

23-32

388'-16" to Valve  
550'-24"

14.4.2

Bill for Trout Hatchery  
work.

Thurs May 21-36

To J.W. Vaughn  
Idlewyld Park

Bill to State Game Comsn.  
Portland, Ore

---

Rock Ck Stream  
Gauging - For Flow  
and Computations

for Turbine Perfor  
May. 21-36 ABuyer  
Jas Darby

4  
73-30  
2-18

71-72  
43-16  
27-56

73-29 W  
2-18

71-71  
43-16

S 27-55 W  
95-35

123-50  
180  
56-10

N 36-70 W  
53-11

N 2-54 W

74-68  
2-54  
71-14

N 2-54 W

103  
103  
2679

sin A =  $\frac{a}{c}$

a = sin A x c

0 1 0  
254 46  
59 08

N 62-03 W  
74 08

59-08  
133-16

180  
133-16

46-44

171.14  
46-44  
119-58

180  
119-58

62-62

62-02  
27-55  
89-57

203  
103

2679  
893

41.979

sin A =  $\frac{a}{c}$

c =  $\frac{a}{\sin A}$

728 / 92.100 = 126.3  
728

1920  
1456  
4640  
4258

2720  
2184  
5560

B

C

A

B

C

A

B

C

A

$$\text{head} = \frac{12,446}{1 + \left[ \frac{1,948 \times 1,333}{368 + 71,82} \right] \times \left( \frac{550 + 108}{9,87 \times 2} \right)} =$$

$$\frac{12,446}{1 + \left[ \frac{2,59}{459,82} \times \frac{6,58}{19,74} \right] \times \left[ 1 + \left[ \frac{0,0563 \times 33,333}{19,74} \right] \right]} = \frac{12,446}{1 + \left[ \frac{0,0563 \times 33,333}{19,74} \right]}$$

$$\frac{12,446}{1 + 1,877} = \frac{12,446}{1,1877} = \underline{\underline{11,33}} = \text{head}$$

$$\text{vol} = \sqrt{2(32,16 \times 11,33)} = \text{vol} = 26,99$$

$$Q = \sqrt{1,3962 \times 26,99} \cdot 61 = 23 \text{ c.f.s.}$$

$$\begin{array}{r}
 38.36 \\
 1.18 \\
 \hline
 30688 \\
 3838 \\
 3838 \\
 \hline
 452848
 \end{array}$$

9

$$\begin{array}{r}
 38.1 \\
 118 \\
 \hline
 .67 \\
 .51 \\
 \hline
 .66 \\
 25 \\
 \hline
 .91
 \end{array}$$

$$\begin{array}{r}
 38.1 \\
 91 \\
 \hline
 381 \\
 3429 \\
 \hline
 34.6
 \end{array}$$

$$\text{Velocity} = 26.99$$

$$Q \text{ or Quantity} = 23 \text{ cfs.}$$

$$\text{Length} = \begin{cases} 550' - 24'' \\ 388' - 16'' \end{cases}$$

$$\text{Head} = 11.33$$

Theoretical H.P.

$$29.4$$

# Fish Hatchery

May 22-36

Sta

TS

H1

-S

Elev

Buyer  
Darby

W.S.

Upk End

Pipe L

14.42 114.42

100.00

⊕

9.74 121.19

2.97

111.45

⊖

0.02 114.03

7.18

114.01

⊕

2.14 104.35

11.82

102.21

F.L. where  
24" changes  
to 16"

⊕

5.51 94.30

9.76 94.59

15.56 88.79

21.83

7.43 86.87

Trans  
Pipe

100.00  
86.87

Fall or 13.13'

Head  $\nearrow$  0.67 =  $\frac{1}{2}$  dia of  
12.46 16" Pipe

Total Head = 12.46'

$$\text{head} = \frac{12.46}{1 + \left[ \frac{1.396 \times 150544 \times 1.33}{388 + 7182} \right] \times \frac{(550 + 108)}{9.87 \times 2}}$$



A. B. Meyer  
Das Darby

Head  
Dish  
Press  
Length

$$a = 550 \cdot 24'' - 2.00' \\ z = 388 - 16'' = 1.33'$$

$$\frac{44.46}{31.83} = 1.313$$

$$\frac{44.96}{31.83} = 1.413$$

$$\frac{31.83}{144.2} = 0.22$$

$$\frac{31.83}{144.2} = 0.22$$

Velo

100

845

5.4

$$\begin{array}{r} 1.4 \\ 1.4 \\ \hline 56 \\ 14 \\ \hline 1.96 \end{array}$$

$$\begin{array}{r} 26.99 \\ 1.96 \\ \hline 16194 \\ 24391 \\ 2699 \\ \hline 530004 \end{array}$$


$$\begin{array}{r} 11.33 \\ 53. \\ \hline 3399 \\ 5665 \\ \hline \end{array}$$

$$8.18 \overline{) 600.49}$$

62.5 water  
 $\frac{23}{2} = 2$   
 $\frac{1875}{1250}$   
 $\frac{1437.5}{1133}$   
 $\frac{4312.5}{4312.5}$   
 $\frac{1437.5}{1437.5}$   
 $\frac{16786.875}{16786.875}$

$$550 \overline{) 16286.87} \begin{array}{l} 29 \\ 1.4 \end{array}$$

$$\begin{array}{r} 1110 \\ 5180 \\ 4950 \\ \hline 2300 \end{array}$$

Theoretical  
 H.P. 



$$\begin{array}{r}
 10911.33 - 1.054230 \\
 \hline
 5241150 \\
 1054230 \\
 \hline
 1581345 \\
 \begin{array}{l}
 12.67 \\
 74 \\
 \end{array} \\
 38136 \\
 91 \\
 \hline
 38136 \\
 303224 \\
 \hline
 3070376
 \end{array}$$

23-32

23/32

Sheet 3

32.16  
11.33  
⑥  
3

9648  
9648  
3216  
3216

3643728  
2  
2728.7456 (26.99

46276  
328  
5274  
529 4761

51352  
5389 45511

13962

26.99

125658

125658

27924  
83872

37683438

11.33  
142

2266  
4532

47586

37.683  
19.61

37683

226098

2298663

12134  
 137946  
 150080  
 275892  
 290920

(5)

459.62  
 2.59000  
 0.00563

259084  
 8161  
 1948  
 4844  
 4844  
 133  
 1.948  
 4  
 388  
 7182  
 459.82  
 19.74  
 987

(1)

1948816

1396  
 4188  
 12564  
 8376  
 1.396  
 1.396

150544  
 164  
 3104  
 3104  
 388  
 388  
 388  
 3142  
 3142  
 6284  
 12568  
 3142  
 9426  
 7182  
 665  
 532  
 54  
 133

(1)

$$\begin{array}{r} 3560 \\ 3564 \\ \hline 3920 \\ 1185 \\ \hline 1580 \end{array}$$

$$1.185 \overline{) 12.460011.33}$$

$$\underline{18766479}$$

$$\begin{array}{r} 16665 \\ 19998 \\ 9999 \\ \hline 33.333 \\ 33.333 \\ \hline 00563 \end{array}$$

$$\frac{3}{5} \cdot 6$$

$$\underline{652}$$

$$\underline{6510}$$

$$\underline{5922}$$

$$\underline{5922}$$

$$\underline{6580}$$

$$19.74 \overline{) 658.00} (33.333$$

$$\frac{2}{10} \cdot 3$$

~~$$\begin{array}{r} 12.46 \\ 1.185 \\ \hline \end{array}$$~~

May 28, 1936.

Mr J.W.Vaughn,  
Idlewyld Park,  
Oregon.

Dear Sir,-

Enclosed is the bill for work done up at the hatchery last week; I went over this work with Mr Frear and he says that I am right and that there must be some other possible reason for the attitude taken by the parties in Portland who alledge that there is no Horse Power. He made it somewhat stronger and a little bit plainer but that is what he intended to convey. I found since that the Head at the COPCO dam at Winchester is just a little more than you have which would make it seem even more possible with your proposition. Mr Nelson who is employed as an engineer for the largest mill at Glendale was here today and he also thinks that the possibilities for power are good as you have outlined them.

I am sorry that there is a hitch in the plans and that the estimates do not seem satisfactory for the power that you are trying to set.

Thanking you for your attention to the bill which I am enclosing, I am,

Very truly yours,

Arthur Boyer.