

Appendix A.
Bullion Investigative Field Notes

Location _____

Date

9-24-02

Project / Client

Bullion

Features of interest:

- over-burden deposits
 - sample & survey pts
- Survey can note depth of tailings
- Survey tailing piles
- Survey large clusters of trees w/ a count.
- Beaver dams
- cross sections: flood prone, thalweg, high marks
- define 10 wet lab samples
 - (15F) before extra XRF.

Location _____

Date _____

Project / Client _____

- Have surveyor

- * Define 10 wet lab samples tomorrow.
 - 1 forest, 1 meadow
 - 2 outside perim.
 - 3 close to channel (1 fill, 2 fall)
 - Beaver dam: top, bottom, middle
- Tailings thickness - we make calls to surveyor

16

Location

Gill crk - Bullion

Date

9-27-02

Project / Client

CS2 - water qual.

cm width
Depth - depth

26	1.43	0.57
48	1.64	.78
70	1.68	.82
92	1.84	.98
112	1.63	.77
134	1.50	.64
156	1.28	.42
178	1.10	0.24
200	1.00	0.14
222	0.92	0.06

Time: 12:15 PM

Flowz Too low to
read on flow meter

pH 5.75

Temp 49°F

water sample: CS2-H2O

sediment: CS2-sediment

Location

Date

Project / Client

Molly Bedam - Wallace
Litchfield & phones

2 beds

\$46.00

B36.00 for one bed

phones

22

Location Bullion, Jacke Ck Date 9/27/02
 Project / Client CS-5 water qual. / sed / flow

L-WE = 5⁶ chan. width =

R-WE = 289

284

10's of ft

W (cm)

depth a.
-thalweg

Flow

28.4 cm

303	.99	.08
331	1.1	.19
359	1.13	.22
387	1.2	.29
415	1.24	.33
443	1.34	.43
471	1.32	.41
499	1.4	.49
527	1.3	.39
555	1.1	.19

0

0

0

0

1.0

.9

0

.9

0

1.4
 Thalweg .49
 .91

Location Jacke Ck Date 9/27/02
 Project / Client CS-5

pH - 7.4
 temp - 9.5 °C

Time: 4:20 PM

A average furrow
 flow meter may not
 be working

20

Location

Bullion - Jack Date 9/27/02

Project / Client

CS-7 Water Qual. +

210
225
235

Data

sed sample +

L-WE 270 cm - channel width ~ flow
R-WE 35 cm 10's of ft. 235 cm

W (cm)	depth	flow @
23.5 cm	.54	.14
47	.53	.13
70.5	.6	.2
94	.58	.18
112.5	.4	0
141	.66	.26
164.5	.4	0
188	.45	.05
211.5	.42	.02
235	N/A	
258.5	.43	.03

.7
thalweg .3 66
- .14sed. + H₂O

Location

CS-7 Bullion

Date

9/27/02

Project / Client

Jack

pH - 7.38

temp - 42.9 °F

* temp on
no meter
varied✓ on 9/28 @ 11:22 am
pH 7.48
temp 4.7°C
readings after
2 min. in
water. (22°C)

channel was too shallow for
depth integrator to be
used. Gathered
sample by hand @ 4 areas
in the channel @
equal intervals

Time 3:30 PM

18

Location

Bullion - Jack

Date

9-27-02

Project / Client

CS 4 - Water Quality
Data

LBF - 294

L-WE - 233 -

channel width

= 132

R-WE 101

width
(cm)

- 1.18 - 6 = .58

flow

depth
integratedH₂O

Samp.

108

.67

.09

too low

121

.9

.32

for flow

134

.98

.40

meter

147

.99

.41

to detect

160

1.18

.6

173

1.07

.49

186

1.1

.52

199

.82

.24

212

.78

.2

225

.68

.1

- sed + water sample
taken
@ CS 4

Location

Bullion

Project / Client

CS 4 (cont)

9-27-02

pH 6.11

Temp 48.2° F

✓ on 9/28 @
11:29

pH 5.9

temp 4.7

Avg. flow = 0.87

flow

Time: 2:15 PM

original data in Gault's book

CS 3

✓ on 9/28/02

@

11:45 am

pH 5.94

temp 4.7°C

24 Bullion Jacks Ck Date 9/27/02

Location

CS-6

Project / Client

Water Qual, sed., flow

LWE 345cm chan. Width 205cm
RWE 140cm

	w(cm)	depth	10' sd. ft.	flow
20.55	150	1.4	.5	0
	170.5	1.6	.7	0
	191	1.0	.1	0
	211.5	1.1	.2	@ 220cm 0
	232	1.12	.22	@ 245cm .7
	252.5	1.16	.26	@ 263cm 1.0
	273	1.22	.32	→ 1.8
	293.5	1.36	.46	1.5
	314	1.5	.6	2.5
	314	1.5	.6	
	334.5	.92	.02	

tholney 1.5
- .6
= .9

Location Jacks Ck

9/27/02

25

Project / Client

CS-6

pH 7.92 ←
temp. 5.3 °C

Time: 5:40 PM

↓ @ 11:40 on 9/28

pH 7.40
temp 5.1 °C

9/28/02

12.14 p.m.

pt 7.70

temp 10.6

Location: GPS

[illegible]

Flag List Check

PRE

07/25/02

72

D) ~~Remington~~ East Side Fish Creek

From Coast Range Going Upstream

24TB.11-190 133 @ confluence
from
100' at top left

INT 3.11
200-BW at top center

6 Step/Steep Sections in upper segment (UT 11 to Delta)

	+	
#7		Pd/bk

Step Boulder step pool
w/ icing tailings
Step = Log Jam step
pool
w/ Flashed
tailings

C) Jackek

a) Mt Bull MT 150L

Main Beaver Dam

Tailings Area! Left

b) Mt Bull MT-151L

Main Beaver Dam

Deposits Captured
or Floodplain

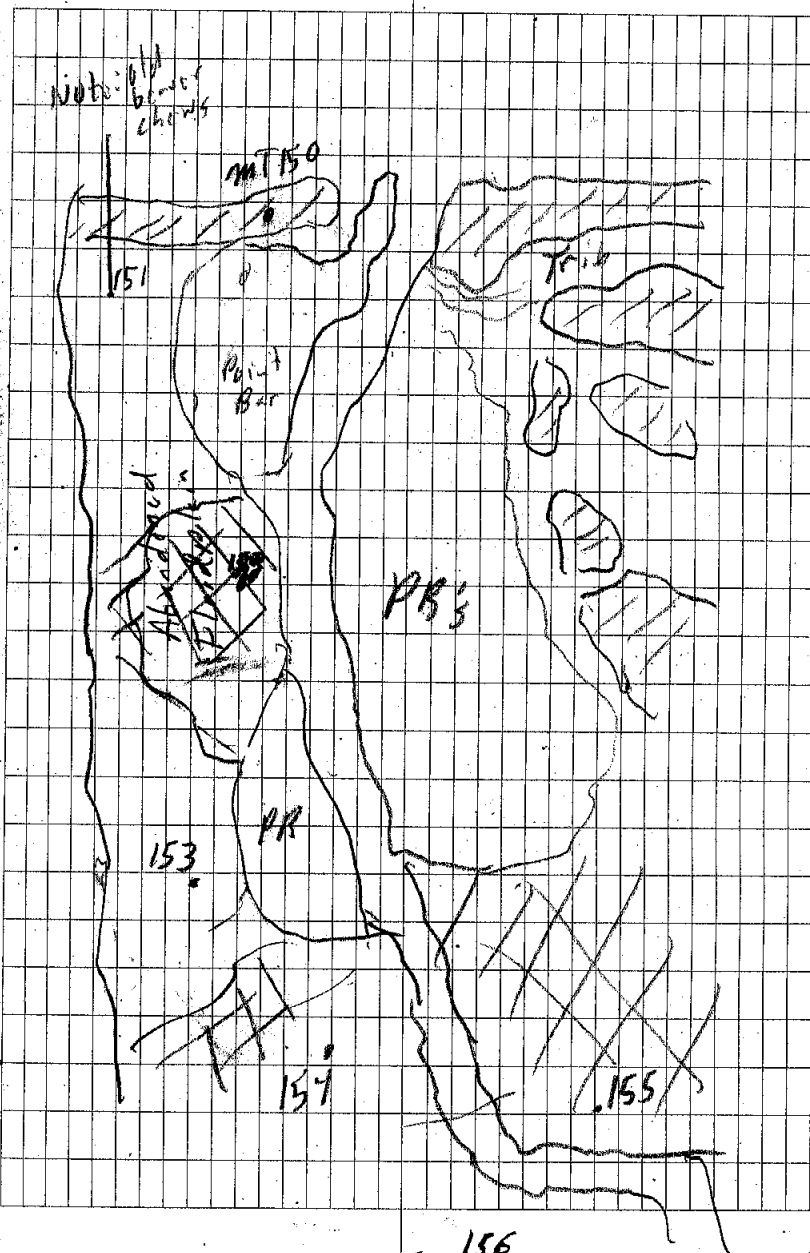
★ Check to ensure
Sampling w/in
point bar area
and on
Main Beaver Pond Piles

MT-Bull

MT 154 Tailings Coppers

MT-155 Overbank ^{Flood} Deposits

MT-156 Overtopped
Floodplain
Deposits



MT Bull

MT 152

Pile of tailings

Next X50404-102

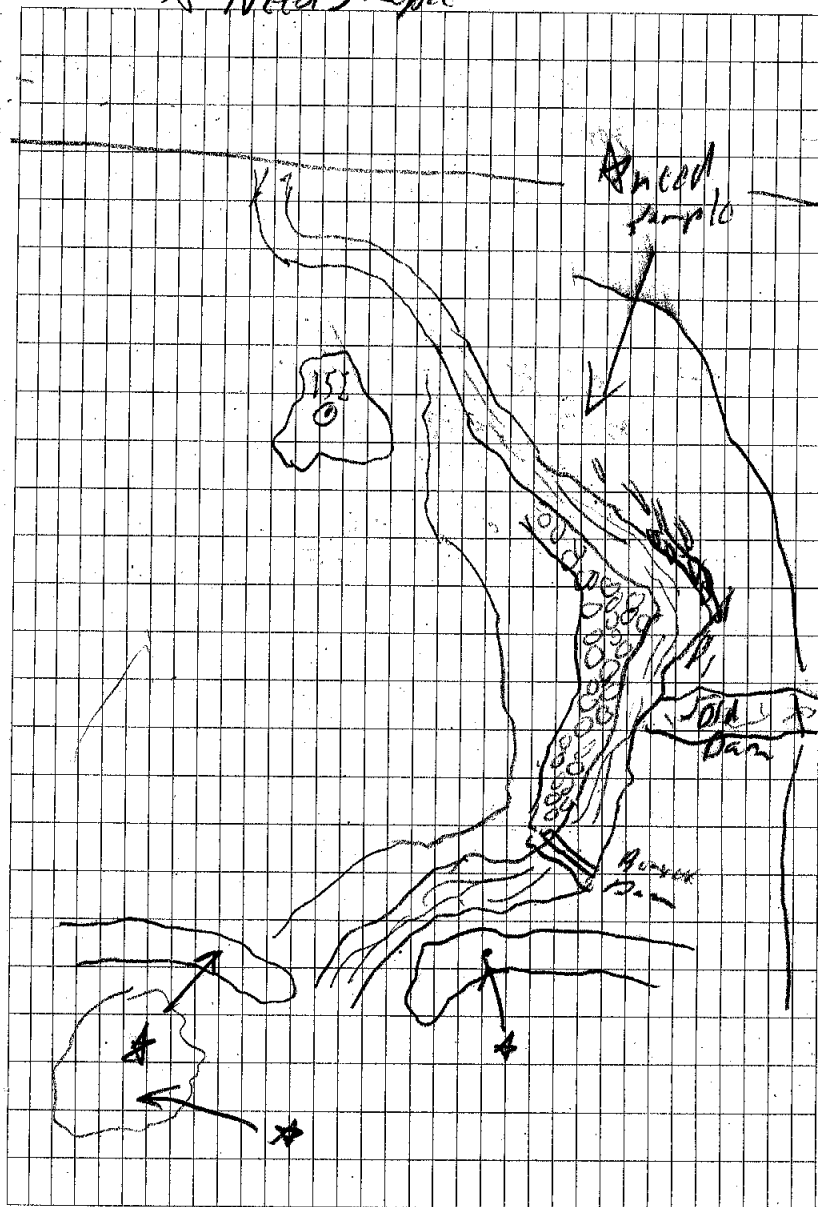
MT Bull

MT 153

The Beach

2.5' deep tailings

A Need Samples



II) Bottom to Top, Left Side

Boundary Flaps

Bottom BD-157

How BD-133 @
Confluence

Only one point
repeat 137 &
1376
at bottom end
of runway
below jack & jill
confluence →

Bullion - Water Sampling

CS 3 9-27-02 9:50 AM

0 at B.F. Right

WE @ 2' 11.5"	DEPTH	
3'	0.66'	.66 = 0
3.5'	0.76'	.10
4'	0.85'	.19
4.5'	0.86'	.20
5'	0.91'	.25
5.5'	0.97'	.31
6'	0.97'	.31
6.5'	0.90'	.24
7'	0.86'	.20
7.5'	0.76'	.10
8'	0.78'	.12
8.5'	0.89'	.23
9'	0.88'	.22
WE 9.5'	0	

channel width: 51 1/4"
(WE) →

Depth at halway = .32' - .66

3n
 17.5
 38.6
 43.5
 51
 58.5
 65.5
 72.5
 80.5
 87.5
 95
 102.5

RBF = \emptyset

LBF = 355 cm

WE Wt = 90

WE K = 280

channel width = 170 cm

cm	width Flow
8.5	98.5 cm
25.5	116.5
42.5	132.5
59.5	149.5
76.5	166.5
93.5	183.5
110.5	200.5
127.5	217.5
144.5	234.5
161.5	251.5

CS 3

Velocity Calcs

2 min. ^{total} 12 sec. / spot

10 readings @ 17cm intervals

Below detection limit

of 0.1 ft/sec

1) 5 sediment samples
evenly spaced across
channel compartment
to yield sed. sample

0) pH = 5.79
@
49°C

Bullion CS-1 H₂O Samples

11:00 AM 09/24/02

TCM
CF

BFR = 0

Water's Edge R = 82 cm

Water's Edge

W L = 189 cm

107 cm

BFL = ~~267~~ 267

cm	ft (depth to line)	ft (bottom to)
85	0.60	.08 H ₂ O top
95	0.7	.18
105	0.8	.28
115	0.84	.32
125	0.88	.36
135	0.92	.40
145	0.95	.43
155	0.96	.44
165	0.94	.42
175	0.96	.44
185	0.54	.04

7.40 = bottom to H₂O Edge

subtract 0.52 to

get

AV6 Velocity (12 seconds stretch interval)

0.0 avg velocity
0.54 mi in 120 sec

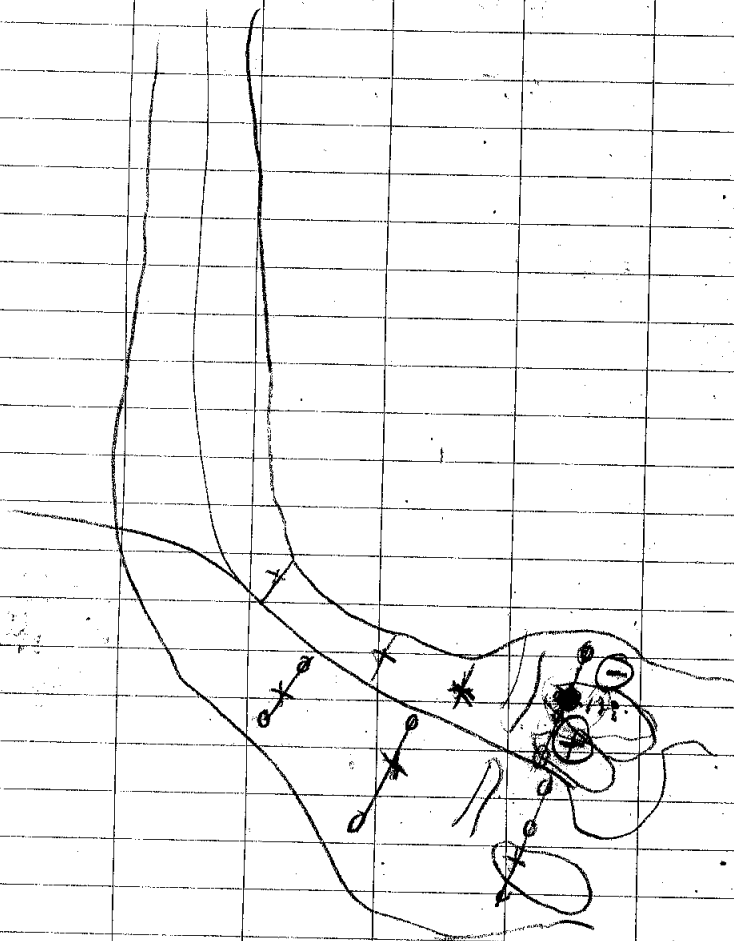
pH =
5.61

try 2 0.0 avg

0.39 mi in 120 sec

@
49°F

Conceptual
for James



138

0-6"

W. to Phell

6-18"

Red sand

18-19"

Black log

119

Cobbles

138 + 10'

138 - 10'

ooo

Cobbles

vvv

grasses

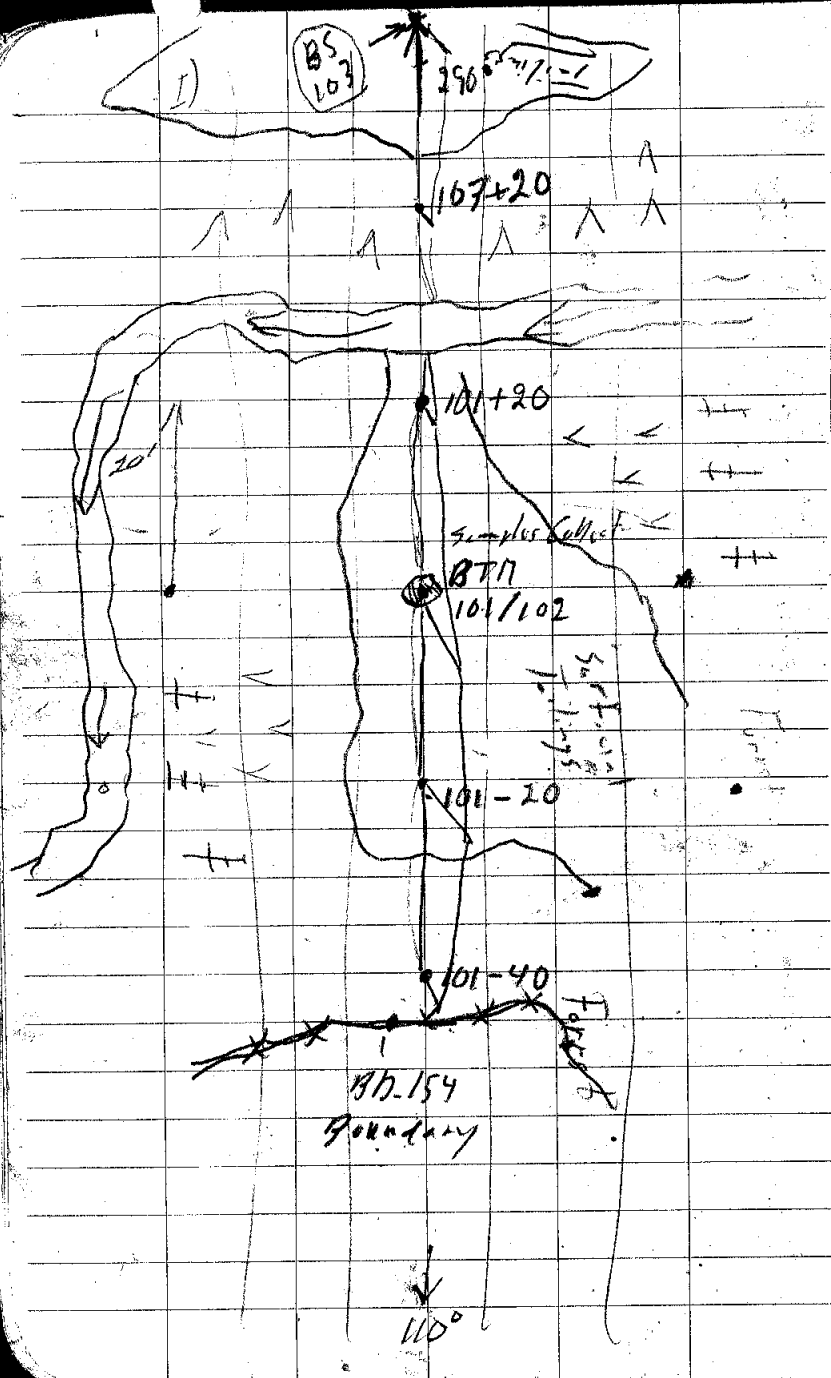
fff

trees

...

sand

to 15



101/102 North End 101 = 1'
104 = 4'

101/102	0.0 - 0.8	Yellow Orange Clay Tailings?
	0.8 - 1.0	Gray Gleyed Clay
	1.0 - 2.1	Orange Sandy Clay * H
Tailings Pile	2.1 - 2.35	Black Clay
	+2.75-	Cobbles? (Top)
101-20	0.0 - 0.4	Sandy Deposition, Brownish Orange Clay from Deposit
101-20	0.0 - 0.2	Brown Organic
	0.2 - 0.6	Whitish Yellow Clay
Tailings Pile	0.6 - 0.9	Crumby Orange Soil/Clay
	0.9 - 1.2	Gray Black Oxide Clay
	1.2 - 2.7	Sandy Brown
	+2.74	Cobbles?

101-40 0.0-0.4 Organic Duff

Forest
Soil

0.4-0.8^{stop} Orange Sand

0.8-1.0^{stop} Brown Clay Loam

BS-103 0.0-0.5 Orange Clay

Timber
Overlaid
Plants

0.5-1.0^{stop} Clay Loam, Brown

BS-103 0.0-0.8 Brown Sand

0.8-1.2 Wet Black Sand

Forest
Floor

1.2-1.6^{stop} Water

1.6-2.0 Very Wet Grey/Black
Sand

Note

From III out

25' at 226°

no hand sample

108/107

108

0-0.1 Med Textured
Brown Sand

0.1-0.9 Brown/Black
Clay

0.9-1.0 Coarse
Brown Sand

(1.0) Stop

109-20

0-0.8 Tails - orange
clay

0.8-(2.8) Brown - Black Clay

2.8-3.4

109-25 = III

0-0.3 Tails - orange clay

0.3-0.5 orange/gray clay

0.5-1.5 brown sandy loam

1.3-1.5 Black sandy clay

(+1.5) - stop -

III-20

0-0.2 organic

0.2-0.4 Brownish clay Loam

(0.9) - stop

III-40

(within an overflow
Drainage)

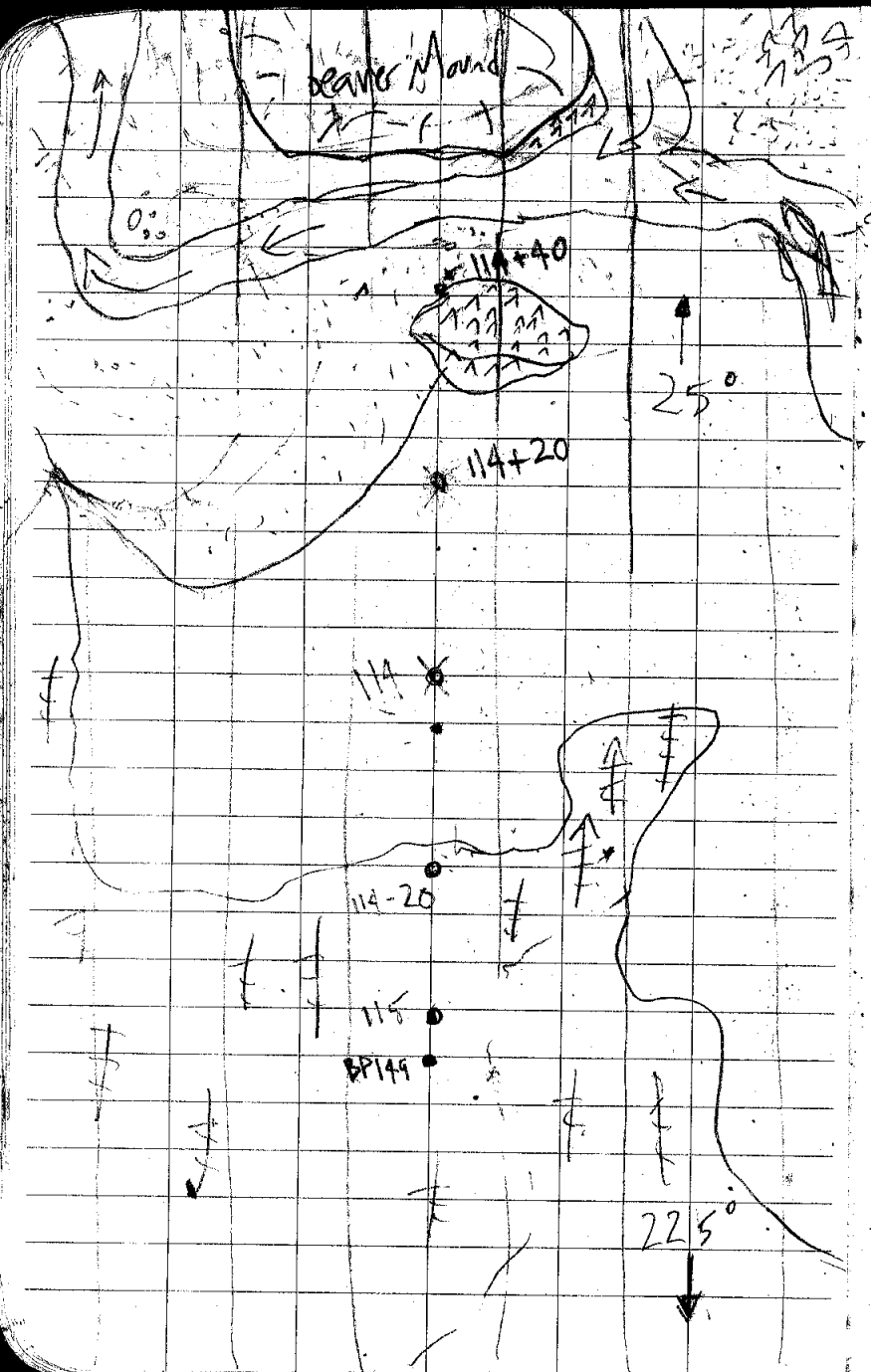
0-0.1 - buff

0.1-0.3 - orange clay

0.3-0.4 - brown loam

(0.9) - stop

Perimeter - 2' from III-40



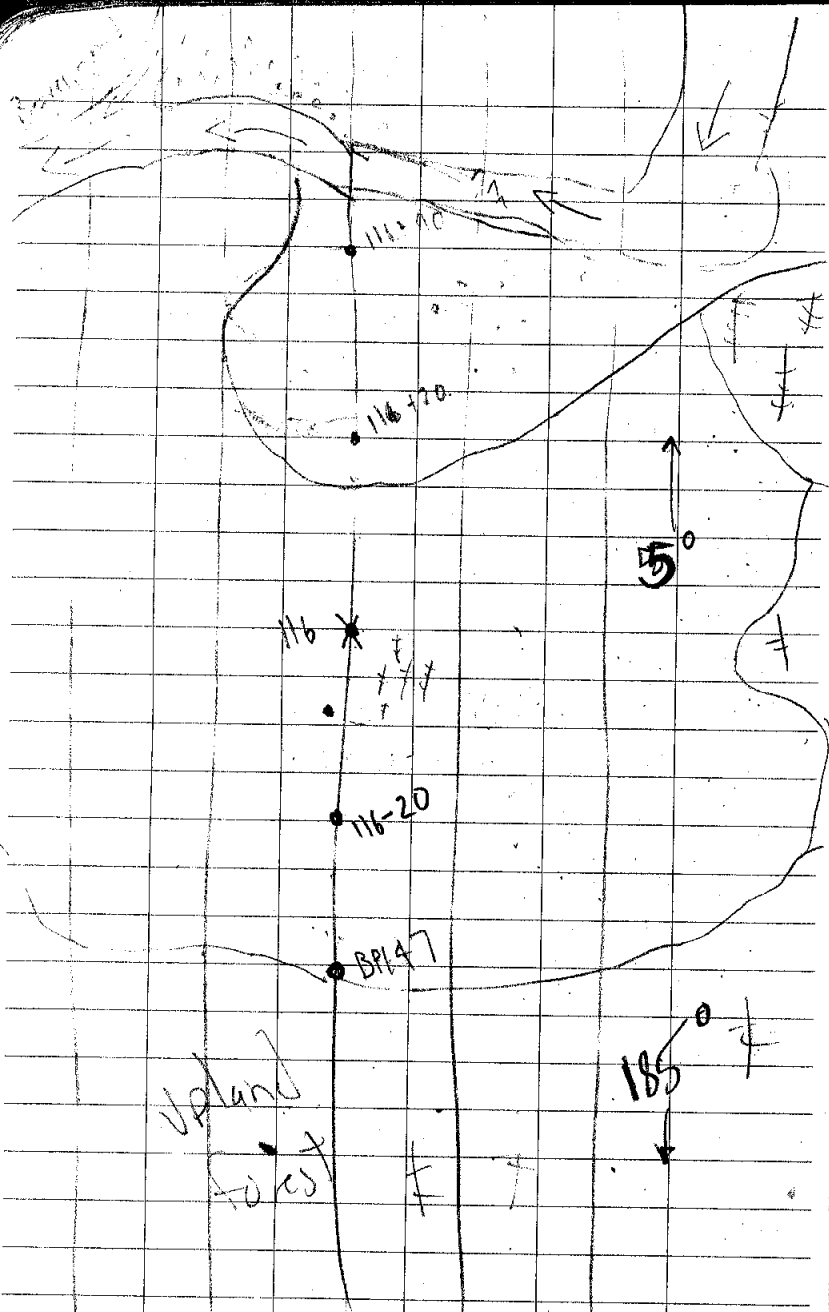
BT114 - 0-0.4 tan/orange sand
 0.4-0.8 orange sand
 0.8-1.8 orangish yellow clay / black mottles
 (+1.8) stop - sand & pebbles

114+40 0-0.4 coarse sand
 (+0.4) stop - sand / cobble bar

114+20 0-0.3 orangish yellow clayey sand
 0.3-1.6 orangish sandy clay
 1.6-2.2 grayish orange clay
 2.2-3.0 (+3) orangish sandy clay
 3.0+ coarse sand (no stop)

114-20 0-0.4 brownish clay loam
 (0.4+) stop

BT115 0-0.2 brownish orange clay
 (0.2+) - stop -



BT116

0-0.6 white clay
 0.6-1.0 orange sand
 1.0-1.5 orangish grey clay
 (1.5+) stop

116+40

0-0.05 organic + coarse sand
 (0.05) stop - cobbles

116+20

- (stop) cobbles

116-20

0-0.3 white/orange clay
 0.3-0.4 - brown clay loam
 0.4-0.7 - orangish loam
 (0.7) - stop

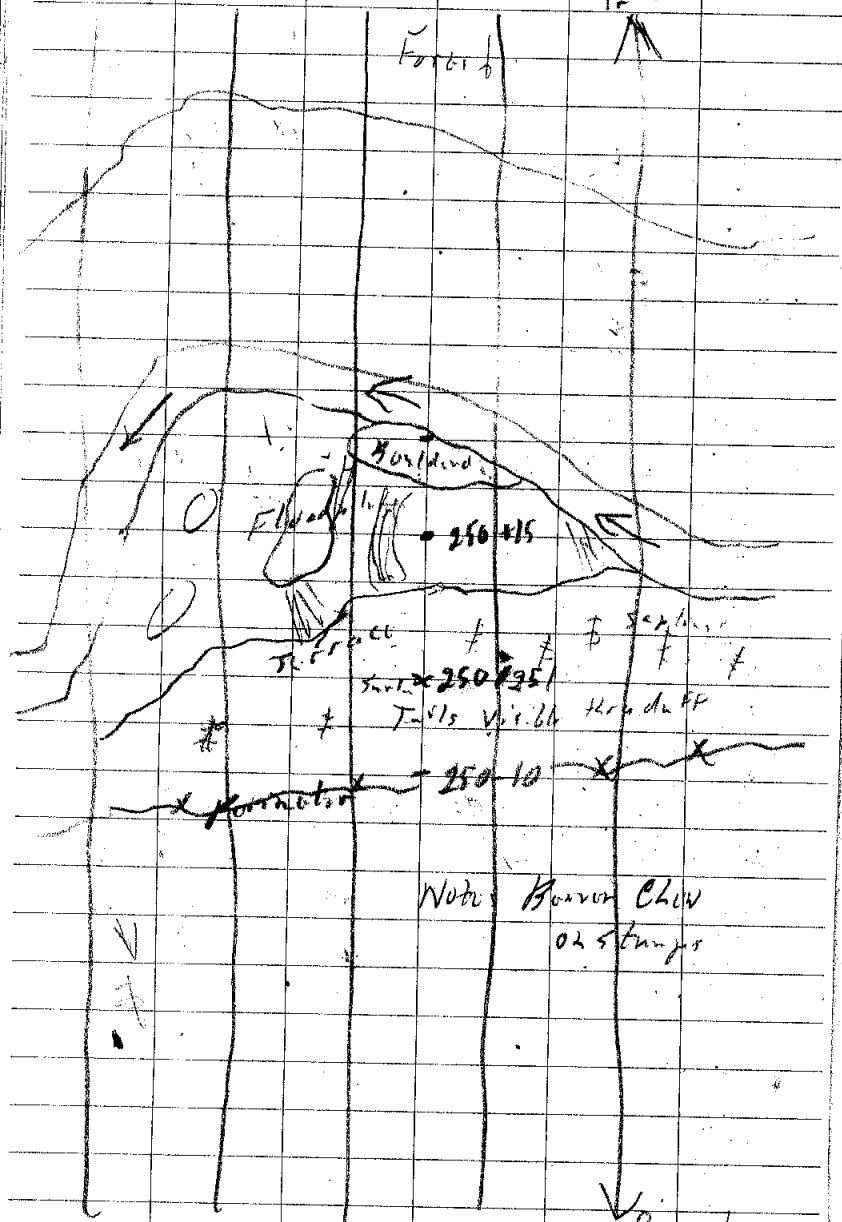
BP147

09/28/01

Site 250/251

490 Azimuth

Forest



Note: Brown Clay
or slumps

490 Azimuth

Maps @ 5' square

250/251

0-0.05	Organic Duff
0.05-0.6	White Orange Clay
0.6-1.0	Organic Black Clay
1.0-2.1	Black Clay Organic
2.1-2.2	Black Sandy Organic
2.2-2.3	Black Clay Organic
(2.3)	Stop

Tuff

250-15

0-0.7	Coarse Brown Sand w/ Organics
(0.7)	Stop

Fluvial
Brown
Deposit

250-10

0-0.05	Organic Duff
0.05-0.2	Green Fine Sandy Clay
0.2-0.5	Silty Loam, Brown
(0.5)	Stop

RT-11167
B5-12-168

1540

Tom

09/26/03

PETROL

Channel

167+5

X167/168

167+10

167+20

167+30

Vulgo

Foro

2340

167/168

Terrace w/ Little Veg
Plenty of Duff
and scattered LWD

FP
Terrace
Mud

0.0-0.1

Organic Duff

0.1-0.7

Orange Brown
Sand Clay

0.7-1.5

Black Clay Organic

1.5-2.2

Coarse Sand Gravel
Dark Brown

(11.0 T-61.0 @ 2.2)

2.2-2.4

Coarse sand Gravel
Dark Brown

2.4-3.0

Brown Black Clay

NO STOP

167+5

0-0.4

Small
Large Organic Pieces
Duff/
Decomposing Wood

Log

P. to over

Boulders

0.4-1.1

Black Organic Clay
w/ Sand
interspersed

(1.1)

Stop

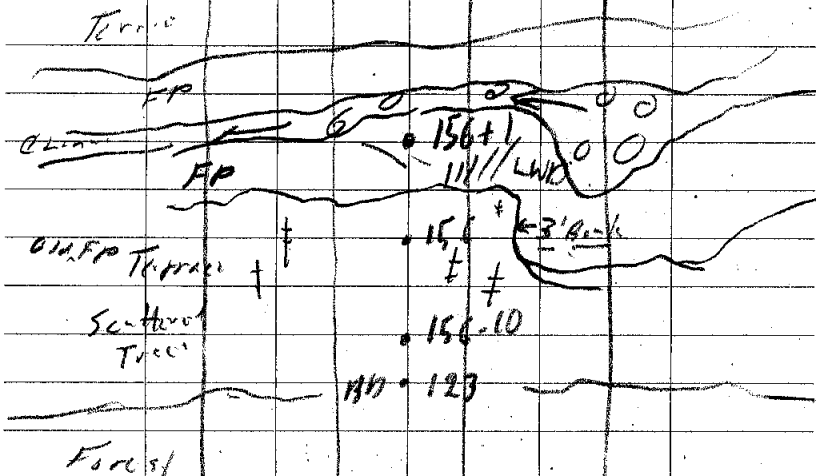
167-10 0-0.3 duff
 0.3-1.0 White sandy Clay
 (tails?)
 1.0-1.8 Black Organic Clay
 1.8-2.6 Coarse Sandy Clay
 Brown / Black
 (1.8) → Under No 0
 +3.0 No stop

167-20 0-0.2 Duff
 0.2-0.4 Tan to Dark Brown Sandy
 Clay
 0.4-1.0 Black Brown
 Clay Organic
 1.0-1.8 Brown Black Clay
 (No layer 1.8)
 1.8-2.3 Wet Coarse Sand
 2.3 Stop
 167-30 Perimeter

BT 10 156
BS 11 157

Forest

520



9/28/03 5F B

156 0-0.1 Duff
0.1-0.6 light tan to white fine sand/feels
0.6-1.4 Dark brown clay org.
1.4-2.0 Coarse sand mix w/ clay (Dark brown)
2.0-Stop 2.3 Black clay w/ brown
models
2.3 stop

156+10 0-0.1 Duff
0.1-0.4 Orange Brown
Coarse Sand
0.4-0.6 Black Clay Organic
0.6 Stop

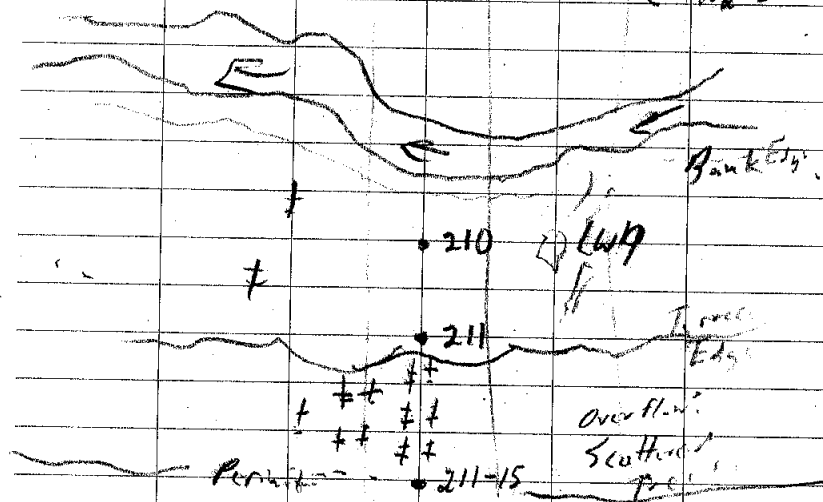
156-10 0-0.3 Dark Brown Organic
mixed w/ Orange
Sand
0.3-0.7 Black Clay w/
Organics
0.7-1.3 Coarse Sand w/ Black
Organics
1.3-2.3 Orange Brown
and Black Clay

2.3 Stop

BT-40-216
BS-40-211

↑ 72°

003 002→



Pond

↓
259°

216

0-1.4

Orangeish Tan
Coarse Sand

1.4-1.5

Grey Black Clay Organic

1.5 Stop

211

0.0-0.05

Buff

0.05-0.4

Tan, Sandy Clay

0.4-0.5

Coarse Tan Sand

0.5

Stop

211-15

0.0-0.1

Buff

0.1-0.2

Decomposed Buff

0.2-0.4

Light Tan, Fine Sand
Tuffaceous

0.4-1.3

Dark Brown Clay, Organic

1.3-1.8

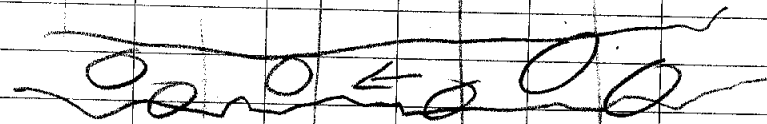
Lt brown Sandy
Clay

1.8

Stop

BT-10-159

↑ 98°



• 159+10

• 159

• 159-10

• 158-15

Sc. Herd
pasture
trees

Terrace

Face of w/ Vac Sec

↓ 278°

159

0.0 - 0.05 Duff

0.05 - 1.5 Light Fluffy Sandy
Yellow Tailings

1.5 - 1.7 Dark Brown Sandy

1.7 - 1.8 Coarse Brown Organic

1.8 Stop

159+10

0.0 - 0.2 Brown Sandy Clay

0.2 - 0.3 Coarse Orange
Brown
Sand

0.3 - 0.5 Brown Sandy
Clay

0.5 - 2.2 Coarse Orange Brown
Sand

② 1.3 14.0 T-614

2.2 - 2.6 Gleyed
Grey Sandy Clay

2.6 Stop

Note: Fluffy Yellow Tails
Thru out Substrate!

159-10

0.0-0.1

Duff

0.1-0.5

Fine Sandy Turb

0.5

Stop

159-15

0.0-0.1

Duff

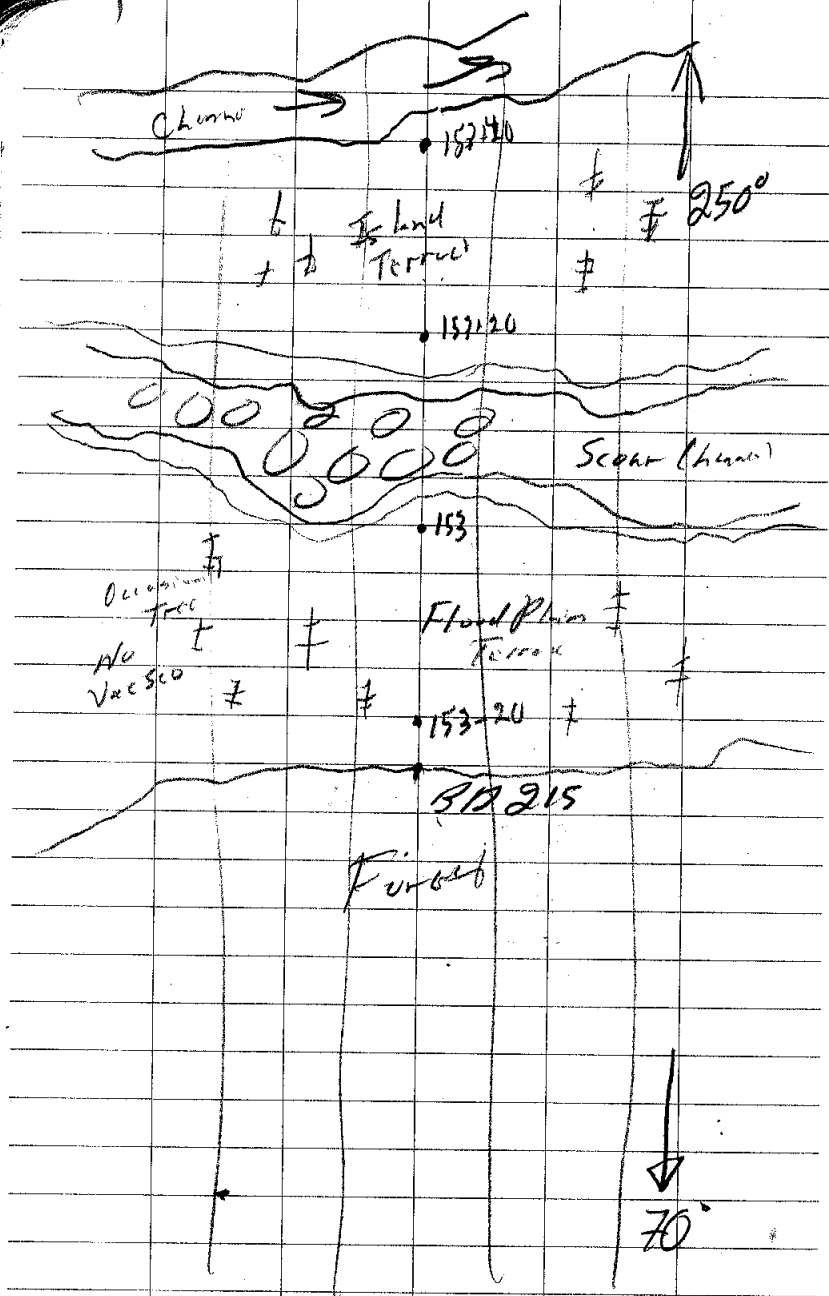
0.1-0.9

Light Brown

Silt Loam

0.9

Stop



153/154

0.0-0.1

Light Brown Clay Org

0.1-0.2

Black Sandy Clay Org

0.2-0.5

Coarse orange fine sand

0.5-2.0

Black Sandy Clay

N₂O + 26h

2.0-2.3

Saturated Coarse Clay
Orange Brown Sand

2.3-2.7

Orange Grey
Sandy Clay

2.7

Stop

153+20

0-0.2

Brown Sandy Loam

0.2-1.3

Brown Sandy Clay

1.3

Stop

153+40

0.0-0.2

Orange Brown
Clay Organic

0.2-1.3

Dark Brown
Sandy Clay

1.3-1.5

Fine-Grained
Coarse Sand

1.5

Stop

157-20

0.0-0.1

Duff

0.1-0.3

Wk. to Clay

Silty

0.3-0.5

Clay Loam

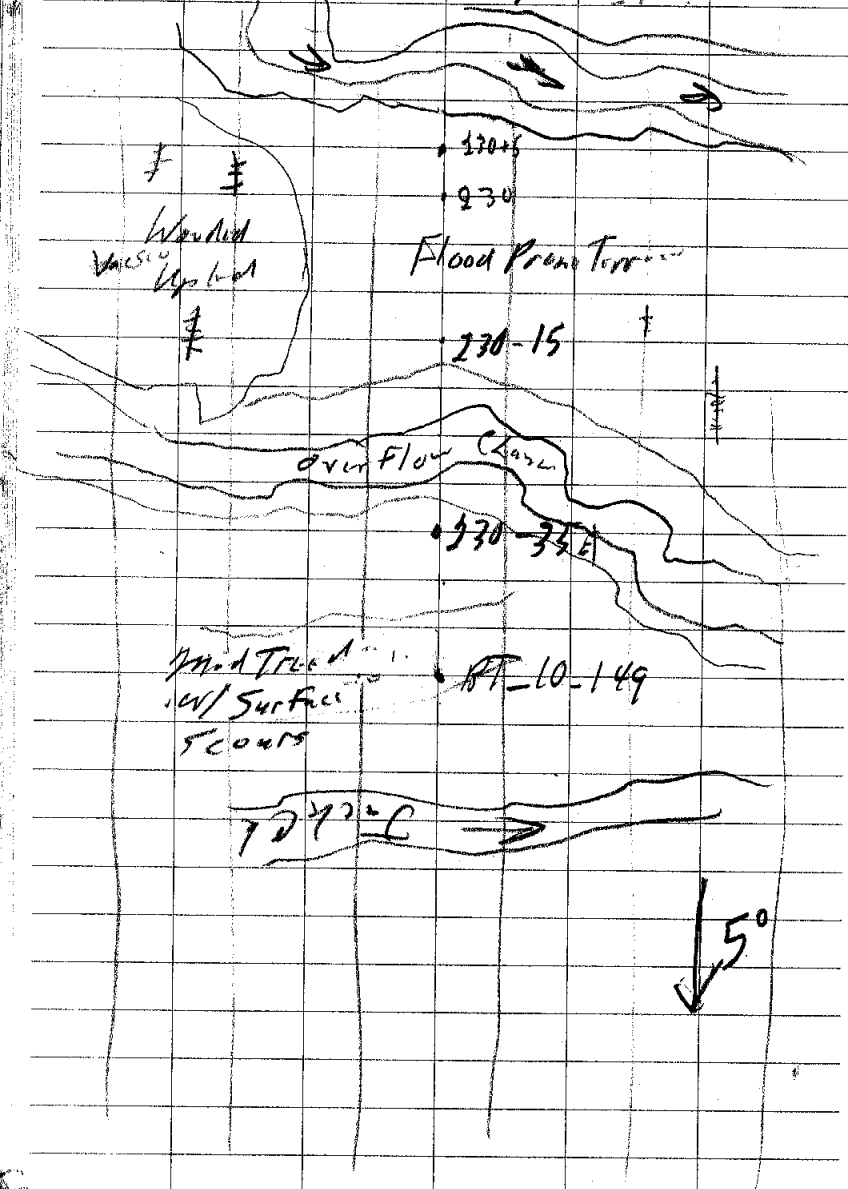
Lt Brown

0.5 stop

230/231

↑ 185

BT 40 230/135.42 231



230

0.0 - 0.5

Fine Yellow

SAND Tillings

0.5 - 0.6

Yellow White

0.6 - 0.8

Clay Tillings

Light Brown

0.8 - 1.0

Sandy Organic

Light Brown

Pale Green

Textured Sand

1.0 - 1.5

Lt Brown Sandy

Clay

(1.5)

Stop

230+5

0 - 0.4

Yellow White

Fine Sandy Clay

0.4 - 0.6

Lt Brown

Organic

0.6 - 0.8

Coarse Orange

Sand

0.8 - 0.9

DK Brown

Clay

(2.5)

Stop

230-15

0-0.1

White Sand

0.1-0.3

Orange Brown
Sandy Organic

(0.3)

Stop

230-35

0.0-0.1

Black Organic

0.1-1.0

Light Brown
Sandy Clay

(1.0)

Stop

149

0-0.3

Brown Sandy Clay

(Not)

(0.3)

Stop in
Gravel

Ch...

14650

B

146

Revised Forest map

146-30

2 1/2

5000

146-10

Boundary

146

146-10

am

26

146

0.0-0.05 White Clay

0.05-0.2 Brown Organic

0.2-1.2 Coarse Orange Tan Sand

(1.2) Stop

146-10

0.0-0.2 Mixed White Clay & coarse Orange Sand

(0.2) 1 1/2 Table

0.2-0.4 Substrated Coarse Orange Sand

0.4 Stop

146-10

0.0-0.1 Duff

0.1-0.3 Orange Organic

0.3-0.8 Pale Grey Sandy Loam

(0.8) Stop

Note 146 Much wider
than thought w/
Uncertain island
by beach

Mack Channel &
Porter Overflow Channel

146+30

0.0-0.1

Duff

0.1-0.3

Pale gray Loam

1.7-1.4

Coarse orange sand

(1.9)

Stop

146+50

0.0-0.1

Duff

0.1-0.3

Fine Pale Brown
Clay Sand

0.3-0.4

White Yellow Clay

0.4-0.2

Organic Clay w/
orange
Mottles

1.2-

Clayed Clay
Dark Gray

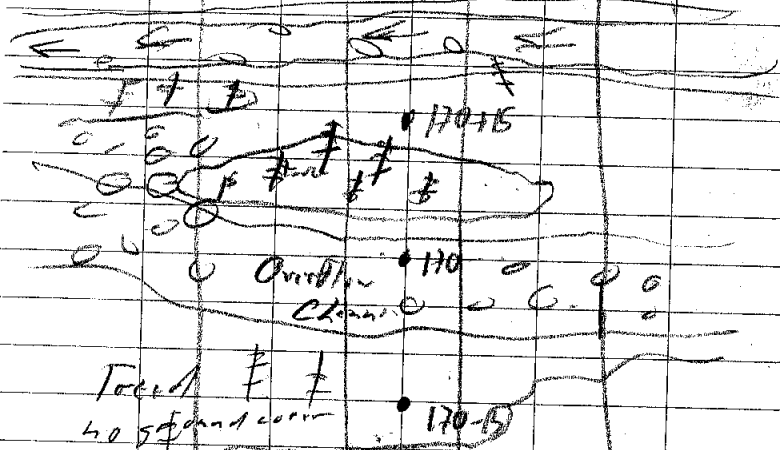
150
2616

(2.4)

No Stop

170/171

N100°



Forest
unl
Vacc

V190°

170

0-0.1

Dark

0.1-0.6

Tan-Play Sand

0.6-1.5

Brown Sandy Clay

15

Stop

170+15

Over
Wash

0-0.4

Coarse Clay Sand

0.4 Stop

Lt Brown

170-15

0-0.1

Dark

0.1-0.5

Brown Organic

0.5-0.5

Pale Tan Silty Sand

0.5

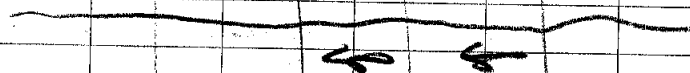
Stop

BT-10-129

314°

• BT 40-290

• KT



129-40

Trans

129-20

Sep
with
space

• 129

• 129-15

• 129-35

134°

Perimeter

129

0-0.1

Pale Brown Coarse Sand

0.1-0.2

Brown Sandy Clay

0.2-0.4

Coarse Orange Brown Sand

129-20

0-0.1

Duff

0.1-0.5

Gravelly w/ Coarse

Pale Brown Sand

0.5

Stop

129-40

0-0.3

Duff

0.3-0.6

Coarse Gravelly

Orange Brown Sand

0.6

Stop

129-15

0-0.2

DK Brown Sandy Clay

0.2-0.4

Gray Gravelly Sand

0.4

Stop

129-35

0-0.1

Duff

0.1-0.3

Brown Sandy Clay

0.3-0.4

Coarse Gravelly

Orange Brown Sand

0.4-0.5

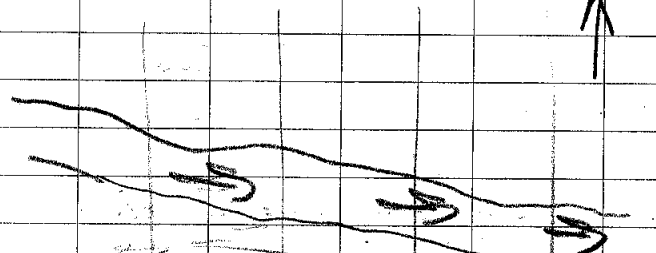
Brown sandy clay

0.5

Stop

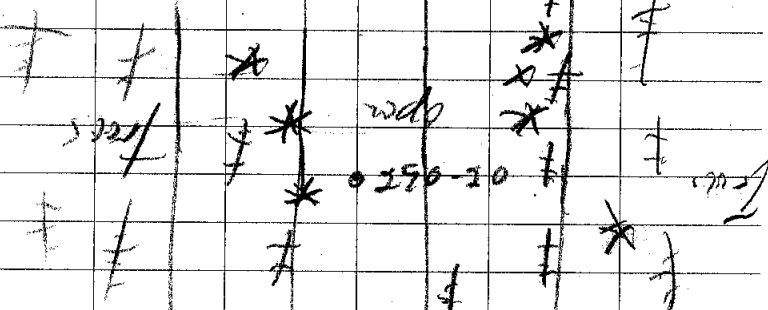
BT-40, 290

3140



Point bar

290



Marine

* Dead W. Now
Corrosion

1340

290

0-0.1 Kuff

0.1-0.3 Tan Sandy Loam

0.3-0.5 Dk Brown Organic

0.5-0.6 Brown Sandy Clay

0.6-0.8 Coarse Tan Sand

0.8

290-20

0-0.6 Tan Coarse Sand

0.6 Stop

290-20

0-0.3 Tan Sandy Clay

0.3-0.6 Coarse Gravelly

Tan Sand

0.6

Stop

at 290

Why did willows die →

Possible →

Dam breaks

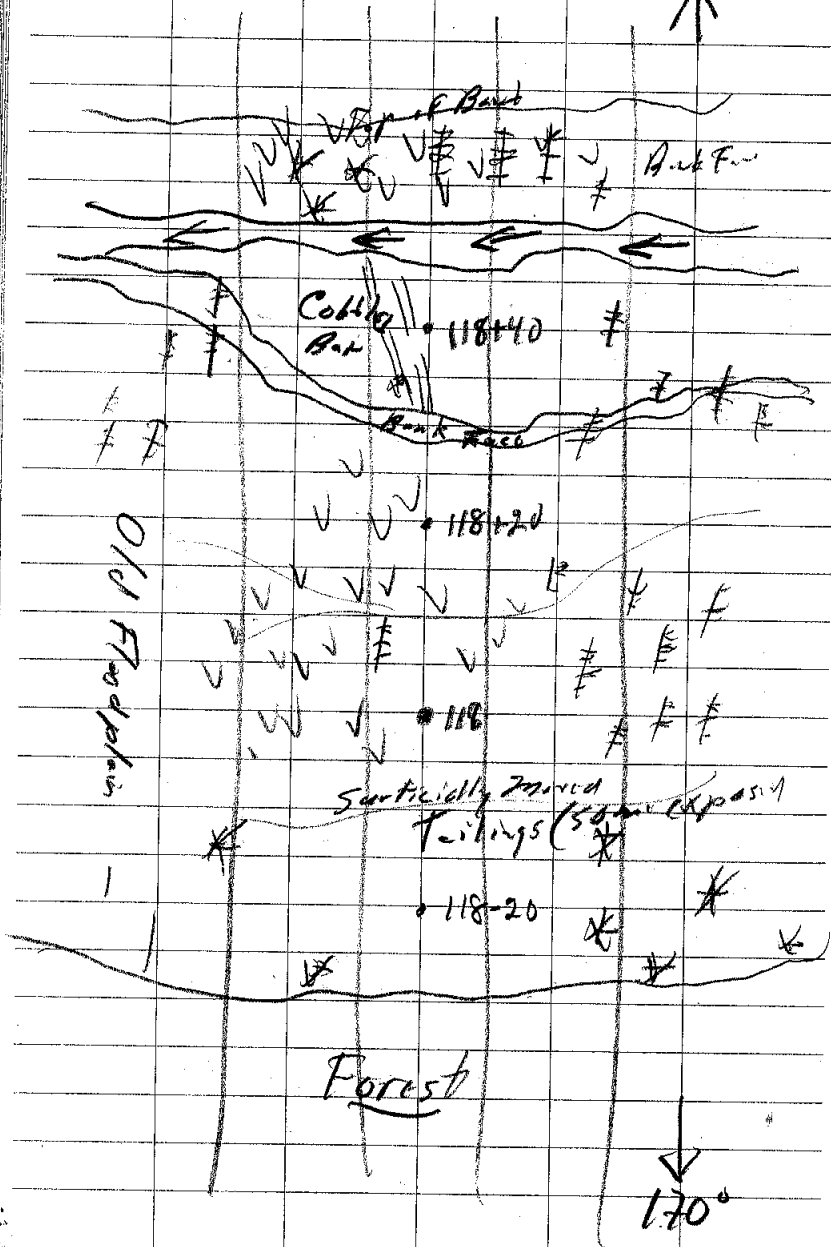
Stream Eats Town

WGO table lowers

Willows die →

BT-10-118

10°
↑



118

0 - 0.2

Orange Sandy Clay

0.2 - 1.1

Brown Sandy Clay

1.1 - 2.4

Orange Tan Clay

(2.4 - 2.4)

2.4 →

Saturated Orange

Tan Clay

becoming
Gravelly ↓

No Stop

118+20

0 - 0.1

Black Clay Organic

0.1 - 0.3

Black Organic
Mixed w/ sandy
Clay

0.3 - 0.8

Tan Clay Sand

w/
Black Mattes

0.8 - 1.4

Tan Sandy clay
w/ orange mattes

1.4 - 1.5

Black Organic
Clay

1.5 - 2.5

Tan Orange Clay

(2.5 - 2.8)

Saturated Grey/
Orange Clay

x (2.8)

Stop

11840

0-0.1

Dark Brown
Sandy Organic

Cobbles

Bar

0.1-0.2

Gray Gravelly Sand

118-20

0-0.1

Black Organic
Decomposed

0.1-0.4

Orange White Clay

0.4-0.8

Tan/Orange
Silty Clay

0.8

Stop

How Hot is 121?

< 2000 ppm As

1.5 - H₂O Table

1.5 - 2.3 Gray Black

Sandy Clay

2.3 - 2.8 Coarse Orange Sand

w/ Black Mottling

2.8 -

grayed sandy clay

151-40

0 - 0.5

Fine Orange White Sand

0.5 - 0.6

Black Tailings
Organic Clay

0.6 - 0.7

Fine Tan Sand

0.7 - 1.0

Bright Orange Sandy Clay

1.0

Stop

150-60

0.0 - 0.1

Mass

0.1 - 1.0

Brown Sandy
Clay w/ Orange
Mottling

1.0

Stop

150-75 =

121

0 - 0.2

Tan Sandy Clay

0.2 - 0.3

Dark Brown

Organic Clay w/

Orange Mottling

0.3 - 0.5

White Fine Sand
w/ orange clay
(7-15)

0.5 - 0.7

Gray Sandy Clay

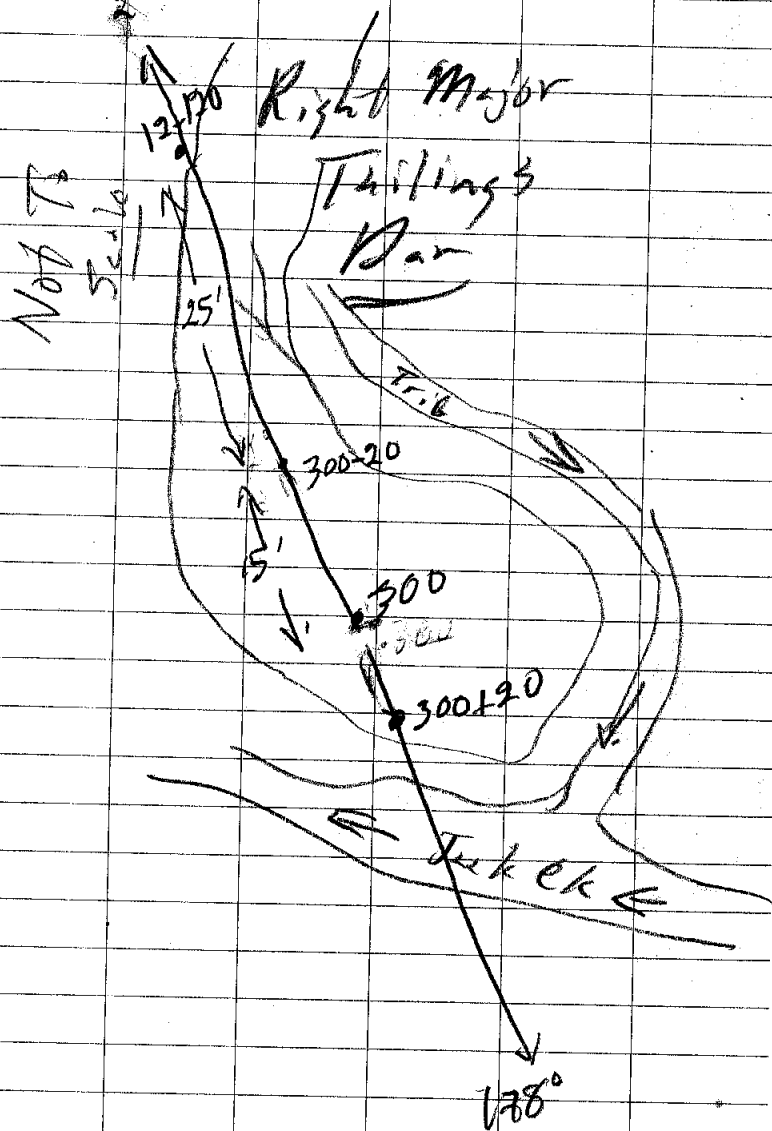
0.7 - 1.0

Orange Tan

1.0 - 1.5

Coarse Sand
Orange Brown Sandy
Clay

Bull-1-02-300



300 0.0-1.5 White
1.5-2.5 grayed gray clay
+2.0 brown loamy
material

300-15 0.0-0.4 white tails

0.4-1.0 Brown Sandy Clay

1.0-2.0 Gray Sandy Clay

Saturated (2.0- Gray Sandy Clay
w/
Coarse orange
mottled clunks

No Stop

120- 0.0-0.2 Fine Orange Sand
300-35

0.2-0.3 Black organic
0.3-0.7 Coarse Orange Sand

0.7-2.1 Gray Black Clay
(2.1- Saturated gray black
Clay
No Stop

300+20

0 - 0.3 White Clay

0.7 - 1.0 Tan Clay Sand

~~1.0 - 1.5~~ Coarse Orange Sand

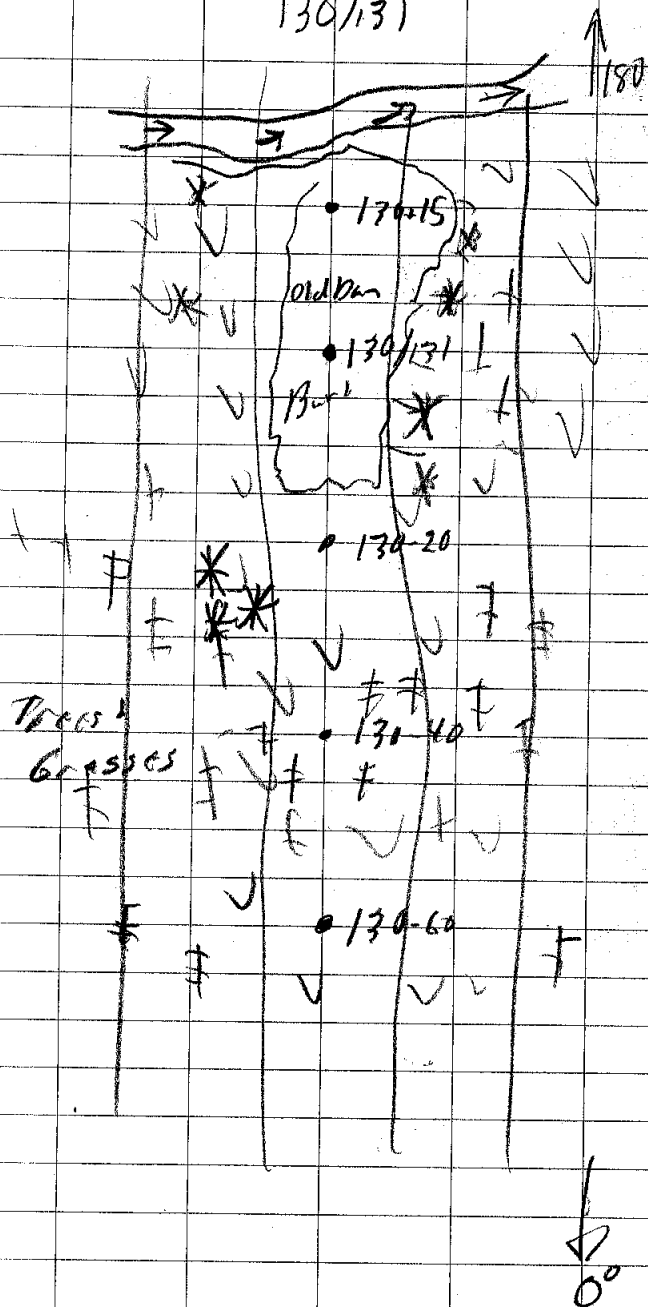
1.5 - 2.5 Grey Black Clay

Summit 2.5

+2.5 Loose Non-Sandy
Muck

No Stop

130/131



130

0-0.1 Fine Orange Brown Clay

0.1-0.7 White/Orange Clay Sand

0.7-1.5 Gleyed Clay

2.5-2.6 Course Sandy Gleyed Clay
(2.6) Stop

130-15

0-0.2 White & orange Clay

0.2-0.5 black humic clay

0.5-0.7 Tan Sandy Clay

0.7-1.5 ^{black} Humic Clay

(1.5)-2.0 Gleyed Clay

2.0 Stop

130-20

0-0.4 Grey Clay

0.4-0.7 Grey Orange Clay

0.7-2.8 Gleyed Clay

(Saturation at 0.7)

2.8 Stop

130-40

0.0 - 0.5

Orange Clay w/
Black spots

0.5 - 1.7

Humic Clay (black)

(1.7 - 2.0)

Gleyed Clay

2.0

Stop

130-60

0 - 0.1

Organic Material

0.1 - 0.6

Humic Clay

0.6 - 1.7

Gleyed Clay

1.7 - 1.8

White & Orange

Deposit

(1.8 - 2.5)

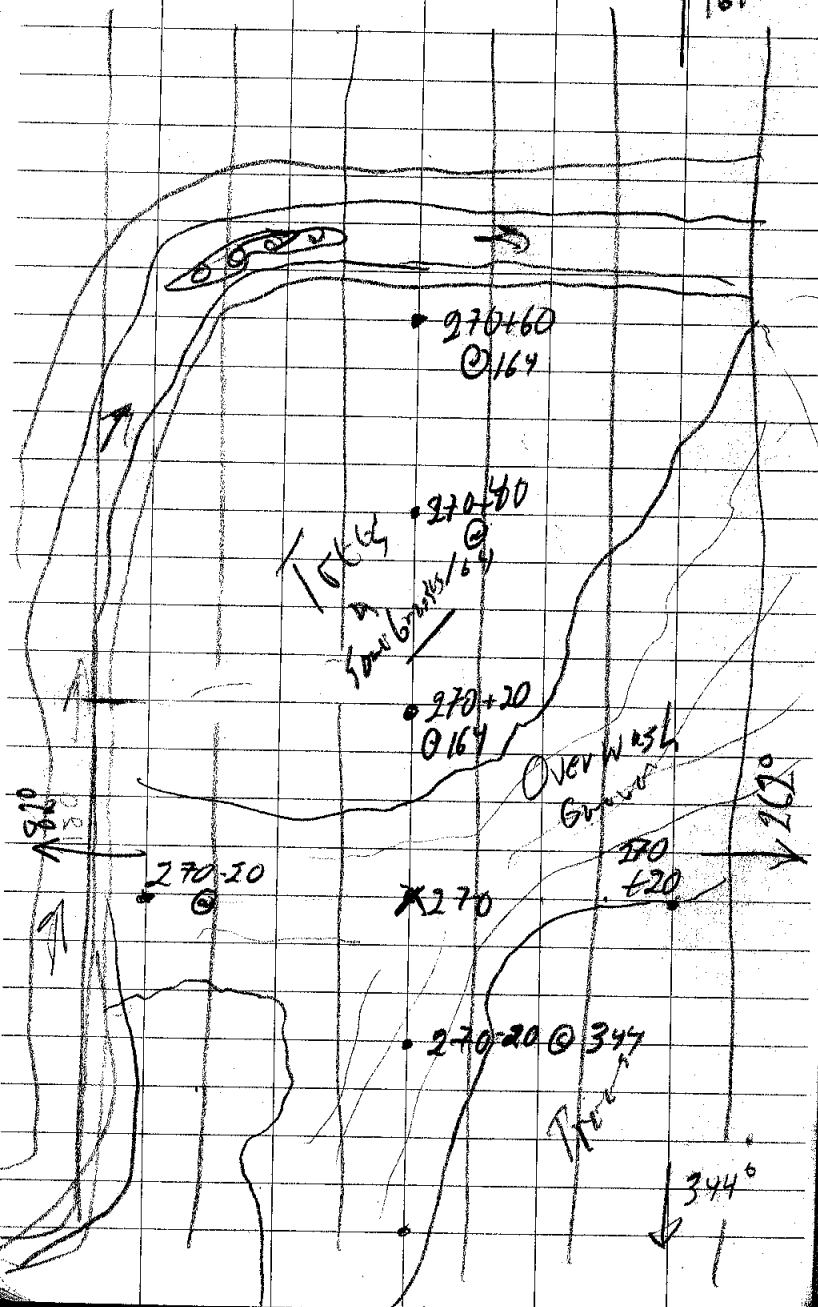
Gleyed Clay

2.5

Stop

BL 40 270

↑ 164°



270

0-0.2

Humic Sand
Coarse Tan Gravelly Sand
Stop

0.2-

(0.4)

270+20 @ 267°

0-0.1

Duff

0.1-0.2

Coarse Gravelly Tan
Gray Sand

(0.2) Stop

Note 0.1-0.2 material appears
to continue to
H90 table, exp 5'

270-20 @ 81°

0.0-0.1

Duff

0.1-0.2

Brown Fine Sand

0.2-(0.4)

Brown Sandy Clay

270-20

0.0-0.2 Duff

@ 344°

0.2-0.7

Coarse Gravelly
Brown Sand

(0.7-)

Stop

270-40

0.0-0.1 Duff

@ 344°

0.1-0.2

Coarse Gravelly
Brown Sand

(0.2)

Stop

270+20

②
164°

0-0.1 Druff

0.1-0.6 Fine Brown Clay Sand

0.6-0.7 Fine Tan Sand

(0.7) Stop

270+40

②
164°

0-0.2 Druff

0.2-0.4 Homie Clay

0.4-0.7 Brown Gray Sandy clay

(0.7) Stop

270+60

0-0.1 Druff

0.1-0.2 Coarse Homie
Clay Sand

0.2-0.5 grayd sandy clay

0.5-0.6 Coarse orange sand

(0.6) - Stop -

[illegible]

Phone 602-331-3859

Project(s) Site Investigation / Soil &
Ecology Sampling w/ Bitterroot Rest., INC.
P(1) Bullion Mine, near Basin, Maryland
P(2) Idora mine, North of Wallace, Idaho
Prepared for U.S. Army Corps of Engineers
& USFS

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①

9/23/02

Bullion Mine, Montana

JFB

Sample ID 12+1 Digits

MT

(to be determined)

Spectra 9000 can only hold 7-digits

Day 1

Film No ① taken @ USFS Boundary to the South.

Project ① Walk site and find boundaries.

1st Boundary is to the SSW and is the U.S. Forest Services boundary.

Field

Personnel

~~Butternot~~
GrantDorothy
Danniel
&

Clare

&

Emc 2

Myself

(James)

We walked the entire site from U.S. Forest Service Boundary up to "Jill" Creek and then up to the Bullion mine. The grade between U.S. Forest Service Boundary to "Jill" Creek confluence is gentle ($\approx 2-3\%$) as we walked up Jill Creek, the grade changed to $\approx 8\%$, then 10% for the 1st 100 & 1000 yds respectively. Then the grade changed to $\approx 12-15\%$ up to the 1st stages of restoration of the Bullion tailings impoundment. Half way along the 12-15% section, there were large 15' x 15' boulders in the middle of the creek. We estimated that there was not a lot of mine deposits (tailings) after these boulders and that the cost VS further disturbance would be

- JFB

②

9/23/02

Bullion, MT

greater. \therefore We concluded that this would be a good place to stop. Any contamination could be cleaned or stopped by engineering methods.

Project ②

I (James) needed to go to Butte to pick up the XRF machine & some needed supplies & food.

The others continued to mark the disturbed area & measured the length of disturbance w/ a distance wheel. The approximate distance @ the center of the disturbance was 3,200 ft.

DAY 2 9/24/02 Bullion

Site evaluation w/ U.S. Forest Service, U.S. Army Corps of Engineers & the Sampling/Investigation team. Discussed issues such as sampling, ecology, cost/restoration etc.

JFB

③ 9/24/02 Bullion, MT JFB

SAMPLING

Set UP Machine & Outline Procedures
Sampling ID = ABCDDEE

A = (B) B for Bullion mine

B = (X) for XRF

C = S for Soil, T for Tailings

DD = 01 for normal sample &

02 for Duplicate sample &

04 for Confirmation sample

EE = 00 for 0' depth 02 for 2' depth
etc.

- XRF Calibrations were made

- Intensity check - Pass

- Analytical check (Teflon) - Pass

- Calibration Verification check - Pass

- The SRM for Montana was used

- Mean Soil ID SRM 2711

- mean mg/kg (ppm) = 1100

- Precision Measurement x 7 -

JFB

9/24/02 Bullion, MT ④

= sample ID for Confirmation
Wet-Lab samples

B X S 01 00 100

N T 02 02

04

XRF

B S 1 0 100

T 2 2

4

B = Bullion

S = Soil, T = Tailings

1, 2, 4 = Normal, Duplicate, or Confirmation

0, 2 = 0', 2' etc,

100 = Sample No.

Sample # BS10100 taken outside
of perimeter on East side of Jack
Sample Selection started on downstream
side of site.

JFB

⑤

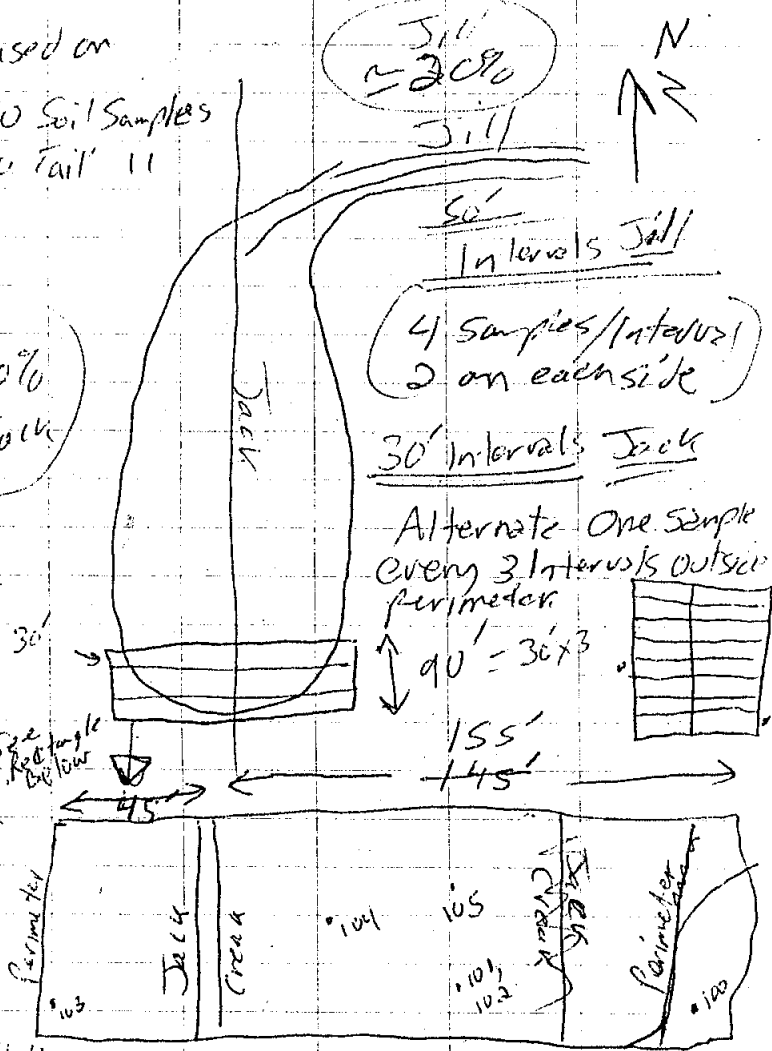
9/24/02 Bullion, MT JFB

Sketch of 1st Day
SAMPLES

Based on

150 Soil Samples
150 Tail " "

~
90%
Jack



See sample below
45' 90' 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200

9/25/02

Bullion, MT

⑥

New Sample Procedure

Based on the conditions from 9/24/02 (Depth of samples, roots, rocks & terrain) we will strive to only take 100^{REF} samples for Soils & Tails w/ 10% confirmation. Samples taken evenly distributed as discussed by the group on the nightly meeting on 9/24/02. See sketch Page 7. In addition, the interval will change the grid. Assuming a 70% distribution along 1,200' x ~350' width of Jack creek, & a 2000' length & 75' width along "Sill" Creek. (See sketch of intervals Grid on page 8).

JFB

⑦

9/25/02

Sketch of 10% Confirmation
SAMPLES

230
231

250

251

230

231

250

251

210
211
190
191
140
141

140, 171
150, 151

130, 131

101, 102

270

270

271

290

291

170
150, 151

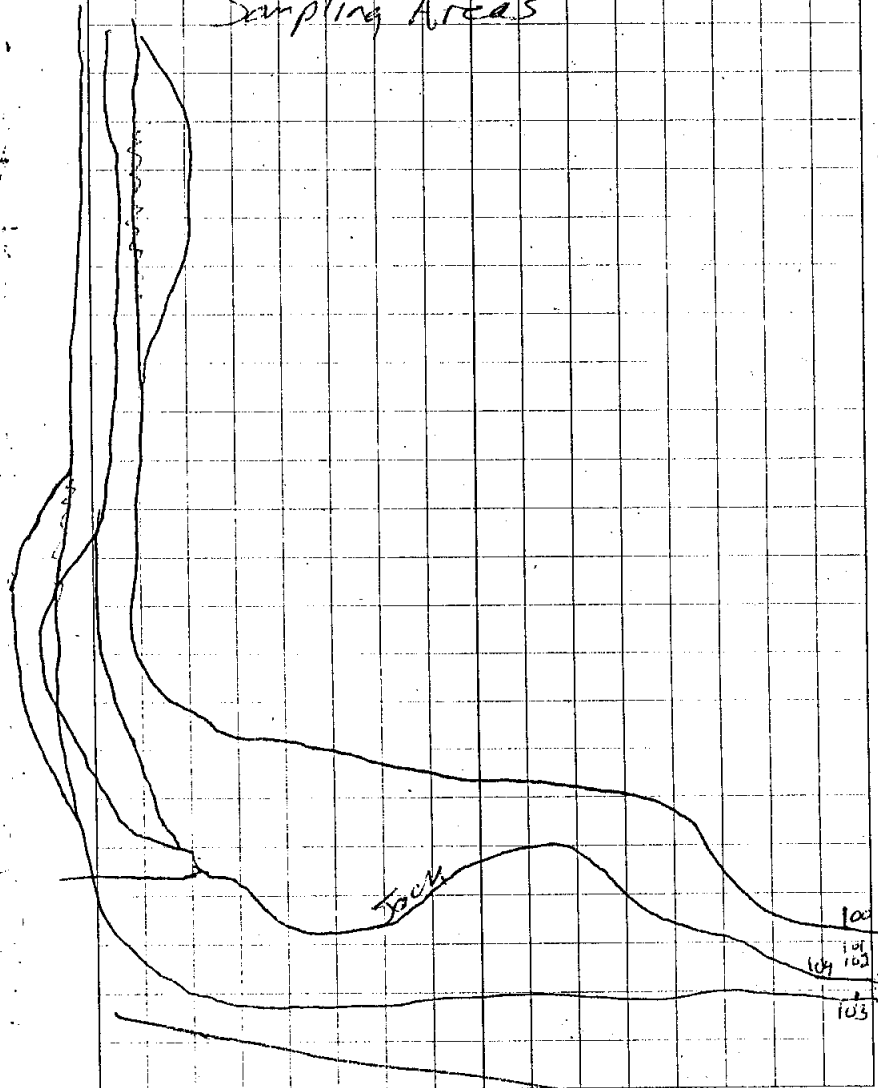
JFB

9/25/02

Sketch of Interval

⑧

Sample Grid for Jack & Jill
Sampling Areas



JFB

(9)

9/25/02

Sample IDs for Confirmation

Samples

T = Tailings

S = Soil

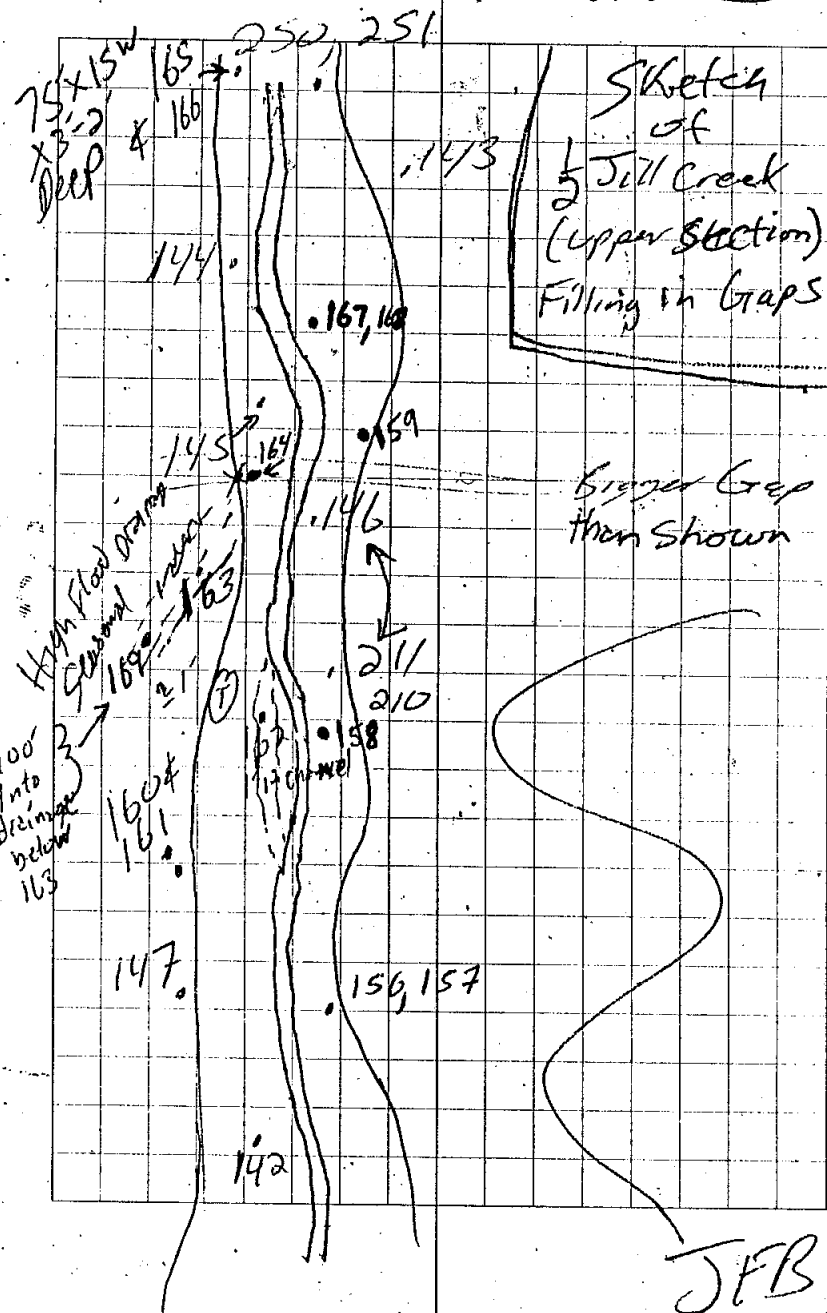
Conf. #	Sample Type (T, S)	Survey ID	XRF ID
1	T	Buil-XT-44	BT4_101
1	S	-XS-41-	BS4_102
2	T	-XT1-	BT4_130
2	S	-XS	BS4_131
3	T	-XT1	BT4_150
3	S	-XS	BS4_151
4	T	-XT	BT4_170
4	S	-XS	BS4_171
5	T	-XT	BT4_190
5	S	-XS	BS4_191
6	T	-XT	BT4_210
6	S	-XS	BS4_211
7	T	-XT	BT4_230
7	S	-XS	BS4_231
9	T	-XT	BT4_250
9	S	-XS	BS4_251
9	T	-XT	BT4_270
9	S	-XS	BS4_271
10	T	-XT	BT4_290
10	S	-XS	BS4_291

SFB

9/27/02

Bullion, MT

SFB (10)

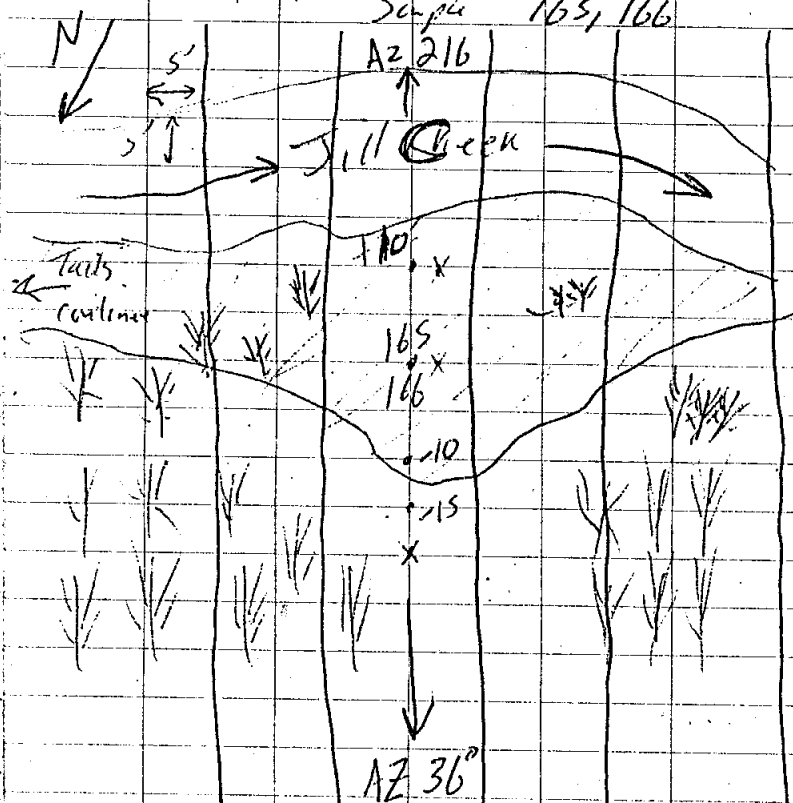


(11)

9/28/02

Billin MTF

Sample 16S, 166



Transect (x-section)
Through sample(s)

BT1116S
BS12166

JFB

(12)

9/28/02 Billin MTF
Sample x-section description

BT1116S 0-0.1 organics Juff
BS12166 0.1-0.4 white clay
0.4-0.9 tan sand
0.9-1.5 ^{Dark} Brown organic clay
~~1.5-1.6 coarse sand~~
1.5-2.9 grey clay ^{grad} high plasticity
2.9 Stop No S top (Tool length)

16S, 166 + 10 0-0.2 ^{sandy} white clay
0.2-0.4 white sand
0.4-~~0.9~~ + Brown sandy org.
+ 1.8 ()
1.8-1.9 coarse brown sand
1.9 Stop boulder

16S, 166 - 10 Boulders @ Surface +
10-0.3 ~~white clay~~ organic Juff
0.1-0.3 white clay
0.3-0.9 D. Brown sandy clay
0.5- Stop Boulders
16S, 166 - 15 0-0.05 organics
0.05-0.1 white clay

JFB

(13) 9/28/02 Bullion, MT JFB

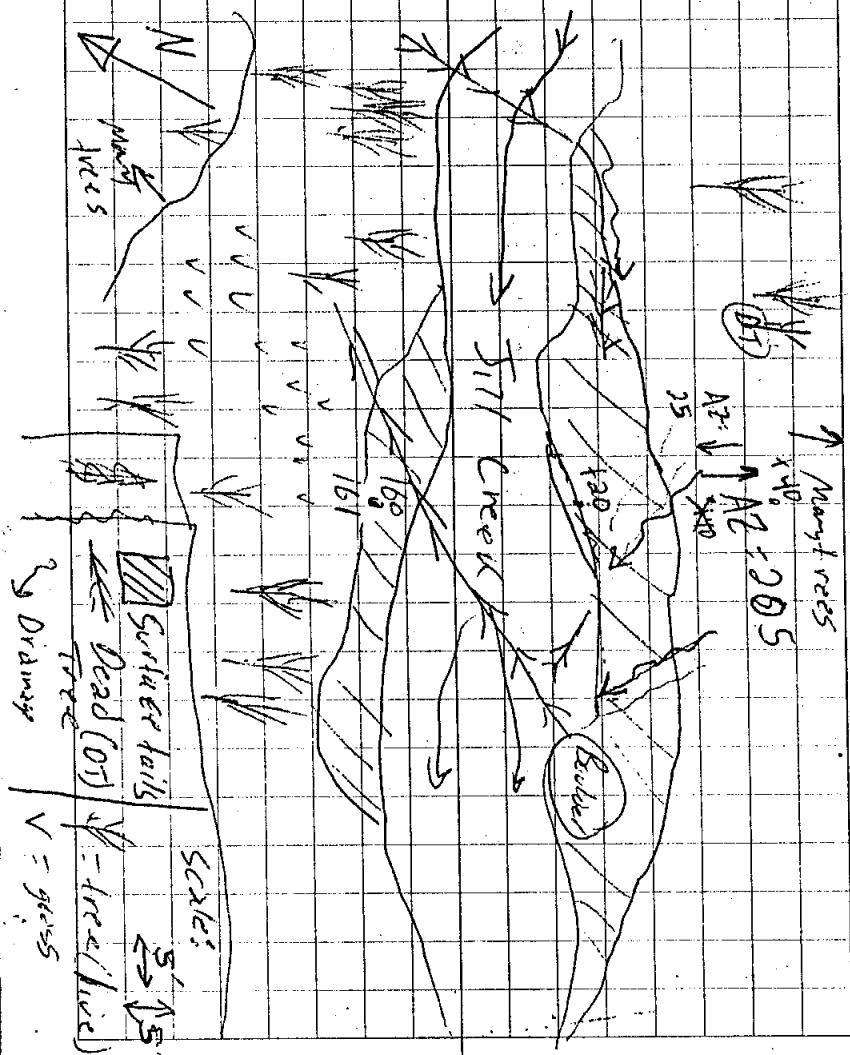
Transect/X-section through
Samples BT10160, BS11161 (160, 161)

Location	Description
160, 161 + 0	0 - 0.4 fine light tan sand 0.4 - 0.45 white sandy clay 0.45 - 1.0 dark brown clay org 1.0 - 1.1 dark brown coarse sand 1.1 - stop
160, 161 + 20'	0.0 - 0.1 Dark brown clay org. 0.1 - 0.3 fine light tan tails 0.3 - 0.4 white clay tails 0.4 - 1.8 Clay organic dark brown Black saturated org. 1.8 - stop 2.3 grey black sandy clay 2.3 stop
160, 161 + 40'	0 - 0.2 Duff 0.2 - 0.4 Dark brown org 0.4 - 0.5 light tan tails 0.5 - 0.6 (stop) Dark org.

JFB

9/28/02

Map of Area near Samples
BT10160 & BS11161 (160, 161)
Short



JFB

(15)

9/28/02

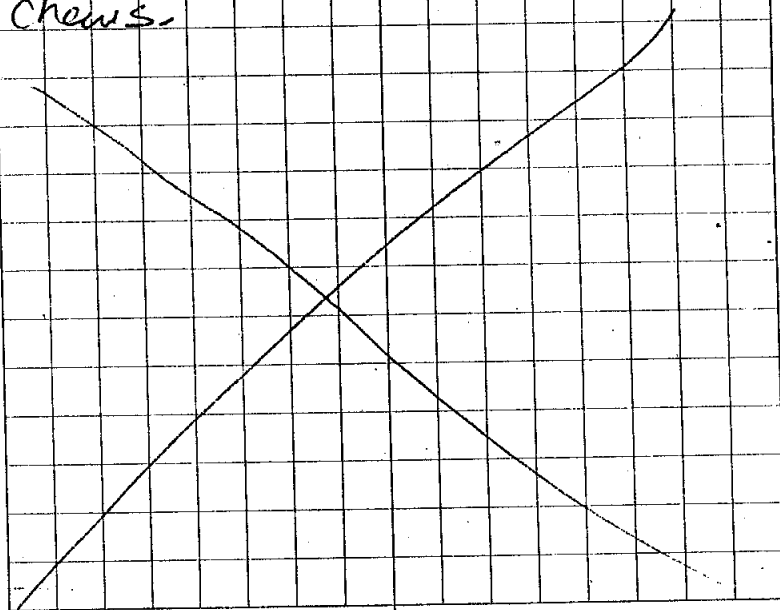
Description of last 10
Nm XRF sample taken.

- 1) Bull-1-02-300 - Central beaver dam (Tails) composite from 0-2 Thick (3") layer of clay below - see sample 307
- 2) Interstitial soil sample between within cobbles on point bar above V (Seasonal water flow) (Bull-1-0.5-301)
- 3) Bull-1-03-302 Interstitial soil from within Historic Cobble bar below tailings
- 4) Bull-1-0.5-303 Interstitial soil sample within Cobble bar (Seasonal water flow)
- 5) Below Hotspot (Bull-1-1.5-304) ^{soil sample} ~~silt~~ inside delta above Jack/Will confluence.
- 6) Bull-1-02-305 Historic delta - Soil w/in cobbles near Jack/Will confluence
- 7) Bull-1-02-307 - Soil (grey HPC clay) below tails on large beaver dam. Upstream Side

JFB

(16)

- 8) Bull-1-03-308 Soil from upstream side of large beaver dam below tails & clay
- 9) Bull-1-04-306 Soil composite (0-1") from adjacent/Butchering beaver dam to the large Beaver dam
- 10) Bull-1-01-306 Bull-1-02-309 - soil from under tails under Left Tails before beaver dam & beaver chains.



JFB

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Daniel C.

9/24/00

PAGE	X-sec CS#	REFERENCE #1	DATE
FPW=	rvar	BFD=	
BF 1	C.O.		
BF 2	0.0	* purpose of X sec ?	
83		* seed out controls GPS?	
84		* permanent stakes ?	
85		* selection of sites ?	
86		* string w/ elap	
87		* wire doesn't work	
88			
89			
90			
BF	0.0		
BF	O.O		
		(1) CS1 LB+RB	
		@ top of site	
		(2) CS2 LB+RB ^{BP}	
		@ MT BULLY 207R	
		(3) CS3 LB+RB	
		CS4 LB+RB	

Reference Page Index MT 611214R

147 Error codes, Hazardous classifications, Container types
148 Sampling guidelines (Liquids)
149 Sampling guidelines (Solids)
150 Approximate Volume of Water in Casing or Hole, Ground Water Monitoring Well
151 PVC Pipe casing tables
152 Soil Classification
153 Soil Classification
154 Conversions (Length, Weight, Volume, Temp, etc...)
155 Conversions (Concentrations, Volume/Flow or Time, Velocity, Acceleration)
156 Maximum Concentration of Contaminants for the Toxicity Characteristic

9/24/02

X-SEC names + Locations

(4) CS 4 @ Bull BD 133 (LB)

(5) CS 5 @ above Beaver dam

(6) CS 6 RB+LB upstream from
lower end of site

X-section intervals for Sample grid

length of Restoration = 3200'

≈ 4 samples per x-section (300 Samples)

3200/4 ≈ 75' 3200/75 =

$$\begin{array}{r} 2042 \\ 75 \overline{) 3200} \\ \underline{300} \\ 200 \end{array}$$

Say 40'

Bottom Section is 1200' long

(Jack Creek) ≈ 600' wide

Top section "Dill Creek" ≈ 2000'

long # ≈ 75

CS 4 to be discussed tonight

JFB

30' length interval for Jack Creek
50' " " " " " Dill Creek

7/25/02

cum - return data

Bull

CS 1 @ top of site

BFW 8' 11"
FPW 17' 5"

2x max BFW
2.2

RBF 0.0

0.4

2

0.7

3

0.7 WE

4

0.9

5

1.1

6

1.1

7

1.1

8

0.65 WE

9

0.4

10

0.0

RBF → 0.0

V/D ratio

Entrench

Camera RA3

CS1 → # 059

see page 13

4 Location _____ Date _____

Project / Client _____

Location _____ Date 9/25/02 5

Project / Client X-sec (cont)

Bull CS2 @ MT Bull BD207

	BFW	<u>9'9 1/2"</u>	2x max BFB	
	FPW	<u>48'7"</u>	<u>3.8</u>	
	RBF	0.0	X	Y
		0.75 WE	0.0	0.0
2		1.2	4"	6.4
3		1.75	1'	0.6
4		1.8	2'1"	0.85 WE
5		1.9	3'E	1.0
6		1.7	4'	1.2
7		1.2	5'	1.5
8		0.9	6'	1.8
9		0.8 WE	6'5"	2.0
10		0.6	7'	0.85
	LBF	0.0	8'	0.8
			9'	0.85 WE
11		0.4		

W/D Enrich

Camera RA3

CS2 → # 061

9'4" 0.3

(RBF 9'8" 0.0)

6 Location _____ Date _____

Project / Client _____

CS2 FWCS (see pg. 10)

LFP	0.0	20	3.4	
1	.2	21	2.6	WE
2	.15	22	2.0	
3	.8	23	1.7	RBF
4	.1	24	1.3	
5	.6	25	1.1	
6	.7	26	0.8	
7	.9	27	0.8	
8	1.0	28	0.95	
9	1.15	29	1.2	
10	1.6	30	1.1	LBF
11	2.1	31	1.2	
12	2.25	32	1.15	
13	2.5	33	1.1	WE
14	2.65	34	0.7	
15	2.9	35	0.6	
16	3.25	36	0.8	
17	3.5	37	0.7	
18	3.7	38	0.4	
19	3.5	RFP	0.0	

Location _____ Date 9/25/02 7

Project / Client X-Sec. (cont.)

Bull CS3

@ MT Bull BD214R

	BFW	11'6"		2x max	BFD
	FPW	8'1/2"		2'	
RBF	0.0		X	Y	
1	0.2		RBF	0.0	
2	0.35		1'	0.2	
3	0.5		2'	0.4	
4	0.7	WE	2'10"	0.65	WE
5	0.9		3'	0.7	
6	0.8		4'	0.9	
7	0.15		5'	1.0	
8	1.0		6'	0.9	
9	0.9		7'	0.8	
10	0.75		8'	0.8	
11	0.7	WE	9'1"	0.7	WE
12	0.25		9'6"	0.3	
LBF	0.0		10'	0.25	
			10'10"	0.15	
			11'6"	0.0	LBF
Camera RA3 # 060					

8 Location _____ Date _____

Project / Client _____

~~CSS - FIVE~~

LFP 0.0

1 0.25

2 0.5

3 0.6

4 0.7

5 0.85

6 0.6

7 0.95

8 0.4

9 0.5

10 1.0

11 1.55

12 2.0

13 2.5

14 2.3

15 3.3

16 2.6

17 2.7

18 2.6

19 2.5

20 2.1

21 1.65

22 1.0

23 0.5

24 0.25

25 0.1

26 0.05

27 0.1

28 0.15

29 0.15

30 0.4

31 0.5

32 0.65

33 0.8

34 1.0

35 1.25

36 1.4

37 1.55

38 1.7

39 1.5

40 1.4

41 1.5

42 1.3

43 0.85

44 0.7

45 0.55

46 0.4

47 0.3

48 0.2

49 0.2

50 0.25

51 0.2

52 0.15

53 0.1

RBF

WE

WE

LBF

Location _____ Date _____

Project / Client _____

9

~~CSS - FIVE (cont.)~~

54 0.15

55 0.2

56 0.15

57 0.2

58 0.15

59 0.1

60 0.0

61 0.25

62 0.4

63 0.5

64 0.55

65 0.6

66 0.6

67 0.3

RFP 0.0

Location BullionDate 9/25/02

Project / Client

CS2 - ~~FVGS~~ FPW CS

	X	Y		X	Y
RFP	0.0	0.0	WE →	27'4"	2.8
	1'	0.5		28'	2.5
	2'	0.7		29'	2.4
	4'	0.6	LBF →	29'6"	1.75
	5'	0.7		31'	1.5
	6'	0.9		32'	1.3
	7'	1.1		34'	1.1
	8'	1.3		37'	0.95
	9'	1.35		39'	0.90
	12'	1.15		40'	0.80
	13'	1.35		41'	0.50
	14'	1.05		42'	0.25
	15'	0.95		44'	0.40
	18'	1.05		45'	0.30
	19'3"	1.45		48.5'	0.0
RBF →	20'	1.95	LFP	0	0
	20'4"	2.25			
WE →	20'8"	2.8			
	21'	3.5			
	22'	3.9			
	23'	4.0			
	24'	3.9			
	25'	3.4			
	26'	3.1			

FWP
FPW = 48'6"

Project / Client

CS3 FPW CS(red w/ x-axis)

FPW = 81'2"					
X	Y	X	Y	X	Y
RFP	-0.0	24'	2.7	00	
1'	0.2	26'	2.8	48	1.7
2'	0.4	27'	2.75	49	1.5
4'	0.5	28'	2.3	50	1.5
5'	0.6	29'	2	50'10"	1.5 WE
6'	0.9	30'	1.1	51	1.0
8'	0.7	31'	0.65	52	0.9
9'	0.5	32'	0.35	53'2"	0.65 LBF
10'	0.4	33'	0.15	54	0.5
12'	0.3	36'	0.1	56	0.4
14'	0.4	38'	0.2	57	0.3
15'	0.45	39'	0.5	65	0.3
15'7"	0.55	40'	0.6	71	0.2
16'	0.9	41'	0.75	72	0.3
17'	1.3	41'8"	0.85 RBF	73	0.4
18'	1.8	43'	1.1	74	0.5
19'	1.9	44'	1.3	77	0.6
20'	2.25	44'7"	1.5 WE	79	0.4
21'	2.6	45'	1.6	80	0.25
22'	2.3	46'	1.6	81'2"	0.0
23'	3.4	47'	1.8	LFP	

12

Location

Date

Project / Client

CS3 → FPWCS (Cont.)

Location

Bullion

Date

9/25/02 13

Project / Client

CS1 - Redo

Bank Full

	X	Y	
RBF	0	0	
	3"	0.2	
	6"	0.4	
	1'	0.5	
WE →	2' 4"	0.7	
	3'	0.85	
	4'	1.0	
	5'	1.1	
	5' 8"	1.15	
WE →	6'	0.7	
	7'	0.45	
	8'	0.4	
LBF →	8' 8"	0.0	

BFW = 8' 8"

1 14 Location Bullion Date 9/25
 Project / Client CS1 - FFW
(S) Flood Prone width

	X	Y	X	Y
RFPW	0	0		
	1'	0.2		
	2'	0.3		
	3'	0.45		
	4'	0.55		
	5'	0.70		
	6'	0.70		
	6' 8"	1.1		
RBF →	7' 7"	1.3		
	8'	1.6		
	9'	1.8		
WE →	10'	2.0		
	11'	2.2		
	12'	2.4		
WE	13'	2.5		
WE →	13' 9"	2.0		
	15'	1.75		
LBF	16'	1.60		
	16' 3"	0.50		
	17' 0"	0.20		
LFPW	17' 7"	0		

FPW = 17' 7"

Location Bullion Date 9-25 15
 Project / Client CS 4 - BFW

Bank full

	X	Y	
RBF	0	0	
	7"	0.20	
	1'	0.30	
	2'	0.40	
WE	3' 1"	0.65	
	4'	0.95	
	5'	1.15	
	5' 4"	1.30	
	6'	1.15	
	7'	0.85	
WE →	7' 7"	0.70	
	8'	0.60	
	9'	0.35	
LBF	9' 5"	0	

RA3 - Photo 62

Bank full width = 9' 5"

16

Location

Bullion

Date

9-25-02

Project / Client

CS4-FPW

Flood Prone

RFPW

RFPW

X

Y

0

0

1'

0.55

2'

1.40

3'

1.60

4'

1.78

5'

2.00

WE →

5'7"

2.15

6'

2.35

7'

2.60

8'

2.75

9'

2.65

10'

2.40

WE →

9'9"

2.20

11'

2.20

11'3"

2.15

12'

1.60

12'6"

1.35

13'

0.95

LFPW

13'4"

0

Flood Prone

width = 13'4"

Location

Bullion

Date

9-25-02

17

Project / Client

CS-5 - Bank Full

RBF

X

Y

0

0

5"

0.25

10"

0.45

1'6"

0.50

3'

0.50

5'

0.60

7'

0.65

WE →

8'6"

0.80

9'

0.95

10'

0.95

11'

1.05

12'

1.20

13'

1.25

14'

1.35

15'

1.35

15'9"

1.45

17'

1.35

18'

1.10

WE →

18'5"

0.90

19'

0.80

20'

0.55

21'

0.50

21'10"

0.35

LBF

22'3"

Y

0

Photo 063
RA3Bank Full
width = 22'3"

Location

Bellion

Date

9-25-

Project / Client

CSS - Flood Prone

RFPW

X Y

0 0

8" 0.45

1' 1.00

2' 1.40

3' 1.55

6' 1.45

7' 1.40

8' 1.35

9' 1.20

10' 1.15

11' 1.05

14' 1.15

15' 1.20

16' 1.30

17' 1.45

18' 1.55

19' 1.30

20' 1.25

21' 1.60

22' 1.80

23' 2.05

24' 2.20

26' 2.30

28' 2.15

RBF → 41' 8"

WE → 51'

WE → 60' 3"

X Y

29' 2.0

33' 1.95

34' 1.90

35' 1.85

37' 1.65

39' 1.55

41' 8" 1.50

42' 4" 1.80

43' 2.05

45' 2.00

47' 2.10

48' 2.15

50' 2.25

51' 2.40

52' 2.50

53' 2.55

54' 2.75

55' 2.70

56' 2.80

57' 2.70

57' 10" 2.90

59' 2.70

60' 3" 2.45

Location

Bellion

Date

9-25-02

Project / Client

CSS - Flood Prone

(cont.)

X Y

61' 2.2

62' 1.9

63' 7" 1.75

63' 10" 1.55

LBF → 64' 1" 1.35

64' 6" 1.10

64' 9" 0.60

65' 6" 0.25

66' 1" 0

Flood Prone
width =
66' 1"

Bullion

9-25

CS-6 - Bank Full

X Y

RBF

0 0

5" 0.4

9" 0.5

1' 0.6

2' 0.75

3' 0.85

4' 0.85

WE → 4'8" 0.90

5' 1.0

6' 0.9

7' 1.05

8' 1.05

9' 1.15

9'5" 1.25

10' 1.55

10'6" 1.05

WE → 10'9" 0.83

11' 0.75

LBF → 11'5" 0

Bankfull =
11'5"Flood prone
width = 64' 11"Photo 064
RA3

Bullion

9-25-02

CS-6 Flood Prone

	X	Y		X	Y
RFP	0	0		37'	1.60
	1.0	0.25		38'	1.90
	3'	0.3		39'	2.15
	5'	0.4		40'	2.10
	7'	0.5	WE → 42'		2.20
	11'	0.7		43'	2.30
	12'	0.9		45'	2.35
	14'	0.95		46'	2.50
	16'	0.80		47'	2.50
	17'	0.60	WE → 48'1"		2.20
	20'	0.70		48'5"	1.50
	23'	1.10	LBF → 48'7"		1.20
	24'	1.20		49'	0.95
	24'5"	1.60		50'	0.75
	25'	2.70		51'	0.50
	27'	2.30		52'	0.60
	28'	1.90		53'	0.70
	29'	1.75		54'	0.65
	32'	1.60		57'	0.55
	33'	1.40		58'	0.40
	34'	1.30		61'	0.30
	35'	1.10		63' 2	0.20
RBF →	36'6"	1.30	LFP →	64'11"	0

22 Location _____ Date _____
Project / Client _____

Location _____ Date _____
Project / Client CS4-FPW

23

RFPW	X	Y
	0	0
1'		0.4
2'		0.3
3'		0.2
4'		0.35
5'		0.11
6'		0.12
7'		0.8
8'		3.4 - 2.1
9'		3.5 - 2.1
10'		3.6
11'		3.4
12'		2.85
13'		2.98
14'		3.2
15'		2.8
16'		2.8
17'		2.8
18'		2.7
19'		2.4
20'		2.05
21'		2.05

24

Location

Bullion

Date

9-26-02

Project / Client

CS4 - Flood Prone width

Actual

~~22' 1.85 -0.25~~~~23' 1.85 -0.25~~~~24' 2.4 -0.30~~

X Y Actual (-2.10)

RFW?

0 2.1 0

1' 2.5

2' 2.4

3' 2.4

4' 2.55

5' 2.75

6' 2.90

7' 3.10

8' 3.50

9' 3.55

10' 3.50

11' 3.25

12' 2.80

13' 2.90

14' 3.10

15' 2.75

16' 2.70

17' 2.65

18' 2.55

Location

Bullion

Date

9-26-02

25

Project / Client

CS4 - FPR (cont.)

Flood Prone width

X Y Actual (-2.10)

19' 2.2 0.1

20' 1.95 -0.15

21' 1.95 -0.15

22' 1.65 -0.45

23' 1.70 -0.40

23' 10" 2.10 0

25' 0.55

26' 1.40

27' 1.60

28' 1.70

29' 2.00

WE → 29' 5" 2.15

30' 2.35

31' 2.60

31' 8" 2.75

32' 2.65

33' 2.40

WE → 33' 9" 2.20

34' 2.15

35' 1.60

35' 6" 1.35

36' 0.95

LFPW → 36' 4" 0

Flood
Prone
width =
36' 4"

CSS - Flood Prone width

RFPW

X	Y	Actual (-2.30)
0	0	0
1'	2.4	0.10
2'	2.58	0.28
3'	2.75	0.45
4'	2.60	0.30
5'	2.53	0.25
6'	2.55	0.25
7'	2.40	0.10
8'	2.15	-0.15
9'	2.33	0.03
10'	2.20	-0.10
11'	2.55	0.25
12'	2.60	0.30
13'	2.80	0.50
14'	3.10	0.80
15'	3.20	0.90
16'	3.15	0.85
17'	3.35	1.05
18'	3.35	1.05
19'	3.75	1.45
20'	3.40	0.10
21'	3.28	-0.02
22'	3.10	0.80

CSS - FPW

(cont.)

X	Y	Actual (-2.30)
23'	2.85	0.55
24'	2.53	0.23
25'	2.43	0.13
26'	2.00	-0.30
27'	1.78	-0.52
28'	1.50	-0.80
29'	1.55	-0.75
30'	1.65	-0.65
31'	1.88	-0.42
32'	2.05	-0.25
33'	2.30	0
33'8"		0.45
34'		1.00
35'		1.40
36'		1.55
39'		1.45
40'		1.40
41'		1.35
42'		1.20
43'		1.15
44'		1.05
47'		1.15
48'		1.20

Tail map &
higher elev
beyond
FPW + means
hydrology
was checked

com 4 on
pg. 30

Long Level to Thelway = 3.5' 3.5

LL to BFR = 2.8'

BFL = 2.8'

Thelway to BFD = 0.7'

Thelway to FPD = 1.4'

Subtract 2.1' to
get Depth to FP

	X	Y		over flow channel
FPR	0'	2.1	0	
	1'	1.95	-.15	
	2	1.93	-.17	
	3	1.90	-.20	
	4	1.92	-.18	
	5	1.92	-.18	
	6	1.90	-.20	
	7	2.0	-.10	
	8	2.0	-.10	
	9	2.05	-.05	
	10	2.20	+1.0	
	11	2.32		
	12	3.34		
BFR	12.5	2.8		

	X	Y		X	Y
	13	2.87		32	2.2
WER	13.7	3.3		33	2.22
	14	3.7		34	1.09
	15	3.4		35	2.3
	16	3.7		36	2.35
	17	3.42		37	2.24
	18	3.47		38	2.15
	19	3.42		39	2.10
	20	3.28		40	2.21
	21	3.18		41	2.31
WEL	21.3	3.15		42	2.30
	22	3.05		FPL 42.9	2.10
	23	3.06			
	24	2.6			
BFL	25	2.75			
	26	2.07			
	27	1.93			
	28	2.04			
	29	2.13			
	30	2.12			
	31	2.12			

Location _____ Date _____

Project / Client _____

X	Y
49'	1.30
50'	1.45
51'	1.55
52'	1.30
53'	1.25
54'	1.60
55'	1.80
56'	2.05
57'	2.20
59'	2.30
61'	2.15
62'	2.0
66'	1.95
67'	1.90
68'	1.25
	1.65
	1.50
	1.80

Dallion

Location

Jack Ck

Date

9/28/02

31

Project / Client

CS8

RA3 #116

FPW + BFW

#117

RFP	0'	0.0	BFW = 10'
	1	0.4	7"
	2	0.8	10' 10"
	2' 5"	1.4	19' 1.65
	3	1.6	20' 1.7
	4	1.9	22' 1.5
RBF	4' 8"	2.0	23' 1.45
	5	2.4	24' 1.2
RWE	5' 3"	2.65	25' .95
	6	2.7	26' .75
	7	2.8	27' .7
	8' 2"	2.85	28' .6
	9	2.85	29' .1
	10	(3.1)	29' 6" 0.0
	11	2.5	
LWE	11' 9"	2.65	LFP
	13	2.45	(FPW)
	13' 6"	2.15	
	14' 6"	1.95	
LBF	15' 2"	2.0	
	16	1.8	
	17	1.7	
	18	1.7	

32

Location _____

Date _____

Project / Client _____

Location _____

RA3

Date _____

33

Project / Client _____

9/28/02

127

* Soil pit on downstream side
of beaver dam on right
flood plain.

#128

* Soil pit on upstream
side of beaver dam on
right flood plain.

10

Location BullionDate 9/25/02

Project / Client

C52 - ~~FWP~~ FWP CS

	X	Y		X	Y
RFP	0.0	0.0	WE →	27'4"	2.8
	1'	0.5		28'	2.5
	2'	0.7		29'	2.4
	4'	0.6	LBF →	29'6"	1.75
	5'	0.7		31'	1.5
	6'	0.9		32'	1.3
	7'	1.1		34'	1.1
	8'	1.3		37'	0.95
	9'	1.35		39'	0.90
	12'	1.15		40'	0.80
	13'	1.35		41'	0.50
	14'	1.05		42'	0.25
	15'	0.95		44'	0.40
	18'	1.05		45'	0.30
	19'3"	1.45		48.5'	0.0
RBF →	20'	1.95	LFP	0	0
	20'4"	2.25			
WE →	20'8"	2.8			
	22'	3.5			
	22'	3.9			
	23'	4.0			
	24'	3.9			
	25'	3.4			
	26'	3.1			

~~FWP~~
 FWP = 48'6"

Location

Date

11

Project / Client

C53 FWP CS

(red w/ x-axis)

FPW = 81'2"					
X	Y	X	Y	X	Y
RFP	-0.0	24'	2.7		
1'	0.2	26'	2.8	48	1.7
2'	0.4	27'	2.75	49	1.5
4'	0.5	28'	2.3	50	1.5
5'	0.6	29'	2	50'10"	1.5 WE
6'	0.9	30'	1.1	51	1.0
8	0.7	31'	0.65	52	0.9
9	0.5	32'	0.35	53'2"	0.65 LBF
10	0.4	33	0.15	54	0.5
12	0.3	36	0.1	56	0.4
14	0.4	38	0.2	57	0.3
15	0.45	39	0.5	65	0.3
15'7"	0.55	40	0.6	71	0.2
16'	0.9	41	0.75	72	0.3
17	1.3	41'8"	0.85 RBF	73	0.4
18	1.8	43	1.1	74	0.5
19	1.9	44	1.3	77	0.6
20	2.25	44'7"	1.5 WE	79	0.4
21	2.6	45	1.6	80	0.25
22	2.3	46	1.6	81'2"	0.0
23	3.4	47	1.8		

↑
 LFP

15 sediment samples
evenly spaced across
channel deposited
to yield sed sample

1) pH = 5.79
@
49°C

Bullion CS-1 H₂O Sample

11:00 AM 09/27/02

TCM
CF

BFR = 0 0
Wetted Edge R = 82 cm Wetted Edge
WFL = 189 cm 107 cm
BFL = ~~267~~ 267

cm	ft (depth to line)	ft (bottom to line)
85	0.60	.08 (bottom to line)
95	0.7	.18
105	0.8	.28
115	0.84	.32
125	0.88	.36
135	0.92	.40
145	0.95	.43
155	0.96	.44
165	0.94	.42
175	0.96	.44
185	0.54	.14

0.40 = bottom to 160 Edge
subtract 0.52 to
get

AVG Velocity (12 seconds interval)

0.0 avg velocity
0.54 mi in 120 sec

pH =
5.61
@
49°F

try 2 0.0 avg
0.39 mi in 120 sec

Bullion Mine

Basin Quad

lead, arsenic,
cadmium

(MT-BULL)

prelitor
samples.

X-XRF

L-Lab

Safety and Site Recon.

- Safety meeting

Mon. 9/23/02

9:32 am

- talk about landsfall, lateral extent of riparian zone, upper + lower site boundaries, polygon boundaries, X-section sites, soil/twigs sample sites. (label flows and write abbrev. in notebook for reference.)
- look @ Jacobs Creek reference reach above confluence w/ "Jill" Creek.

Acc.

71 ft

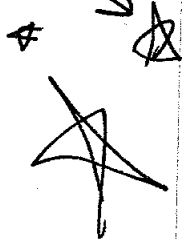
etex -

Polygon delineations

9/23/02

- Wpt 001 → confluence of Jacobs + Jill
- Wpt 002 → lower end of bottom polygon/FS
- Wpt 003 → lower poly 1 / upper 2 boundary.
- Wpt 004 upper poly 1 / upper site bound.
- Wpt 005 lower poly 1 Jacobs Ck (ref. site)
- Wpt 006 upper " " " " " "

* make sure different polygons



location of old beaver dams.

most twigs were dropped.

explain # of shallow

Scum channels as well

slow water / wide
disturbed where

near pin 001

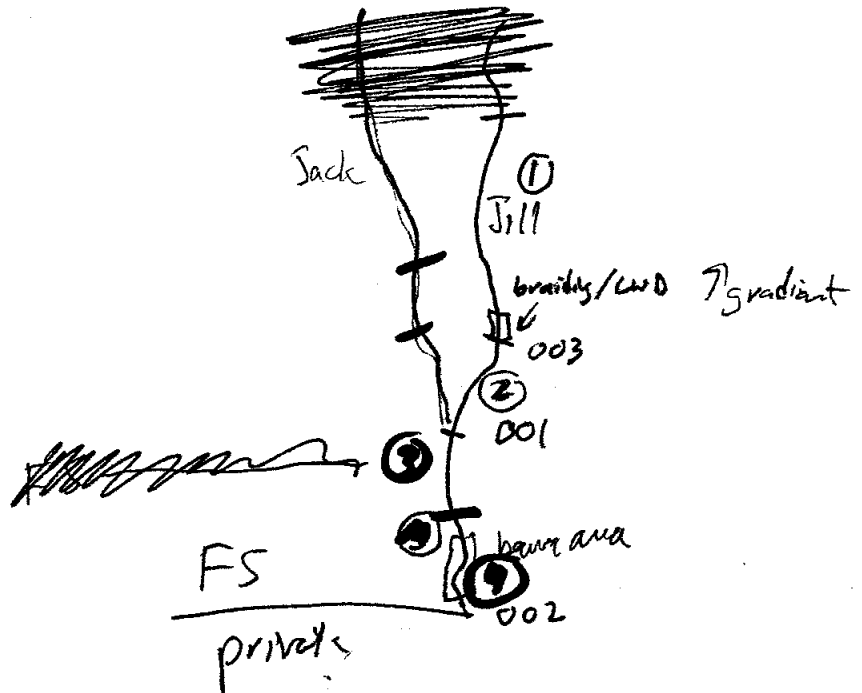
+ downstream too

RA3 Pics 9/23/02

057 - old heavier chains in tules (left bank)
bottom poly.

058 - bottom end of bottom polygram. - logs across creek

polygram



12

Location _____

Date _____

Project / Client _____

CS3 → EPWCS (Cont.)

Location _____

Bullion

Date _____

9/25/02 13

Project / Client _____

CS1 - Redo

Bank Full

	X	Y	
RBF	0	0	
	3"	0.2	
	6"	0.4	
	1'	0.5	
WE →	2' 4"	0.7	
	3'	0.85	
	4'	1.0	
	5'	1.1	
	5' 8"	1.15	
WE →	6'	0.7	
	7'	0.45	
	8'	0.4	
LBF →	3' 8"	0.0	

BFW = 8' 8"

Location Bullion Date 9-26-02
 Project / Client Features of Interest

~~Bull-MT-002~~

4" unknown material @ East end. (right)

6" tailings in center + 3' + tailings near stream

6" tailings below at west edge (near boulders)

~~BULL-MT-003~~

stream bank (left) directly across from 002.

Next to BULL-BD-107

Description: Dry channel on west side of stream - tailings piles disappeared thruout it.

Tailings depth to 1.5'

Location Bullion Date 9-26-02
 Project / Client _____

* Take extra sediment sample below Bull-MT-003

~~this~~ Creek in this area is full of dead wood.

log jam area extends from CS 2 to upstream 150' = possible feature of interest

Should we test dead wood for arsenic?

Photos (RA2)

1: Depth of tailings below log jam (CF in photo)

2: Looking south (upstream) into log jam (GM) in photo)

* Take samples from overflow channel - Rt. side of Sill by Bull-BD-208. Side channel links to Sill.

Location Bullion Date 9.26.02
 Project / Client features of interest

~~BULL-MT-004~~ } Log jam directly
 below MT-004

East. Flag on ~~east~~
 side of stream
 site is littered with

Tailings depth: fallen logs

Tailings:

~~BULL-MT-005~~

- High concentration
 of tailings on both sides
 of Jill creek.

Location: coincides with
 BOLL-BD-116.

Line of vegetation ^{tailings}
 evident below on both
 sides of creek.

Tailings:
Depth:

Location _____ Date _____
 Project / Client _____

~~BULL-MT-006-N~~
 Sub-~~str~~ poly reach

* Will rename Jill creek "FOI"
 to sub-poly reaches - each
 area describes a section of
 stream characteristics.

Subreach 007 = delta area
 just above confluence
 w/ Jack

1 14 Location Bullion Date 9/25
 Project / Client CS1- FFW
CSI Flood Prone width

	X	Y	X
RBPW	0	0	
	1'	0.2	
	2'	0.3	
	3'	0.45	
	4'	0.55	
	5'	0.70	
	6'	0.70	
	6' 8"	1.1	
RBF →	7' 7"	1.3	
	8'	1.6	
	9'	1.8	
WE →	10'	2.0	
	11'	2.2	
	12'	2.4	
WE →	13'	2.5	
WE →	13' 9"	2.0	
	15'	1.75	
LBF	16'	1.60	
	16' 3"	0.50	
	17' 8"	0.20	
LFBW	17' 7"	0	

LEFW
FPW = 17' 7"

Location Bullion Date 9-25 15
 Project / Client CS 4 - BFW
Bank full

	X	Y	cha
RBF	0	0	
	7"	0.20	
	1'	0.30	
	2'	0.40	
WE	3' 1"	0.65	
	4'	0.95	.3
	5'	1.15	.5
	5' 4"	1.30	
	6'	1.15	
	7'	0.85	
WE →	7' 7"	0.70	
	8'	0.60	
	9'	0.35	
LBF	9' 5"	0	

RA3 - Photo 62

Bank full width =
9' 5"

BULLSR005 → Upper reach near
BULLB0117.
Characterized as a log jam -
moderate slope.

BULLSR006 → moderate ^{slope} log/
boulder cascade.

✓ BULLSR007 - stream delta -
heavily braided. Ends at
gill / gack confluence.

CS 2

LBF ~~289~~ 298
RBF ~~289~~ 291
R-WE ~~273~~ 15
LWE 60 233
10 213 cm 218

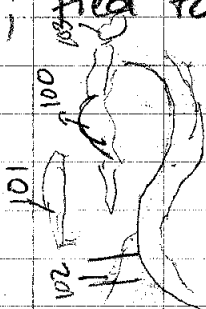
Measure every 22 cm

Mark	Depth
70	71
91	92
112	113
133	134
154	155
175	176
196	197
217	218
238	239
259	260

12

Location BullionDate 9-26Project / Client FOI

BULL-MT-100 & Tailing piles - tied to
 BULL-MT-101 > surveyor stake
 BULL-BP-102R - right side of
 beaver dam; tied to surveyor's
 stake.



BULL-MT-103 is next to sample
 BT 10123

13

Location BullionDate 9-26Project / Client Sob Reaches

Delineated w/ a white flag at
 upper end of creek

BULLSR001 → Defines the
 upper edge of subreach
 (top of Gill Crk).
 Characterized as "boulder/
 step pool moderate
 incline

BULLSR002 → starts about 300'
 below top of Gill.
 Characterized as a steep
 boulder / log cascade sequence.

BULLSR003 → woody debris
 sequence. Flagged at
 upper end.

BULLSR004 → starts below
 log jam. Boulder / step pool,
 moderate incline

Location Bullion Date 9-26-02
 Project / Client Flag (perimeter)
Count

Right Bank - confluence =
 BD 220 R
 Jillcrk, BD 219 R → start at
confluence
 BD 215.75 R - bottom
 BD 215 R

Top of Jill Creek = BD 200 R

Bottom of Jack = BD 299 R
 last flag on Jack before
 confluence = BD 288 R

Jill Crk = 220 (confluence) to
 200

Jack = 288 to 299

Location Bullion Date 9-26-02
 Project / Client Features of interest
(white flags)

~~Bull-MT-001~~ Survey volume of
 visible tailings
 Mine tailings on right
 bank - top of Jill Crk
 4 white pin flags
 denote corner
 boundaries

Depth
 East (top) 1" organics, 1" tailings
 10' from east end, 1" organics (top)
 4" tailings
 20' from east end, 4" tailings (top)
 6" organics

20' top 1'6" has tailings