \frac{60 \times 5^2}{8} = 188 \text{ ft-lb}$

Tray 2x6 @ 24" o.c.

$f_2 = \frac{12 \times 188}{7.563} = 298 \text{ psi}$  o.k.

26' Ridge Bm.

$W = 5 \times 30 + 25(20) = 175 \text{ plf}$

$M = 175 \times 26^2 / 8 = 14,788 \text{ ft-lb}$

Tray 3 1/2" x 4" psl

$f_2 = \frac{12 \times 14,788}{133.3} = 1331 \text{ psi}$

$A = \frac{5 \times .01 \times 6 \times (12 \times 26)^2}{384 \times 2000 \times 800} = 2/277 \text{ o.k.}$

$P = 175 \times 26 / 2 = 2275 \text{ lbs}$  2x6" H.R. Supporting Post

$M_{\text{post}} = 2275 \times 2.5 / 4 = 1422 \text{ ft-lb}$

Tray 6" x 8"  $f_2 = \frac{12 \times 1422}{51.563} = 331 \text{ psi}$  o.k.

$V = 2275 / 2 = 1138 \text{ lbs}$

$f_2 = \frac{1.6 \times 1138}{5.5 \times 7.5} = 41 \text{ psi}$  o.k.

2ND FLOOR Framing

$D+L (\text{storage}) = 10+40 = 50 \text{ psf}$

Joists  $L = 10'$

$W = 1.33 \times 50 = 67 \text{ plf}$   $M = \frac{67 \times 10^2}{8} = 838 \text{ ft-lb}$

Tray 2x8  $f_2 = \frac{12 \times 838}{13.141} = 765 \text{ psi}$  o.k.

8x6" H.R. OVER GARAGE DOOR

10 psf @ 8 (wall) + 2 1/2 x 30 (roof) + 1.33 x 50 (floor) = 143 plf

$M = 2511 \times 4 \times 2 - 143 \times 5.25^2 / 2 = 5405 \text{ ft-lb}$

Tray 6x10  $f_2 = \frac{12 \times 5405}{82.729} = 842 \text{ psi}$  o.k.

1ST FLOOR Framing

7' JOIST

$W = 1.33 \times 50 = 67 \text{ plf}$   $M = 67 \times 7^2 / 8 = 410 \text{ ft-lb}$

Tray 2x6  $f_2 = \frac{12 \times 410}{7.563} = 265 \text{ psi}$  o.k.

DECK Framing

$D+L = 10+60 = 70 \text{ psf}$

5' JOIST  $W = 1.33 \times 70 = 93 \text{ plf}$

$M = 93 \times 5^2 / 8 = 291 \text{ ft-lb}$

Tray 2x6  $f_2 = \frac{12 \times 291}{7.563} = 462 \text{ psi}$  o.k.

8' DECK BEAM

$(5/2 + 1) \times 70 = 245 \text{ plf}$

$P = 6/2 \times 1.5 \times 50 \text{ psf} = 113 \text{ lbs}$

$M = 1328 \times 4.5 - 4.5^2 \times 245 / 2 = 113 \times 15 = 3326 \text{ ft-lb}$

Tray 4x10  $f_2 = \frac{12 \times 3326}{49.911} = 800 \text{ psi}$  o.k.

FOUNDATION DESIGN CHANGE

SOIL REPORT BY MILLAR PACIFIC

18" DRILLED PIERS 5' MIN. INT. COMPACT SOIL OR BED ROCK

LOAD ON LONGITUDINAL WALL

$= 11/2 \times 30 (\text{ROOF}) + 10 \times 8 (\text{WALL}) + 10.5/2 \times 50 (\text{UP. PER.}) + 8 \times 10 (\text{WALL}) + 200 \text{ plf (CR. BM)} = 788 \text{ plf}$

$P_{\text{max}} = 788 \times \frac{2.6 \text{ ft}}{2} = 10,409 \text{ lbs}$  MIDDLE PIERS

USE 500psf FOR PIER SKIN FRICTION FOR 18" PIERS; 500psf x 7x1.5 = 2355 lbs

MIN. EMBEDMENT REQ'D =  $5 + 10,409 / 2355 = 9.4 \text{ ft}$  COMPACT SOIL

USE 12' MIN. EMBEDMENT

GRADE BEAM DESIGN  $W = 788 \text{ plf}$

$M = 788 \times 13.2 / 9 = 15,270 \text{ ft-lb}$

$M_u = 1.16 \times 15,270 = 24,444 \text{ ft-lb}$

Tray 10" x 18" CR. BEAMS

$F(10, 14.75) = .181$   $K_u = \frac{24,444}{181} = 135$

FOR  $f_c = 3000 \text{ psi}$   $f_y = 60 \text{ ksi}$

$\rho_{\text{min}} = .0025 \times 1.33 = .0033$

$A_s = .0033 \times 10 \times 14.75 = .49 \text{ in}^2$

USE 2#5 @ 24" o.c.

$V = 788 \times 13.2 = 10,409 \text{ lbs}$

$V_u = 1.6 \times 10,409 = 16,654 \text{ lbs}$   $f_v = \frac{16,654}{85 \times 10 \times 14.75} = 60 \text{ psi}$

USE #3 TIES @ 12" o.c.

LATRAL ANALYSIS

WIND ANALYSIS

91 mph  $h_t = 22'$   $\phi = 26^\circ$   $K_d = .85$   $K_z = .70$

Exp. B  $q = .00256 \times 91^2 \times .85 \times .70 = 12.6 \text{ psf}$

$a = 10 \times 11 = 1.1$   $a_s = .4 \times 22 = 0.8$

$a_c = .04 \times 11 = .44$  USE  $a = 3.0$

E/W DIR.

$P_{\text{roof}} = 12.6 \text{ psf} \times .80 \times 2 \times 6 \times (4 + 6/2) + 12.6 \text{ psf} \times .53 \times 14 \times (6/2 + 4) + 12.6 \text{ psf} \times .6 \times 2 \times 6 \times (4 + 6/2) + 12.6 \text{ psf} \times .43 \times 14 \times (6/2 + 4) = 2710 \text{ lbs}$

N/S DIR.

$P_{\text{roof}} = 12.6 \text{ psf} \times .61 \times 2 \times 3 \times (1.5 + 6/2) + 12.6 \text{ psf} \times .40 \times 5 \times (2 + 6/2) + 12.6 \text{ psf} \times .43 \times 2 \times 3 \times (1.5 + 6/2) + 12.6 \text{ psf} \times .20 \times 5 \times (2 + 6/2) = 571 \text{ lbs}$

$P_{\text{R.R.}} = 12.6 \text{ psf} \times .61 \times 2 \times 3 \times (6 + 14/2) + 12.6 \text{ psf} \times .40 \times 5 \times (6 + 14/2) + 12.6 \text{ psf} \times .43 \times 2 \times 3 \times (6 + 14/2) + 12.6 \text{ psf} \times .20 \times 5 \times (6 + 14/2) = 1221 \text{ lbs}$

$N_c = 571 + 1221 = 1792 \text{ lbs}$

SEISMIC ANALYSIS

$F = 1.1 S_D S = 1.2$   $R = 6.5$

$V = \frac{P S_D S W}{R} = \frac{1.1 \times 1.2 \times W}{6.5} = .202 W$

$W_{\text{roof}} = 10 \text{ psf} \times 16 \times 30 (\text{ROOF}) + 10 \text{ psf} \times 6/2 \times 74 (\text{WALLS}) = 7020 \text{ lbs}$

$W_{\text{R.R.}} = 10 \text{ psf} \times 7 \times 26 (\text{P.L.R.}) + 10 \text{ psf} \times 48 \times 10 (\text{WALLS}) = 7660 \text{ lbs}$

$W_{\text{TOTAL}} = 7020 + 7660 = 14,680 \text{ lbs}$

$V = .202 \times 14,680 = 2936 \text{ lbs}$

$V_{\text{DESIGN}} = \frac{1.2}{1.4} \times 2936 = 2726 \text{ lbs}$

COVERS:

E/W DIR.

$V_{\text{ROOF}} = \frac{7020 \times 2726}{14,680} = 1304 \text{ lbs}$

N/S DIR.

$V_{\text{R.R.}} = \frac{1304 \times 7660}{14,680} = 652 \text{ lbs}$

ROOF S.W.

$P_{\text{DL}} = 6.5 \times 20 (\text{ROOF}) + 5.5 \times 10 \times 2 (\text{WALLS}) = 172 \text{ lbs}$

$P_{\text{LL}} = 6.5 \times 20 (\text{ROOF}) + 5.5 \times 10 \times 2 (\text{WALLS}) = 172 \text{ lbs}$

$T = 172 \times 6 = 1032 \text{ ft-lb}$

USE 5/8" HD'S NOT REQ'D

Along Line 2

$V_2 = 652 \text{ lbs}$   $V_2 = \frac{652}{12.5} = 52 \text{ plf}$

1/2" plywood w/ 8d @ 6" o.c. G.F. 260

E/W DIR.

$V_{\text{R/W}} = 2710 \text{ lbs}$  Along Line a & b

$V_a = \frac{2710 \times 16.5}{33.5} = 1355 \text{ lbs}$

$V_b = \frac{2710 \times 17}{33.5} = 1355 \text{ lbs}$

$T = 1014 \times 6 = 6084 \text{ ft-lb}$

1/2" plywood w/ 8d @ 6" o.c. G.F. 270 plf

N/S DIR.

$V_{\text{R/W}} = 2726 \text{ lbs}$  Along Line 1

$V_1 = \frac{2726 \times 9.5}{19.5} = 1363 \text{ lbs}$

$V_2 = \frac{2726 \times 13.5}{19.5} = 1895 \text{ lbs}$

1/2" plywood w/ 8d @ 6" o.c. G.F. 260 plf

LOWER LEVEL S.W.

$P_{\text{DL}} = 10/2 \times 10 \times 9.5 (\text{ROOF}) + 10/2 \times 10 \text{ psf} \times 9.5 \times 19.5 (\text{WALLS}) = 1900 \text{ lbs}$



2/17/23

REVISION	BY

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# STRUCTURAL ENGINEERS CALCULATIONS

REBUILD & ADDITION DRAWINGS FOR THE:  
**McNUTT RESIDENCE**  
 30 PARK LANE  
 FAIRFAX, CALIFORNIA 94930  
 (415) 250-0293 APN 001-032-12

Date: 04/11/2023  
 Scale: AS SHOWN  
 Drawn by: SRT/VGT  
 Project: McNUTT

30 PARK LANE 1  
FAIRFAX

60pcf  
 100psf  
 5x100 = 500x5 = 2500#  
 300pcf x 1.5x2 = 900pcf  
 18" φ DRILLED PIERS @ 5' O.C.  
 Horiz. Load on PIER = 3750# + 2500 = 6250#

PT UP ZERO SHARE = 3750#  
 $M_{zero\ share} = 3750 \times (5/3 + 2.5 \times 2.73) + 2500 \times (5/2 + 2.5 + 2.73) - 6250 \times 3.73/2 = 29,613 + 21,025 - 7711 = 43,657$   
 For 18" φ piers  $d = 1.89 \times 18 - 3 \times 1.5/2 = 12.77$   
 $F(12.77, 14) = 1.190$   $M_u = 16 \times 1.190 = 69.9 \#$   
 For 3000 psi  $f_c = 60ksi$   $K_u = \frac{69.9}{1.90} = 36.8$   
 $\rho = 1.0075$   
 $A_s = 1.0075 \times 12.77 \times 1.4 = 1.73 \text{ in}^2$   
 Use #6 uphill

WALL DESIGN  
 $M_{wall} = 750 \times 5/2 + 500 \times 5/2 = 2,500 \#'$   
 $M_u = 16 \times 2.5 = 40 \#'$

$d = 8 - 2 \times 1.5/2 = 5.75$   
 $F(5.75, 12) = 1.033$   
 $K_u = \frac{F}{1.033} = 72$   $\rho = 0.035$   
 $A_s = 0.035 \times 5.75 \times 12 = 1.24 \text{ in}^2$   
 Use #5 @ 12" O.C.  $A_s = 1.31 \text{ in}^2$

TORQUE in Grade Beam  
 $T = \left[ \frac{2100^2}{9376} \times \left( 60 \times 5/2 \times (5/3 + 1.2) + 500 \times 5 \times (5/2 + 1.2) \right) \times 5/2 \right] = 20,908 \text{ in}^2$   
 $T_u = 1.6 \times 20,908 = 46,252 \text{ in}^2$   
 $\phi (1.5 \times \sqrt{3000}) \times 2 \times L = 1.85 \times 1.5 \times \sqrt{3000} \times 30 \times 30 = 6285 \text{ in}^2$   
 $6285 > 46,252$   
 IGNORE TORSION

P.3  
VERTICAL LOAD ON PIERS EFFECTS  
 $W = 7 \text{ pcf} \times 10 \text{ ft} + 183 \times 150 \times 5 \text{ (retain wall)} = 1411 \text{ plf}$   
 PIERS @ 5' O.C. = 5 x 1411 = 7055#  
 $M_{L1} = 1411 \times 5^2/10 = 3910 \#'$   
 $M_u = 1.6 \times 3910 = 6271 \#'$   
 $d = 30 - 3 \times 1.5/2 = 26.75$   $F(30, 26.75) = 1.79$   
 $K_u = \frac{6271}{1.79} = 3498$   
 $\rho_{min} = 0.0020 \times 30 \times 26.75 = 1.61 \text{ in}^2$   
 USE #6 Bars 7 @ B  $A_s = 4 \times 44 = 176$

VERTICAL LOAD ON PIERS  
 = 7055#  
 SKIN FRICTION = 500 psf in soil  
 For 18" φ PIERS: 1.5 x 3.14 x 500 psf = 2355#'  
 AMBED REQ'D =  $\frac{7055}{2355} = 3'$   
 USE 18" φ DRILLED PIERS w/ 10' AMBED.

