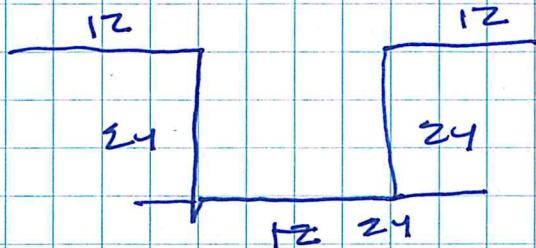


TRENCH DRAIN REBAR

9 EA perimeter x 1 ft - QLF
 #6 @ 12" O.C vert



#6 ~~7~~ STIRRUPS
 8 FT

SADDLE



#6 4 QLF

IMBED ANGLE (2) EA

1/4 x 1 x 1/4 w/ Red Hd INSERT

GRATING

TRENCH DRAIN FORMWORK

03100 - 445 6150 9.50 SF

0550 05530

05540 200 - 0990
 Custom FAY 3/4" THK LF

①

ASSUME STORAGE ON SITE

EXIST CONCRETE DEMOLITION

AREAS

① BLDG SLAB 48x100 = 4800 sq ft

② ROADWAY 100x29 = 2900 sq ft

③ CONCRETE DRIVE 118x29 = 3422 sq ft

④ PARTIAL DRIVE 49x29 = 1421 sq ft

⑤ CONCRETE PAD 8273 = 8273 sq ft

⑥ WIRE CAGE 20x30 = 600 sq ft

⑦ CONCRETE TRENCH 60x15 = 900 sq ft

22,316 sq ft

ASSUME 12" THK AVG

22316 / 9
(22316 x 1) / 27

= 2479.55 Y
= 826.5 CUYD

RS MEANS

~~02200 - 130 - 2500~~
02200 - 250 - 5400

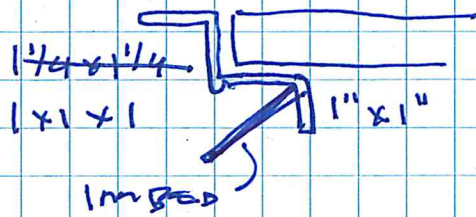
\$115.00 / CY = \$95,047.75

HAUL

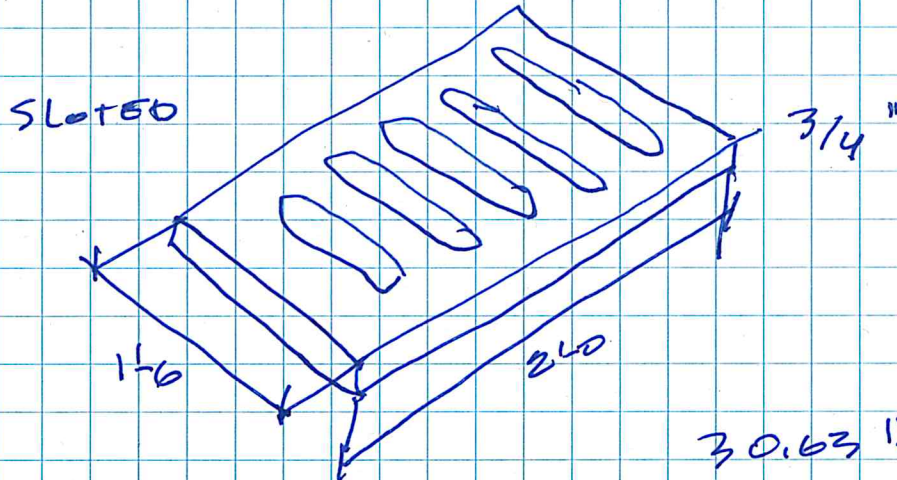
02300 490 0320
826.5 CUYD x 3.44 =

2843.16
\$97,890.16

TRENCH DRAIN Shelf Angle



TRENCH PLATES



$$30.63 \text{ lb/ft} = 3/4''$$

$$1 1/2 \times 2 \times 30.63 = 91.89 \text{ say } 92 \text{ lb EA}$$

ASSUME 40% REDUCTION FOR SLOTS

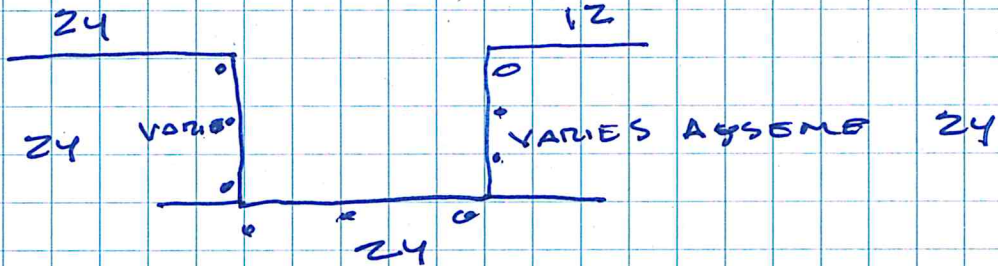
$$92 \times .4 = 36.8$$

$$92 - 36.8 = 55 \text{ lb EA} \quad 159^{\circ\circ} \text{ EA}$$

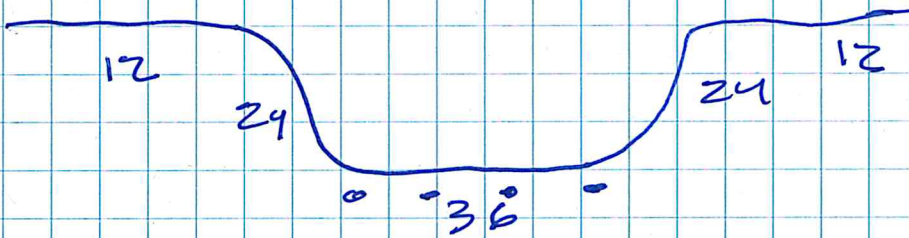
$$1116 / 2 = 558 \times 159^{\circ\circ} = \underline{\underline{\$88,722}}$$

TRENCH DRAIN ZEBAP WT PER LF

PERIMETER 9EA #6 HORIZ
BOTTOM 4EA #6 HORIZ



STIRRUPS
 $2 + 2 + 2 + 2 + 1 = 9 \text{ LF EA}$

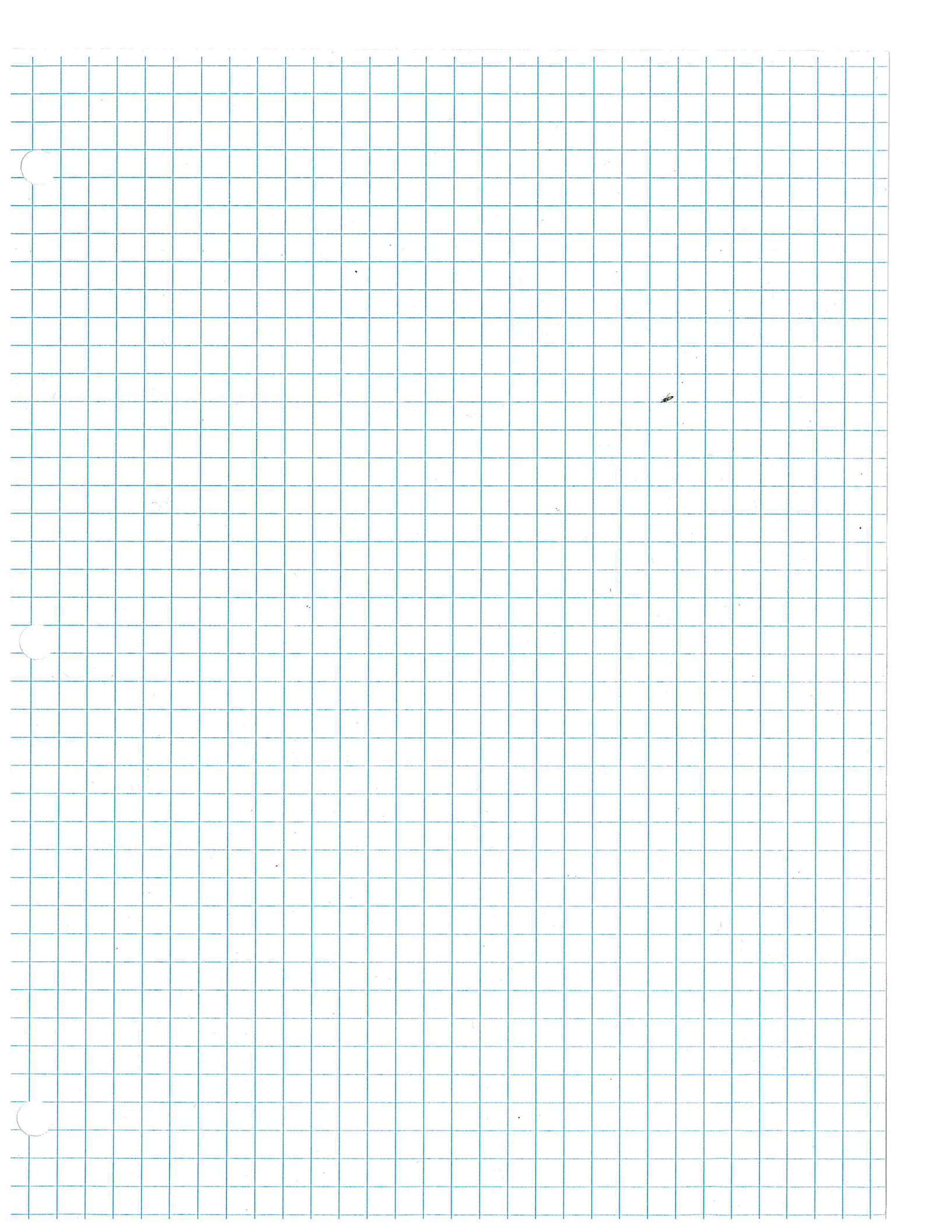


$1 + 2 + 3 + 2 + 1 = 9 \text{ LF #6}$

TOTAL LF/LF

$$9 + 4 + 9 + 9 = 31 \text{ LF} \times 1.5 \text{ lb/ft} = 46.5 \text{ lb/LF}$$

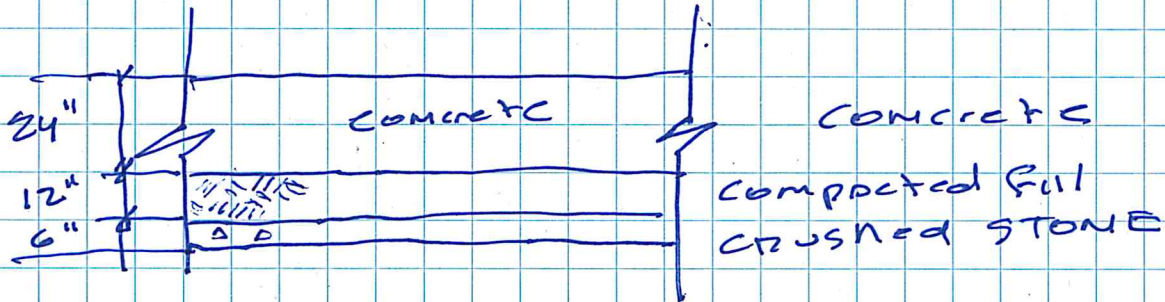
$$1116 \text{ LF} \times 46.5 = 51894 / 2000 = 25.94 \text{ TON}$$



①

VOLUME OF EXCAVATION STORAGE PAD

ASSUME STORAGE ON SITE



AREA (A)

$$26,149 \text{ sq ft} \times 3.5 \text{ FT} = 91,521.5 \text{ cu ft}$$

$$91,521.5 / 27 = 3,389.68 \text{ cu yd}$$

AREA (B)

$$16,268 \text{ sq ft} \times 3.5 = 56,938 \text{ cu ft}$$

$$56,938 / 27 = 2,108.8 \text{ cu yd}$$

$$\text{TOTAL } 3,389.68 + 2,108.8 = 5,497.88 \text{ cu yd}$$

ASSUME 20% COMPACTION

COMPACTED STRUCTURAL FILL

~~5497~~

$$26,149 + 16,268 \times 1.2 = 50,960 / 27 = 1,885.18$$

~~25,495 cu yd~~

②

VOLUME OF STRUCTURAL FILL

AREA (A)

$$26149 \text{ sq ft} \times 1 \text{ ft} = 26149 \text{ cuft}$$

$$26149 \text{ cuft} / 27 = 968.48 \text{ cuyd}$$

AREA (B)

$$16268 \text{ sq ft} \times 1 = 16268 \text{ cuft}$$

$$16268 \text{ cuft} / 27 = 602.5 \text{ cuyd}$$

Assume 20%

$$26149 + 16268 \times 1.2 = 50960 / 27 =$$

$$1885.2 \text{ cu/yd}$$

(5)

VOLUME OF CRUSHED STONE

AREA (A)

$$26,149 \times .5 = 13074.5$$

$$13074.5 / 27 = 484.24 \text{ cyd}$$

$$26,149 / 9 = 2905.44 \text{ SY}$$

AREA B

$$16268 \times .5 = 8134 \text{ cu ft}$$

$$8134 / 27 = 301.25 \text{ cyd}$$

~~$$8134 / 9 =$$~~

$$16268 / 9 = 1807.5 \text{ SY}$$

$$2905.44 + 1807.5 = 4712.9 \text{ SY}$$

④

VOLUME OF CONCRETE

AREA (A)

$$26,149 \text{ ft} \times 2 \text{ FT} = 52,298 \text{ cuft}$$

$$52,298 / 27 = 1,936.9 \text{ cuyd}$$

AREA (B)

$$16,268 \times 2 = 32,536 \text{ cuft}$$

$$32,536 / 27 = 1,205 \text{ cuyd}$$

$$1,936.9 + 1,205 = 3,141.9 \text{ cuyd}$$

5

WEIGHT OF REBAR

AREA (A)

$$26149 \times 3.5 \text{ lb/ft}^2 = 91521.5 \text{ lb}$$

$$91521.5 / 2000 = 45.7 \text{ TON}$$

AREA B

$$16268 \times 3.5 \text{ lb/ft}^2 = 56938 \text{ lb}$$

$$56938 / 2000 = 28 \text{ TON}$$

#4 STIRRUP @ 48" OC

AREA A

$$26149 / 48 \text{ 4 SP per SF} = 637 \text{ 6537.25 EA}$$

$$6537.25 \times 1.5 \text{ lb} = 9805.87$$

$$9805.87 / 2000 = 4.9 \text{ TON}$$

AREA B

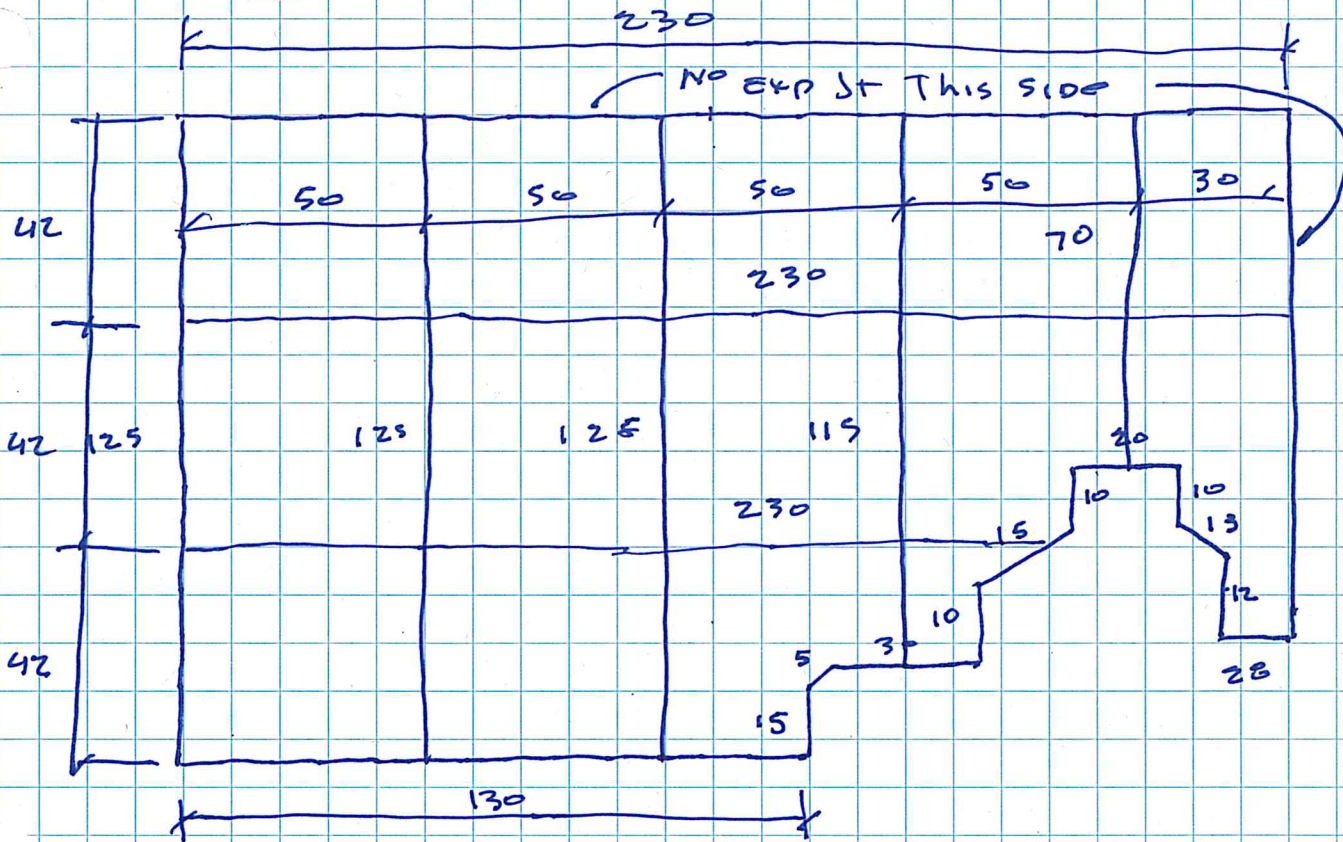
$$16268 / 4 = 4067 \text{ EA}$$

$$4067 \times 1.5 = 6100.5 \text{ EA}$$

$$6100.5 / 2000 = 3.05 \text{ TON}$$

AREA (A)

EXP JT STORAGE PAD



WIDTH

$$230 + 230 = 460$$

HT

$$125 + 125 + 115 + 70 = 435$$

Perimeter

$$125 + 130 + 15 + 5 + 30 + 10 + 15 + 10 + 20 + 10 + 13 + 12 + 28 = 423$$

$$435 + 423 = 858 \text{ SAY } \underline{\underline{860 \text{ LF}}}$$

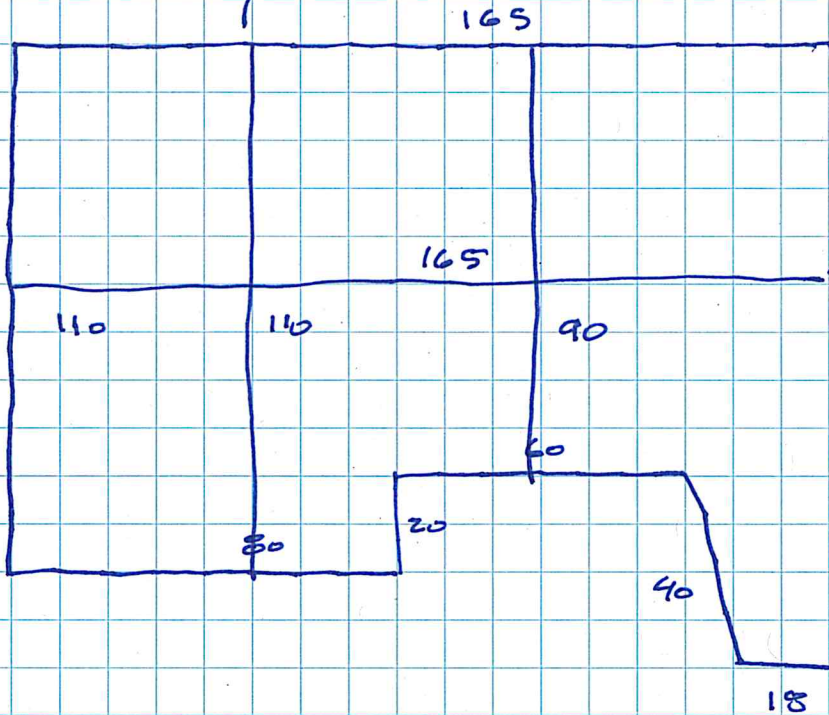
EXP JT STORAGE PAD

AREA (B)

NO EXP JT THIS SIDE

NO EXP JT THIS SIDE

NO EXP JT THIS SIDE



width $165 + 80 + 20 + 60 + 40 + 18 = 383$

HT $110 + 90 = 200$

$383 + 200 = 583$ SAY 600 LF

AREA (A) + (B) $860 + 600 = \underline{\underline{1460 LF}}$

EXIST CONCRETE DEMO ASSUME ON SITE STORAGE

①

AREAS

ASSUME 12" THK

① EXIST BLDG SLAB 100×80 SF = 8000 #
 EXIST GRADE BM $80 + 80 + 100$ LF = 260 #

EXIST BLDG SLAB VOLUME $8000 \times 1 = 8000$ cuft
 GRADE BM $260 \times (2 \times 2) = 1040$ cuft

② PARTIAL ROADWAY 50×30 = 1500 #
 1500 SF $\times 1$ = 1500 cuft

③ PARTIAL ROADWAY 140×30 = 4200 #
 4200×1 = 4200 ft³

④ CONCRETE PAD FROM CAD = 8273 #
 (8273 $\times 1$) = 8273 ft³

⑤ TRENCH 15×60 = 900 #
 900×1 = 900 ft³

⑥ WIRE CAGE 30×20 = 600 #
 600×1 = 600 ft³

TOTALS AREA

$8000 + 1500 + 4200 + 8273 + 900 = 22873$ #

TOTAL VOLUME

$8000 + 1040 + 1500 + 4200 + 8273 + 900 + 600 =$

24513 ft³ / 27 = 900 yd³

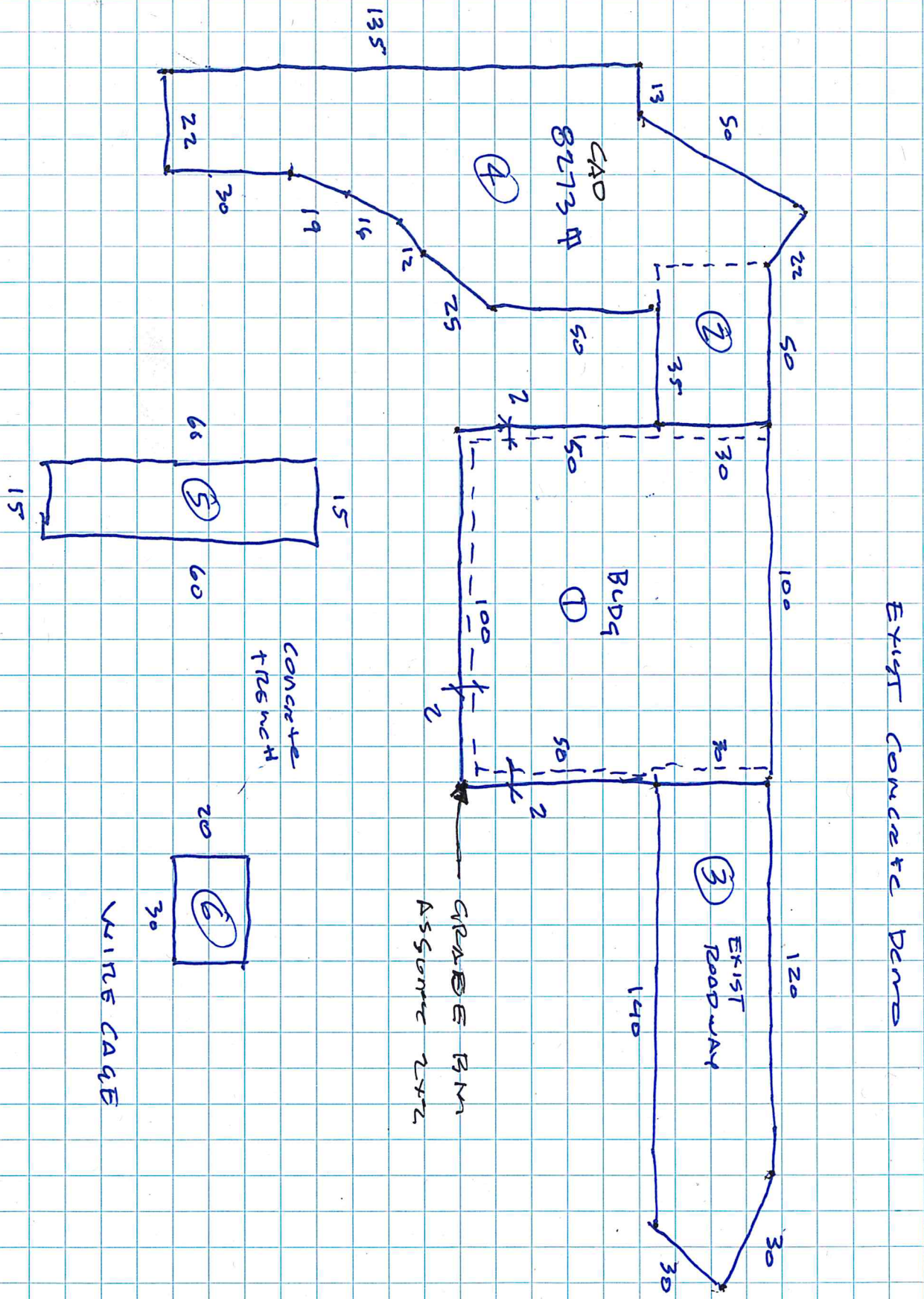
Forms

Assume Form Break in pour

Assume 50% Exp JT Usage

$$1460 \times .5 = 730 \text{ LF}$$

A // B



EXIST CONCRETE BLDG

BUDG

EXIST ROADWAY

GIRADE RM
ASSUME 2x2

CONCRETE
TRENCH

WIRTS CAGE

CAD
8273 AP

Demo SUBSURFACE DRAINAGE

24" ϕ PIPE LENGTH

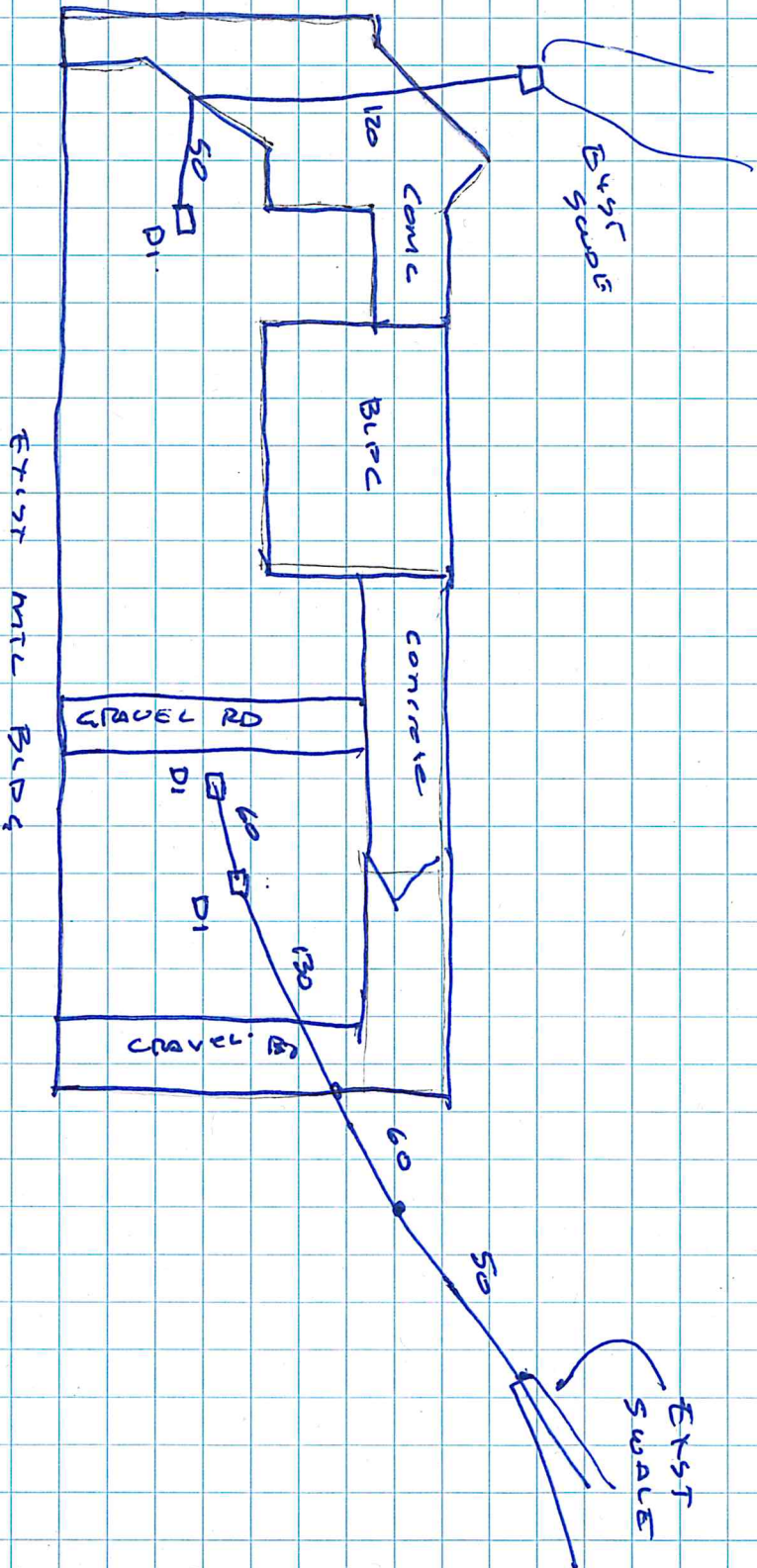
$$\text{PIPE} = 120 + 50 + 60 + 130 + 60 + 50 = 470 \text{ LF}$$

EXCAVATION ASSUME $3 \times 3 \times 1 = 9 \text{ cuft/FT}$

Demo Drop Inlet Boxes ASSUME $3 \times 3 \times 1 = 9 \text{ cuft/EA}$ \rightarrow

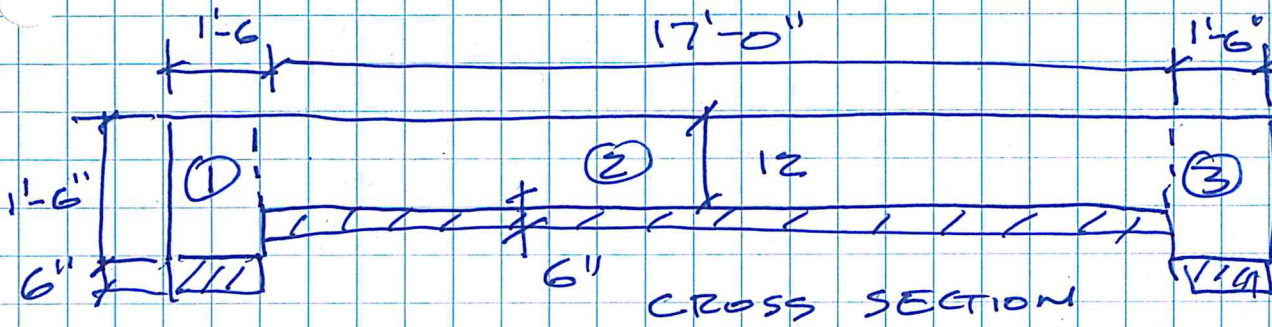
$$9 \times 470 = 4230 / 27 = 156.56 \text{ cu yd}$$

DEMO SUBSURFACE DRAINAGE
 ASSUME 24" ϕ PVC PIPE
 CONCRETE DROP INLET BOXES



VOLUME OF EXCAVATION ROADWAY

②



NOTE: ALL AREAS OF ROADWAY
WILL NOT REQUIRE FULL EXCAVATION
DUE TO DEMO OF EXIST CONCRETE
THIS NUMBER WILL BE HIGH

AREA

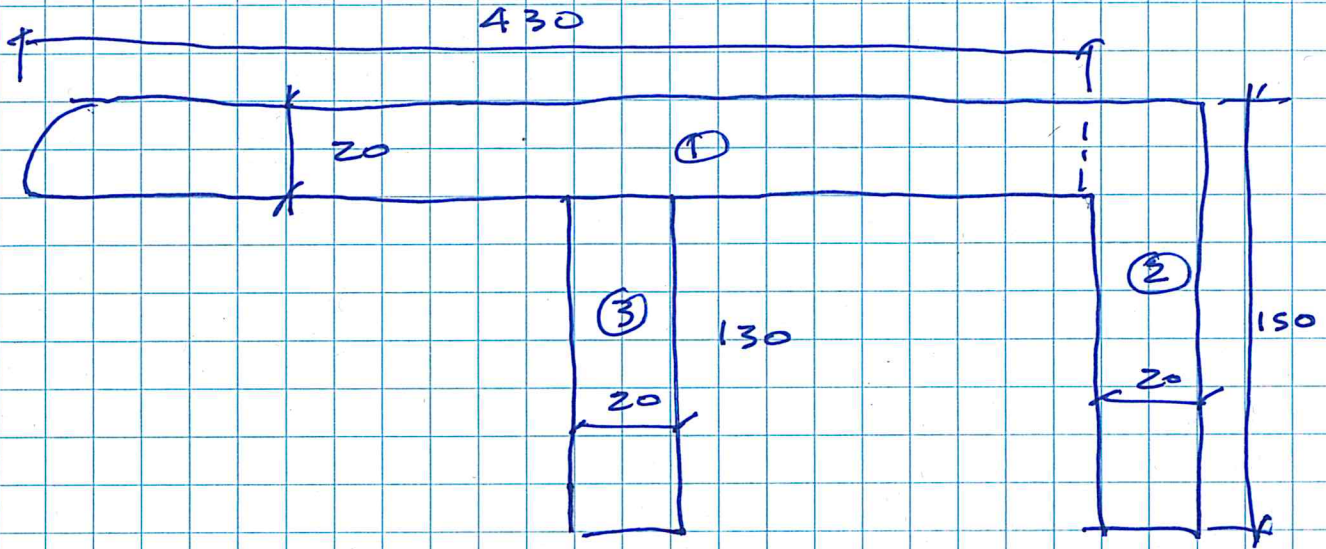
$$\begin{aligned} \textcircled{1} & (1.5 + .5) 1.5 = 3 \text{ cu ft} \\ \textcircled{2} & (1 + .5) 17 = 25.5 \text{ cu ft} \\ \textcircled{3} & (1.5 + .5) 1.5 = 3 \text{ cu ft} \end{aligned}$$

$$31.5 \text{ cu ft}$$

SAY 32 cu ft / LF

③

TOTAL SF ROADWAY



AREA

$$\begin{aligned} \textcircled{1} \quad 430 \times 20 &= 8600 \text{ SF} \\ \textcircled{2} \quad 150 \times 20 &= 3000 \text{ SF} \\ \textcircled{3} \quad 130 \times 20 &= \underline{2600} \text{ SF} \\ &14,200 \end{aligned}$$

VOLUME of EXCAVATION

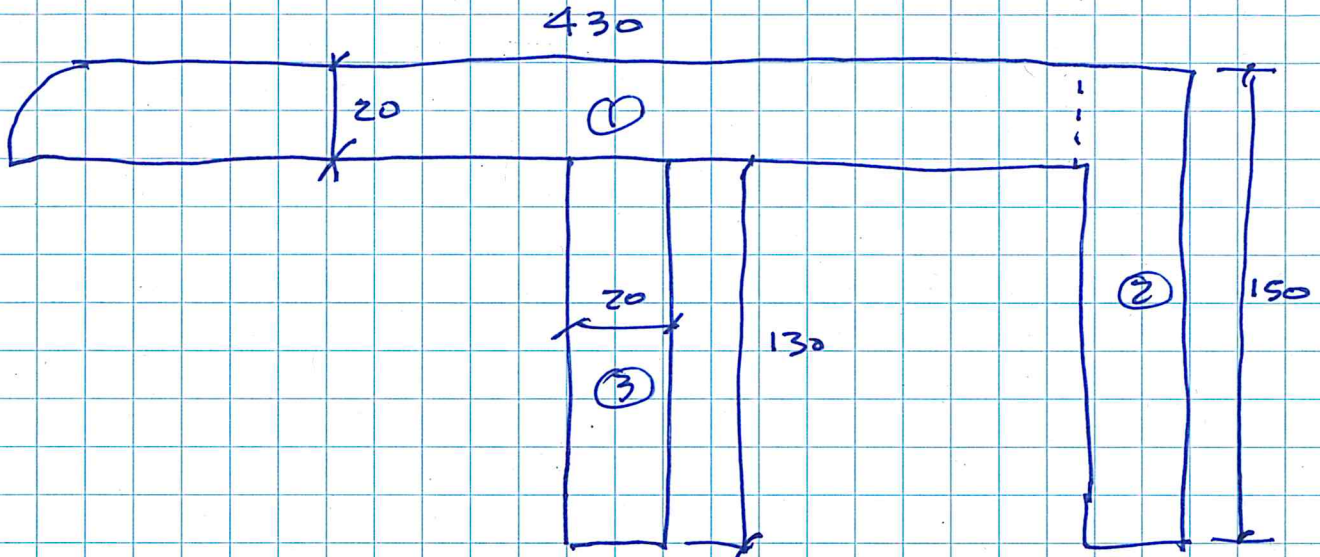
$$430 + 150 + 130 = 710 \text{ LF}$$

$$710 \text{ LF} \times 32 \text{ cuft/LF} = 22,720 \text{ cuft}$$

$$22,720 / 27 = 841 \text{ cuyd}$$

④

COMPACTED CRUSHED STONE



AREA

$$\textcircled{1} \quad 430 \times 20 = 8600 \text{ \#}$$

$$\textcircled{2} \quad 150 \times 20 = 3000 \text{ \#}$$

$$\textcircled{3} \quad 130 \times 20 = 2600 \text{ \#}$$

$$\hline 14,200 \text{ \#}$$

VOLUME

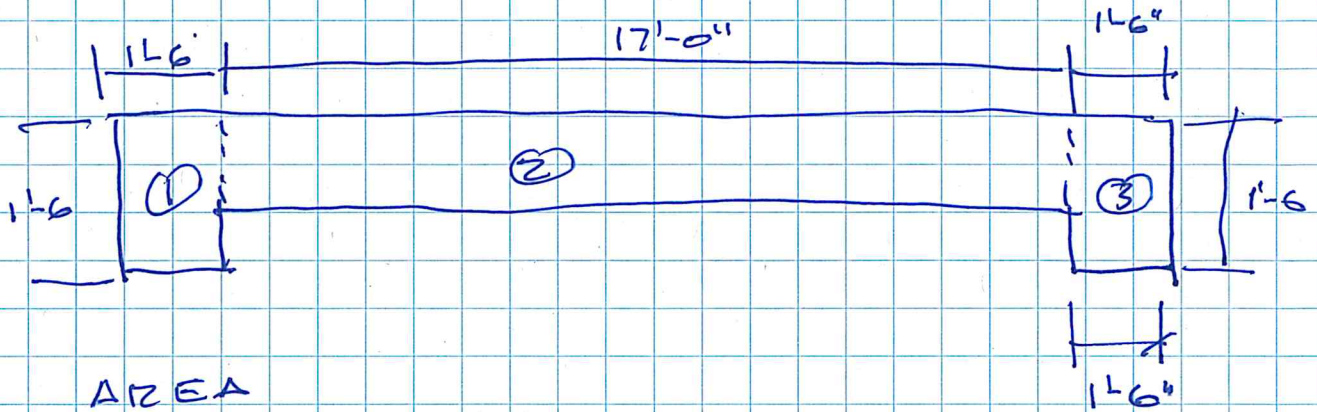
$$14,200 \times .5 = 7100 \text{ cuft } | 27$$

$$262.93 \text{ cu/yd}$$

$$14,200 \text{ \#} / 9 = 1577.7 \text{ syd}$$

VOLUME OF CONCRETE

⑤



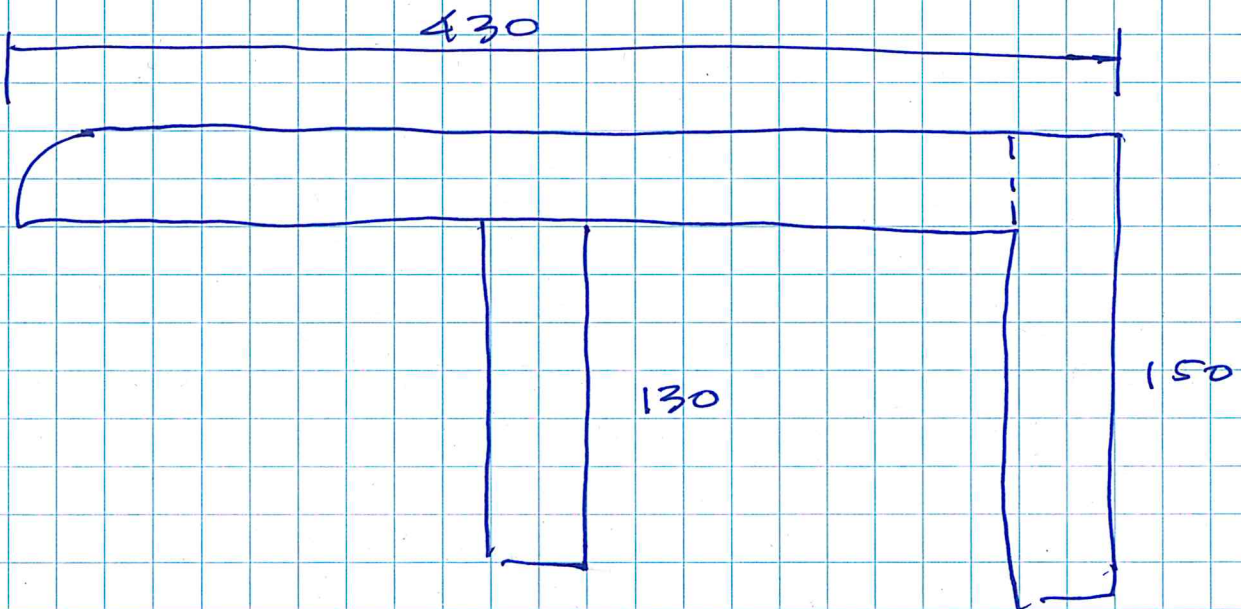
$$① = (1.5 \times 1.5)(1) = 2.25 \text{ cu ft}$$

$$② = (1 \times 17)(1) = 17 \text{ cu ft}$$

$$③ = (1.5 \times 1.5)(1) = 2.25$$

$$21.5 \text{ cu ft}$$

SAY 22 cu ft / LF



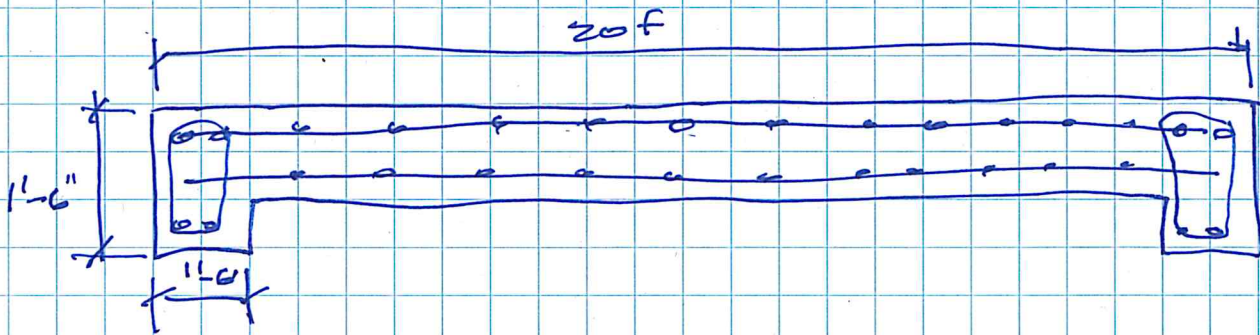
SF AREA

$$\text{LF } 430 + 150 + 130 = 710 \text{ LF}$$

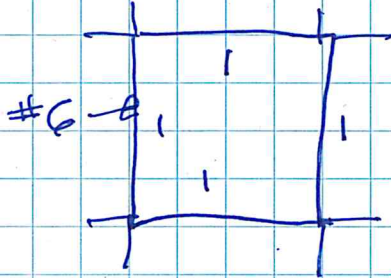
$$710 \text{ LF} \times 22 \text{ cu ft / LF} = 15620 \text{ cu ft}$$

$$15620 / 27 = \underline{578.5 \text{ cu yd}}$$

REINFORCEMENT ROADWAY ⑥



A 615 GRADE 60

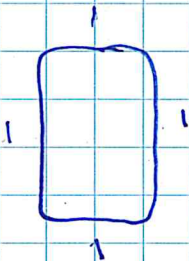


SUB REINFORCEMENT

#6 1.5 #/FT 4 FT per SF

2 lay → 8 FT per SF
DOUBLE LAYERS

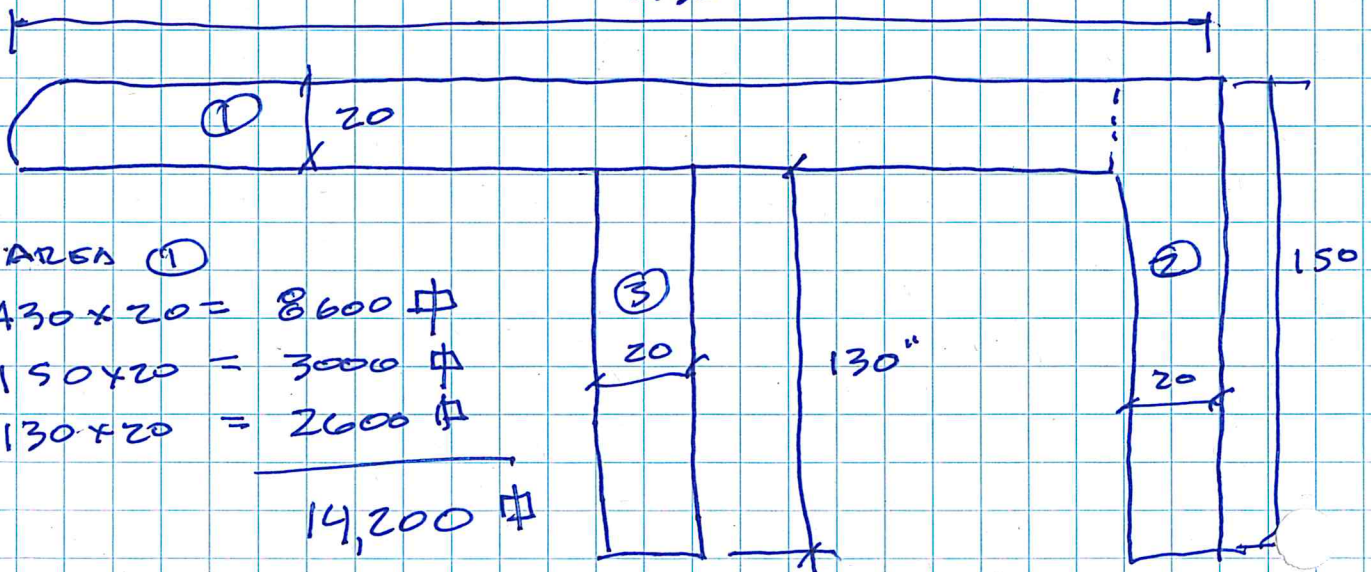
$$(8 \times 1.5) = 12 \text{ lb/ft}^2$$



#3 STIRRUPS @ 12" O.C.

$$\#3 \cdot 376 \text{ lb/ft} \times 4 = 1.5 \text{ lb/EA}$$

4 LF per STIRRUP 430



AREA ①

$$430 \times 20 = 8600 \text{ #}$$

$$150 \times 20 = 3000 \text{ #}$$

$$130 \times 20 = 2600 \text{ #}$$

$$\underline{14,200 \text{ #}}$$

7

WT OF REBAR

SLAB

$$14200 \text{ ft}^2 \times 12 \text{ lb/ft}^2 = \underline{170,400 \text{ lb}}$$

CRBM

$$(430 \times 2) + (130 \times 2) + (150 \times 2) (4) =$$

$$(860 + 260 + 300) = 1420 \text{ LF} (4) = 5680 \text{ LF}$$

$$5680 \times 1.5 = \underline{8520 \text{ lb}}$$

STIRRUPS

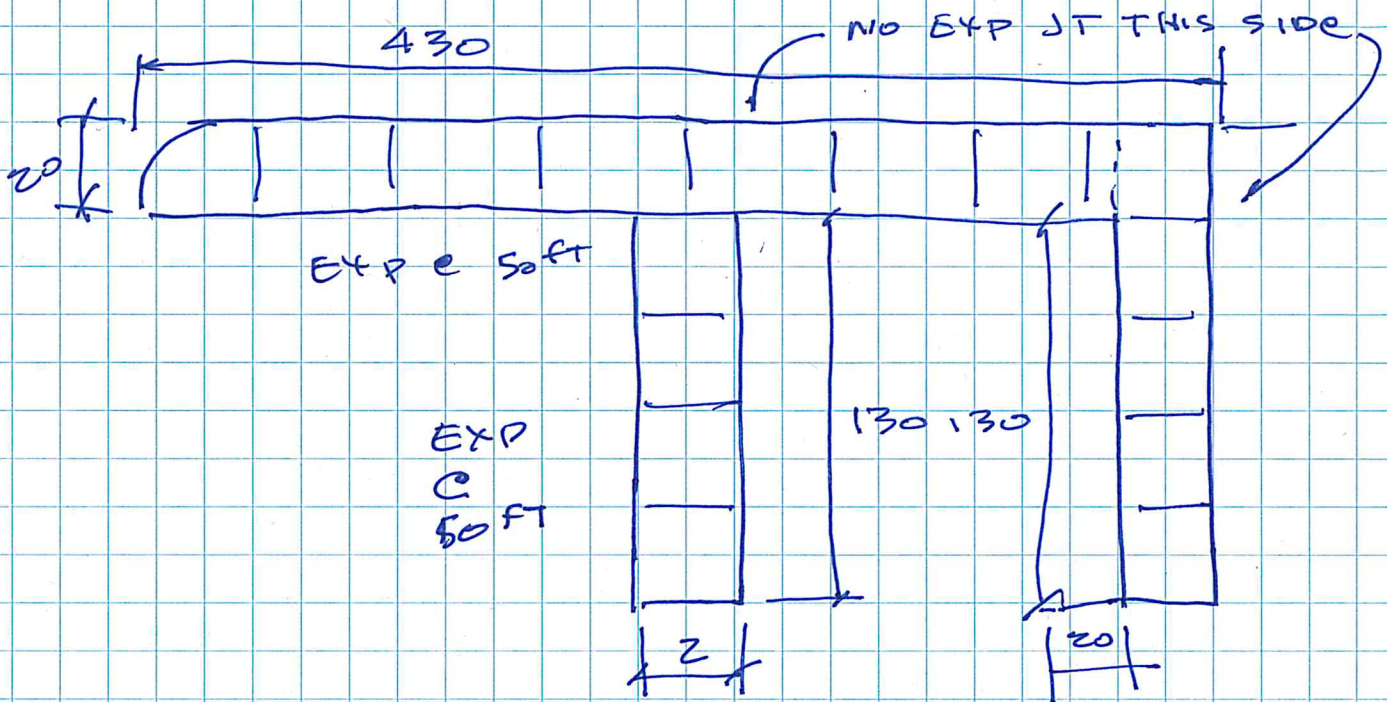
$$1420 \text{ LF} \times 1.5 = \underline{2130 \text{ lb}}$$

$$170,400 + 8520 + 2130 = 181050 \text{ lb}$$

$$181050 \text{ lb} / 2000 \text{ lb/ton} = \underline{90.5 \text{ TON}}$$

(B)

ROADWAY EXP JT



(INTERIOR)

$$430 / 50 = 8.6 \text{ SAY } 9$$

$$130 / 50 = 2.6 \text{ SAY } 3$$

$$150 / 50 = \frac{3.0}{3}$$

$$\text{LF } 15 \times 20 = 300 \text{ LF}$$

PERIMETER

$$430 + (130 \times 2) + 130 + 20 + 20 + 20$$

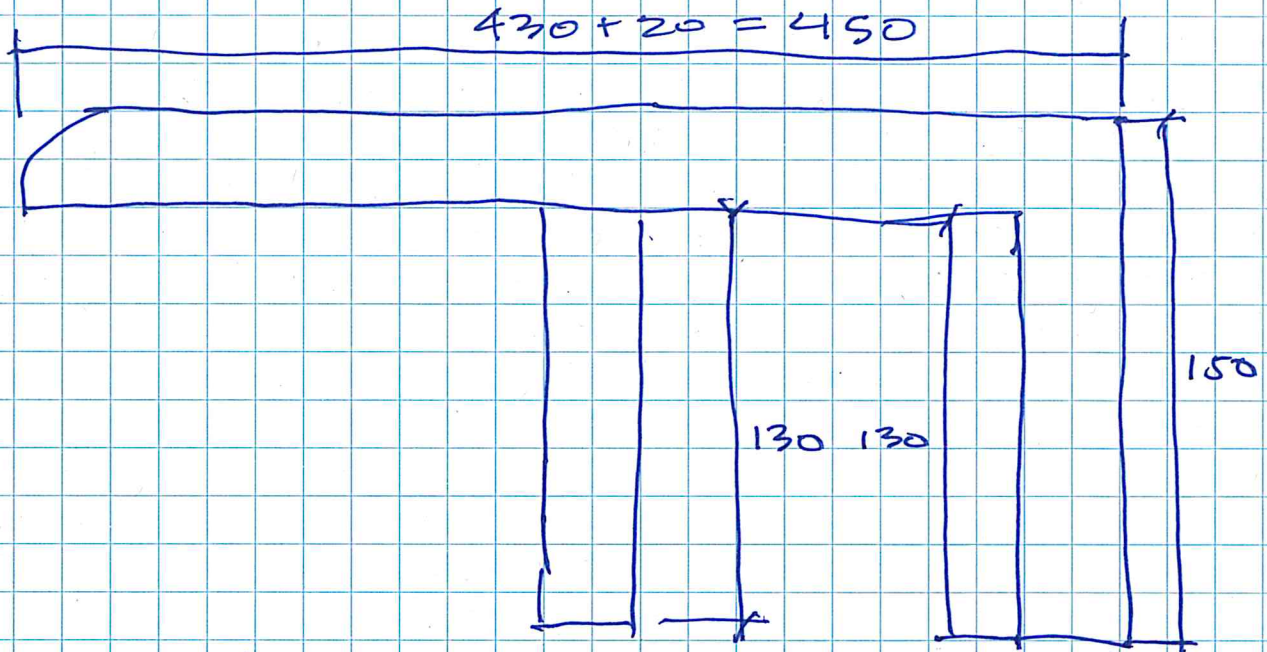
$$430 + 260 + 130 + 60 = 880 \text{ LF}$$

TOTAL EXP JT

$$880 + 300 = \underline{\underline{1180 \text{ LF}}}$$

Concrete Forms

9



PERIMETER

LF

$$450 + 430 + 130 + 130 + 130 + 150 + (3)20 =$$

$$1380 \text{ LF}$$

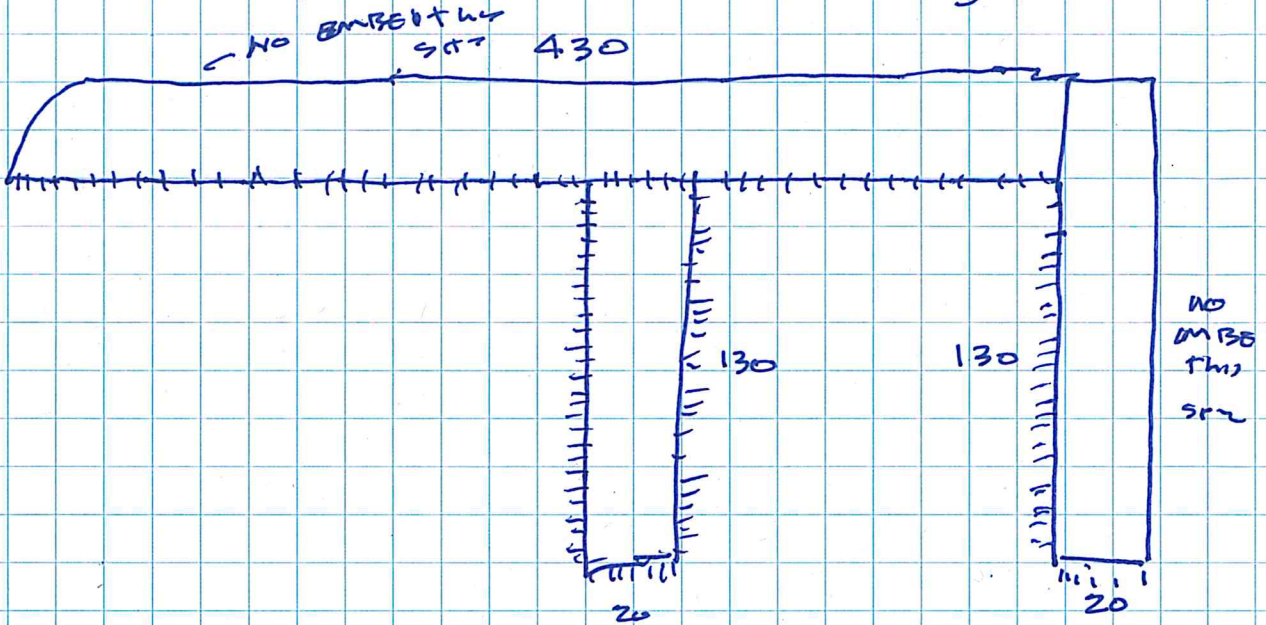
INTERIOR & EXP JT

SEE SH

$$1180 \text{ LF}$$

$$1380 + 1180 = 2560 \text{ LF}$$

IMBED STEEL @ ROADWAY
 #6 @ 12" O.C. 24" Lg



$$\begin{array}{r}
 \text{WT} \quad 430 + 20 + 20 = 470 \\
 \text{HT} \quad (130 \times 2) + 130 = 390 \\
 \hline
 860
 \end{array}$$

$$(1.5 \text{ lb/ft} \times 2 \text{ ft}) 860 = 2580 \text{ lb} / 2000 =$$

1.29 TON