

W39

36

LEVEL BOOK

400

H. S. CROCKER COMPANY

DRAWING MATERIALS AND
SURVEYING INSTRUMENTS

SAN FRANCISCO

TABLES FOR EXCAVATIONS AND EMBANKMENTS

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING

Roadway 18 Feet Wide. Side Slopes 1 to 1.
For Single Track Excavation.

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	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	0
1	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	1
2	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	2
3	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	3
4	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	4
5	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	5
6	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	6
7	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	7
8	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	8
9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	9
10	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	10
11	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	11
12	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	12
13	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	13
14	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	14
15	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	15
16	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	16
17	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	17
18	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	18
19	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	19
20	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	20
21	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	21
22	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	22
23	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	23
24	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	24
25	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	25
26	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	26
27	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	27
28	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	28
29	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	29
30	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	30
31	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	31
32	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	32
33	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	33
34	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	34
35	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	35
36	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	36

Calculated by Julien A. Hall, M. Am. Soc. C. E.

Bench Marks

- 1N cut in road opp 300' plug + 6.33'
- 1S do do opp 400' plug + 6.70'
- 3N do do opp 400' plug + 6.59'
- 3S do do opp 600' plug + 9.16'
- 4N do do opp 500' plug + 6.53'
- 4S do do opp 600' plug + 8.73'

6 shafts $\frac{1}{4}$ " steel in south bank + 38.40'

6 shaft cut in road opp etc + 7.78'

Dulzberg

LORING & CO., AGENTS.
762 FIFTH STREET,
SAN DIEGO, CALIFORNIA

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33 plug in road 700 + 8.52
 track 6" high
 bottom at face 1 1/2" high

4N

track & bolts at face of low

Tunnel drain

Index.

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1. 25 foot finishing tubs
South of Bee Canon Flume

533 988 146983 125995

530 + 99
+ 75
+ 50
+ 25

530

529 + 75
+ 50

528 + 70

530 146453

531 100
529 75
125

530 + 75
96
529 79

530 + 50
96
529 54

972
970
968
966
964
962
960

1460.11 = End of Ditch

6013

6015

6017

6019

6021

6023 = End of Ditch

149.

(Cope 146451)

5-21-08

Wheeler
Santibach
Barraza

2

25 Bottom grades
Bee Canon - north

Old T.P. 256 146909 1466.53

528+70 473

528+79
+75 875

+50 873

+25 871

528 869

527+725 867

+50 865

+25 863

527 861

526+75 859

+50 857

+25 855

526 853

0 1033 1470.89 853. 1460.56

525+75 1031

1289

853

5-21-08

Mount
Santibach
Barra

See pages 7 and 64 "25 foot Levels No 3"

1464.36 (Cope's 64.34)

= End Rich / Beginning Name

146034

6036

Note: Referred To

6038

Cope's 527+25

6040

6042

6044

6046

6048

6050

6052

6054

6056

6058

1470.89

525 + 50

+ 25

525

524 + 75

+ 50

+ 25

524

0

9.18 1469.90 10.17 1460.72

523 + 75

+ 50

+ 25

523

522 + 75

+ 50

+ 25

0

9.66 1470.52 9.04 1469.96

522

11.94

19.21

10.29

10.27

45 low

10.25

10.23

10.21

10.19

10.17

9.16

9.14

9.12

9.10

9.08

9.06

9.04

9.64

Grade

1460.60 ✓

60.62 ✓

60.64 ✓

60.66 ✓

60.68 ✓

60.70 ✓

60.72 ✓

60.74 ✓

60.76 ✓

60.78 ✓

60.80 ✓

60.82 ✓

60.84 ✓

60.86 ✓

60.88 ✓

4

1470.52

521 +75
+50
+25

521

520 +75
+50
+25

520

835 1469.39 948 1461.04

519 +75
+50
+25

519

518 +75
+50
+25

518

935

948

962

960

958

956

954

952

950

948

833

831

829

827

825

823

821

819

146090

6092 ✓ soft

6094 ✓ soft

6096 ✓ soft

6098 ✓

6100 ✓

6102 ✓

6104 ✓

6106 ✓

6108 ✓

6110 ✓

6112 ✓

6114 ✓

6116 ✓

6118 ✓

6120 ✓

5

146029

517 +75
+50
+25

517

o

1029 1471.57 811 146128

516 +75
+50
+25

516

515 +75
+50
+25

515

514 +75
+50
+25

514

1029

811

817
815
813
811

1027

1025

1023

1021

1019

1017

~~815~~

1013

1011

1009

1007

1005

146122

6124

6126

6128

6130

6132

6134

6136

6138

6140

6142

6144

6146

6148

6150

6152

		1471.57		
o	960	1471.12	1005	1461.52
513	+75			958
	+50			956
	+25			954
513				952
512	+855			
	+75			950
	+50			948
	+25			946
512				944
o	1081A	1472.52	944	1461.68
511	+75			1082
	+50			1080
	+25			1078
511				1076
510	+75			1074
	+50			1072
	2044		1949 ✓	

1461.54 ✓	
6156 ✓	
6158 ✓	
6160 ✓	
	= 512 + 50 old 549 ✓
6162 ✓	
6164 ✓	
6166 ✓	
6168 ✓	
6170 ✓	
6172 ✓	
6174 ✓	
6176 ✓	
6178 ✓	
6180 ✓	

7

147252

510 + 25
510
509 + 75
+ 50
+ 25

o 1045 147235 1062 146190

509
508 + 75
+ 47
+ 25

508
507 + 75
+ 47
+ 25

507
506 + 75
+ 50

1045

1062

1070
1068
1066
1064
1062

1043
1041
1039
1037
1035
1033
1031
1029
1027
1025
1023

146182
6184
6186
6188
6190

6192
6194
6196
6198
6200
6202
6204
6206
6208
6210
6212

x
not set

Bottom 0.3' high

147235

1122 1473.34 1023 146212

506 + 25

1120

506

1118

505 + 75

1116

+ 50

1114

+ 25

1112

505

1110

504 + 75

1108

+ 50

1106

+ 25

1104

504

1102

503 + 75

1100

+ 50

1098

+ 25

1096

503

1094

900 1471.40 1094 1462.40

502 + 75

898

2022

21.17

Began 506 + 25
8:45 5-22-'88

Wrote
Santana
Barbara

146214

6216

6218

6220

6222

6224

6226

6228

6230

6232

6234

6236

6238

6240

6242

9

1471.40

502 + 50

+ 25

502

501 + 75

+ 50

+ 26

501

500 + 75

+ 50

+ 28

+ 26

0

890 1471.50 880 1462.60

499 + 50

498 + 50

497 + 50

496 + 50

495 + 50

890

880

896

894

892

890

888

886

884

882

880

1462.44

6246

6248

6250

6252

6254

6256

6258

6260

2853' finished ditch

= 500 + 00 rope

= End Ditch

Ferguson Cut

= 494 + 55 on new division
referred to rope 491 + 00

1471.50

5.58

1473.86

322

1468.28

354

1470.32

BM 47 1/2

See next page

141

1471.73

495 + 70

9.76

1462.97 (figured 62.98) ✓

6.99

15.52 ✓

11 - 25' Bottom Grades
North end Ferguson Cut - East.

BM 47½ 1.41 1471.76 1470.35

494 + 97

494 + 75

+ 55

+ 50

+ 23

494

493 + 75

+ 50

+ 25

493

492 + 75

⊙ 949 1472.65 860 1463.16

+ 50

+ 25

492

491 + 75

10.90

860 ✓

876

874

872

870

868

866

864

862

860

947

945

943

941

5-22-'08

Wm. ~~Wm.~~

See Page 31 "25ft levels No 3"

End Ditch this date

1463.00

MK on bed-rock

= 495 + 50 preceding division

6302

MK on rock

6304

6306

This Division referred

6308

to tops 491 + 00

6310

6312

6314

6316

6318

6320

6322

bottom high 0.4

6324

do do 0.4'

147265

491 +50

0

+25

491

490 +75

+50

+25

490

489 +75

0

+50

+25

489

488 +75

+50

+25

488

9.78

1473.04

9.39

1463.26

10.04

1473.44

9.64

1463.40

19.82

19.03 ✓

9.39

9.76

9.74

9.72

9.70

9.68

9.66

9.64

10.02

10.00

9.98

9.96

9.94

9.92

9.90

146326

6328 ✓

6330 ✓

6332 ✓

6334 ✓

6336 ✓

6338 ✓

6340 ✓

6342 ✓

6344 ✓

6346 ✓

6348 ✓

6350 ✓

6352 ✓

6354 ✓

bottom high 0.5'

do do 0.4

147344

487 + 75

+ 50

+ 25

487

486 + 75

+ 50

+ 25

486

0

967

147337

974

146370

485 + 75

+ 50

+ 25

485

484 + 75

+ 50

+ 25

484

967

974

9.88

9.86

9.84

9.82

9.80

9.78

9.76

9.74

9.65

9.63

9.61

9.59

9.57

9.55

9.53

9.51

146356

6358

6360

6362

6364

6366

6368

6370

6372

6374

6376

6378

6380

6382

6384

6386

147337

1021 1474.07

951

146386

483+75
+50
+25

483

482+95
+75
+68

Bmabc

10.19

10.17

10.15

10.13

10.11

0.17

147390

Following Division referred
to 481+75 Cope

481+93
+75
+50
+25

481

10.03

10.03

10.01

9.99

9.97

1021

951

146388

6390

1229' Finished ditch

6392

6394

= 483+00 Cope

6396

= End Ditch

Dist bet 482+68 and

481+93 along ideal position

Note: of flume, less than Sta diff.

= End Ditch

6404 = 481+75 Cope

6406

6408

6410

1474.07

1127 1475.37 997 1464.10

480 +75

+50

+25

480

479 +75

+50

0

898 1473.20 1115 1464.22

+25

479

478 +75

+50

+25

478

477 +75

+50

+25

20.25

21.12 ✓

1125

1123

1121

1119

1117

1115

896

894

892

890

888

886

884

882

880

1464.12 ✓

6414 ✓

6416 ✓

6418 ✓

6420 ✓

6422 ✓

6424 ✓

6426 ✓

6428 ✓

6430 ✓

6432 ✓

6434 ✓

6436 ✓

6438 ✓

6440 ✓

Began 5-23-08

Wüste

Sauterbach
Barneras

16

1473.20

940

1473.80

880

1464.40

477
 476 + 75
 + 50
 + 25
 476
 475 + 75
 + 50
 + 25

475
 0
 474 + 75
 + 50
 + 25

474
 473 + 75
 + 50

18.94

18.02-

938
 936
 934
 932
 930
 928
 926
 924
 922

952
 950
 948
 946
 944
 942

1464.42 ✓
 6444 ✓
 6446 ✓
 6448 ✓
 6450 ✓
 6452 ✓
 6454 ✓
 6456 ✓
 6458 ✓
 6460 ✓
 6462 ✓
 6464 ✓
 6466 ✓
 6468 ✓
 6470 ✓

17

1474.12

473+46

BM 46B

456

1474.06

462

1469.50

Division BM 46B -

472+52

+50

+25

472

471+75

+50

+25

0

9.73

1474.63

9.16

1464.90

471

470+75

+50

+25

14.29

13.79 ✓

9.26

9.24

9.22

9.20

9.18

9.16

9.71

9.69

9.67

9.65

847' finished ditch

= End Ditch

(1469.52 see page 36 "25' Levels No 3")

Dist along ideal location of flume
about 20 ft more than sta diff. bet 473+50

and 472+50 - Therefore grade adv need 0.02'

= End Ditch

1464.80 ✓

6482 ✓ 472+25 W. waste

6484 ✓

6486 ✓

6488 ✓

6490 ✓

6492 ✓

6494 ✓

6496 ✓

6498 ✓

147463

470
469 + 75
+ 50
+ 25

469
.0
468 + 75
+ 50
+ 25

468
467 + 75
+ 50
+ 25

467
466 + 75
0
+ 50

10.79 1475.87 955 1465.08

7.99 1473.25 1061 1465.26
18.78 20.16 ✓

963
961
959
957
955

10.77
10.75
10.73
10.71
10.69
10.67
10.65
10.63
10.61

7.97

1465.00 ✓
6502 ✓
6502 ✓
6506 ✓
6508 ✓

6510 ✓
6512 ✓
6514 ✓
6516 ✓
6518 ✓
6520 ✓
6522 ✓
6524 ✓
6526 ✓

6528 ✓

19

1473.25

466 + 25

466

465 + 75

+ 50

+ 25

+ 0.8

465

464 + 97

464 + 48

+ 45

0

813

1473.57

7.81

1465.44

+ 25

464

463 + 75

+ 50

+ 25

813

7.81

7.95

7.93

7.91

7.89

7.87

7.85

7.81

8.11

8.09

8.07

8.05

8.03

1465.30

6532

6534

6536

6538

= 465 + 00 Waste Bench

6540

= End Ditch

= End Ditch

6544

6546

6548

6550

6552

6554

755' finished Ditch

20

147357

463

801

146586 ✓

462 +75

799

6558 ✓

+50

797

6560 ✓

0

890

147450

797

1465.60

888

6562 ✓

+25

462

886

6564 ✓

461 +75

884

6566 ✓

+50

882

6568 ✓

+25

880

6570 ✓

461

878

6572 ✓

460 +75

876

6574 ✓

0

919

147490

876

1465.74

917

6576 ✓

+50

915

6578 ✓

+25

460

913

6580 ✓

459 +75

911

6582 ✓

+50

909

6584 ✓

18.09

16.73 ✓

147493

459 + 25

459

0

7.97

1473.85

905

1465.88

458 + 75

+ 50

+ 25

458

457 + 75

+ 50

0

8.72

1474.72

7.85

1466.00

+ 25

457

456 + 75

+ 50

+ 30

+ 29

Ref Pt

9.15

1473.04

1.83

1472.89

16.84

18.73

907

905

795

793

791

789

787

785

870

868

866

864

862

1465.86

65.88

65.90

65.92

65.94

65.96

65.98

66.00

66.02

66.04

66.06

66.08

66.10

= End Di Teh

(147290 see page 40 "25 FRL levels No 3")

819' finished ditch

66.08 = 456 + 46 West ditch

22 Ferguson Flume to Tunnel 5 1/2

147304

0	060	1462.47	1117	1461.87
0	1043	1461.70	1120	1451.27
0	1056	1471.25	101	1460.69
0	387	1474.93	019	1471.06

452 + 21

+ 20

452

451 + 75

+ 50

+ 25

451

450 + 75

+ 50

+ 25

450

449 + 75

2546

2305 ✓

148

147345

(1473.50 page 41 "25 foot levels No 3")

End Pitch

853

851

849

847

845

843

841

839

837

835

833

Began at Ref Pt on
Preceding page 5-25-08

Wueste
Sauterbach
Barrera

Note: Distance bet. 456+30
and 452+20 about 375' (0.30')
therefore drop grade back 0.02'

146640 ✓

6642 ✓ = 452+00 Wueste bench

6644 ✓

6646 ✓

6648 ✓

6650 ✓

6652 ✓

6654 ✓

6656 ✓

6658 ✓

6660 ✓

1474.93

939

1475.99

933

1466.60

449 + 50

+ 25

449

449 + 75

+ 50

+ 25

448

447 + 75

+ 50

+ 25

447

446 + 75

+ 50

+ 25

446

18.15

1754

937

935

933

931

929

927

925

923

921

874

872

870

868

866

864

1466.62 -

66.64 -

66.66 -

66.68 -

66.70 -

66.72 -

66.74 -

66.76 -

66.78 -

66.80 -

66.82 -

66.84 -

66.86 -

66.88 -

66.90 -

1475.54

445 + 75

+ 50

o

996

1475.90

860

1466.94

+ 25

445

444 + 75

+ 50

+ 25

444

443 + 75

+ 50

+ 25

443

o

900

1476.14

876

1467.14

442 + 75

+ 50

+ 25

1796

1736

862

860

894

892

890

888

886

884

882

880

878

876

898

896

894

1466.92

6694

6696

6698

6700

6702

6704

6706

6708

6710

6712

6714

6716

6718

6720

25

147614

442

892

441 + 75

890

+ 50

888

+ 25

886

441

884

440 + 75

882

0

9.68 1477.00 892 146732

+ 50

9.66

+ 25

9.64

440

9.62

439 + 75

9.60

+ 50

9.58

0

7.09 1474.51 9.58 146742

+ 25

7.07

439

7.05

438 + 81

16.77

18.40 ✓

146722 ✓

6724 ✓

6726 ✓

6728 ✓

6730 ✓

6732 ✓

6734 ✓

6736 ✓

6738 ✓

6740 ✓

6742 ✓

6744 ✓

6746 ✓

1340' finished ditch

= End Ditch

Measurement across this gully approximately
equal to sta interval.

26 Little Flume To Exit Tunnel 5 1/2

1474.51

438 + 11

439

0

1031

1477.55

.697

1467.54

437 + 75

+ 50

+ 25

+ 05

436 + 75

+ 50

0

1135

1479.01

1019

1467.66

+ 25

436

Ref Point

435 + 75

+ 50

+ 25

435

21.66

17.16

697

1029

1027

1025

1023

1019

7.31

23.4

420

370

495

437

1476.67

(1476.71

74.81

+ 7.09

78.31

+ 7.57

74.06

+ 6.30

74.64

+ 6.86

1467.54

67.56

67.58

67.60

67.62

67.66

71.70

Page 45

67.72

67.74

67.76

67.78

Will take 2 w/ps to finish.

End of ditch to be determined later

corser

bench grade

25 foot Levels No 3

corser

corser

corser

corser

corser

corser

corser

corser

corser

corser

corser

corser

corser

corser

corser

corser

corser

corser

corser

		1479.01		
o	6.42	1481.06	437	1474.64
434+75				
+50				
+25				
o	10.30	1491.17	0.19	1480.87
o	7.92	1497.39	1.70	1489.47
o	0.09	1486.71	10.77	1486.62
o	1.60	1477.71	10.60	1476.11

Division Tunnel $5\frac{1}{2}$ to Compo Road.

432+04				
432			9.69	
431+75			9.67	
+50			9.65	
+25			9.63	
431			9.61	
Ref Point			158	
	2633			
		27.63		

264	1478.42	+10.62	1467.80
573	75.33	+7.51	67.82
460	76.46	+8.62	67.84

Over $5\frac{1}{2}$ Tunnel

Note. About 85' (0.07')
grade not in use at this
point.

= End Ditch

	1468.02	
	68.04	
567	69.06	= 431+50 West ditch
	68.08	
	68.10	
1476.13	(1476.16 see page 45	"25 foot level 1/3"

28

1477.71

430 + 75
+ 50
+ 25

430
429 + 75

9.46 + 1477.66

9.51 1468.20

429 + 50
+ 25

429

428 + 75
+ 50
+ 25

9.37 1477.69

9.34 1468.32

428

427 + 75
+ 50
+ 25

18.83

18.85

9.59

9.59

9.58

9.53

9.51

9.44

9.42

9.40

9.38

9.36

9.34

9.35

9.33

9.31

9.29

1468.12

68.14

68.16

68.18

68.20

68.22

68.24

68.26

68.28

68.30

68.32

68.34

68.36

68.38

68.40

pm 5-26-08

Sautsbach
Barrera
clerk

29

1477.69

427

9.27

1468.42 ✓

426 + 75

9.25

68.44 ✓

150

9.23

68.46 ✓

125

9.21

68.48 ✓

426

9.19

68.50 ✓

○ 9.77 1478.27 9.19 1468.50

425 + 75

9.75

68.52 ✓

150

9.73

68.54 ✓

125

9.71

68.56 ✓

425

9.69

68.58 ✓

424 + 75

9.67

68.60 ✓

150

9.65

68.62 ✓

125

9.63

68.64 ✓

424

9.61

68.66 ✓

○ 9.70 1478.36 9.61 1468.66

423 + 75

9.66

68.68 ✓

150

9.66

68.70 ✓

19.47

1880.

1478.36

423+25

9.64

1468.72 ✓

423

9.62

68.74 ✓

422+75

9.60

68.76 ✓

+50

9.58

68.78 ✓

+25

9.56

68.80 ✓

422

9.54

68.82 ✓

421+75

9.52

68.84 ✓

+50

9.50

68.86 ✓

+25

9.48

68.88 ✓

421

9.46

68.90 ✓

420+75

9.44

68.92 ✓

0

9.48

1478.40

9.44

1468.92

+50

9.46

68.94 ✓

+25

9.44

68.96 ✓

420

9.42

68.98 ✓

419+75

9.40

69.00 ✓

+50

9.38

69.02 ✓

948

944 ✓

high winds →

1478.40

419 + 25

9.36

419

9.32

0

9.59 1478.65 9.32 1469.06

418 + 75

9.57

+ 50

9.55

+ 25

9.53

418

9.51

417 + 75

9.49

+ 50

9.47

+ 25

9.45

0

9.04 1478.24 9.45 1469.20

417

9.02

416 + 75

9.00

+ 50

8.98

+ 25

8.96

416

8.94

415 + 75

8.92

18.63

18.79 ✓

5-26-'08

Pm

Wueste
Sautsbach
Barnera
Clark
Ed. Wells.

1269.04 ✓

6906 ✓

6908 ✓

6910 ✓

6912 ✓

6914 ✓

6916 ✓

6918 ✓

6920 ✓

6922 ✓

6924 ✓

6926 ✓

6928 ✓

6930 ✓

6932 ✓

147824

415 +50

890

146934 ✓

+25

888

6936 ✓

415

886

6938 ✓

414 +75

884

6940 ✓

0

7.11

1476.51

882

1469.40

+50

709

6942 ✓

+25

707

6944 ✓

414

705

6946 ✓

413 +80

703

6948 ✓

+79

1825 finished Ditch

= End Ditch

Division Little Flume to Road (Equation is 1473 + 30 = 1503
0.01 to 3000)

Point 43' Flume

(0.05' slope grade thrown in here)

412 + 08

= End Ditch

412

694

893

6957 = 412 Westc bench

Ref Point

359

1478.98 (1472.96)

See page 50 "25' levels No 3"

411 + 75

692

6959 ✓

+50

690

890

6961 ✓

+25

688

6963 ✓

7.11

882

1476.51

9.50

1478.63

688

1469.63

411

898

410 + 75

896

+ 50

894

+ 25

892

410

890

409 + 75

888

+ 64

9.25

1479.00

888

1469.75

Division Camps Road to Little Flume

408 + 45

+ 40

9.11

+ 25

9.10

9.95

1478.85

9.10

1469.90

408

8.93

27.20

24.96 ✓

1469.65 ✓

69.67 ✓

69.69 ✓

69.71 ✓

69.73 ✓

69.75 ✓

244' finished Ditch

= End Ditch

Note: Disr bet. 409+75 and 408+40
115' (0.09) Besides this 0.05' grade thrown in

Equation $408 + 60 = 408 + 40$

= End ditch

69.89 ✓

69.90 ✓

69.92 ✓

147885

407+75
+50
+25

407
406+83

0 949 147949 885 147000

Division Flume near Road to Flume
across deep gulley.

405+50
+25

405

404+75
+50
+25

0 914 147936 927 147022
18.63 18.12 ✓

891
889
887
885

927
925
923
921
919
927

537 ✓

Begin 407+00
Pm - 5-28-'08.

West
Lautbach
Barra

146994 ✓

6996 ✓

6998 ✓

7000 ✓

162' finished ditch
= End Ditch

Note: Dis along ideal location
of flume bet 407 and 405+50 =
about 125' (0.02' grade extra)

7012 = End Ditch = 405+50 bench

7014 ✓

7016 ✓

7018 ✓

7020 ✓

7022 ✓

1479.36

404

9.12

403 + 75

9.10

+ 50

9.08

+ 25

9.06

403

9.04

402 + 75

9.02

+ 50

9.00

+ 25

8.98

402

8.96

401 + 75

8.94

+ 50

8.92

0

12.00

148244

892

147044

+ 25

11.98

401

11.96

400 + 75

11.94

+ 50

11.92

+ 25

11.90

12.00

892 ✓

147024 ✓

7026 ✓

7028 ✓

7030 ✓

7032 ✓

7034 ✓

7036 ✓

7038 ✓

7040 ✓

7042 ✓

7044 ✓

7046 ✓

7048 ✓

7050 ✓

7052 ✓

7054 ✓

36

1482.44

400

399 + 75

+ 50

+ 25

399

0

725 1477.89 11.80 1470.64

398 + 75

+ 50

+ 25

398

397 + 75

+ 50

+ 25

+ 05

+ 03

0

885 1479.65 709 1470.80

1610

1889

11.88

11.86

11.84

11.82

11.80

723

721

719

717

715

713

711

709

1470.56

7058

7060

7062

7064

7066

7068

7070

7072

7074

7076

7078

7080

847' finished ditch

= End Ditch

37 Division 395+50 to 1100' Flume

1479.65

395 +50 873

+25 871

395 869

394 +75 867

+50 865

+25 863

394 861

393 +75 859

+50 857

+25 855

393 853

0 865 1479.77 853 1471.02

392 +75 863

+50 861

+25 859

392 857

865 853 ✓

PM 5-29-08

Santibon
Barra

57' across gully

0.07' grade extra

1470.92 = End Ditch

7094

7096

7098

7100

7102

7104

7106

7108

7110

7112

7114

7116

7118

7120

~~Copy~~

38

1474.77

391 + 75
+ 50
+ 25

855
853
851

147122
7124
7126

0 981 1481.07 851 1471.26

391
390 + 75
+ 50
+ 25

971
977
975
973

7128
7130
7132
7134

390
389 + 75
+ 50
+ 25

971
969
967
965

7136
7138
7140
7142

0 899 1480.41 965 1471.42

389
388 + 75
+ 50
+ 25

897
895
893
891

7144
7146
7148
7150

1480

1481 ✓

39

148041

388

8.59

○

8.71 1480.23

8.59 1471.52

387 + 75

8.69

+ 50

8.67

+ 25

8.65

387

8.63

386 + 75

8.61

+ 50

8.59

○

8.70 1480.34

8.59 1471.64

+ 25

8.68

386

8.66

385 + 75

8.64

+ 50

8.62

+ 25

8.60

+ 13

147152

AM 6-1-08

Pauline
Barnes

71.54 ✓

71.56 ✓

71.58 ✓

71.60 ✓

71.62 ✓

71.64 ✓

71.66 ✓

71.68 ✓

71.70 ✓

71.72 ✓

1471.74 ✓

1037 Finished Ditch
= End Ditch

1480.34

⊙ 7.23	1484.84	2.73	1477.61
--------	---------	------	---------

382+65

⊙ 5.30	1481.41	8.73	1476.11
--------	---------	------	---------

376+50	⊙ 8.81	1485.30	4.92	1476.49
--------	--------	---------	------	---------

375+70

⊙ 8.57	1483.62	10.25	1475.05
--------	---------	-------	---------

375+75

373+75

+50

+25

373+100

Two Distances see pp. 74^L+73^R

Pantitach
Barra

8.85	1475.99	Old Hub
------	---------	---------

Old Hub

8.74	1476.56	Old Hub
------	---------	---------

11.16	1472.46	B.M. 41 low
-------	---------	-------------

10.76	1472.86	Old Hub
-------	---------	---------

10.78	1472.89	"
-------	---------	---

10.70	1472.92	"
-------	---------	---

10.69	1472.93	"
-------	---------	---

373+75	1472.87
--------	---------

385+25	1471.74
--------	---------

11+50	} 1.13	= .10 feet 100
9+43		

		= .12 " 100
--	--	-------------

41

Jergensen boat

364 5.07 1478.72 1473.65

363 + 75 ✓ 5.05 1473.67

+ 50 ✓ 5.03 73.69

+ 25 ✓ 5.01 73.71

363 ✓ 4.99 73.73

362 + 75 ✓ 4.99 73.75

+ 50 ✓ 4.95 73.77

+ 25 ✓ 4.93 73.79

① 5.12 1478.91 4.93 1473.79

362 5.10 73.81 ✓

361 + 75 5.08 73.83 ✓

+ 50 5.06 73.85 ✓

361 + 50 1.06 1477.85

+ 25 5.04 1473.87

361 5.02 1473.89

P.M. 6-1-08

Lambert
Barber

} Check

42

Grade hubs Cota's Bench

 $\frac{1}{8}$ TO $\frac{3}{16}$ Tunnel.

0 849 108.49 100.00

+25 452

+50 454

+75 456

1 458

+25 460

+50 462

+75 464

2 466

+25 468

+50 470

+75 472

3 474

+25 444

+50 106

+64 880 9969

104.05 + 32

107.43 + 3.72

6-2-08

Wüste
Sautsbach
Barrera= assumed grade $S \frac{1}{8}$

10397 ✓

395 ✓

393 ✓

391 ✓

389 ✓

387 ✓

385 ✓

383 ✓

381 ✓

379 ✓

377 ✓

375 ✓

373 ✓

371 ✓

0.08% Grade

7-23-08

BM = nicht cut
in rock east of portal
(930 4.30)= Tunnel grade $N \frac{3}{16}$ (cable)
7-23-08
BM = nicht in rock
west of portal
943 - 4.43

43 Grade hubs Cotati Bench

3/16 to 1/4 Tunnel

0 970 108.70 100.00

+25 472

+50 475

+75 477

480

+25 482

+50 3.85

104.85

+1.0

202 108.75 197 106.73

+75 4.92

495

+25 497

+50 500

+75 502

505

3

+25 507

= assumed grade $5 \frac{3}{16}$ (Circle)

10398

10395

10393

10390

10388

10385

10383

10380

10378

10375

10373

10370

= old hub

6-2-08
Wintate
Sautsbach
Barrow

44 25 ft. Bottom Grades
North of Tunnel 1.

548 1509.28

1504.00

← assumed grade sta 41+00

← End Ditch

40 +38

40 +50

+75

41

+27

+50

+75

42

+25

+50

+75

0

7.34 1508.71

8.01

1501.47

43

+20

+50

+75

9.44

9.46

9.48

9.50

9.52

9.54

9.56

9.58

9.60

9.62

8.89

8.91

8.93

1500.04 ✓

.02 ✓ This Section referred

.00 ✓ To Sta 41+00

1499.98 ✓

99.96 ✓

99.94 ✓

99.92 ✓

99.90 ✓

99.88 ✓

99.86 ✓

99.82 ✓

99.80 ✓

99.78 ✓

Rock=Omit

A5

1508.71

44 + 10

+ 25

+ 50

+ 65

o 3.37 1503.09 8.99 1499.72

o 4.71 1504.67 3.13 1499.96

50 + 00

49 + 55

+ 75

50

o 10.23 1509.44 5.46 1499.21

+ 25

+ 50

896-

8.97

8.99

5.42

5.44

5.46

10.25

10.27

1499.75+ ✓

99.74 ✓

99.72 ✓

= End Ditch

1.46 1503.21

B. Hub.

.07 Grade to

Space between

44 + 50 and

49 + 55

Dish measured

1499.25 - Refered to

99.23 ✓ B. Hub. 50 + 00

267.5 ft

99.21 ✓

99.19 ✓

99.17 ✓

46

1509.44

50 + 75

51

+ 25

+ 50

+ 75

52

+ 25

+ 50

+ 75

53

+ 25

+ 50

+ 75

54

8.90 1507.79 10.55 1498.89

+ 25

+ 50

10.29

10.31

10.33

10.35

10.37

10.39

10.41

10.43

10.45

10.47

10.49

10.51

10.53

10.55

8.90

8.90

1499.15 ✓

99.13 ✓

99.11 ✓

99.09 ✓

99.07 ✓

99.05 ✓

99.03 ✓

99.01 ✓

98.99 ✓ 6.48 1502.96 B. Hub

98.97 ✓

98.95 ✓

98.93 ✓

98.91 ✓

98.89 ✓

98.87 ✓

98.85 ✓

47

1507.79

54 + 75

55

+ 25

+ 50

+ 75

56

+ 25

+ 50

o

897 1507.66 910 1498.69

+ 75

57

+ 25

+ 50

+ 75

58

+ 25

+ 50

See page 53 for continuation
897 910

8.98

9.00

9.02

9.04

9.06

9.08

9.10

899

901

903

905

907

909

911

913

Omit Rock

1498.81 ✓

98.79 ✓ 5.00 1502.79 Bench Hut

98.77 ✓

98.75 ✓

98.73 ✓ 5.07 1502.72 " "

98.71 ✓

98.69 ✓

Begin 6-18-'08.

9867 ✓

9865 ✓

9863 ✓

9861 ✓

9859 ✓

9857 ✓

9855 ✓

9853 ✓

Wreata
Barra

48 75 Boston Hubo Ferguson - cut

500 + 75 504

+ 50 502 1467.62 146260

+ 26 500

500

499 + 75

+ 50

+ 25

499

498 + 75

+ 50

+ 25

0

496 1467.73 485 1462.77

498

497 + 75

+ 50

+ 25

497

496 + 75

9.98

4.85 ✓

6-13-58

Wente
Barua

1462.62 ✓

6264 ✓

6266 ✓

6268 ✓

6270 ✓

6272 ✓

6274 ✓

6276 ✓

6278 ✓

6280 ✓

6282 ✓

6284 ✓

6286 ✓

6288 ✓

6290 ✓

49

1467.73

496 + 50

+ 25

496 + 01

0

934 1472.30

477 1462.96

495 + 75

+ 50

+ 18

RM 47 1/2

197 1470.33 ✓

461

479

477

932

930

928 ✓

1462.92 ✓

6294 ✓

6296 ✓

6298 ✓

sta 495 + 00

50 cut stake Pit Pt Tunnel 6
 Shaft and South Portal

BM ASD
 1072 1487.41 1476.69
 978 1495.62 157 1485.84
 1082 1502.59 385 1491.77
 194 1502.45 208 1500.51

BM 150
 182 1499.65 462 1497.83

Pit Pt
 041 1496.57 319 1496.46
 852 1491.53 786 1489.01
 050 1489.62 441 1489.12
 646 1482.76 1132 1476.30
 221 1477.22 775 1475.01

BM 11E

093 1468.48 967 1467.55
 481 1463.08 1021 1458.27
 513 1463.72 449 1458.59
 472 1463.21 523 1458.49 ✓

7669
 5770
 1899
 8176
 6237
 1899

6277

551 1457.70
 8176

164 1475.58

457 1458.74

6-13-'08

Waste
 Barrow

138.40 1458.06 =

piece of steel driven
 in little shelf south
 of shaft.

= Maloney Tunnel grade

= iron pin at Portal

Sta	Slope Chain	Measurement + angle - angle	over Tunnel A Hor Dist
8	483	1323	470
7	2718.5	6°59'	2718
6	412.55	2°45'	412
5	2719	11°29'	2665
4	145.25	21°27'	1352
3	195.55	31°27'	1665
2	64.8	44°14'	464
1	74	-	74
Cope's MK			1358

6-16-08
West
Barrow

North summit

South summit

Tunnel AS

52

Sta Chain + angle - angle Hor Dist

Copes MK

7.0

—

—

7.0

11

9920

29008'

8.7

10

2134

1402'

2070

9

4290

20040

$$\begin{array}{r} 4014 \\ 1357.2 \\ \hline 2060 \end{array}$$

= Tunnel 4 N

53.

continued from page 47
25 foot bottom grades

Tunnel $\frac{3}{4}$ to Tunnel 1.

150766

932 1507.85 913 1498.53

58 +75

934

1498.51 ✓

59

936

9829 ✓

+25

938

9847 ✓

+50

940

9845 ✓

+75

942

9843 ✓ spike

60 +

944

9841 ✓

+25

946

9839 ✓

+50

948

9837 ✓

+75

950

9835 ✓

61

952

9833 ✓

932 1507.65 952 1498.33

+25

934

9831 ✓

+50

936

9829 ✓

+75

938

9827 ✓

18.64

18.65

6-18-08

Unsett

Barra

54

1507.65

62

+25

+50

+75

63

0

910 1507.27

948 1498.17

+25

+50

+75

64

+25

+50

+75

+95

0

940 1507.41

922 1498.01

65 +25

+50

1850

1874

940

942

944

946

948

950

952

954

956

958

960

962

964

966

942

944

1498.25 ✓

9823 ✓

9821 ✓

9819 ✓

9817 ✓

9815 ✓

9813 ✓

9811 not ser (bulk-head)

9809 ✓

9807 ✓

9805 ✓

9803 ✓

9801 ✓

9799 ✓

9797 ✓

150741

65 + 75

66

+ 25

+ 50

0

+ 75

67

+ 25

+ 50

+ 75

68

+ 25

+ 50

0

+ 75

69

+ 25

950 150739

952 149789

932 150705

966 149773

1882

1918 ✓

946

948

950

952

952

954

956

958

960

962

964

966

934

936

938

149795 ✓

9793 ✓

9791 ✓

9789 ✓

9787 ✓

9785 ✓

9783 ✓

9781 ✓

9779 ✓

9777 ✓

9775 ✓

9773 ✓

9771 ✓

9769 ✓

9767 ✓

56

1507.05

69 +50

+75

70 -

+25

+50

+75

0

939

1506.94

950

1497.55

71

+25

+50

+75

72

0

930

1506.75

949

1497.45

+25

+50

+75

73

1869

1899 ✓

940

942

944

946

948

950

941

943

945

947

949

932

934

936

938

1497.65 ✓

9763 ✓

9761 ✓

9759 ✓

9757 ✓

9755 ✓

9753 ✓

9751 ✓

9749 ✓

9747 ✓

9745 ✓

9743 ✓

9741 ✓

9739 ✓

9737 ✓

57

1506.75

73 + 25

+ 50

+ 75

74

+ 25

+ 50

0

974 1506.99 950 1497.25

+ 75

75

+ 25

+ 50

905 1506.22 982 1497.17

+ 75

76

+ 25

+ 50

+ 75

1879

1932 ✓

940

942

944

946

948

950

976

978

980

982

907

909

911

913

915

Began 74+75

6-19-'08.

Unite
Barina

1497.35 ✓

9733 ✓

9731 ✓

9729 ✓

9727 ✓

9725 ✓

9723 ✓

9721 ✓

9719 ✓

9717 ✓

9715 ✓

9713 ✓

9711 ✓

9709 ✓

9707 ✓

58

150622

77

+25

+50

+75

78

+25

+50

+75

0

1086

1507.71

931

149691

79

+25

+50

+75

80

+25

+50

+75

1086

931 ✓

917

919

921

923

925

927

929

931

1088

1090

1092

1094

1096

1098

1100

1102

Benchlub.

(922)

149705 ✓

9703 ✓

9701 ✓

149699 ✓

9697 ✓

9695 ✓

9693 ✓

9691 ✓

9689 ✓

9687 ✓

9685 ✓

9683 ✓

9681 ✓

9679 ✓

9677 ✓

9675 ✓

59

1507.77

888 1505.63

1102 1496.75

81

+25

+50

+75

82

+25

+50

+75

83

+25

+50

0

912 1505.65

910 1496.53

+75

84

+25

+50

19.00

20.12 -

890

892

894

896

898

900

902

904

906

908

910

914

916

918

920

Bench hub

1496.73

96.71

96.69

96.67

96.65

96.63

96.61

96.59

96.57

96.55

96.53

96.51

96.49

96.47

96.45

508

60

150565

84 +75

85

o

915

1505.56

924 149641

+25

+50

86

+70

+20

+50

+75

87

o

692

1503.07

931 149625

+25

+50

+75

88

+05

15.97

18 55 +

922

924

917

919

921

923

925

927

929

931

684

686

688

690

149643 -

9641 ✓

9639 ✓

9637 ✓

9635 ✓

9633 ✓

9631 ✓

9629 ✓

9627 ✓

9625 ✓

9623 ✓

9621 ✓

9619 ✓

9617 ✓

Flume begins

61

150307

88 +25

+50

+70

+95

o

926 1505.35

698 1496.09

89 +26

+50

+75

90 +04

+25

o

* 9.02 1505.01

936 1495.99

+50

+75

91

+25

+50

+75

18.28

16.34 ✓

694

696

698

928

930

932

934

936

904

906

908

910

912

914

Began 90+25

6-22-08

Wrote

Waterman

Barrera

no ser (etr & gubeh)

1496.13 ✓ flume ends

9611 ✓

9609 ✓

9607 ✓

9605 ✓

9603 ✓

9601 ✓

9599 ✓

9597 ✓

9595 ✓

9593 ✓

9591 ✓

9589 ✓

9587 ✓

62

1505.01

92

o

915

1505.00

9.16

1495.85

9.16

+25

+50

+90

93

+35

+50

+75

94

+25

o

990

1505.57

933

1495.67

992

+50

+75

95

+25

+50

+75

19.05

19.49

10.00

10.02

Burchhub

1495.85 ✓

95.83 ✓

95.81 ✓

95.78 ✓

95.74 ✓

95.73 ✓

95.71 ✓

95.69 ✓

95.67 ✓

95.65 ✓

95.63 ✓

95.61 ✓

95.59 ✓

95.57 ✓

95.55 ✓

602

63

1505.57

96

+25

0

905 1504.56 1006 1495.51

+50

+75

97

+25

+50

+75

98

+25

+50

0

922 1504.25 923 1495.33

+80

99

+25

Continued page 99 Maloney Micro. Sunda.

17.97

19.29

1004

1006

9.07

9.09

9.11

9.15

9.17

9.19

9.21

9.23

9.24

9.26

1495.53 ✓

9551 ✓

9549 ✓

9547 ✓

9545 ✓

not set (slide)

9541 ✓

9539 ✓

9537 ✓

9535 ✓

9533 ✓

9531 ✓

9529 ✓

not set (slide)

BM Tunnel 4N

444 10444 100.00

399 100.45

361 104.06

369 100.37

360 103.97

359 100.38

378 104.16

310

99.06

- .54

9960

= Reading on tool block

275

99.41

- .61

100.02

= " " " rail 5+00

+ 6.53

9960

= cut in roof opp 5+00

BM

1.97 10613

218 103.95

361 100.34

359 103.93

367 100.26

382 104.09

362 100.46

340 103.86

388 99.98 ✓

Wrest

Barrua

= rounded elev

= Starting point

65

BM Tunnel 4S

273 104.32 10705

338 10094

376 104.70

348 10122

379 105.01

406 109.07

388 105.19

362 101.57 + 0.77 10080

387 101.32 + 0.94 10038

388 109.07

408 104.99

380 101.19

361 104.80

381 100.04

383 104.77

227 107.04

6-16-'08.

Wueste
Barrena= cut in roof 173 in
(08)~~+~~ 173 10034 = cut in roof 6 + 00

= reading on nail bed in

= reading on floor block

= starting point.

66 BM Tunnel 35

440 10440 100.00

374 100.66

425 104.91

409 100.82

368 10450

366 100.84

393 10477

355 101.22

396 105.18

BM

446 10964 + 9.16 100.48 = cut in road by trees

434 100.84

370 10454

372 100.82

392 10474

413 105.61

349 10410

409 ✓

= starting point

6-15-'08

Wheat
Barren

100.48

67 BM in Tunnel 1N

383 103.63 100.00

369 103.67 385 9998

378

9989

100.14

= Reading on road 450

Bm

382 106.09

16.33 9976

384 103.25

385 100.00

384 103.84

382 ✓

6-12-08

Wust

Admission Elev. tunnel grade hub Barrow

9976

9972

100.14

= Starting point

68 BM in Tunnel 1 S

452 104.52 100.00

368 103.96 424 100.28

BM
306 107.02

358 104.24

291 104.11 258 107.02 400

368 104.18 361 100.50

403 104.50 391 100.27

AKO ✓

6-12-08 White
Barren

= assumed dist tunnel

+ 6.70 100.32 = cut in roof opp 4+00

136
52
= reading on trail
about +50 in

= starting point

69

B.M. in Tunnel 3N

345 103.45 100.00

322 103.11 356 99.89

B.M.

316 106.27

287 103.40

333

329 102.98 287 106.27

358 103.49 307 99.91

344 103.75 316 100.33

3.75 ✓

6-12-08

Wesley
Barren

= assumed elev of Tunnel grade hub

46.59

99.68

= cut in powder hole in
roof approx 400 FT
mtk.= Reading was about
450' in

starting point

150206

108 1492.95 1019 1491.87

0.28 1482.22 1101 1481.94

Bm 48D

553

1470.69

0.21 1471.23 1120 1471.02

551 + 25

947

1462.76

551

945

1462.78

550 + 75

943

1462.80

302 1463.92 1033 1460.90

Tunnel hub No

544

1458.48

Length Tunnel 6 = 980' = 0.78' grade
 making Tunnel hub 86 = 1457.70

Grade shaft 1458.06

71 Reduction of levels page 76 to
proper datum.

Ban 481 = 1476.69 (O'Shanghnessy)

530 1463.77 1458.47

465 1463.04 538 1458.39

568 + 00

129 1461.75

+ 25

132 1461.72

+ 50

133 1461.71

472 1462.91 485 1458.19

1037 1468.15 513 1457.78

B.M. 497

321 1464.94

1103 1476.82 236 1465.79

1020 1485.42 160 1475.22

770 1491.25 187 1483.55

841 1498.01 165 1489.60

west shaft hub

593 1492.08

west side frame

599 1492.02

east side frame

595 1492.06

B.M. 50

425 1502.04 020 1497.81

72
Grade and Bench
in Tunnel mark
85

429 104.29 100.00
361 100.68

410 104.78

Point 2+95

390

313 107.91

B.M.

352 105.39

5375 100.05 ✓

Grade of B.M. in N

045 104.95 104.50

375 104.49 421 100.74

367 103.96 400 100.29

312

326 107.22

B.M.

276 104.96

456 105.25

477 100.69

076 104.49 ✓

6-11-58
Wuesth
Barman

= assumed elev of tunnel grade hub

100.88 + .70 100.18 = on foot-block 1 ft above
bottom

+ 7.74 100.17 = inverted rod on
2nd angle pt
about 175' in

6-12-58

= assumed elev in ch on R.K. Wuesth
Barman

15

100.84 = plus about 200 in
1 ft above ground

+ 7.37 99.85 = reading on cut in
roof opp plus 1+50

Station point

Flume W. from Johnsons Gulch - creek

695

II

383+07 118 1000

43

383+59 " "

53

-

38

-

43

• 385+25 Ditch 1000

91

373+75943

11+50

74 Flume W from Johnson's Gulch

General Contour

Apr 6-1-08
I
Lauterbach
Bauer

	ft
373+75 Ditch Hub	80
373+70 Old Hub	59
-	29
377+02 " "	47
-	25
-	31
377+90 " "	28
378+30 " "	43
378+85	53
-	35
379+55 " "	30
380+10 " "	55
380+65 " "	55
381+17 " "	50
381+95 " "	80
382+65	55
	695

Turn Back

Finished Ditch 5-29-08 Moloney
Vueste

288+32 - 293+43	511
298+95 ^s - 305+72	676 ^s
305+87 - 337+62	3175
337+91 - 338+89	99
340+80 - 373+75	3295
385+13 ^s - 395+50	1036 ^s
397+03 ^s - 405+50	846 ^s
406+93 - 408+45	162
409+64 - 412+07 ^s	243 ^s
413+79 - 432+04	1825
436 - 438+10	allow (200)
438+80 ^s - 452+21	1340 ^s
456+28 - 464+47 ^s	819 ^s
464+97 ^s - 472+51 ^s	754
473+46 ^s - 481+94	847 ^s
482+69 - 494+50	1181
500+27 - 528+78	240
529+50 - 531	2951
531+88 - 538+61	150
539+80 - 554+80 = 6N	673
	1500

Ferguson cut collar

75

17475

BW148D

021 113.26 1120 113.05

551 + 25

553 118.72

551

847 104.79

550 + 75

845 104.81

202 105.95 1033 102.93

843 104.83

Tunnelhub NG

544 100.51

228

60 50

80 140

70

323

2153

76 Check Levels over No 6

	530	105.80		100.50
	465	105.07	538	100.42
Copied 568+100				129
568+25				132
568+50				133
	472	104.94	485	100.22
	1037	110.18	513	99.81
BM 499				321
	1103	118.85	236	107.82
	1020	127.45	160	117.25
	770	133.28	187	125.58
	841	140.04	165	131.63
West side limb				593
West side frame				599
East side frame				595
BM 150	425	144.09	020	139.84
	108	134.98	1019	133.90
	028	124.25	1101	123.97
	6799		4424	

See page 710
for reduction of
this work to
datum.

5-29-08.
Wueste, Lauterbach
Bunnen.

100.	
130	120
160	140
150	160
	(180)
240	220
150	250
150	160
160	150
150	150
170	150
90	100

77 Cuts on hubs edge shaft #6

	455	105.05		100.50
o	464	104.87	482	100.73
o	1023	110.07	503	99.84
BMA9A			308	
o	1174	120.32	129	108.58
o	1031	128.23	240	117.92
o	1057	136.27	252	125.70

West hub shaft
STA 446 from west end
East hub do do

			215	
			209	134.18
	1068	144.16		
o	034	136.64	956	136.30
o	037	127.32	969	126.95
BMA8D			856	
o	078	118.27	953	117.49
o	431	111.61	1097	107.30
o	502	105.91	1072	100.89
			537	100.54

7354

7350 ✓

assumed elev of
Maloney's hub S #6.

106.99

13412 + 33.76 = 100.36
+ 33.82 = 100.36

118.76

= West hub Tunnel GN

+
length of sight

160	
150	160
200	200
	(150)
220	220
150	160
220	170
	(200)
	210
240	
110	240
90	130
	(60)
70	60
100	40
10	80
	50

78

Grade Tunnel 35

416 104.16 100.00

o 353 100.63

373 104.36

o 359 100.77

369 104.46

325
101.27

317

101.29 +0.41 100.88

Reading on rail near end

397

101.43 107.46

" " " "

369

101.77 +0.64 101.13

- foot block (8")

Track grade (600' [-0.48'] + 0.42') iron-pin

586.5

356 100.90

368 104.58

382 100.76

364 104.40

399 100.41

370 104.11

413 99.98 ✓

= OS' bench

5-27-08

Wright
Santibach
Barra

= assumed elev. OS' bench

79

Length of Tunnel 6

Bm 48 D = 147669 5-28-08

WUPSTE
Kauterbach
Barrera

554+78

145848

534'

5.8 S.M.K TO 1st Et

67.8 1st TO 2nd Et

100

100

100

125

275 ← shaft

100

100

100

100

58.06

6.3 Et

42.

38

73 Et

3.8

9.0 N.M.K

980.0 = Total length

subject to portal
deduction by
Malony

Grade 3840 below
B.M.

4x6 shaft

440'

S.V.

564+54

145770

79
652 9 8

162

490

302

692

695

698

700

701

703 NS

705

706

707

708

472
474
475
77
78
80
81
83
84
86
87
89
90
92
93
95
96
98
99
633
34
36
37
39
40

270
246
534

642 NS

643

45

46 NS

49

49 NS

51

53

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25
- 27
- 27
- 28
- 29
- 30
- 31
- 32
- 33
- 34
- 35
- 36

