

Signature: *[Signature]*
 Date: 7/17/17
 License Expires November 30, 2018
 SMTS1-10

OUTRIGGER BEAM FRAMING PLAN
 3/16/17

SHEET 1		PROJECT ANN & ROBERT H. LURIE CHILDREN'S HOSPITAL OF CHICAGO	DIVERSIFIED CONSTRUCTION SERVICES	PROJECT # 17198 BY GEL DATE 6/26/17
------------	--	---	---	---

HOISTING RIGGING BEAM FOR BOTTOM 3' PC.

DESIGN LOAD $\frac{9100^{lb}}{3'} = 2100^{lb} \rightarrow$ USE 2500^{lb} INCLUDING HOIST & RIGGING

CHECK W8X18 DEFLECTION, USE 2.5' CONT.

$M = P_L = 2.5'(2100) = 6.25^{kl} < M_R = 28^{kl}$ (OK)

CHECK BOTTOM 3' SECTION ON (12) 4xL x 6' DECK (6' SPAN), DF, NO 1 JOISTS

$M = \frac{P_L}{4} = \frac{2500(6')}{4} = 3750^{lb}$

$F_b = 1000 \text{ psi}$
 $F_v = 95 \text{ psi}$

$f_b = \frac{M}{S} = \frac{3750^{lb}(12^{in})}{12(17.65 \text{ in}^3)} = 212 \text{ psi} < 1000 \text{ psi}$ (OK)

$V = \frac{2500^{lb}}{2} = 1250^{lb}$

$f_v = \frac{3V}{2A} = \frac{3(1250)}{2(12)(3.5 \times 5.5)} = 8.1 \text{ psi} < 95 \text{ psi}$ (OK)

CROSSING $\frac{3}{4}" \phi$ STAINLESS STEEL NUT, $\approx 90^\circ$ LOADING GOOD FOR 25% FACTOR LOAD

PALLOW $\approx .25(7200^{lb}) \times 4 = 7200^{lb}$ (AT 80% OF TOTAL PANEL WT)

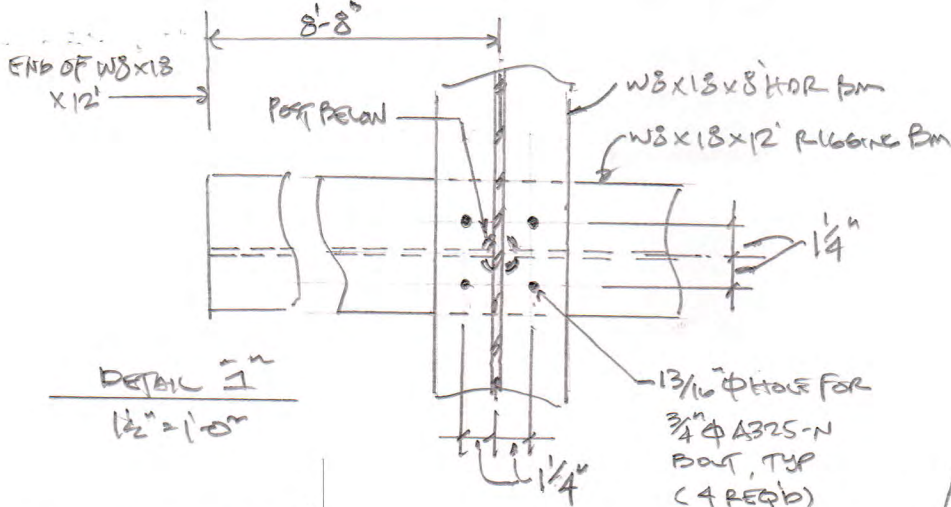
APPROX TOP 2' OF PANEL WILL BE REMOVED AT POINT TOP CLIPS ARE DISENGAGED

$9100 \left(\frac{11'}{12'} \right) = 7700^{lb} \approx 7200^{lb}$ (OK) AND BOTTOM CLIPS REMAIN IN PLACE.

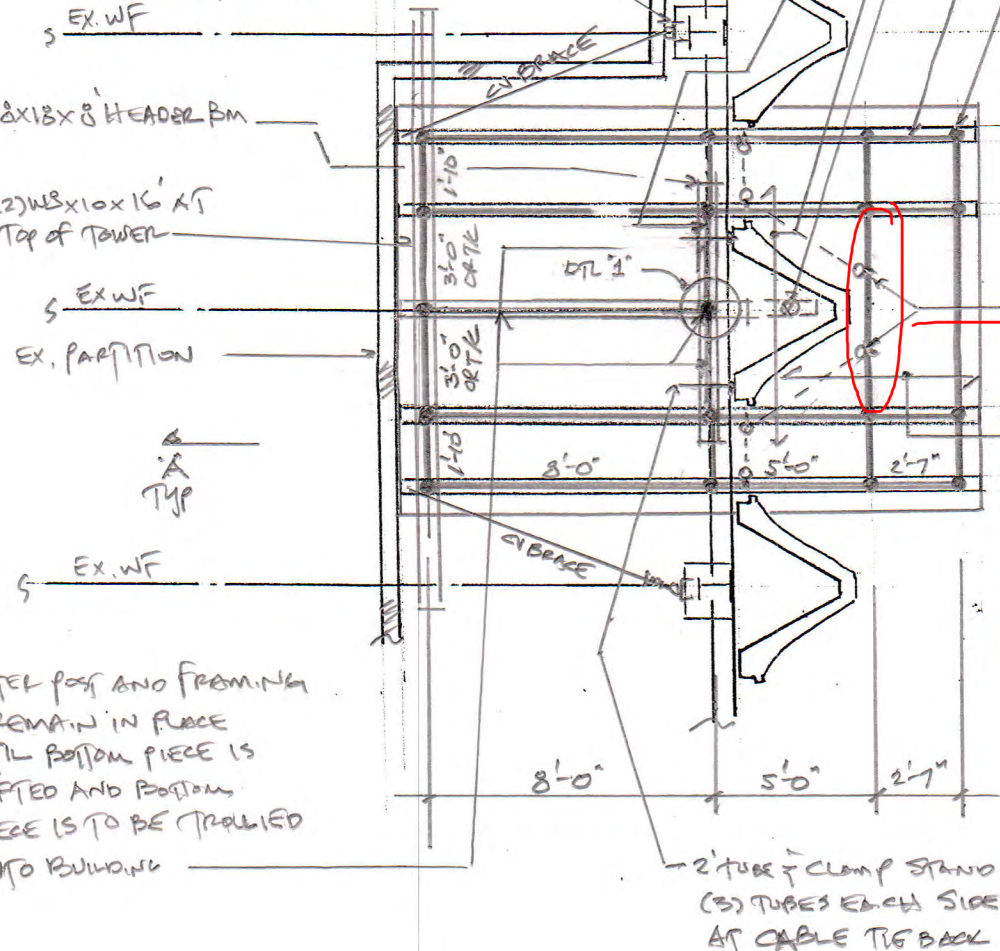
CHECK W8X18 RIGGING BEAM FOR 7200^{lb} DESIGN LOAD

$M = P_L = 7.2'(7200) = 18^{kl} < M_R = 28^{kl}$ (OK)

SHEET 10	PROJECT LVAIE CHILDRENS HOSP	D.C.S.	PROJECT # 17231 BY GEL DATE 7/10/17
-------------	------------------------------------	--------	---



SWIVEL JACK BASE PL.
 ANCHORED TO EX. COLUMN
 CONC. ENCASEMENT W/
 (4) 3/8" ϕ x 2" BOLTS
 WEDGE BOLTS, TYP
 (5 REQ'D, EACH SIDE,
 POSITION AT EACH CUPLOK
 HORIZONTAL FRAMING LEVEL)
 EX. WF



SCAFFOLD Framing Plan
 3/16" = 1'-0"

(12) 4x6x8' JOIST @ 6" O/C
 DECK BUILT UNDER BOTTOM
 3' SECTION OF PANEL AFTER
 BOTTOM SECTION IS LIFTED
 ABOVE MAIN DECK

2500# RIGGING POINT
 TO LIFT BOTTOM 3'
 SECTION OF PANEL

CUPLOK HORIZ. OR
 TUBE CLAMP
 FRAMING, TYP.

CUPLOK POST, TYP

NOTE: W8x13x8 HEADER
 BEAM ACCEPTABLE FOR
 PLACEMENT OF (2) BCA
 1 TON BEAM CLAMPS
 POSITIONED 2'-0" TO
 EAST AND WEST
 OF CENTER SCAFFOLD
 POST. FOR SCAFFOLD
 ERECTOR FALL
 PROTECTION USE.

Remove horiz pipe,
 3 middle ones

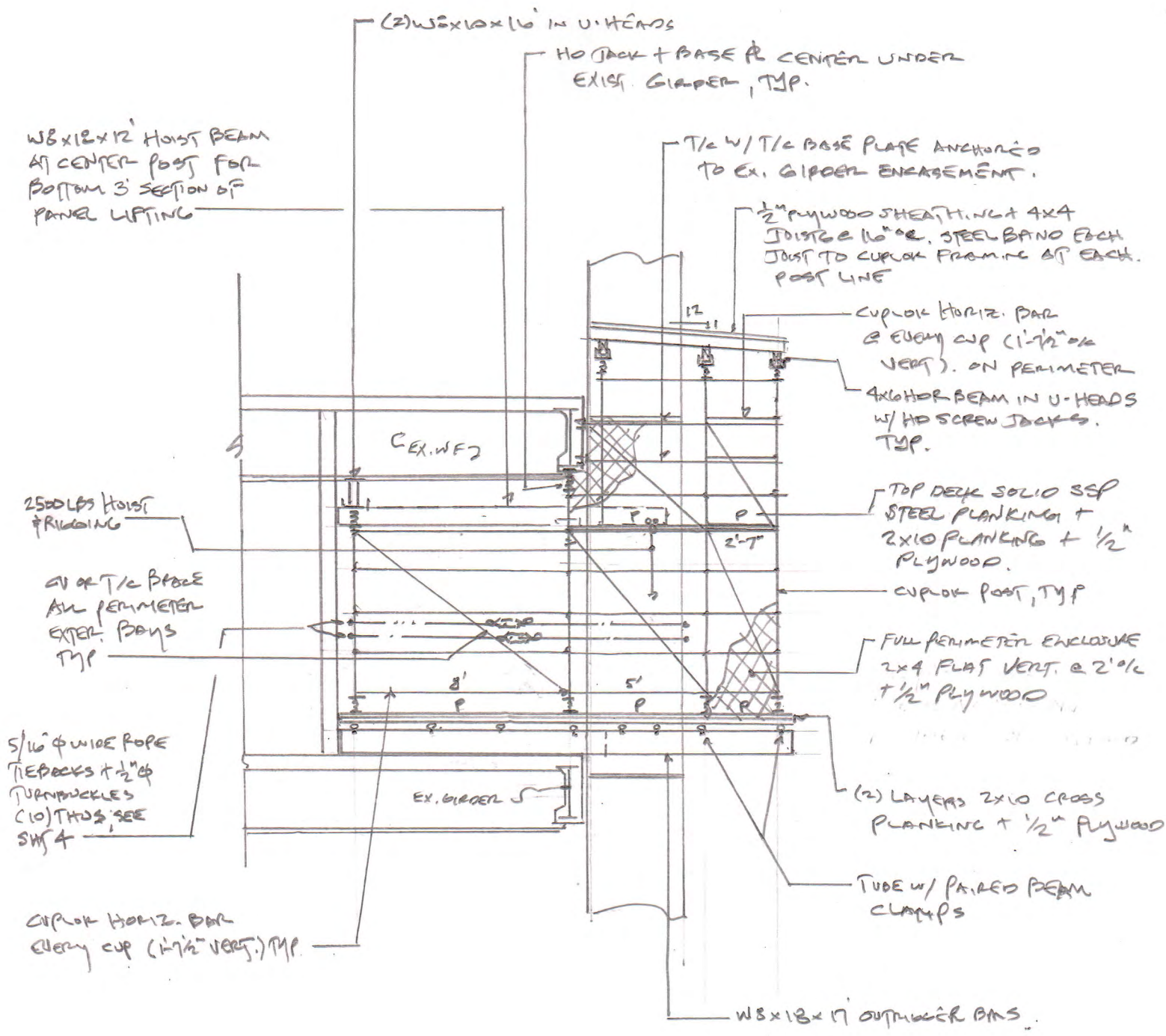
TUBE CLAMP POST FOR
 ROOF HEADER BEAM
 SUPPORT (6 REQ'D)

4x4 ROOF JOIST @ 16" O/C

Remove solid wood
 header beam in
 place off

Revised during on site
 meeting with GK- 7/25/17

SHEET 2	PROJECT Lurie Children's Hosp.	D.C.S.	PROJECT # 17198 BY GEL DATE 6/26/17
------------	-----------------------------------	--------	---



SECTION A-A

3/16" x 1/2"

SHEET 3	PROJECT Lurie Children's Hosp.	D.C.S.	PROJECT # 17198 BY GEL DATE 6/26/17
------------	-----------------------------------	--------	---

5/16" ϕ WIRE ROPE TIEBACK CABLES, REMOVE AS PANEL SECTIONS ARE REMOVED, TETHER INDIVIDUAL PIECES TO TIEBACK CABLES DURING PIECE REMOVAL.

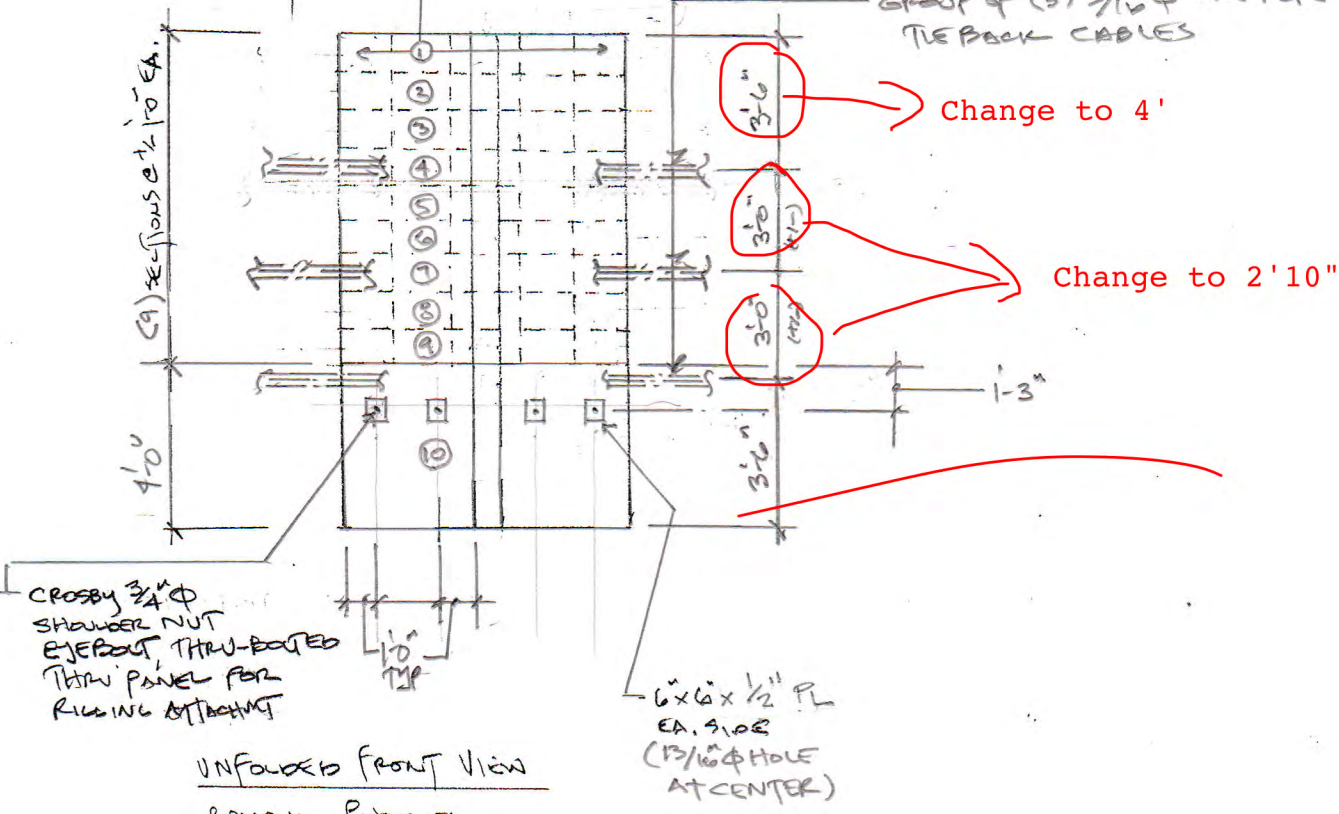
REMOVAL SEQUENCING

1. INSTALL SCAFFOLD / SHORING.
2. INSTALL (10) TIEBACK CABLES
3. INSTALL HOIST & BOTTOM PANEL SECTION RIGGING
4. BEGIN PHASED PIECE REMOVAL

(15) EQ. SECTIONS @ 1'-8" EA.

PHASED LEVEL REMOVAL

GROUP OF (3) 5/16" ϕ WIRE ROPE TIEBACK CABLES



UNFOLDED FRONT VIEW
REMOVAL PHASING

Revised during on site meeting with GK- 7/25/17

SHEET 4	PROJECT CURIE CHILDRENS HOSP.	D.C.S	PROJECT # 1798 BY GK DATE 7/3/17
------------	----------------------------------	-------	--

General notes:

1. User/erector shall comply w/ scaffold manufacturer safety guidelines and all OSHA regulations regarding scaffolding.
2. Clamp all beams to beams/ u-heads/existing beams w/ 4- jbc or hd c-clamps, 1 each corner of each intersection
- ~~3. Contractor shall verify that existing subgrade below existing concrete slab on grade can safely support a uniform pressure of 2000 pounds per square foot at all sill locations.~~
4. Secure all base plates to timber/wood sills or blocking using 4- 16d nails each plate.
5. All wood joists/blocking shall be douglas fir larch no. 1 or equivalent.
6. All 2x10 plank/sills shall be scaffold grade.
7. Contractor shall verify that existing structure can safely support scaffold loads.

SHJ
5

Lurie Children's Hosp.
K.C.S

1, part # 1723/

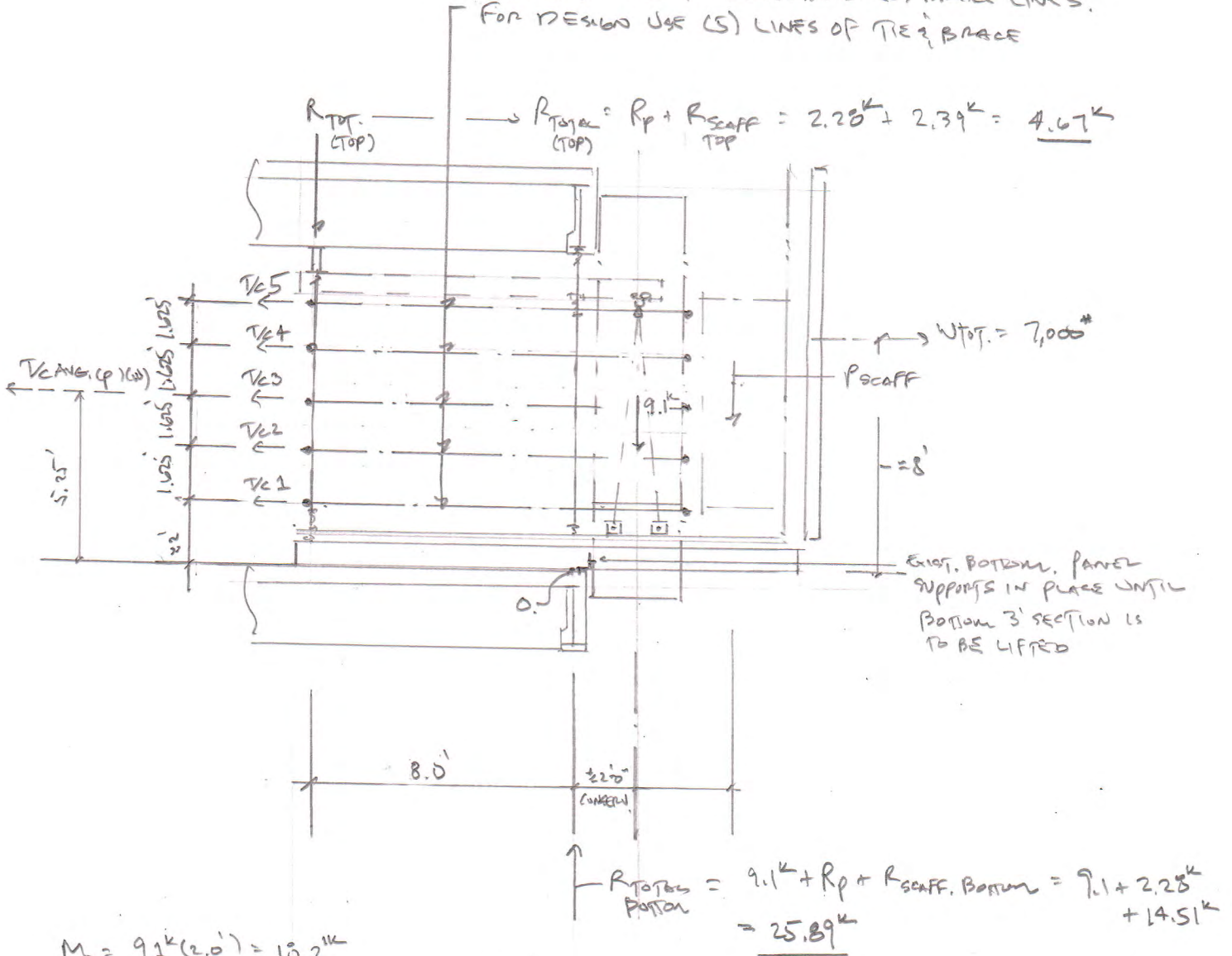
PANEL REMOVAL STOPPING / BRACING CALCULATIONS

DESIGN LOADS:

TOTAL PANEL WT : 9100 LBS.

MODEL :

HAVE (10) CABLE TIE LINES AND (5) BRACE LINES.
FOR DESIGN USE (5) LINES OF TIE & BRACE



$M_o = 9.1^k(2.0') = 18.2^{1k}$

DIRECT VERTICAL : $R_p = \frac{18.2^{1k}}{8.0'} = 2.28^k$

USE WEIGHTED AVG, BASED ON MOMENT ARMS \Rightarrow T/C AVG = $\frac{1}{2} R$

Then $\frac{1}{2} R (5.25') + R (8.0') = 18.2^{1k}$

$R = 1.71^k$ (USE $R_p = 2.28^k$ FOR DESIGN)

SHEET 6	PROJECT Lurie Children's Hosp	P.C.S.	PROJECT # 1723/ BY GEL DATE 7/10/17
------------	----------------------------------	--------	---

Then $V_{c,avg} = \frac{1}{2} R = \frac{1}{2} (1.71^k) = 0.86^k$
(P)

HAVE (10) BRACES + (10) CABLES = (10) SUPPORTS FOR 0.86^k TO EX. COL'S

$$\frac{0.86^k}{10} = 0.086 = \underline{86^{\#}} \text{ PIN CABLE / BRACE (FROM PANEL WT)}$$

ADD WIND LOAD ON SCAFF. ENCLOSURE AT EA. TIE LEVEL

USE $w = 50 \text{ psf}$

TOTAL $W = 50 \text{ psf} (4' \text{ high}) (10' \text{ wide}) = 7,000^{\#}$

$M_{D,wind} = 7,000^{\#} (8') = 56,000^{\text{ft}}\text{-}\text{lb}$

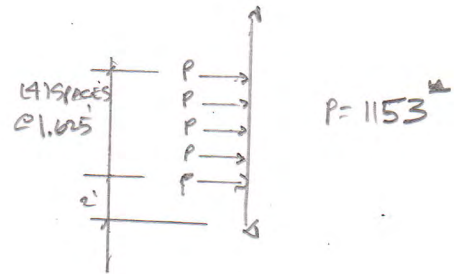
$V_{c,avg} (W) = \frac{56,000^{\text{ft}}\text{-}\text{lb}}{5.25'} = 10,670^{\#}$; over (10) supp. points

$\frac{10,670^{\#}}{10} = \underline{1067^{\#}} \text{ EACH (FROM WIND)}$

TOTAL REACTION TO EXIST. COLUMNS:

$R_{col} = 86^{\#} + 1067^{\#} = 1153^{\#}$

EXIST. COLUMN
UNDE. LOADING:



SCAFF. MODEL LOADS.

BASE DECK P₁:

BMS.: 15" x 1 (17') x 4 + 15" x 1 (10') + 18" x 1 (12') =

TURF & CLAMP 50" (8)

DECKING 10 psf (10') (16')

$$\begin{array}{r} 1620^* \\ 400^* \\ \hline 1600^* \\ \hline 3620^* \quad P_1 \end{array}$$

SCAFF. P₂:

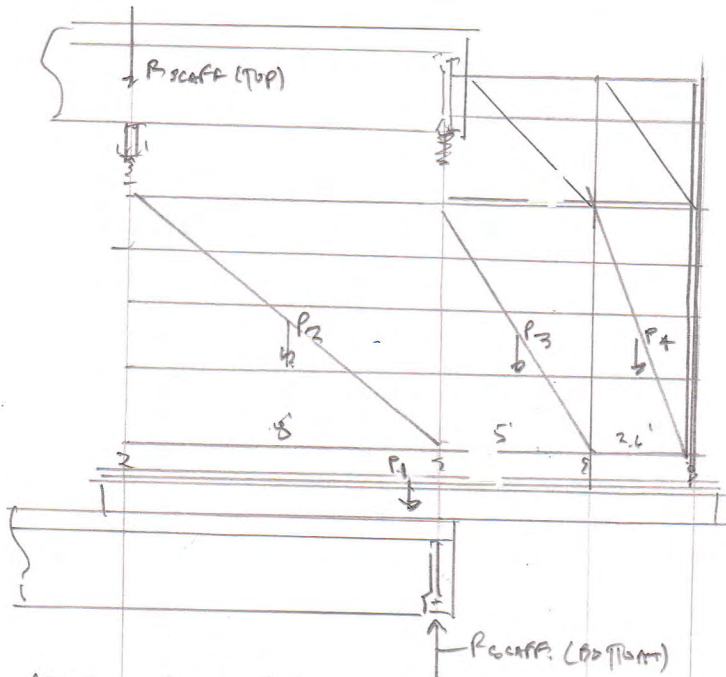
POSTS, TRANS, ETC. 60" (10)

HORIZ.'S 3" x 1 (300')

BRACING 30" (16)

MISC.

$$\begin{array}{r} 600^* \\ 900^* \\ 480^* \\ 200^* \\ \hline 2180^* \quad P_2 \end{array}$$



$$P_{scaff} \text{ (Top)} = \frac{3620^*(8') - 2180^*(4') + 3130^*(2.5') + 3182^*(6.3')}{8'}$$

$$P_{scaff} \text{ Top} = 2394^*$$

$$P_{scaff} \text{ Bot.} = \frac{3620^*(8') + 2180^*(4') + 3130^*(10.5') + 3182^*(14.3')}{8'}$$

$$P_{scaff} \text{ Bot.} = 14,506^*$$

SCAFF. P₃: (POSTS IN P₂ AND P₄)

HORIZ.'S 3" x 1 (320') = 960*

BRACING 30" (4) = 120

PLANKING 10 psf (5') (10') = 500*

MISC. (ENCLOSURE, ECT) = 300*

CONST. LL. 25 psf (5') (10') = 1250*

3130*

SCAFF. P₄:

POSTS, TRANS, ECT 80" (8) = 640*

HORIZ.'S 3" x 1 (244') = 732*

BRACING 30" (10) = 300

PLANKING 10 psf (2.6') (10') = 260

MISC. (ENCL. ECT.) = 600*

CONST. LL. 25 psf (2.6') (10') = 650*

3182*

PLAN LOAD MODEL:

$R_{TOT} = 1.67^k$; $\frac{1.67^k}{4 \text{ PTS}} = 1.17^k \text{ ea.}$

FOR VERT. LOADS:

(+) = DOWNWARD

(-) = UPLIFT.

$R_{TOTAL} (TOT) = 25.89^k$

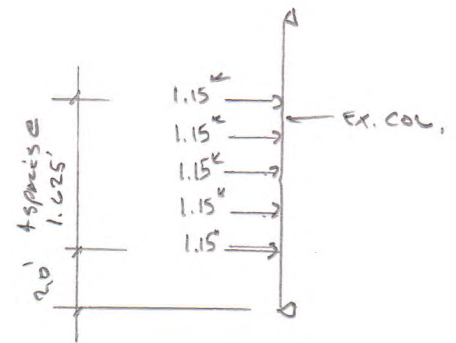
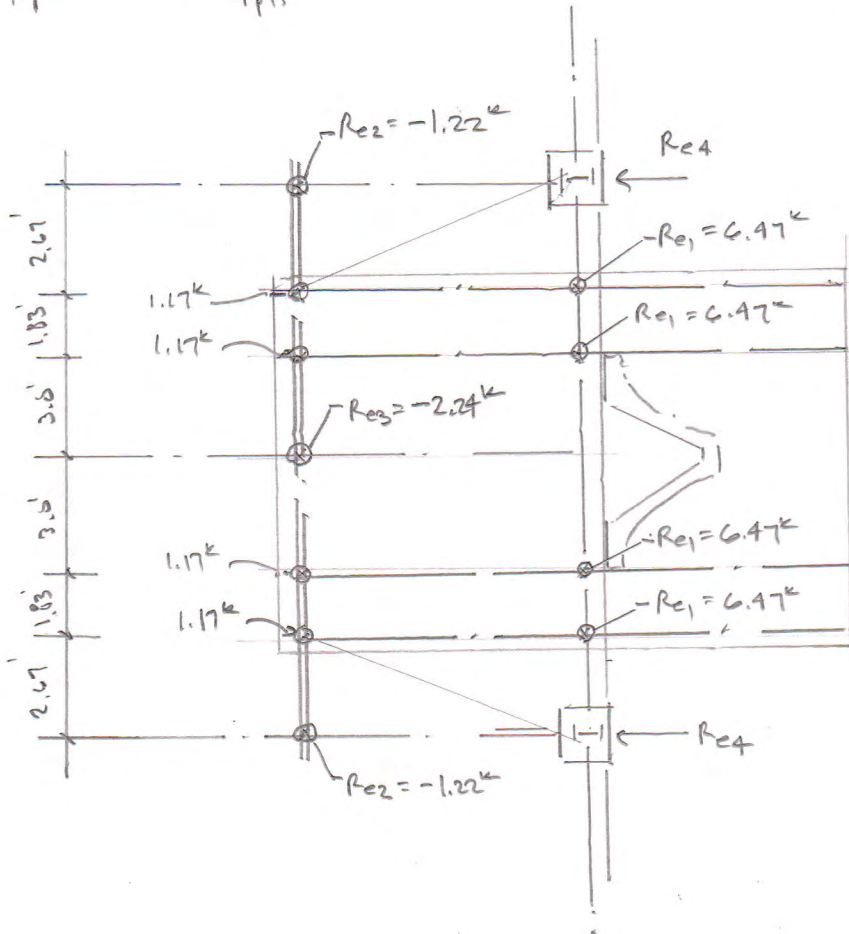
$R_{e1} = \frac{25.89^k}{4} = 6.47^k$

$R_{e2} = \frac{1.17^k (3' + 4.83')}{7.5'} = -1.22^k$

$R_{e3} = 2 (1.12^k) = 2.24^k$

HORIZ. LOAD ON COLUMNS

$R_{e4} = 1.15^k \text{ (X 5 EB. COLUMN) :}$



CHECK FOR UPLIFT BEAMS

USE $M_{max} = P_a = 1.17^k (7.0') = 3.51^k$

FOR (2) W8x10 @ $L_b = 7.5'$ $M_p = 2 (11^k) = 22^k > 3.51^k$ (OK)

CHECK ORFICIAN BEAMS, W8x18's (4)

$M_{max} = 3(30^k)(2.5') + 3(62^k)(4.3') + \frac{3620^k}{2}(4') = 35,112^k = 35.11^k$

FOR (4) W8x18 @ $L_b = 8'$:

$M_p = 4 (28^k) = 112^k > 35.11^k$ (OK)

SHEET 9	PROJECT LUCIE CHILDREN'S HOSP.	D.A.S.	PROJECT # 17231 BY GSK DATE 7/10/17
------------	-----------------------------------	--------	---