

CHV-781

108-041 Replace 8" Asbestos Pipe
in Boiler Blowdown Line with 8"
Steel Pipe

PROPOSAL FOR CONSTRUCTION AND MAINTENANCE WORK GO-36-B-TX

Page 1 of _____ pages

District or
Division

Mfg

Location or
Property

Work Proposed

*Replace 700' x 8" Asbestos
Cement Pipe in the
Buried Blowdown Line
w/ 700' x 8" Steel Pipe*

Appropriation Number *R58-86*

Budget Project No.

Amount Requested *\$ 9600*

Previously Authorized \$

Estimated Total *\$ 9600*

SUMMARIZED ESTIMATE

ITEM	Contract	Company Labor (Incl. PR Burden)	MATERIALS		Misc. Charges	Total
			Purchased	Inventory Stocks		
<i>1. Install 700' of 8" Sch 40 Pipe, ditching & Backfilling -</i>	<i>2300</i>		<i>2300</i>			<i>4600</i>
<i>2. G. Isolate</i>	<i>600</i>		<i>1700</i>			<i>2300</i>
<i>3. Vents & Anchors</i>	<i>600</i>		<i>200</i>			<i>800</i>
<i>4. Paving</i>	<i>300</i>		<i>300</i>			<i>600</i>
<i>5. Engrt.</i>	<i>400</i>					<i>400</i>
<i>6. Contingency</i>	<i>800</i>					<i>800</i>
<u>Field Indirect Expense</u>	<i>100</i>					<i>100</i>
<u>Total Amount Requested (Item 8, GO-36-TX)</u>	<i>5100</i>		<i>4500</i>			<i>9600</i>

Recommended By

DATE

DATE

DATE

DATE

GO-36-B-TX 7-51

Chevron BB
015642

PROPOSAL FOR CONSTRUCTION AND MAINTENANCE WORK GO-36-B-TX

District or
Division*Mfg*Location or
Property

Work Proposed

Appropriation Number *RES-86**Replace 700' x 8" Asbestos
Cement Pipe in the
Burke Blowdown Line
w/ 70' x 8" Steel Pipe*

Budget Project No.

Amount Requested *9600*

Previously Authorized \$

Estimated Total *\$ 9600*

SUMMARIZED ESTIMATE

ITEM	Contract	Company Labor (Incl. PR Burden)	MATERIALS		Misc. Charges	Total
			Purchased	Inventory Stocks		
<i>1. Install 700' of 8" Sch 40 Pipe, ditching & Backfilling -</i>	<i>2300</i>		<i>2300</i>			<i>4600</i>
<i>2. Gravelate</i>	<i>600</i>		<i>1700</i>			<i>2300</i>
<i>3. Vents & Anchors</i>	<i>600</i>		<i>200</i>			<i>800</i>
<i>4. Paving</i>	<i>300</i>		<i>300</i>			<i>600</i>
<i>5. Engt.</i>	<i>400</i>					<i>400</i>
<i>6. Contingency</i>	<i>800</i>					<i>800</i>
<u>Field Indirect Expense</u>	<i>100</i>					<i>100</i>
<u>Total Amount Requested (Item 8, GO-36-TX)</u>	<i>5100</i>		<i>4500</i>			<i>9600</i>

Recommended By

DATE

DATE

DATE

DATE

GO-36-B-TX 7.51

BRU
6/9/38

Proposal:
Replace the 700 ^{feet} of 8 inch
concrete pipe with steel line
laid in gilsulate.

Justification: The primary
justification for this job
is the ~~elimination of~~ ^{reduction of}
~~excessive personnel~~ ^{in addition} ~~to the~~
present rate of repairs required.
Annual maintenance cost will be
about \$5300. Based on the annual
savings, the proposed investment
will pay out in 3.04 years after
55% increase to the attached
sheet for payout analysis.

Budget: This project was not anticipated
at the time of budget preparation.

DDO 6/5

~~Estimated~~ Payout Calculation

Annual Savings
Less 10% Deprec

Less 55% Tax
Savings after Taxes
Plus Deprec.

Available for Payout →

Payout
Rate of Return Based
on 20 year life

\$	
5300	
960	
4340	
2380	
1960	
960	
2920	

= 3.04 %
= 27.7 %

ESTIMATE SHEET

ESTIMATE SHEET					FILE	
FOR					S.O. ITEM	
ITEM TITLE					SHEET OF	
REQUESTED BY	MADE BY	CHECKED BY	APPROVED BY		DATE	
					DRWG. NO.	
DESCRIPTION	UNIT	QUANT.	PRICE	LABOR	MAT'L	TOTAL
1. Install 700' of 8" Sch 40 Pipe (include 2" ft. ditching & backfilling)	ft.	700'	6 ⁰⁰	2300	2300	4600
2. Insulate - 2" M.I.R. Cover - 40% over for waste expansion etc.	ton	15	113	600	1700	2300
3. 2 Combination vents & Anchors				600	200	800
4. Paving (450' x 6')	Syd.	300	2 ⁰⁰	300	300	600
						8300
5. Engr.				400		400
6. Contingency				800		800
7. Field Indirect				100		100
				5100	4500	9600

REPORT OF INDUSTRIAL INJURY
(For your information only)

(Date Prepared) 5/28/58

II. INJURED EMPLOYEE

4. NAME Harley E. Buehrey SERVICE DATE IMMEDIATE SUPERVISOR C. A. Rader

6. AGE 33 8. MARRIED: YES-NO Yes OCCUPATION (JOB TITLE) Helper B

III. ACCIDENT

13. LOCATION East end of #6 Desalter DEPT. Maintenance

15. DATE 5/21/58 16. HOUR OF DAY 4:20 P.M. 17. LOST TIME? No

IV. CAUSE OF ACCIDENT

23. WHAT EMPLOYEE WAS DOING WHEN ACCIDENT OCCURRED: Walking thru #6 Crude area

24. HOW ACCIDENT HAPPENED: At 4:20 PM the injured was walking along one of the pathways always used between plant 15 and 19. When walking past a cave-in along the roadway, the dirt gave way, and injured was burned around the foot by steam that had caused the cave-in. This was over the buried boiler blowdown line which had broken and undermined the spot where the injured stepped.

29. WHAT WAS RECOMMENDED FOR PREVENTING THIS TYPE OF ACCIDENT: Locate and repair leaks of this type more rapidly.

V. NATURE OF INJURY AND PART OF BODY AFFECTED: Burn anterior left ankle and lower third of left leg, 1st and 2nd degree burns.

31. NAME OF PHYSICIAN: Dr. E. W. Rheinheimer HOSPITAL:

VI. BASIC CAUSE OF ACCIDENT: Improper type or poor design of equipment, Immediate cause.
Underlying reason - Adequate and safe plant facilities not provided by supervisory personnel.

VII. WHY ABOVE STATED "BASIC CAUSE" WAS SELECTED:

The underground boiler blowdown line was broken from too much pressure. To eliminate this from happening again, the engineers are planning a blowdown pot at #6 Crude Unit. The line will be repaired and this should not happen again. Material in pipe apparently unsuited for this type service.

VIII. IMMEDIATE ACTION TAKEN TO PREVENT RECURRENCE AND SUGGESTED STANDARD PRACTICE TO AVOID ACCIDENTS OF A SIMILAR NATURE:

Ropes have been put around the area and personnel have been warned about the danger. The pipes will be corrected as soon as possible.

REPORT OF INDUSTRIAL INJURY
(For your information only)

(Date Prepared) 5/28/58

II. INJURED EMPLOYEE

4. NAME Harley H. Humphrey SERVICE DATE _____ IMMEDIATE SUPERVISOR C. A. Rader
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6/3/50 9/7 BRQ

Estimate of Maintenance Cost of Baker Bladwin

Replace 33' Trans 100

$$128 \text{ km @ } 3.25 = 416$$

$$\text{Paving @ } 50 @ 20 \text{ ft} = 40$$
$$456$$

$$\text{Pipe @ } 24 @ 2.21 = 86$$
$$542$$

$$\text{Cost/ft} = \frac{542}{39} = 13.85$$

6" Trans. Replaced

8" VCT Replaced

$$\text{VCT Cost} = 100 = 28$$

$$\text{Cost/ft} = \frac{100}{10} = 10$$

$$\text{Pipe Cost/ft} = 100 = 13.30$$

6/4/58
BRQ

3 breakers one / break = $\frac{1}{3}$ = say 50'

4 breakers in 6 months

or

8 / yr

Annual Maintenance

$$= 8(50)(13^{00}) = \$5315^{00}$$

Say $\$5300^{00}$

Estimated Payout

Annual Savings	\$5300
Less 10% Deprec	530
	4770
Less 55% Tax	2623
Savings after Tax	2147
Plus Deprec	530
Available for Payout	2677
Payout =	3.59 yrs
Rate of Return =	22.85%

BRA

6/4/58

Order for Gilsonite
Class A

ST 21326 dated 5/15/57

No Tax

= 2 tax

Price/ton 754¢

= 83.00

Freight 2.50 per ton + 3% tax = 1.03

Craig, Colo.

20 tons @ 98¢ + 3¢/ton

Freight to be paid

for 20 tons @ above

= 4.03

all items packed

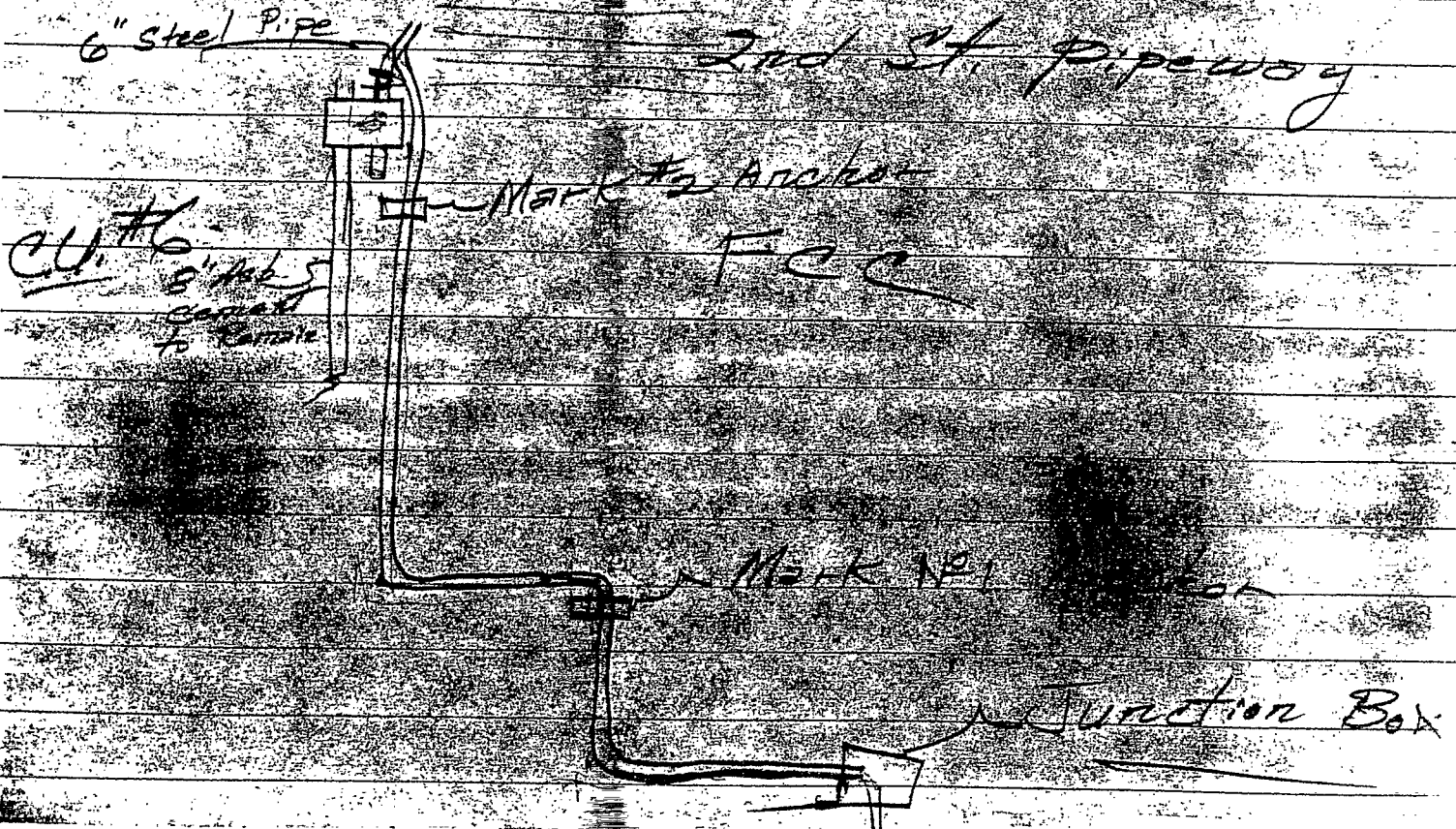
4/3/58
BR9

Thrust from 370' Section

$$= 9100 (\tan 30^\circ) = 5250^*$$

At North end of pipe (Just South of existing Red Cement Pipe to St. 1st Junction Block) Install 1 - Mark #2 Concrete pipe Anchor Ref. Draw No GBM-78448.3

Install Mark #1 Anchor above Ref. as shown below -



6/3/58
BRQ

Line Expansion — due to
heating for setting Concrete
say 310°

$$\Delta T = 310 - 70 = 240^{\circ}F$$

$$\Delta L_0 = (370)(240)(6.7 \times 10^{-6}) = 0.594' = +7.14"$$

$$\Delta L_2 = +1.93"$$

$$\Delta L_3 = +2.53"$$

$$\Delta L_4 = +1.93"$$

ΔL from setting Temp to
Normal Oper Temp. of 14°

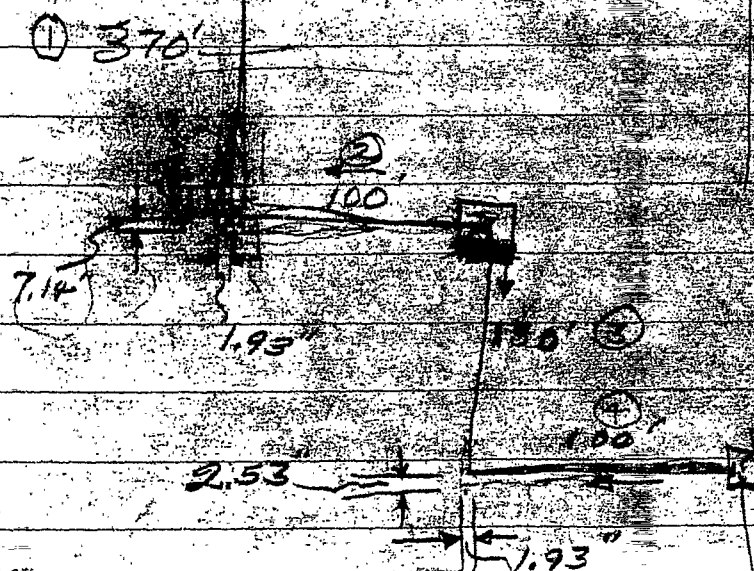
$$\Delta T = 310 - 140 = 170^{\circ}F$$

$$\Delta L_0 = 370(170)(6.7 \times 10^{-6}) = 0.421' = 5.05"$$

$$\Delta L_2 = -1.365"$$

$$\Delta L_3 = -1.773"$$

$$\Delta L_4 = -1.365"$$



PROJECT No. 11111111

MAY 22 1958

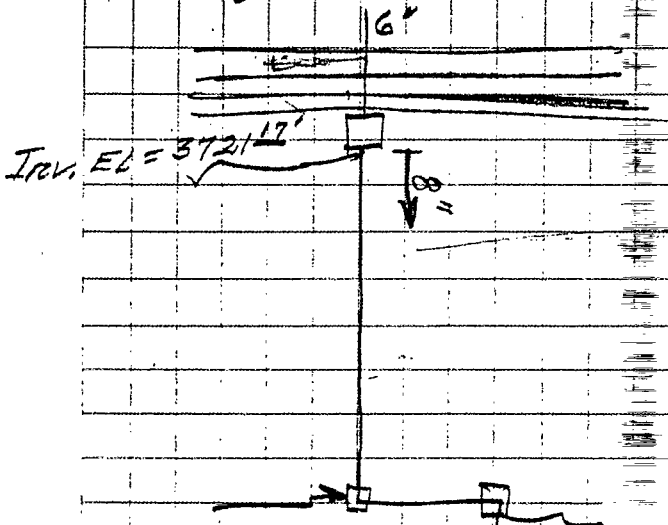
TITLE

INITIALS
B. R. ANDERSON

SUBJECT

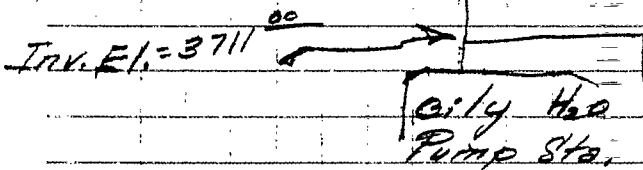
DATE

Design flow of 8" Transite = ?

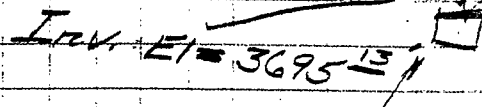


*800' x 8" Line
570' Asb Cem
230' VC Tile*

= 3713.17



Say 1200' x 12" VCT



GO-144-2
CALCULATION SHEET

RECEIVED

PROJECT No. _____

SHEET No. _____
MAY 22 1958

TITLE _____

INITIALS
B. R. ANDERSON

SUBJECT _____

DATE _____

Assume uniform slope

$$s = \frac{3721^{12} - 3695^{13}}{2000} - \frac{26^{24}}{2000} = 0.01302$$

Check elev. given at junction N of City H₂O Pump Station

$$3721^{12} - 570(0.01302)$$

$$= 3721^{12} - 7.43 = 3713^{24}$$

$$\text{Given } E1 = 3711^{20}$$

Use elev. Given for 570' x 8" Asb. Cerm. Pipe & Assume 1230' x 8" VCT has same slope. Compute slope for 12" VCT.

$$s_{8"} = \frac{3721^{12} - 3711^{20}}{570} = \frac{10^{17}}{570} = 0.01785$$

∴ Elev. of upper end of 12" VCT

$$= 3721^{12} - 800(0.01785) = 3721^{12} - 14^{26}$$

$$= 3706^{89}$$

$$s_{12"} = \frac{3706^{89} - 3695^{13}}{1200} = \frac{11^{76}}{1200} = 0.0098$$

MAY 22 1958

TITLE

B. R. ANDERSON

SUBJECT

DATE

Q of 8" flowing full from Manometer
 $= 1.63 \text{ cfs} = 732 \text{ gpm}$
 $V = 4.70 \text{ fps}$

Q of 12" flowing full from Manometer
 $= 3.62 \text{ cfs} = 1625 \text{ gpm}$
 $V = 4.61 \text{ fps}$

Above Based on Manning's
 formula w/ $n = 0.015$

w/ $n = 0.015$

8" Full — $Q = 1.32 \text{ cfs} = 595 \text{ gpm}$

12" Full — $Q = 2.91 \text{ cfs} = 1310 \text{ gpm}$

25.4
26.7
58.8

CALCULATION SHEET GO-144-2

PROJECT No. _____

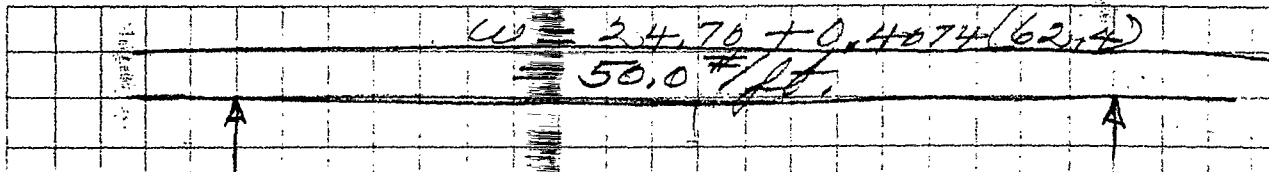
SHEET No. _____

TITLE _____

INITIALS _____

SUBJECT _____

DATE _____



Soil Bearing Cap. = 3500 PSF

Plate 8" x 16" = 128 in²
= 0.89 ft²

Each support will carry
a load
= 0.89(3500) = 3100 #

Distance between supports based on
SBC
= $\frac{3100}{50} = 62'$

Max. span for 8" pipe
w/out Superficial Load (includes Liquid
load) Sch. 40 =

∴ Make supports 8" x 16"
base @ 35 to 40' spacing -

Need 20 supports

or

Use short pieces of pipe
brick, concrete blocks etc
every 10-15 feet.

CALCULATION SHEET GO-144-1

RECEIVED

MAY 23 1958

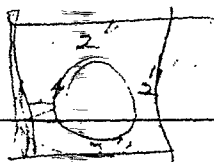
INITIALS
B. R. ANDERSON

DATE _____

PROJECT No. _____

TITLE

SUBJECT



Reduce Gypsum Thickness
to 2" Min.

Gr/su/ote Required

$$= \left(\frac{13 \times 13}{144} - 0.40574 \right) (700)$$

$$= (1.175 - 0.41574)(700)$$

$$= (0.77)(700) = 539.00 \text{ cu. ft.}$$

$$\frac{539}{50} = 10.76 \text{ Tons}$$

Add 25% for waste, tamping etc.

Say 14 Tons @ \$5.00

1190.00 → Pay 1200

524 installing takes .40 man
hr./ft.

$$\text{Labor} = (709)(40)\left(1 - \frac{50}{100}\right) = \$420.00$$

MAY 23 1958

PROJECT No. _____

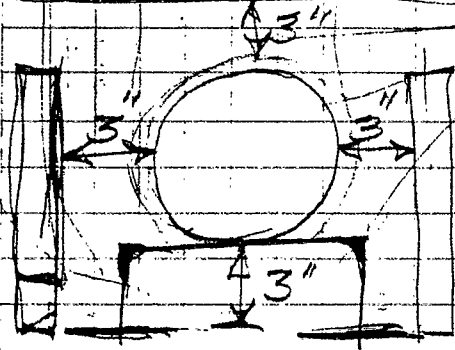
TITLE _____

B. R. ANDERSON

SUBJECT

DATE

Calculate



85⁰⁰ ton

50 cu. ft. / ton

$$\text{Say } (18'' \times 18'' - 0.40574) \times 700'$$

$$= (2.25 - 0.40574) (700)$$

$$= 1.85 (700) = 1295.00 \text{ cu. ft.}$$

Say 1300 cu. ft.

$$= \frac{1300}{50} = 26 \text{ Tons}$$

$$26 \text{ Tons @ } 85^{00} = \$2200^{00}$$

64
 48
 112
 50
 152

5 joints — 80⁰⁰
 16 joints — 53⁰⁰
 3
 48

3 days 96 1/2 hrs
 4 laborers

48⁰⁰ 3 joints of pipe
 2 Mechanics
 23 days

75
 8
 85⁰⁰
 150
 200⁰⁰
 480
 1440
 1920
 50
 100
 150