SAN JUAN COUNTY
NEW MEXICO
SINCE 1887

Central Purchasing
213 South Oliver Drive
Aztec, New Mexico 87410
(505) 334-4551

Bid No. 20-21-05 Construction of Bridge 8130 Replacement on County Road 5500

Public Works

ADDENDUM #2

January 11, 2021

ADDITIONAL INFORMATION TO THE BID SPECIFICATIONS AS FOLLOWS:

ADDITIONAL INFORMATION:

- Changes and clarification to the bid specifications have been made pursuant to the attached addendum sheets as provided by TY Lin International dated January 4, 2021 (225 pages).

Other Attachments:

- Pre-bid sign-in sheet attached (1 page)
- As Builts for the original design (19 pages). The information contained may or may not be indicative of the as built condition.

Plan Holders List:

Bidders are reminded that in order to obtain the most current and up to date listing of plan holders, you are encouraged to visit the County's Website at www.sjcounty.net (under 'Bids, Proposals & Vendors', choose 'Current Bids/Proposals Page').

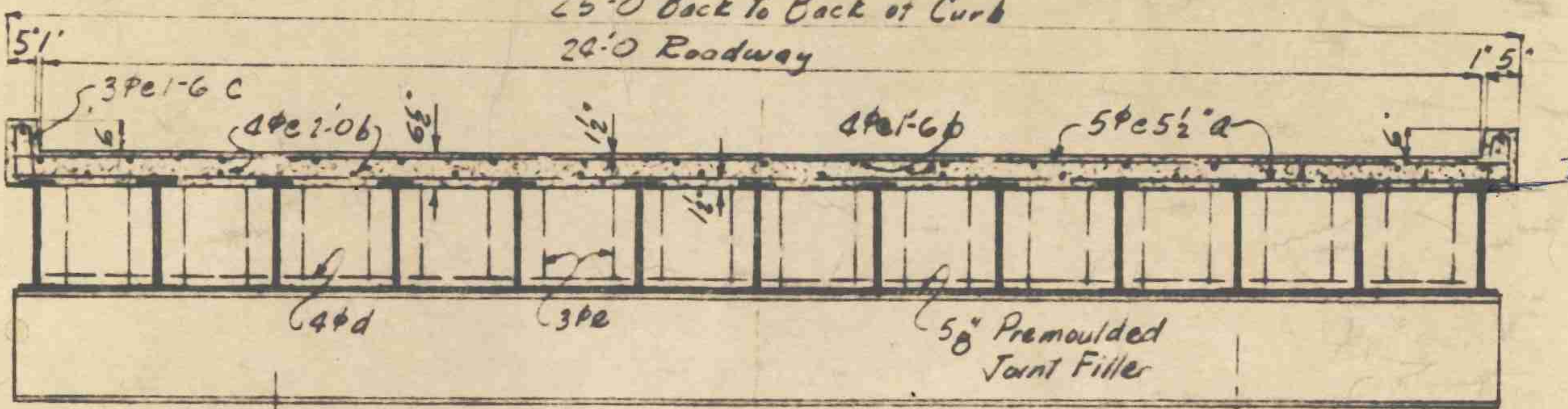
PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE BID OFFER PAGE.

PRE-BID CONFERENCE

DATE: December 17, 2020 **TIME:** 10:00 am **BID NO.:** 20-21-05 **ITEM:** Construction of Bridge 8130 Replacement on County Road 5500

REPRESENTATIVE	COMPANY	PHONE NO.	FAX NO.	E-MAIL ADDRESS
Dave DeCoste	RMCI, Inc.	505-345-0008	505-345-0111	ddecoste@rmciinc.com
Trace Musgrave	Meridian Contracting, Inc.	505-872-2841	505-884-0260	t.musgrave@meridiancon.net
Howard Calke	T.Y. Lin	505-730-0882	none	howard.calke@tylin.com
Jake Ridley	TRC. Construction	505 916-6000		Jridley@trc-construction Estimating@Kimonm.com
Herman Chavez	Kimo Cons.	505 916 6441	505 869 9312	herman@Kimonm.com
Nigel Knoy	Technology Construction	928.777.0099		estimator-3@live.com
Scott A Martin	San Juan County NM	505-419-6279		SCOTT.martin@sjcounty.net
Nick Porcelli	SJC	334-4590		nporcellesjcounty.nc
Jennifer Small	Rain For Rent	970-529-6979		jsmall@rainforrent.com
Kathy Begay	Staff			

COMPUTED LL&I CAPACITY
Single Truck 32 Tons
Two Trucks 25 Tons each

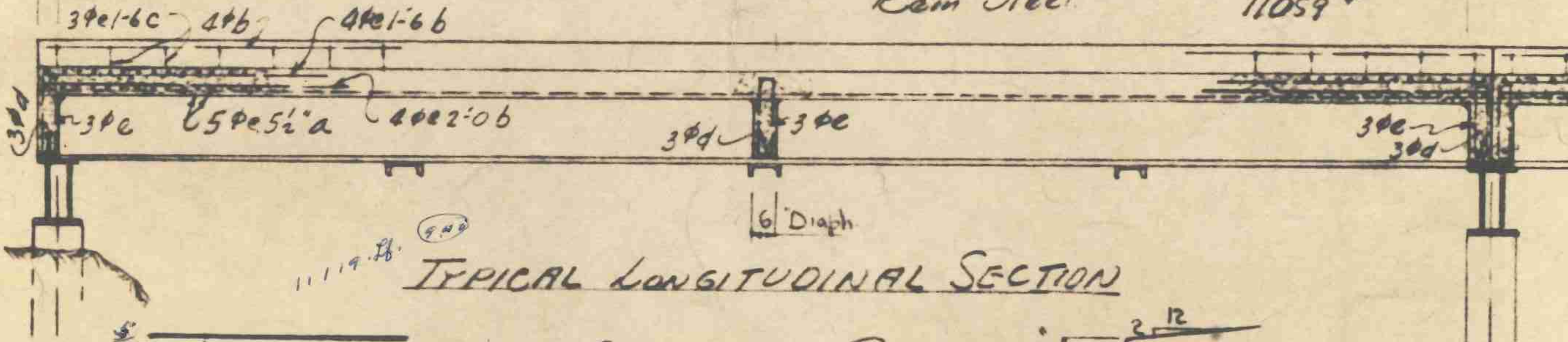


TYPICAL CROSS SECTION

ESTIMATED DECK QUANTITIES

Class A Concrete	44.91 cu yd.
Rein Steel	11059 #

6" Diaph.
6" Diaph



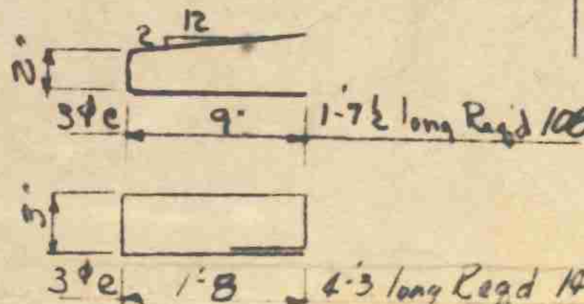
9N4

11119.ff

TYPICAL LONGITUDINAL SECTION

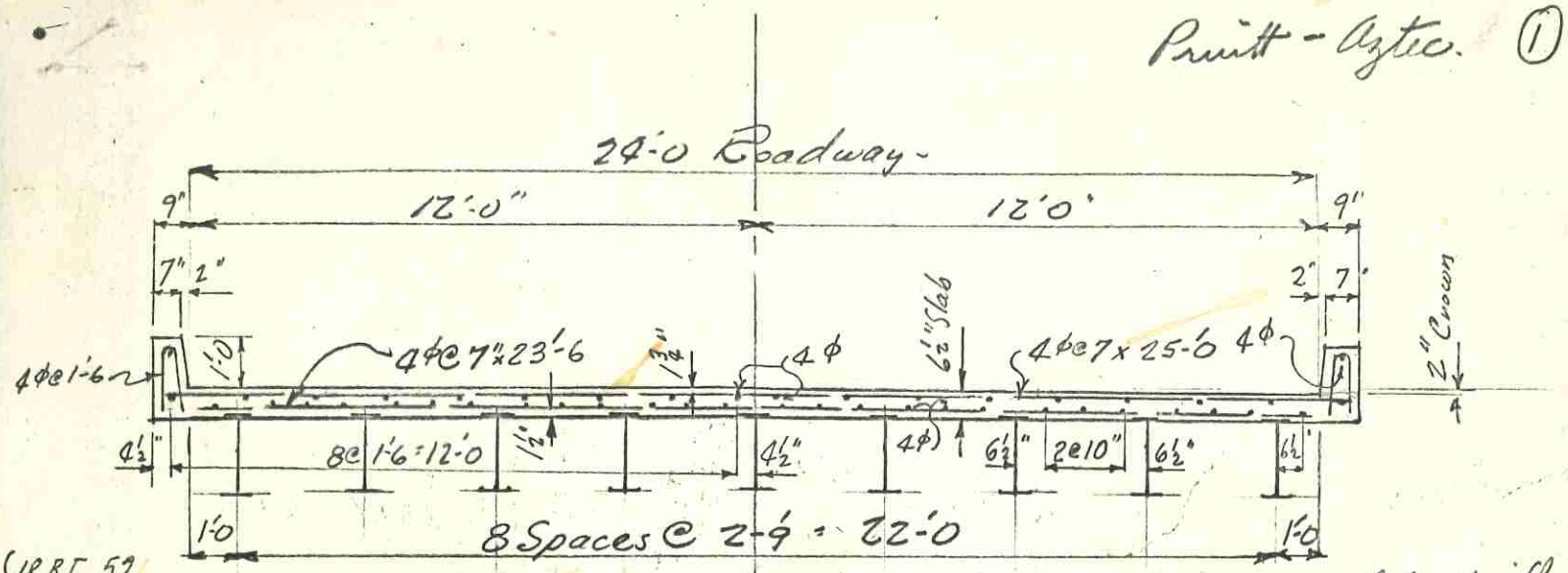
5/8	5φa	24'-9	Req'd 348
1/2	4φb	39'-9	62
3/8	3φd	1'-9	72

CONCRETE DECK
DETAILS FOR BRIDGE
#1045.19 OVER SAN JUAN RIVER
T 29N R 12W



2-27-64

Pruitt - Aztec. (1)



TRANSVERSE SECTION

{18 BI 52
Sect Mod = 93.5
with one hole out of flge
Sec. Mod = 85.9

with one hole out in flge.
I

Assume Stringer Spacing @ 5'-6" (7" Slab) (5 Stringers)

D.L. Slab = $0.583 \times 5.5 \times 150 = 481$ #/'
Beam = 18 Beth I 52# = 52
W.S = 15×5.5 = 82
DL = 615 #/'

$M_{DL} = \frac{1}{8} \times 615 \times 39.0^2 = 117000$ '#
$M_{DL\,Caps} = \frac{865}{2} \times \frac{39.0}{2} = 8440$ '#
$M_{DL\,Total} = 125440$ '#

Cone Diaph = $0.75 \times 1.42 \times 5.41 \times 150 = 865$ #

H20 LL: $M_{LL} = \frac{336000}{2} \times \frac{5.19}{5.50} =$ 158,500

$I = \frac{50}{39+125} = 30.5$ Use 30%

$M_I =$ 47600

M_{Total} 331,540 '#

Stress $\frac{331540 \times 12}{85.9} = 46,400$ '#

Assume Stringer Spacing @ 3'-8 (6½" Slab) (7 Stringers)

DL: Slab = $0.542 \times 367 \times 150 = 298$ #/'
Beam = 18 B.I @ 52 = 52
WS = 15×3.67 = 55
DL = 405 #/'

$M_{DL} = \frac{1}{8} \times 405 \times 39.0^2 = 77,000$ '#

Cone Diaph = $0.75 \times 1.42 \times 3.625 \times 150 = 580$ # $M_{Diaph} = \frac{580}{2} \times \frac{39}{2} =$ 5650

$M_{LL\,I} = \frac{336000}{2} \times \frac{3.85}{5.50} \times 1.30 =$ 82650 '#

Stress = $215000 \times \frac{12}{85.9} = 30,000$ #/in² 215,650 '#

Try 9 stringers - 8 spans @ 2'-9 = 22'-0 6½" slab

D.L. Slab: 0.54 × 2.75 × 150 = 223 #/'
Beam 18"BI 52 = 52
W.S.: 15 × 2.75 = 41
w = 316 #/'

$M_w = \frac{1}{8} \times 316 \times 39.0^2 = 60{,}100$ '#

Diaph: 0.75 × 1.42 × 2.71 × 150 = 433 #

Moment: $\frac{433}{2} \times \frac{39}{2} = 4220$

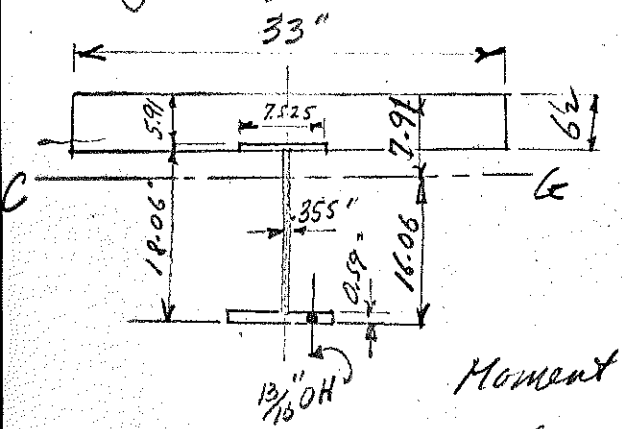
$M_{DL} = 64{,}320$ '#

$M_{LL+I} = \frac{336000}{2} \times \frac{2.75}{5.5} \times 1.30 = 109{,}200$ '#

$M_{LL+I} = 109200$
$M_{total} = 173{,}520$ '#

Stress: $\frac{173520 \times 12}{85.9} = 24{,}250$ #/in²

Try Composite Section



Use n = 10

Slab:	33.00 × 6.50 × 1/10 =	21.45 × 3.25 =	69.70
Deduct	7.525 × 0.59 × 1/10 =	− 0.44 × 6.21 =	− 2.76
Beam	18BI 52 =	15.22 × 14.94 =	227.50
Deduct OH.	0.875 × 0.59 =	− 0.52 × 23.68 =	− 12.32
		35.71 | 7.91 |	282.12

Moment of Inertia:-

Slab:	$I_o = \frac{1}{12} \times 33 \times 6.5^3 \times 1/10 =$	75.7
	$Ad^2 = 21.45 \times 4.66^2 =$	467.0
Deduct	$\frac{1}{12} \times 7.525 \times 0.59^3 \times 1/10 =$	− 0.0
	$Ad^2 = 0.44 \times 1.70^2 =$	− 1.3
Beam	$I_o =$	844.1
	$Ad^2 = 15.22 \times 7.03^2 =$	755.0
Deduct	$I_o = \frac{1}{12} \times \frac{7}{8} \times 0.59^3 =$	− 0.0
	$Ad^2 = 0.52 \times 15.77^2 =$	− 129.2
	$I_{c/a} =$	2011.3 (in terms of steel)

I/c Tension: $\frac{2011.3}{16.06} = 125.2$ Stress: $\frac{64320 \times 12}{85.9} + \frac{109200 \times 12}{125.7} = 9000 + 10430$
19430 #/in² OK

I/c Comp: $\frac{2011.3}{7.91} \times 10 = 2542$ $f_c = \frac{109{,}200 \times 12}{2542} = 517$ #/in² OK.

For HS-20 LL:-

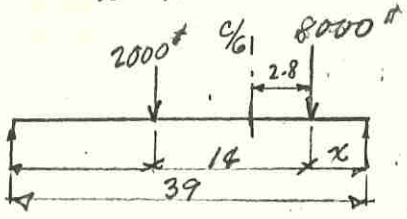
ΔLL Req'd Total I = $2.18 \times 39^2 \times 1.3 \times 4 \div 17250$ I furnished: 9 × 2011.3 = 18,101.7
OK

Shear Connectors:

D.L.:- W.S = 15 × 2.75 = 41.3 #/'
Rail = 2 × 30 ÷ 9 = 6.7
w = 48.0 #/'

For end reaction Front wheel load:-
4000 × 2.75/5.5 = 2000 # Rear Wheel = 16000 #
Reaction = 16000 + 2000 × 25/39 (1280) = 17,280 #
Other place rear wheel = 16000 × 2.75/5.50 = 8100 #

L.L Shear:



$V_{LL} = \frac{10000}{39}(39 - x - 2.8)$

$V_{DL} = 48(19.5 - x)$

$V_I = 30\%\ V_{LL}$

x →	0	2'	4'	6'	8'	10'	15'	19.5'
V_{DL} #	936	840	744	648	552	456	216	0
V_{LL} #	17280	8790	8250	7740	7230	6720	5440	4280
V_I #	5180	2630	2475	2320	2170	2015	1630	1283
V_{Total} #	23396	12240	11469	10708	9952	9191	7286	5563
V_L #/in	585	306	287	268	249	230	182	139
C Spacing	10.7	20.4	21.7	23.25	25.1	27.1	34.3	44.9

Longitudinal Shear:- $V_L = \frac{VQ}{Ib}$

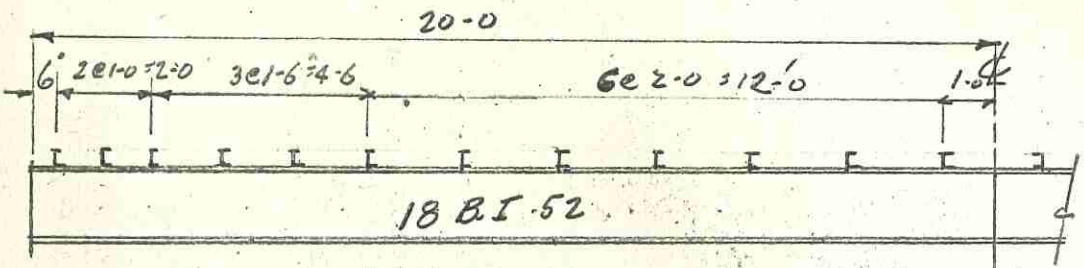
Q = 21.45 × 2.66 = 57.10
−0.44 × −0.29 = 0.13
56.97

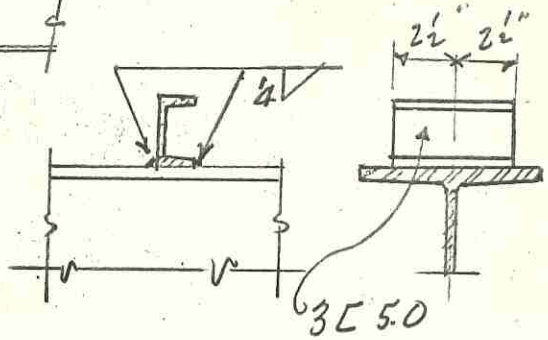
I = 2011.3
b = Unity.

$V_L = V \frac{56.97}{2011.3} = 0.028\ V$

3 C 5.0 × 5" long
@ 1248 #/in = 6240 #/each

Spacing = 6240 / V_L





Slab: Span = 2'-9 less 3¾" = 2'-5¼"

$M_{LL} = \frac{S+2}{32} P_{20} = \frac{2.44+2.0}{32} \times 16000 = 22201\ \#$

$M_{LL+I} = 8/10 \times 2220 \times 1.3 = 2309\ '\#$

$M_{DL} = 1/10 \times 96 \times 2.4^2 = 57\ '\#$

$M_{Total} = 2366\ '\#$

b = 12" d = 4¾

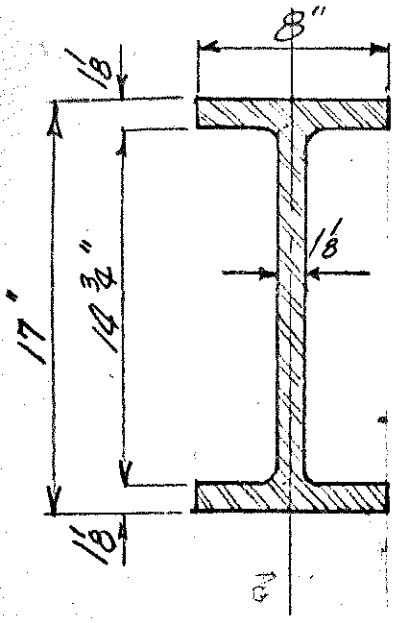
$K = \frac{2366 \times 12}{12 \times (4.75)^2} = 105.2$

p = 0.00058 V = 0.404

Slab DL:- Conc = 0.54 × 150 = 81
W.S = = 15
96

Reqd $A_s = \frac{2366 \times 12}{20000 \times .404 \times 4.75} = 0.331/in^2$

4 # @ 7" = 0.34
Top & Bottom.



Moment of Inertia about C/G:-

Flanges. $I_o = \frac{1}{12} \times 8 \times (1.125)^3 \times 2 =$ 1.90 in⁴

$Ad^2 = 8 \times 1.125 \times (7.9375)^2 \times 2 =$ 1132.50

Web $I_o = \frac{1}{12} \times 1.125 \times (14.75)^3 =$ 300.60

$I =$ 1435.0 in⁴

$\text{Sec Mod} = \frac{1435.0}{8.5} = 168.9$

Area $= 30.75 \times 1.125 = \frac{34.6 \text{ in}^2}{144} @ 490 = 118$ #/'

Use 120 #/' with fillets

Assume Spacing @ 5'-6" (5 stringers) (7" slab)

D.L: Slab $= 0.583 \times 5.5 \times 150 =$ 481 #/'

Beam (above) = 125

W.S. 15×5.5 = 82

688 #/'

$M_{DL} = \frac{1}{8} \times 688 \times (39)^2 =$ 131 000 '#

Monorail = 8440

MDL Total = 139440 '#

$M_{LL} = \frac{336000}{2} \times \frac{5.50}{5.50} =$ 168000 } 218400

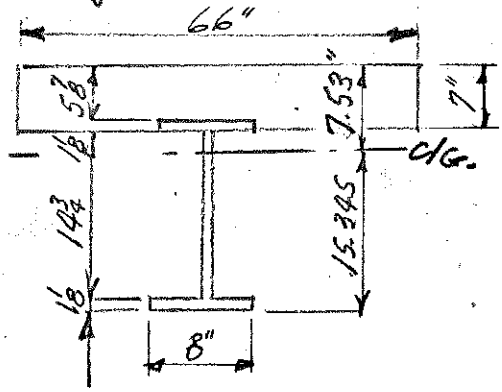
$M_I = 168000 \times 0.30 =$ 50,400 }

$M_{Total} =$ 357,840 '#

$\text{Stress} = \frac{357840 \times 12}{168.9} =$ 25,410 #/in²

Try Composite:-

n = 10



C/G:- Slab $= 66 \times 7 \times \frac{1}{10} = 46.20 \times 3.50 =$ 161.80

Deduct $= 8 \times 1\frac{1}{8} \times \frac{1}{10} = -0.90 \times 6.44 =$ − 5.78

Beam = 34.60 × 14.375 = 497.00

79.90 | 7.53 | 652.52

$I_{C/G}$:- Slab $I_o = \frac{1}{12} \times 66 \times 7^3 \times \frac{1}{10} =$ 188.5

$Ad^2 = 46.20 \times (4.03)^2 =$ 1735.0

$-Ad^2 = 0.95 \times (1.09)^2 =$ − 1.1

Beam (above) = 1435.0

$Ad^2 = 34.6 \times (6.845)^2 =$ 1620.0

$I_{C/G}$ 3977.4

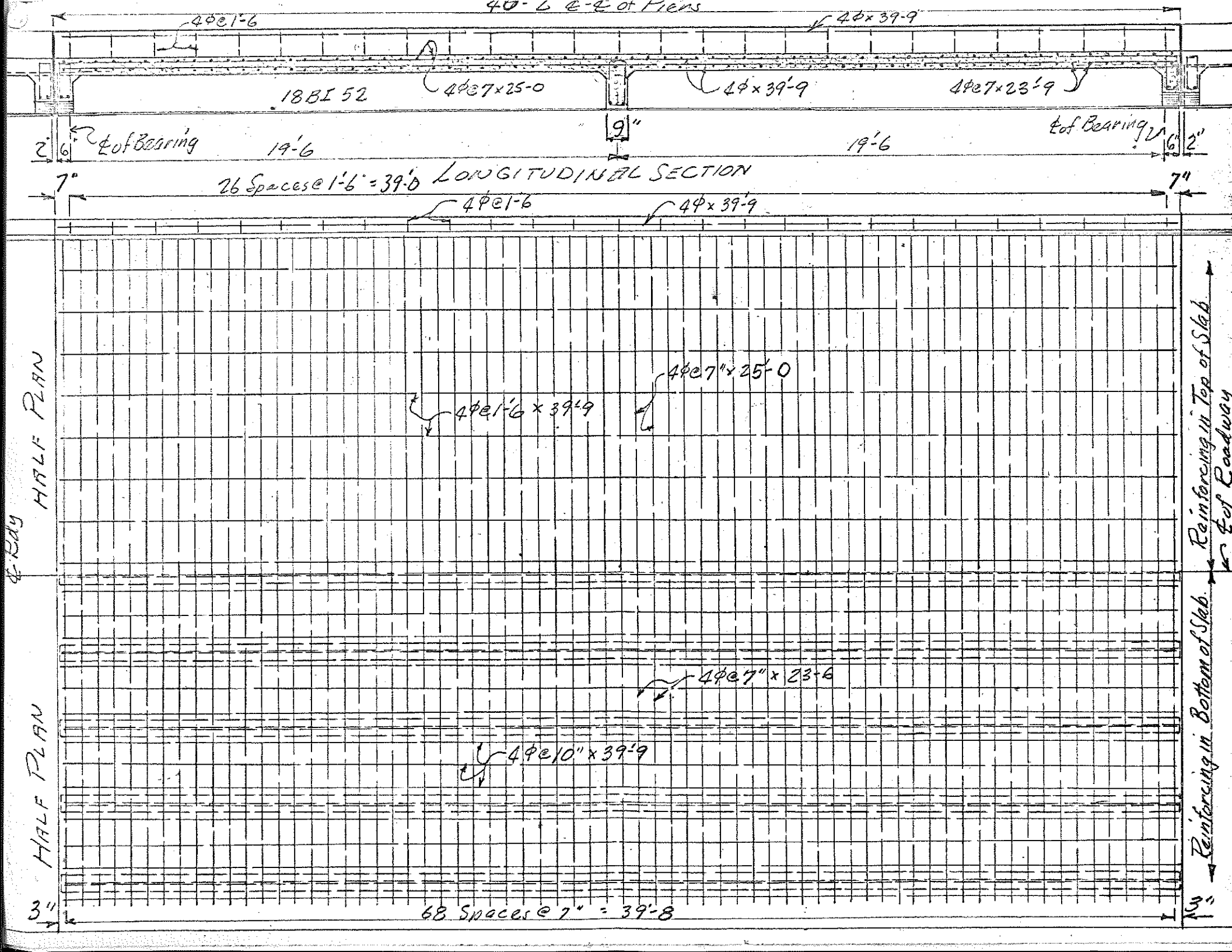
I/c (Tension) $= \frac{3977.4}{15.345} = 259.0$

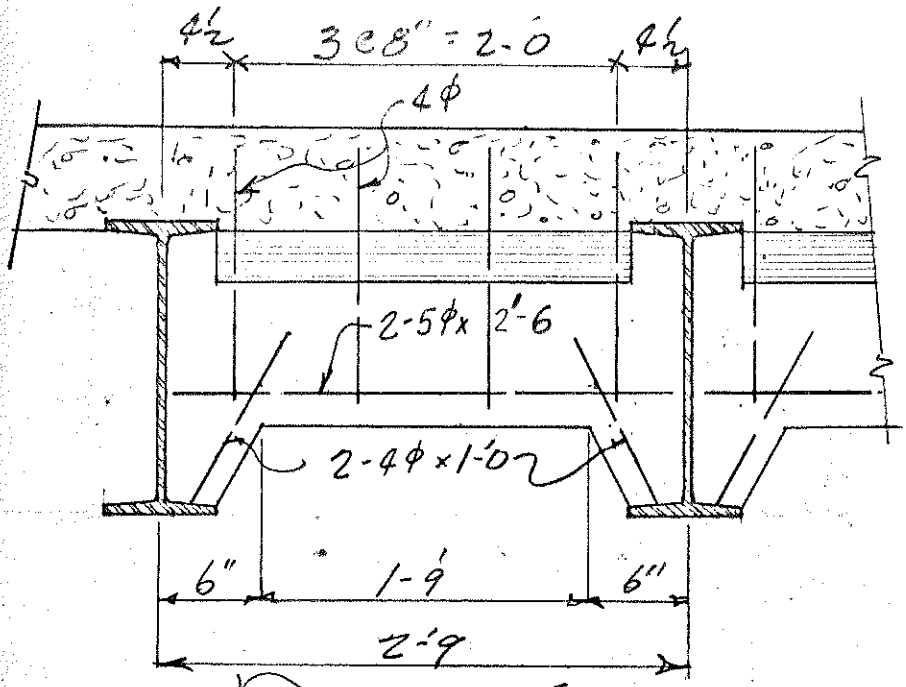
I/c (Comp) $\frac{3977.4}{7.53} \times 10 = 5280$

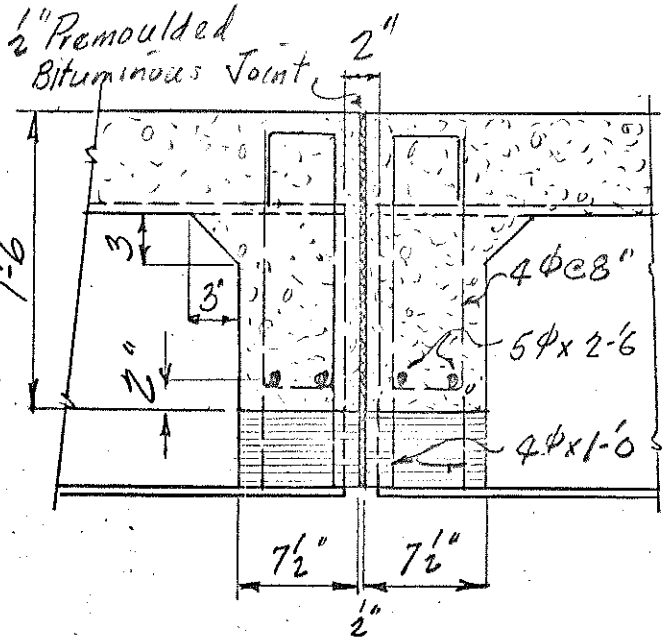
$\text{Stress} = \frac{139440 \times 12}{168.9} + \frac{218,400 \times 12}{259.0} = 9910 + 10120$

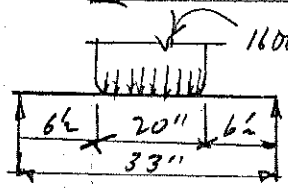
$= 20,030$ #/in²

$f_c = \frac{218400 \times 12}{5280} = 497$ #/in²


40'-6 c-c of Piers
4Φc1'-6
4Φx39'-9
18BI 52
4Φc7"x25'-0
4Φx39'-9
4Φc7"x23'-9
2'-6"
℄ of Bearing
19'-6
9"
19'-6
℄ of Bearing
6"
2'-6"
7"
26 Spaces @ 1'-6" = 39'-0
LONGITUDINAL SECTION
7"
4Φc1'-6
4Φx39'-9
℄ Bay
HALF PLAN
4Φc1'-6 x 39'-9
4Φc7"x25'-0
Reinforcing in Top of Slab
℄ of Roadway
4Φc7"x23'-6
HALF PLAN
4Φc10"x39'-9
Reinforcing in Bottom of Slab.
3"
68 Spaces @ 7" = 39'-8
3"





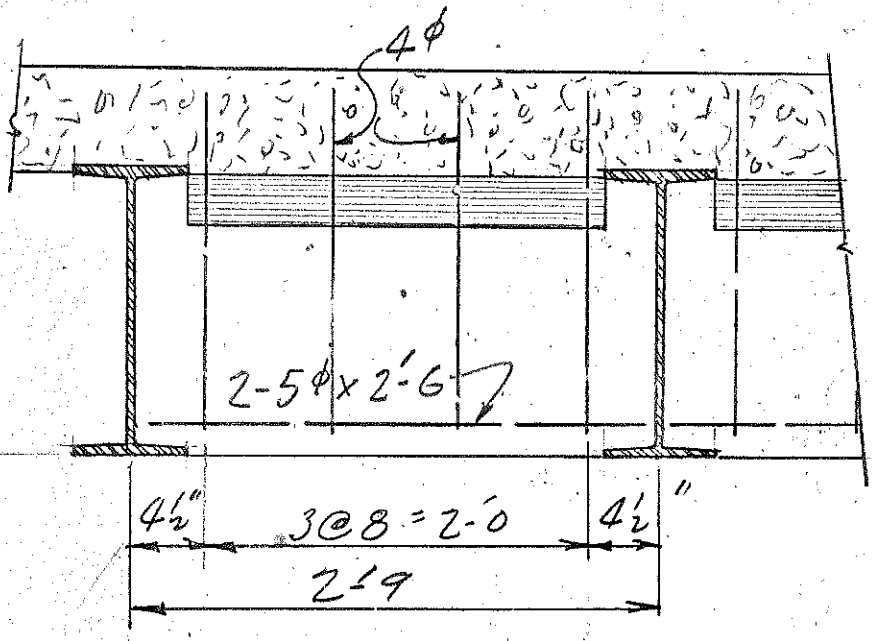


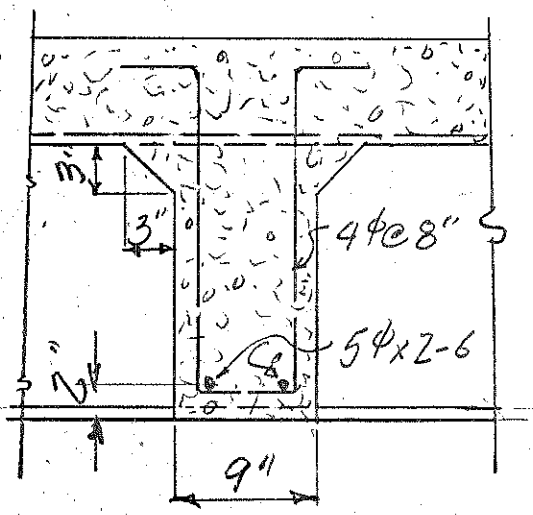
END DIAPHRAGM DETAILS

$M_{\ell} = 10400 \times (6\frac{1}{2}+5) = 119600$ "# $b = 7\frac{1}{2}$" $d = 16$"

$K = \frac{119600}{7.5 \times (16)^2} = 62.4$ $\therefore p = 0.0034$ and $j = 0.903$

$\text{Reqd } A_s = \frac{119600}{20000 \times 0.903 \times 16} = 0.415$

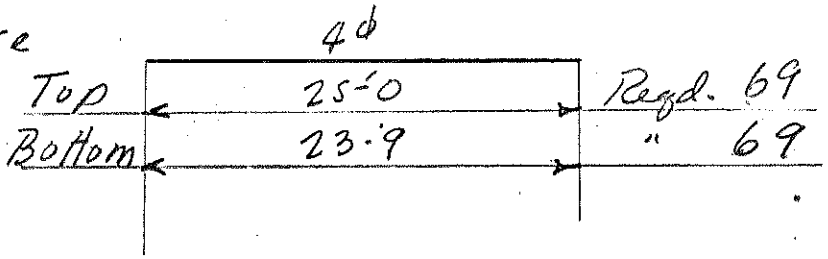




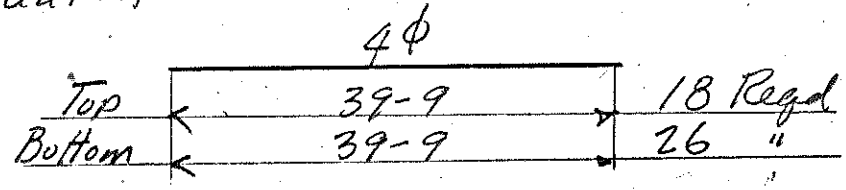
INTERIOR DIAPHRAGM DETAIL

Reinforcing Steel for One Span

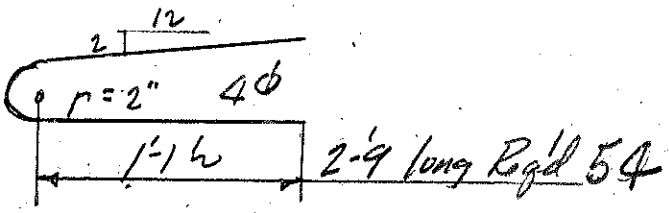
Slab Transverse



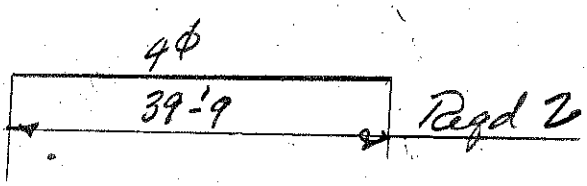
Slab Longitudinal



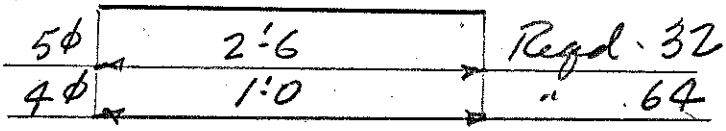
Curb Transverse

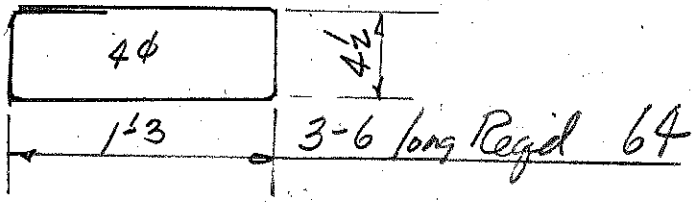


Curb Longitudinal

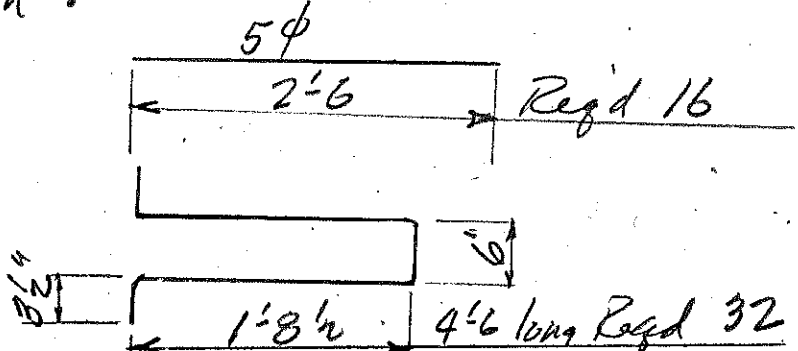


End Diaphs:





Interior Diaph:



4φ
69 @ 48.75 = 3363.75
46 @ 39.75 = 1828.50
54 @ 2.75 = 148.50
64 @ 4.50 = 288.00
32 @ 4.50 = 144.00
5772.75
@ 0.668 = 3856.36

5φ
48 @ 2.50 = 120.00
120.00
@ 1.043 = 125.16
3981.36

Total Weight for 1 Span = 3981 #

TO WHOM IT MAY CONCERN:

In consideration of my (our) expected use of the bridge under construction across the San Juan River in Sections 33 and 34 T29N, R12W, N.M.P.M. the County= of San Juan and others working on the construction of the bridge have my (our) permission to use fill dirt from my (our) land adjoining the river to build the bridge approaches.

Eudoro Medina .....

Adelido Archibeque .....

Frances Archibeque .....

STATE OF NEW MEXICO

ss

COUNTY OF SAN JUAN

The foregoing instruemet was acknowledged before me this .....30th..day of .....April....., 1970, by ..Eudoro Medina, Adelido Archibeque, and ..Frances Archibeque.....

My commission expires:
(SEAL) Nov. 25, 1973

Charles R. Keller Jr.
Notary Public

Note: They asked that no more than needed be used and take it from as close to the river as practicle and not leave holes.
CRK

March 25, 1971

TO WHOM IT MAY CONCERN

We, Mr. and Mrs. Richard F. Clayton and Mr. and Mrs. F. L. Lee, agree to have the San Juan River turned down the north fork of the San Juan River and shut off at the main channel on or near the southern portion of the Clayton Farm to allow San Juan County and other w ork on the community bridge under construction there providing that the County and others will agree to turn the w ater back into the main channel by thunderstorm season or when the work is completed which ever is sooner. It is understood that the water released from the Navajo Dam will be held at the 500 cubic feet per second level for 60 days beginning March 29, 1971. This agreement is for those 60 days. If work is not completed by then, further arrangements satisfactory to all parties for continuance for a stated period of time. No claim will be made by the undersigned against the County of San Juan, individuals, or any others for any possible damages if the above procedures are followed.

Richard F. Clayton
Richard F. Clayton

F. L. Lee
F. L. Lee

Lavean Clayton
Lavean Clayton

Eva Lee
Eva Lee

STA TE OF NEW MEXICO
COUNTY OF SAN JUAN

The foregoinginstrument was acknowledged before me this 25th day of March 1971 by F. L. Lee and Eva Lee and by Richard F. Clayton and Lavean Clayton on this 28th day of March, 1971.

Charles R. Kelly
Notary Public

My Commission expires: 11/25/73

The Claytons sign the above w ith the following stipulation. When water is cut back into the main channel the Claytons want part of the river to go down the north channel adjacent to their pumping sump hole as it formerly did. At that time if water does not flow past their sump hole, the County of San Juan is to cut a channel which will bring north fork flow of water either adjoining or through the sump hole.

RIO GRANDE Steel Company

Sheet No. _____

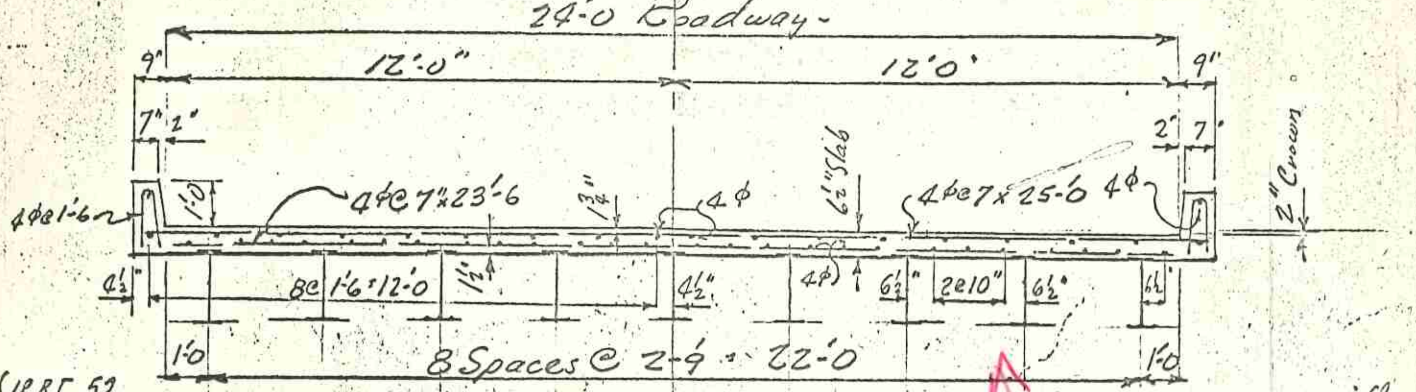
Est. No. _____ Location Steel Mfg. Co. Est. by _____

Structure South Side Bridge

Architect _____ Date of Estimate _____ Date of Letting _____

UNITS	MATERIALS	LENGTH FEET	LENGTH INS.	TOTAL LENGTH FEET	WEIGHT PER FT. OR EACH	WEIGHT OF STEEL	RATE	AMOUNT
	1 Span							
	Conc.					2677	9.90	265.00
	36"			90		450	.13	59.00
	Metal.							324.00
	Cut Channels							12.00
								336.00
12	18 I 54#	40	480			26256	12.50	3298.00
	6 Spans Concrete & Channels.							1964.00
	No 1 & Conc					380	9.00	38.00
								5280.00
					Net			2942.00
				For Abut				2338.00

Pruitt - Aztec. (1)



{18 B.I. 52
{Sec Mod = 93.5
With one hole out of flg.
Sec. Mod = 85.9

TRANSVERSE SECTION

With one hole out in flg.

USE

Assume Stringer Spacing @ 5'-6" (7" Slab) (5 Stringers)

D.L. Slab = 0.583 × 5.5 × 150 = 481 #/1
Beam = 18 Beth I 52# = 52
W.S = 15 × 5.5 = 82
DL = 615 #/1

$M_{DL} = \frac{1}{8} \times 615 \times \overline{39.0}^2 = 117000$ 1#
$M_{Diaph} = \frac{865}{2} \times \frac{39.0}{2} = 8440$ 1#
M_{DL} (Total) = 125,440 1#

Conc. Diaph. = 0.75 × 1.42 × 5.41 × 150 = 865#

H20 LL: $M_{LL} = \frac{336000}{2} \times \frac{5.19}{5.50} =$ 158,500

$I = \frac{50}{39+125} = 30.5$ Use 30% $M_I =$ 47600

M total 331,540 1#

Stress $\frac{331540 \times 12}{85.9} = 46,400$ 1#

Assume Stringer Spacing @ 3'-8 (6½" Slab) (7 Stringers)

OVER STRESS

DL Slab = 0.542 × 3.67 × 150 = 298 #/1
Beam = 18 B.I. @ 52 = 52
WS = 15 × 3.67 = 55
DL = 405 #/1

$M_{DL} = \frac{1}{8} \times 405 \times \overline{39.0}^2 = 77,000$ 1#

Conc Diaph. = 0.75 × 1.42 × 3.625 × 150 = 580# $M_{Diaph} = \frac{580}{2} \times \frac{39}{2} =$ 5650

82650 1#

$M_{LL+I} = \frac{336000}{2} \times \frac{3.35}{5.50} \times 1.30 =$ 133,000 1#

215,650

Stress = 215000 × 12/85.9 = 30,000 #/in

Try 9 stringers - 8 spaces @ 2'-9 = 22.0 6½" Slab

D.L. Slab = 0.54 × 2.75 × 150 = 223 #/'
Beam 18"BI 52 = 52
W.S. = .15 × 2.75 = 41
w = 316 #/'

$M_w = \frac{1}{8} \times 316 \times 39.0^2 = 60{,}100$ '#

Diaph = 0.75 × 1.42 × 2.71 × 150 = 433 #

$M_{Diaph} = \frac{433}{2} \times \frac{39}{2} = 4220$

$M_{DL} = 64{,}320$ '#

$M_{LL+I} = \frac{336000}{2} \times \frac{7.75}{5.5} \times 1.30 = 109{,}200$ '#

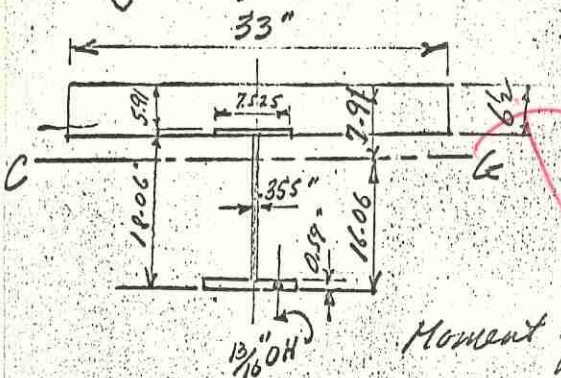
$M_{LL+I} = 109{,}200$
$M_{total} = 173{,}520$ '#

$S_{tens} = \frac{173520 \times 12}{85.9} = 24{,}250$ #/in²

Comp

Try Composite Section

DESIGN



Use n = 10

Slab:	33.00 × 6.50 × 1/10	=	21.45 × 3.25 =	69.70
Deduct	7.525 × 0.59 × 1/10	= −	0.44 × 6.21 = −	2.76
Beam	18 BI 52	=	15.22 × 14.94 =	227.50
Deduct OH.	0.875 × 0.59	= −	0.52 × 23.68 = −	12.32
			35.71	7.91	282.12

Moment of Inertia :-

Slab: $I_o = \frac{1}{12} \times 33 \times 6.5^3 \times \frac{1}{10} = 75.7$
$Ad^2 = 37.45 \times 4.66^2 = 467.0$
Deduct $\frac{1}{12} \times 7.525 \times 0.59^3 \times \frac{1}{10} = - 0.0$
$Ad^2 = 0.44 \times 1.70^2 = - 1.3$
Beam $I_o = 844.1$
$Ad^2 = 15.22 \times 7.03^2 = 755.0$
Deduct $I_o = \frac{1}{12} \times \frac{7}{8} \times 0.59^3 = - 0.0$
$Ad^2 = 0.52 \times 15.77^2 = - 129.2$
$I_{c/c} = 2011.3$ (in terms of Steel)

I/c Tension = $\frac{2011.3}{16.06} = 125.2$

$S_{tens} = \frac{64320 \times 12}{85.9} + \frac{109200 \times 12}{125.7} = 9000 + 10430 = 19430$ #/in² O.K.

I/c Comp: $\frac{2011.3}{7.91} \times 10 = 2542$

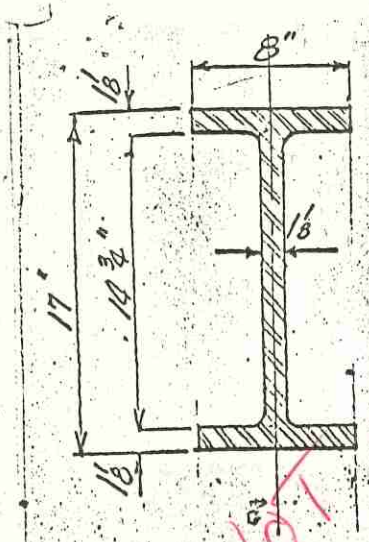
$f_c = \frac{109{,}200 \times 12}{2542} = 517$ #/in² OK.

For HS-20 LL:-

Live Load Total M = 2.18 × 39² × 1.3 × 4 ÷ 17250

I furnished: 9 × 2011.3 = 18,101.7

OK



NOT USED

Moment of Inertia about C/G:-

Flanges: $I_o = \frac{1}{12} \times 8 \times (1.125)^3 \times 2 =$ 1.90 in⁴

$Ad^2 = 8 \times 1.125 \times (7.9375)^2 \times 2 =$ 1132.50

Web $I_o = \frac{1}{12} \times 1.125 \times (14.75)^3 =$ 300.60

$I =$ 1435.0 in⁴

Sec Mod $= \frac{1435.0}{8.5} = 168.9$

Area $= 30.75 \times 1.125 = \frac{34.6 \text{ in}^2}{144} \times 490 = 118$ #/'

Use 120 #/' with fillets

(Assume Spacing @ 5'-6" (5 stringers) (7" slab)

D.L: Slab $= 0.583 \times 5.5 \times 150 = 481$ #/'

Beam (above) $= 175$

W.S. $15 \times 5.5 = 82$

$\overline{688}$ #/'

$M_{DL} = \frac{1}{8} \times 688 \times (39)^2 = 131000$ '#

Mdiaph. $= 8440$

MDL total $= 139440$ '#

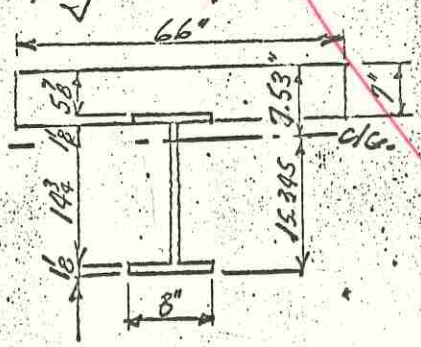
$M_{LL} = \frac{336000}{2} \times \frac{5.50}{5.50} = 168000$ } 218400

$M_I = 168000 \times 0.30 = 50,400$ }

$M_{Total} = 357840$ '#

$S_{bm} = \frac{357840 \times 12}{168.9} = 25,410$ #/in²

Try Composite:-



n = 10

C/G:- Slab $= 66 \times 7 \times \frac{1}{10} = 46.20 \times 3.50 =$ 161.70

Deduct $= 8 \times 1\frac{1}{8} \times \frac{1}{10} = -0.90 \times 6.44 =$ - 5.78

Beam: $34.60 \times 14.375 =$ 497.00

7.90 | 7.53 | 652.5 in²

I c/g:- Slab $I_o = \frac{1}{12} \times 66 \times 7^3 \times \frac{1}{10} =$ 128.5

$Ad^2 = 46.20 \times (4.03)^2 =$ 1735.0

$-Ad^2 = 0.95 \times (1.09)^2 =$ - 1.1

Beam (above) $=$ 1435.0

$Ad^2 = 34.6 \times (6.845)^2 =$ 1620.0

$I_{c/g}$ 3977.4

I/c (Tension) $= \frac{3977.4}{15.345} = 259.0$

I/c (Comp) $= \frac{3977.4}{7.53} \times 10 = 5280$ $S_{bm} = \frac{139440 \times 12}{168.9} + \frac{218,400 \times 12}{259.0} = 9910 + 10120$

$= 20,030$ #/in²

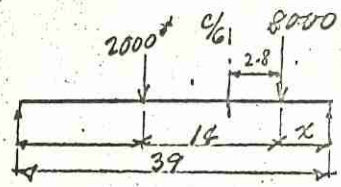
$S_2 = \frac{218,400 \times 12}{52.80} = 4971$ #/in²

Shear Connectors

D.L.:- W.S = $15 \times 2.75 = 41.3$ #/'
Rail = $2 \times 30 \div 9 = 6.7$
$w = 48.0$ #/'

For end reaction Front Wheel Load:
$4000 \times \frac{2.75}{5.5} = 2000$ # Rear Wheel = 16000 #
Reaction = $16000 + 2000 \times \frac{1280}{1280} \times \frac{25}{39} = 17,280$ #
Other place rear wheel = $16000 \times \frac{2.75}{5.50} = 8000$ #

L.L Shear:



$V_{LL} = \frac{10000}{39}(39 - x - 2.8)$
$V_{DL} = 48(19.5 - x)$
$V_I = 30\% V_{LL}$

x →	0	2'	4'	6'	8'	10'	15'	19.5'
V_{DL} #	936	840	744	648	552	456	216	0
V_{LL} #	17280	8790	8250	7740	7230	6720	5440	4280
V_I #	5180	2630	2475	2320	2170	2015	1630	1283
V_{Total} #	23396	12240	11469	10708	9952	9191	7286	5563
V_L #/in	585	306	287	268	249	230	182	139
c Spa in	10.7	20.4	21.7	23.25	25.1	27.1	34.3	44.9

Longitudinal Shear:- $V_L = \frac{VQ}{Ib}$

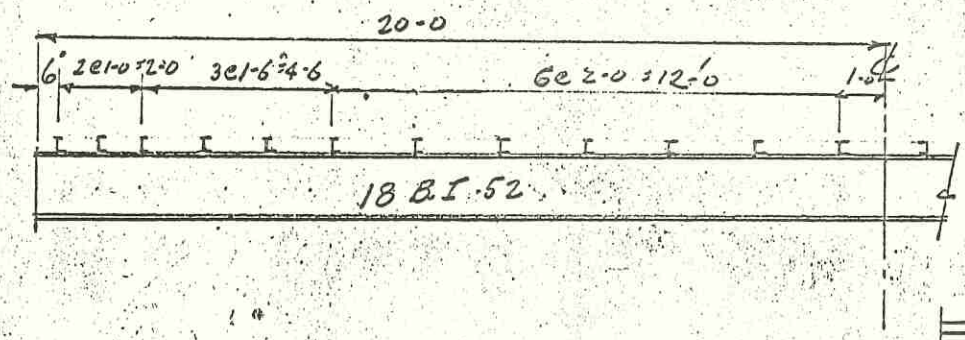
$Q = 21.45 \times 2.66 = 57.10$
$-0.44 \times -0.29 = 0.13$
56.97

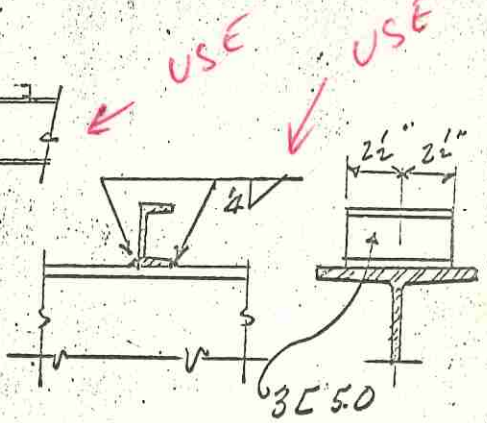
$I = 2011.3$
$b =$ Unity.

$V_L = V \frac{56.97}{2011.3} = 0.028\,V$

3 C 5.0 × 5" long
@ 1248 #/in = 6240 #/each

Spacing = $\frac{6240}{V_L}$





Slab: Span = 2-9 less $3\frac{3}{4}$" = 2'-5¼"

$M_{LL} = \frac{S+2}{32} P_{20} = \frac{2.44+2.0}{32} \times 16000 = 2220$ #'

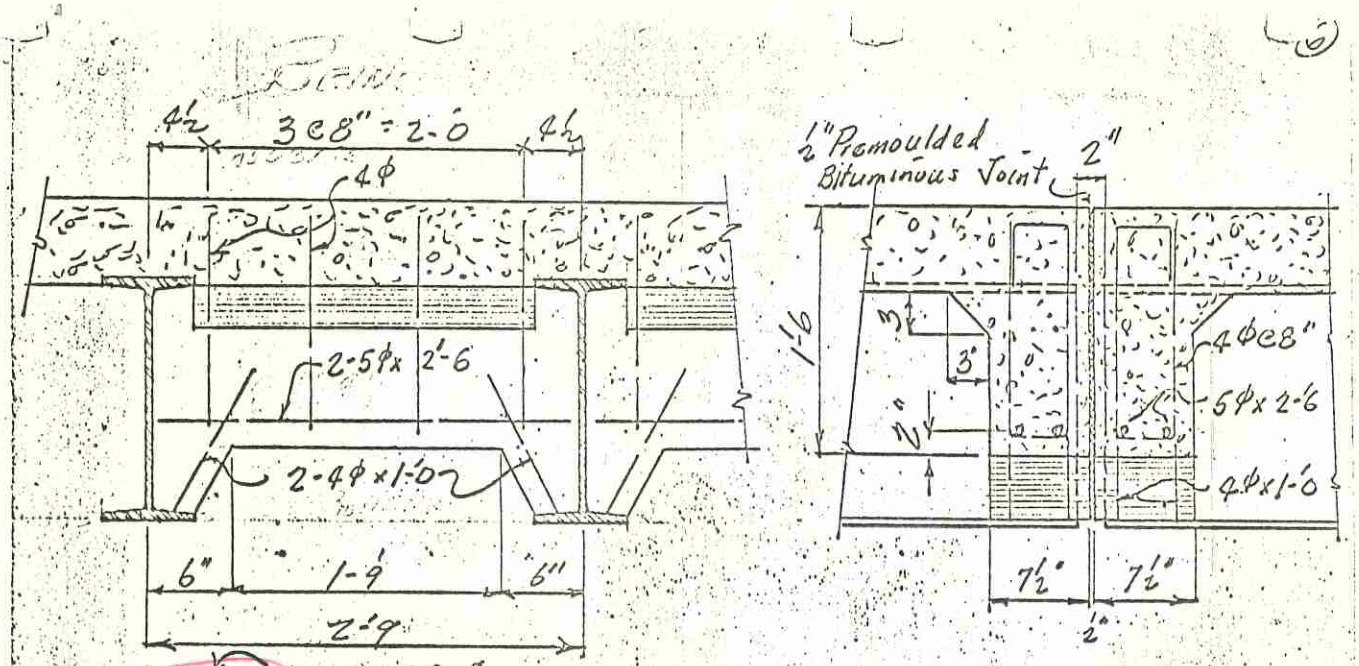
$M_{LL+I} = 8/10 \times 2220 \times 1.3 = 2309$ #'
$M_{DL} = 1/10 \times 96 \times 2.4^2 = 57$ #'
$M_{Total} = 2366$ #'

Slab DL:- Conc = 0.54 × 150 = 81
W.S. = = 15
96

$b = 12"$ $d = 4\frac{3}{4}$ $K = \frac{2366 \times 12}{12 \times (4.75)^2} = 105.2$
$p = 0.0058$ $V = 0404$

Reqd As = $\frac{2366 \times 12}{20000 \times .904 \times 4.75} = 0.33$ / in

4 # @ 7" = 0.34
Top & Bottom.



11000 x 1.3 = 20,800#

6½ 20" 6½

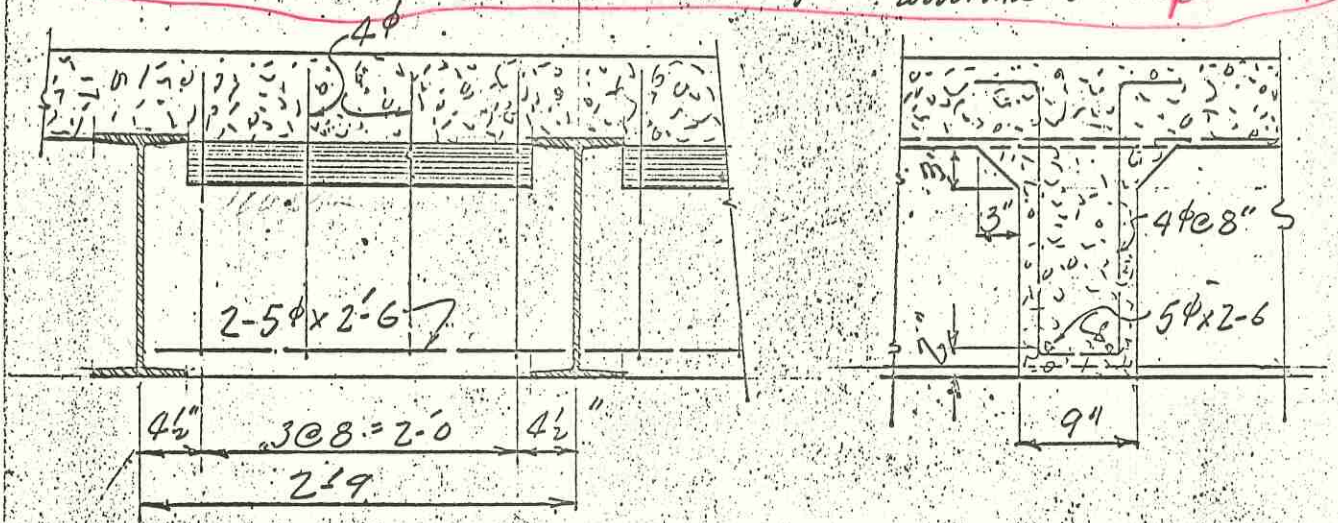
33"

END DIAPHRAGM DETAILS

$M_{\frac{1}{2}} = 10400 \times (6\frac{1}{2}+5) = 119600$"# $b = 7\frac{1}{2}$" $d = 16$" $K = \frac{119600}{7.5 \times (16)^2} = 62.1$ $\therefore p = 0.0034$ and $j = 0.903$

Reqd $A_s = \frac{119600}{20000 \times 0.903 \times 16} = 0.415$

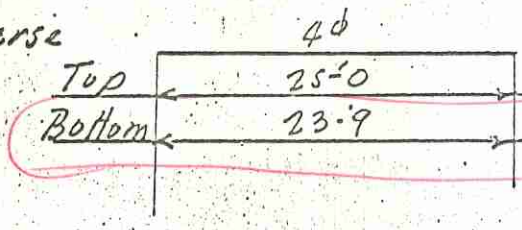
Design



INTERIOR DIAPHRAGM DETAIL

Reinforcing Steel for One Span

Slab Transverse

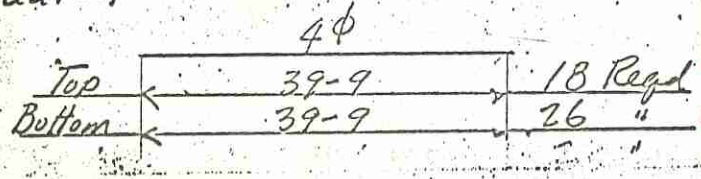


use Sucker rod

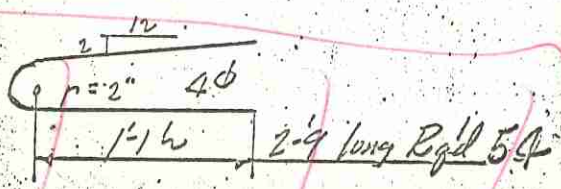
4φ
69 @ 48.75 = 3363.75
46 @ 37.75 = 1826.50
54 @ 2.75 = 148.50
64 @ 4.50 = 288.00
32 @ 4.50 = 144.00
5772.75
@ 0.668 = 3856.2 #
per ft.

5φ
48 @ 2.50 = 120.00
120.00
@ 1.043 = 125.16
per ft.
3981.36

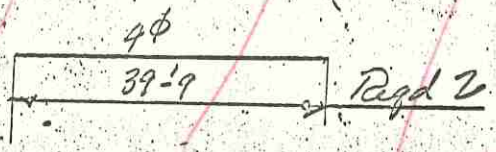
Slab Longitudinal



Curb Transverse



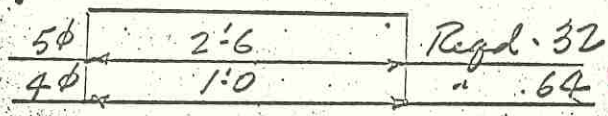
Curb Longitudinal

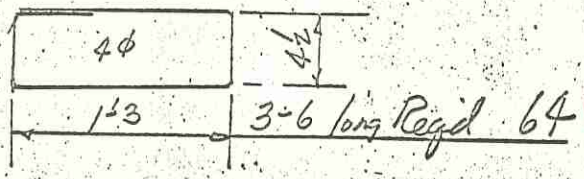


order

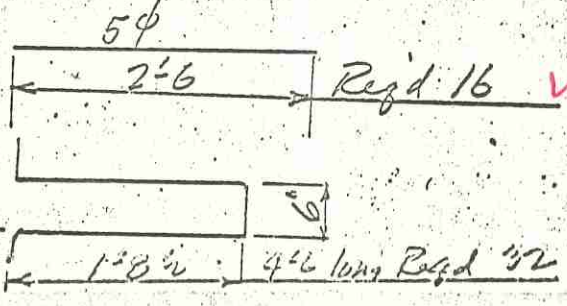
Total Weight for 1 Span = 3981 #

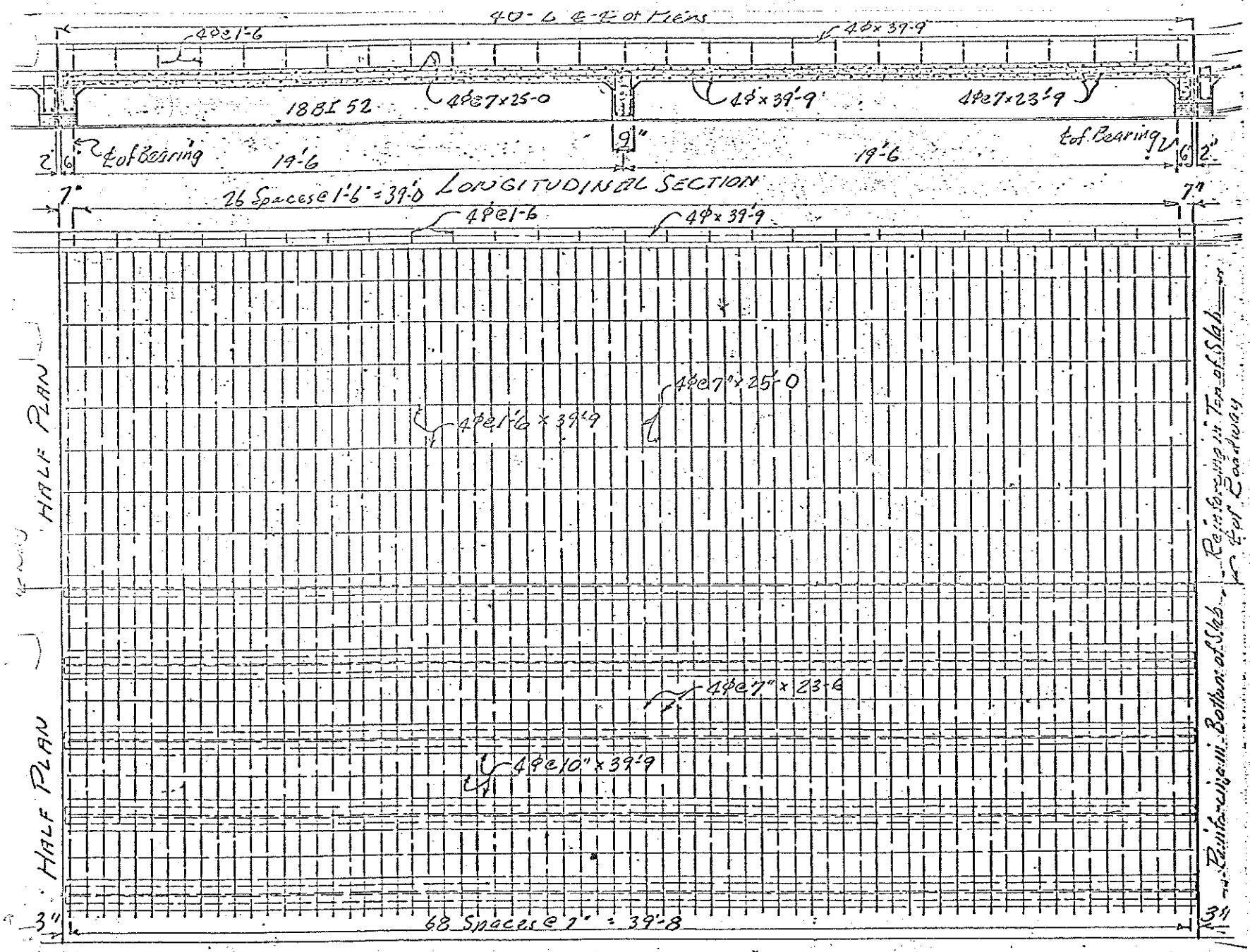
End Diaphs:





Interior Diaph:



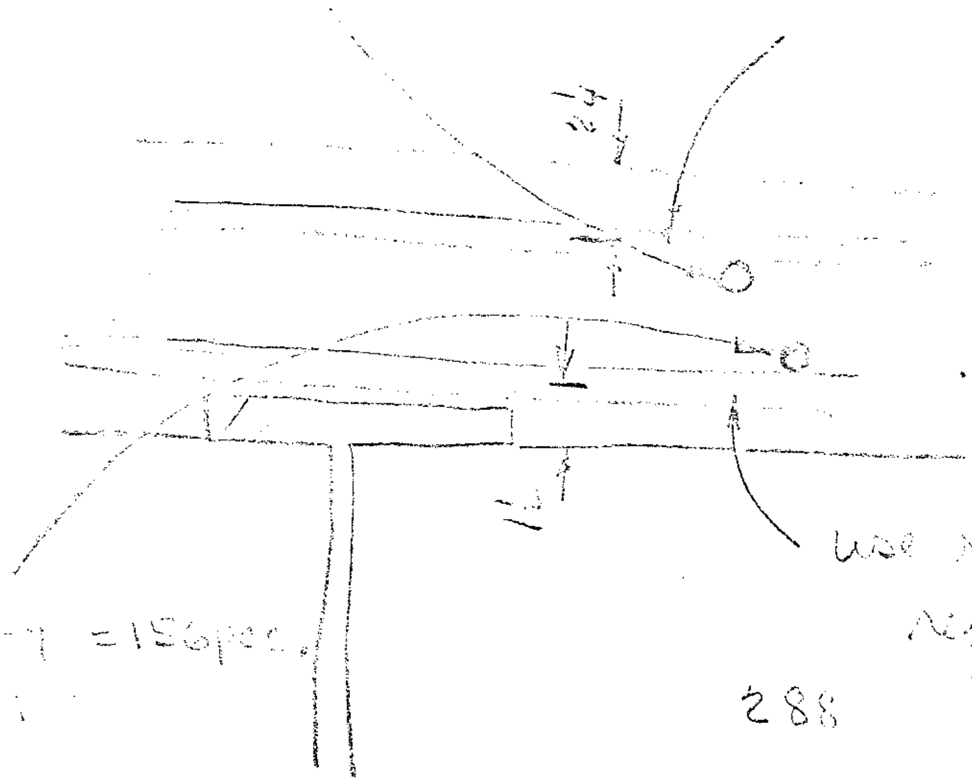

40'-6 c-c of Piers
49 @ 1'-6
49 x 39'-9
18 BI 52
49 @ 7 x 25'-0
49 x 39'-9
49 @ 7 x 23'-9
c of Bearing
19'-6
19'-6
c of Bearing
9"
2"
6"
LONGITUDINAL SECTION
26 Spaces @ 1'-6" = 39'-0
7"
7"
49 @ 1'-6
49 x 39'-9
HALF PLAN
HALF PLAN
49 @ 7" x 25'-0
49 @ 1'6 x 39'-9
49 @ 7" x 23'-6
49 @ 10" x 39'-9
68 Spaces @ 7" = 39'-8
3"
3"
Reinforcing in Top of Slab
Reinforcing in Bottom of Slab
For Roadway

44 x 39'-9" = 108 pcs.

use 4# x 23'-9" @ 7"
req'd 414 pcs.

120 rods

120 rods

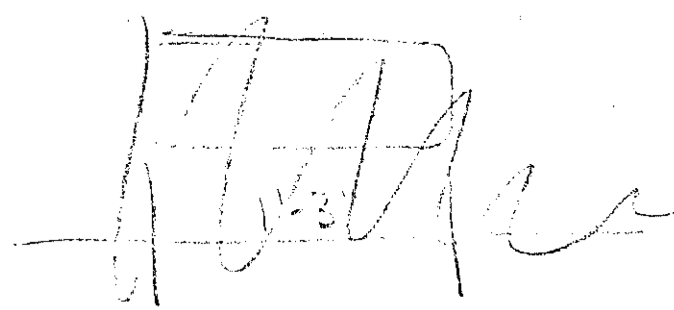


use rods @ 10" spa. in each span
req'd 288 rods.

288

4# x 9'-9" = 156 pcs.

5#	2'-6"	[illegible]	[illegible]
4#	1'-0	32	[illegible]



Dimple steel

30/ per pieces ±

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ADDENDUM NO. 2

DATE: Friday January 8, 2021

PROJECT NAME: Bridge 8130 on San Juan County Road 5500

TO: ALL BIDDERS OF RECORD

This Addendum forms a part of the contract Documents and modifies or supplements the Project Manual or the Drawings as indicated below. All other provisions of the Contract Documents shall remain unchanged. This Addendum is hereby made a part of the Contract Documents to the same extent as those provisions contained in the original documents and all itemized listings thereof. Bidders shall acknowledge receipt of this Addendum in the appropriate space on the Bid Proposal form.

I. ADVERTISEMENT FOR BID, PRE-BID CONFERENCE, BID SUBMISSION AND BID OPENING

II. BID PROPOSAL-changes to the bid proposal are listed here (in detail)
The Basis of Bid is hereby deleted in its entirety and replaced with the attached revised Basis of Bid.

III. SUPPLEMENTAL SPECIAL PROVISIONS

IV. SUPPLEMENTAL TECHNICAL SPECIFICATIONS

V. QUESTIONS FROM BIDDERS AND/OR PRIOR APPROVALS, RFIs and CLARIFICATIONS

1. It appears the quantity for item 416000 Minor Pavement has a blemish on the bid item sheet from the spec book making it appear to be .6530 SY, the plan sheet reflects the quantity 6,530 SY. Please clarify that the quantity is correct to the plan sheet.
    a. An updated Basis of Bid is provided with this addendum.

2. Item 502600: Obstruction Removal, 60 LF. Define the obstruction.
    a. It is the estimated quantity of timber piles to be removed from the existing caps down to the plan specified depth below the ground surface.

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3. Item 601000: Removal of Structures and, 1 LS. Is Item 502600 a redundancy of item 60100?
    a. No, the Removal of Structures and the Obstruction Removal will be paid separately.

4. Item 603100: Is this a Chemical Stabilization? If so; What is recommended?
    a. Per the NMDOT Specification 603.2.5 the temporary soil stabilant shall be from the NMDOT Approved Products List.

5. Item 210003: Major Structural Backfill. Is this item an imported low strength concrete or select material?
    a. The backfill should meet the requirements of the NMDOT Specification 210 – Excavation and Backfill for Major Structures.

6. Is steel an acceptable material for sheet pile?
    a. Steel sheet piles would be subject to the approval of the Army Corps of Engineers as an alternate. The County is willing to consider this alternative but can't guarantee the Army Corps of Engineers will accept the alternative.

7. On sheet number 1-8 of the plans "ENVIRONMENTAL COMMITMENTS", number 8 references contractor to adhere to 404/401 permit and certification in Appendix F. I can't seem to locate the documents, will these be issued in an addendum or can to point me where Appendix F is located.
    a. The Categorical Exclusion is attached to this addendum.

8. Are the Geotech Files AKA Boring Logs available for review? We'd like to get a feel for the rock formation at the bridge.
    a. The Geotechnical Report is attached to this addendum.

9. Will Earthwork X-Section be made available?
    a. Earthwork cross sections will not be provided.

10. Will full closures be allowed during certain activities? If so how many are allowed and will there be any time restraints?
    a. Closures will need to be approved by the Owner and Engineer prior to the work no less than 1 week in advance so proper notice can be given. The closures will need to be proven by necessity rather than convenience. The bridge will need to remain open outside of working hours (nights and weekends).

11. Since the contract is adhering to NMDOT Spec., will contractor QC testing follow section 906 MINIMUM TESTING REQUIREMENTS?
    a. Yes, QC testing will follow Section 906 of the NMDOT specifications.

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12. Sheet 3-5 in the plans references a geotechnical report (note 3). Will the report be made available?
    a. The Geotechnical Report is attached to this addendum.

13. Will the engineer be able to provide the as-built drawings for the San Juan Co CR 5500 Bridge or inform the bidders of where to obtain them?
    a. There are no existing as-built drawings of the bridge to provided. The contractor should visit the site to visually inspect the bridge to determine existing conditions and removal.

14. 540060 – Reinforcing Bars Grade 60 – 12,362 LBS (by using their schedule in the plans, I am coming about 5,800 LBS more
    a. The reinforcing bars located in the diaphragms at abutment 1 and abutment 2 are epoxy coated reinforcing bars and not uncoated bars as shown in the bar list. This applies to bars AD1 through AD18 and the quantities in the Basis of Bid are based on this.

15. Please verify the Bid Item descriptions on the Bid Form. Several of the descriptions seem to be cut off.
    a. An updated Basis of Bid has been provided as part of this addendum.

16. Please provide cross sections at 20' intervals along the length of the project so that we can analyze earthwork quantities.
    a. Cross sections will not be provided for this project.

17. Please verify that metal stay-in-place forms can be used for the bridge deck.
    a. Yes, metal stay-in-place forms may be used for the bridge deck.

18. Please provide a copy of the Geotechnical Report.
    a. Geotechnical Report provided as part of this addendum.

19. Please provide a copy of the 404 permit so that we can see what our limitations will be.
    a. Categorical Exclusion Document is provided as part of this addendum.

Attachment(s):

- **Updated Basis of Bid**
- **Final Geotechnical Investigation Report, dated December 17, 2018 and Addendum dated November 20, 2020**
- **Categorical Exclusion dated 06/15/2020**

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T.Y. Lin International

By _____
Howard Cake, P.E.

ARTICLE 5 – BASIS OF BID

Addendum #2 Revised

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price:

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
107000	ENVIRONMENTAL COMMITMENTS	LS	1		
201000	CLEARING AND GRUBBING	LS	1		
203100	BORROW	C.Y.	6,800		
203200	UNSUITABLE MATERIAL EXCAVATION	S.Y.	3,500		
203211	UNSTABLE SUBGRADE STABILIZATION	S.Y.	1,400		
207000	SUBGRADE PREPARATION	S.Y.	5,300		
210002	MAJOR STRUCTURE EXCAVATION	C.Y.	300		
210003	MAJOR STRUCTURE BACKFILL	C.Y.	1,300		
303000	BASE COURSE	TON	4,060		
407000	ASPHALT MATERIAL FOR TACK COAT	TON	3		
408100	PRIME COAT MATERIAL	TON	13		
416003	MINOR PAVEMENT HMA SP-III	S.Y.	6,530		
502060	DRILLED SHAFT FOUNDATION 60" DIAMETER	L.F.	400		
502166	PERMANENT CASING 66" DIAMETER	L.F.	208		
502600	OBSTRUCTION REMOVAL	L.F.	60		
505000	CROSSHOLE SONIC LOGGING CONSULTANT TESTING	EACH	12		
505011	LOW STRAIN INTEGRITY CONSULTANT TESTING	EACH	12		
511000	SUBSTRUCTURE CONCRETE CLASS A	C.Y.	338		
511070	SUBSTRUCTURE CONCRETE CLASS HPD	C.Y.	452		
514042	CONCRETE BARRIER RAILINGS 42"	L.F.	490		
518045	PRESTRESSED CONCRETE BRIDGE MEMBER TYPE 45	L.F.	356		
518072	PRESTRESSED CONCRETE BRIDGE MEMBER TYPE 72	L.F.	847		
531001	PERMANENT ANTI-GRAFFITI PROTECTIVE COATING	S.F.	1,011		
536001	EPOXY URETHANE POLYMER CONCRETE BRIDGE DECK OVERLAY	S.Y.	1,326		
540060	REINFORCING BARS GRADE 60	LB	12,362		
540160	EPOXY COATED REINFORCING BARS GRADE 60	LB	107,417		
541000	STRUCTURAL STEEL FOR CONCRETE BRIDGES	LB	12,775		
543002	METAL RAILING, TYPE A42	L.F.	485		

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
547000	SAFETY AND ENVIRONMENTAL REQUIREMENTS	LS	1		
560000	ELASTOMERIC BEARING PAD	EACH	24		
562000	BRIDGE JOINT STRIP SEAL	L.F.	106		
563099	POLYMER BRIDGE JOINT SEALS	L.F.	196		
601000	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LS	1		
601110	REMOVAL OF SURFACING	S.Y.	3,220		
602000	RIPRAP CLASS A	C.Y.	120		
602020	RIPRAP CLASS C	C.Y.	2,990		
603100	TEMPORARY SOIL STABILANT	ACRE	1		
603281	SWPPP PLAN PREPARATION AND MAINTENANCE	LS	1		
604300	GEOGRID REINFORCEMENT	S.Y.	340		
606001	SINGLE FACE W-BEAM GUARDRAIL	L.F.	1,190		
606052	END TREATMENT TL-2 END ANCHOR	EACH	5		
606053	END TREATMENT W-BEAM END ANCHOR	EACH	5		
606062	TRANSITION METAL BARRIER TO RIGID BARRIER	EACH	4		
606063	EXISTING BEAM GUARDRAIL TO 31" BEAM GUARDRAIL TRANSITION	EACH	2		
606401	REMOVE AND REINSTALL GUARDRAIL	L.F.	140		
606599	RESETTING OF TCWB	L.F.	720		
606710	TCWB RETAINED BY THE CONTRACTOR (20')	L.F.	360		
607199	REMOVE AND REBUILD FENCE	L.F.	790		
617000	VIBRATION MONITORING	LS	1		
617003	VIDEO TAPING	LS	1		
618000	TRAFFIC CONTROL MANAGEMENT	LS	1		
621000	MOBILIZATION	LS	1		
632000	CLASS A SEEDING	ACRE	1		
667130	MAIL BOX INSTALLATION-MULTIPLE	EACH	22		
701030	REMOVE AND RESET PANEL SIGN	EACH	27		
701100	STEEL POST AND BASE POST FOR ALUMINUM PANEL SIGNS	L.F.	178		
702810	TRAFFIC CONTROL DEVICES FOR CONSTRUCTION	LS	1		
704700	HOT THERMOPLASTIC PAVEMENT MARKINGS 4"	L.F.	4,800		
801000	CONSTRUCTION STAKING BY THE CONTRACTOR	LS	1		
901000	CONTRACTOR PROCESS QUALITY CONTROL	LS	1		
Base Bid – Total of all Unit Price Bid Items					$

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

a) Base Bid		$ _____
b) Allowances:		
Construction Materials Testing		$30,000.00
Total Allowances:		**$30,000.00**
c) Subtotal – Base Bid plus Allowances		$ _____
d) New Mexico Gross Receipts Tax (NMGRT)	6.6875%	$ _____
e) Base Bid Total – Subtotal plus NMGRT		$ _____

_____

Dollars

(Base Bid Total amount written in words)

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete within 240 calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions.

6.02 In addition, Bidder agrees to complete or correct all punch list items attached to the Certificate of Substantial Completion within 30 consecutive calendar days following the date of Substantial Completion.

6.03 As provided in the Special Provisions, Bidder further agrees to pay as liquidated damages the amount of **$1,500** for each consecutive calendar day beyond the agreed time that Substantial Completion is not achieved and **$1,500** for each consecutive calendar day beyond the agreed time that all punch list items are not completed or corrected.

6.04 Bidder agrees to the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

A. Evidence of Bidder's authority to do business in New Mexico.

B. Bidder's New Mexico contractor license number.

C. Required Bid security in the form of 5%;

D. List of Proposed Subcontractors;

E. Bid Guaranty

F. Affidavit of Bidder

G. Bidder's List of Quoters for the Disadvantaged Business Enterprise (DBE) Program

H. Disadvantaged Business Enterprise (DBE) goal Form A-585

I. Non-Debarment Certification

J. Pay Equity Reporting Acknowledgement

K. Subcontractor and supplier qualification information; coordinate with provisions of Article 12 of these instructions, "Subcontractors, Suppliers, and Others."

L. Bidder's Qualification Statement with supporting information

M. Resident or Veteran Contractor Certificate (If applicable)

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

BIDDER:

_____

By:
[Signature] _____

[Printed name] _____
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:
[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

_____

_____

_____

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

_____

New Mexico State Contractor License No.: _____

New Mexico Workforce Solutions Registration No.: _____

Federal Employer Identification No. (FEIN #): _____

New Mexico Resident/Veteran Preference No.: _____