

RIDGE CAVE SURVEY 20.7.86

labelled 'H' 51

Book: Urs; Instruments: Dan; Tape: Paul B.

From head of Hammerhead Pitch to Crystal Chamber

Station 1 is the last station of the 1985 survey

	Tape	Compass	Clino	At Station	Station height	Passage width	Existing	Northing	± sup	Station	relative to Station 1		
							Δx	Δy	Δz		X	Y	Z
1-2	1/45	304	-18				-1.14	+0.77	-0.45	2	-1.14	+0.77	-0.45
2-3	20/20	255	-83				-2.38	-0.64	-20.05	3	-3.52	-0.13	-20.50
4-3	18/16	105	+54	4		= 3/0	+10.31	-2.76	+14.69	4	+3.83	+2.90	-35.19
5-4	12/71	132	+02	5	2/0		+9.44	-8.50	+0.44	5	-23.27	+11.40	-35.63
5-6	32/00	187	+31				-3.34	-27.22	+16.48	6	-26.61	-15.83	-19.15
4-7	3/85	077	-38	7	= 1/5		+2.96	+0.68	-2.37	7	-10.88	+3.58	-37.56
7-8	9/01	141	-29	8	= 1/0		+4.96	-6.12	-4.37	8	-5.92	-2.55	-41.93
7-9	9/68	187	-18				-6.12	-9.14	-2.99	9	-12.00	-5.56	-40.55
10-9	6/11	082	+57	10	= 1/2	= 1/5	+3.30	+0.46	+5.12	10	-15.29	-6.02	-41.68
11-10	5/37	075	+50				+3.33	+0.89	+4.11	11	-18.63	-6.92	-41.79
12-11	15/55	042	+75				+2.69	+2.99	+15.02	12	-21.32	-9.91	-64.81
12-13	7/39	271	-42				-5.49	-0.10	-4.94	13	-26.81	-9.81	-69.75
13-14	13/41	315	-51	14	= 2/0	= 3/0	-5.97	+5.97	-10.42	14	-32.78	-9.84	-80.18
14-15	10/80	031	-32				+4.72	+7.85	-5.72	15	-28.06	+4.01	-85.90
15-16	11/11	009								16	-28.75	+10.55	-99.76
15-16	13/56	354	-61	16	= 1/5	= 1/5	-0.69	+6.57	-11.86	16	-27.27	+13.85	-103.65
16-17	11/11	009	-32	17	= 2/5	= 5/0	+1.47	+9.31	-5.89	17			

NB, Δx , Δy , Δz are always from the

first-named to the second-named station.

They are added to x,y,z for forward legs

and subtracted for backward ones.

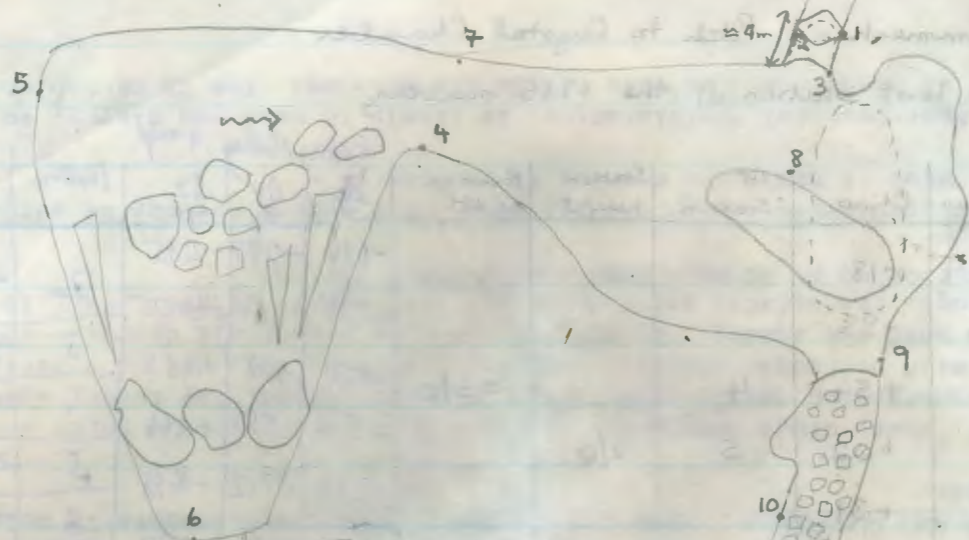
(Accumulation is done with full accuracy of calculator, which may (after rounding

to cm) lead to apparent discrepancies

in the last place - don't let this bother you)

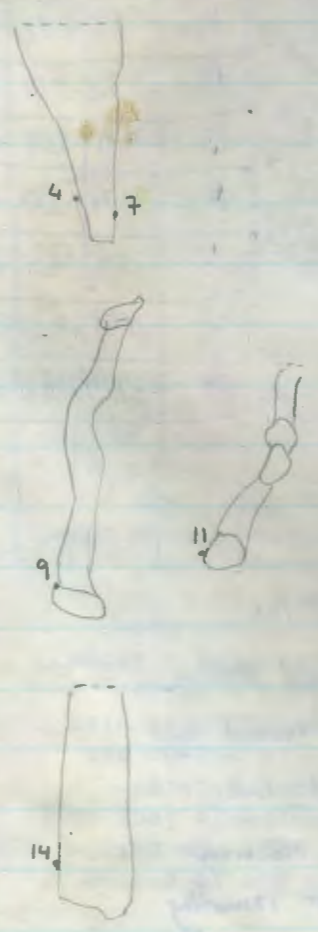
52

BIG BELUGA



← This is a hole in the wall three feet up from the ledge which has not been pushed.

CROSS-SECTIONS



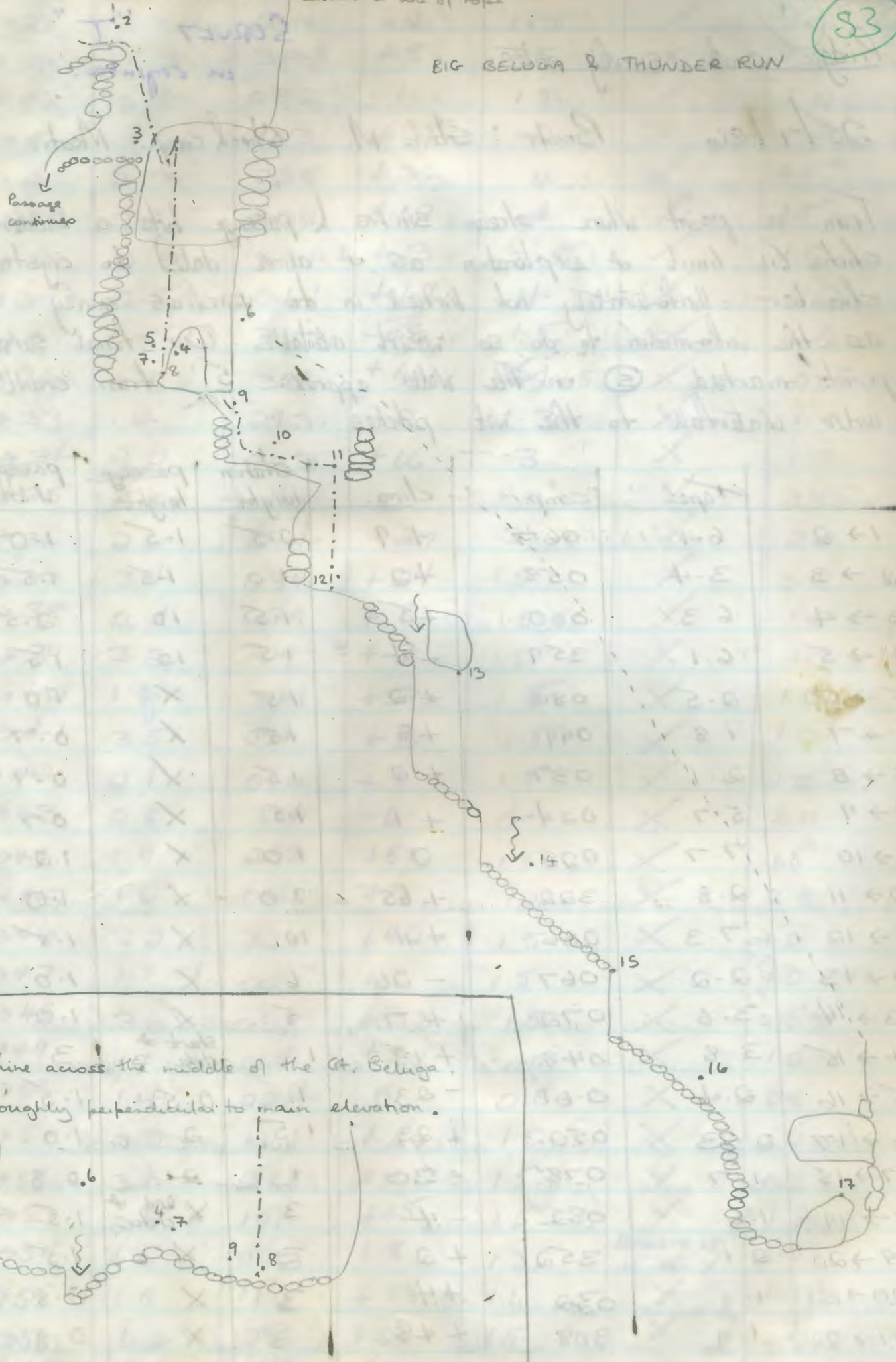
CRYSTAL CHAMBER or
WATERFALL CHAMBER or
whatever you're going to call it.

RIDGE CAVE SURVEY

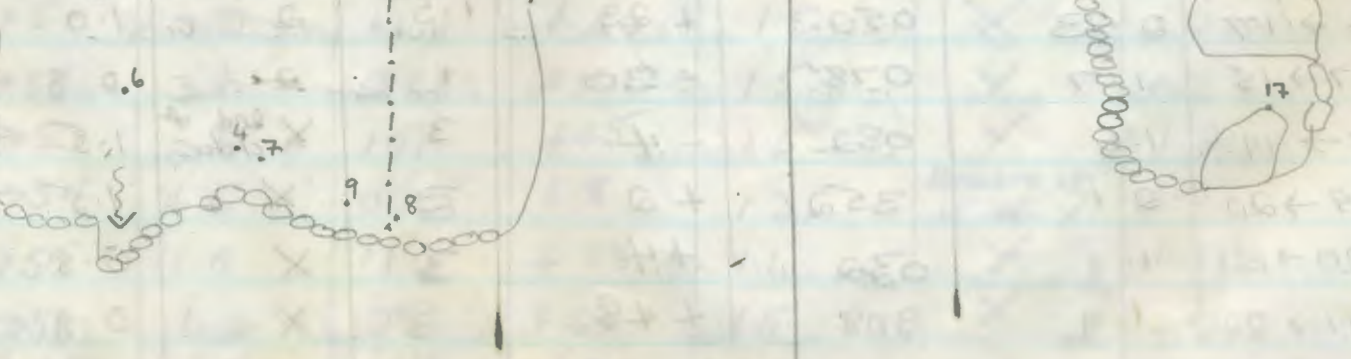
Station	Time	Notes
1	1:15	2-1
2	1:25	2-2
3	1:40	2-3
4	1:55	2-4
5	2:10	2-5
6	2:25	2-6
7	2:40	2-7
8	2:55	2-8
9	3:10	2-9
10	3:25	2-10
11	3:40	2-11
12	3:55	2-12
13	4:10	2-13
14	4:25	2-14
15	4:40	2-15
16	4:55	2-16

BIG BELUGA & THUNDER RUN

--- = line of rope



line across the middle of the Gr. Beluga, roughly perpendicular to main elevation.



Ridge cave survey notes.

25/7/86 Book: Steve M. Chirok camp. Martin

From a point where stream sinks & passage hits a boulder
choke (ie limit of exploration as of above dated) to crystal
chamber. Unfortunately not linked in ~~the~~ previous survey
as the information to do so wasn't available. Our final survey
point marked (S) on the wall approx. 5' from crawl
under waterfall to the wet pitches.

	Tape	comp.	clino.	Station height	passage height	passage width
1 → 2	6.1	067	+9	0.5	1.5	1.0
2 → 3	3.4	058	+2	1.0	1.5	1.5
3 → 4	6.3	080	+5	7.5	10	2.5
4 → 5	6.1	359	-4	1.5	10	1.5
5 → 6	2.5	080	+2	1.5	X	1.0
6 → 7	1.8	099	+8	1.5	X	0.7
7 → 8	2.1	037	+2	1.5	X	0.7
8 → 9	5.7	024	+1	1.5	X	0.7
9 → 10	7.7	022	0	1.0	X	1.2
10 → 11	2.8	322	+65	3.0	X	1.0
11 → 12	7.3	086	+11	10	X	1.5
12 → 13	2.2	067	-26	6	X	1.0
13 → 14	3.6	072	+7	5	X	1.0
14 → 15	3.8	048	+19	1	start of choke 3	3
15 → 16	2.4	0.61	-23	1	0.5	1.5
16 → 17	2.3	050	+23	1.5	2	1.0
17 → 18	1.7	078	-30	1	2	0.8
18 → 19	1.6	082	-4	3	X end of choke	1.5
19 → 20	2.1	352	+2	3	X	1.5
20 → 21	1.9	032	+4	3	X	0.8
21 → 22	1.9	308	+48	3	X	0.8

22 → 23	3.7	267	-4	1.5	X	1.5
23 → 24	1.3	349	+8	1.5	X	1.0
24 → 25	2.8	082	-1	1.5	X	1.0
25 → 26	1.5	113	+35	2	X	1.0
26 → 27	2.7	038	+32	4	X	1.5
27 → 28	2.1	032	+10	4	X	1.5
28 → 29	2.8	304	+3	3.5	X	1.0
29 → 30	2.5	041	+12	4	X	1.0
30 → 31	2.5	317	-49	1.5	X	1.0
31 → 32	2.1	359	+12	1.5	X	0.8
32 → 33	1.4	293	-2	1.3	X	1.0
33 → 34	2.0	323	+6	3	X	1.0
34 → 35	5.0	002	0	1.3	X	2.0
35 → 36	2.6	294	+27	3	X	2.0
36 → 37	3.4	034	+24	1.5	X	0.8
37 → 38	2.1	039	+8	1.5	X	1.0
38 → 39	3.2	309	+3	1.5	X	0.8
39 → 40	1.6	341	+7	1.5	X	1.0
40 → 41	3.5	094	+3	1.5	X	1.0
41 → 42	2.1	040	+1	1.5	X	1.0
42 → 43	2.8	334	-6	0.7	X	1.0
43 → 44	1.9	283	+51	1.5	X	1.5
44 → 45	1.6	030	+3	1.0	X	0.8
45 → 46	2.2	320	+42	1.5	X	2.0
46 → 47	1.1	007	+6	1.5	X	1.0
47 → 48	3.1	038	+23	1.5	X	0.5
48 → 49	1.1	064	+20	1.0	X	1.0
49 → 50	1.4	024	0	0.8	X	0.8
50 → 51	2.2	101	+60	1.5	X	1.2
51 → 52	3.1	081	+47	1.5	X	1.2
52 → 53	2.5	101	+45	1.5	X	1.2
53 → 54	4.6	023	+8	1.3	Boulders at 15 ft X	1.0
54 → 55	1.8	112	+18	1.1	X	1.2
55 → 56	1.2	088	+28	1.5	X	1.0
56 → 57	1.7	104	+32	2.2	X	1.0

57→58	4.5 (56)	087	+20	1.5	X	1.2
58→59	1.8	119	+4	1.5	X	1.2
59→60	2.1	145	+26	1.6	X	1.2
60→61	4.2	125	+28	1.0	X	1.2
61→62	3.3	117	+24	1.7	X	2.5
62→63	8.9	147	+78	1.5	1	1.5
63→64	5.8	120	+23	1.5		4
64→65	16.8	\	Vertical i.e. up 333	0.5	1.5	3.5
65→66	6.6	220	+45	1.2	3	2
66→67	3.5	062	+12	2	40	14

ALL READINGS TAKEN UPSTREAM TOWARDS ENTRANCE.

See extra leg to join over page.

N.B. @ survey station data refers to the station being surveyed to.

ⓧ — means height of passage unknown (a dashed line at approx 15-20m. probably appropriate?)

For most of survey, diagrams were not made as they were pretty useless. However the following information can be included.

- ① Poles between 2 and 9
- ② Inlet at station 10 from RHS facing down stream bearing approx 280

③ Between 15 and 19 the stream hits a choke and the route is between boulders approx 5-8 m above stream.

Also between 15 and 16 are two inlets on RHS facing downstream.

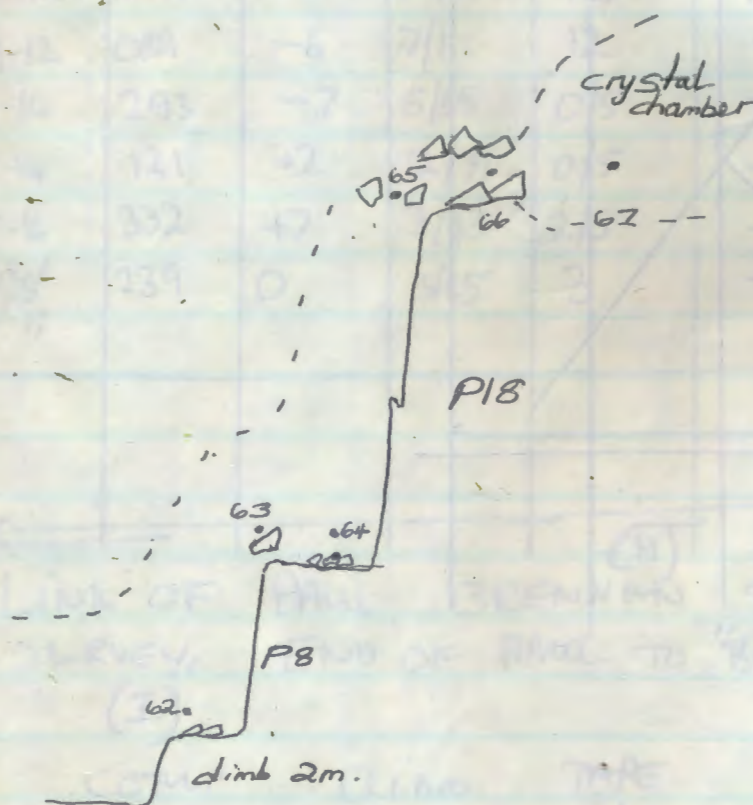
④ Between 36 and 37 is 1.5m drop into pool

⑤ Small inlet on RHS facing downstream at 51

⑥ 62 → 63 is 2nd pitch in streamway ⇒ 8m.

⑦ Between 63 and 64 is an inlet on LHS facing downstream.

⑧ 64 → 65 is 1st pitch in streamway ⇒ 18m.



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Ridge core - Sump chamber.

P. DUNCAN

D. MORSELEY

26/7/86

Comp 514447

CLINO 510270

No	COMPAS	CLINO	TAPE	PASSAGE LENGTH	PASSAGE HEIGHT	STATION HEIGHT
0 → 1	132	-31	2/6	1/2	-	0/5
1 → 2	113	+21	2/6	0/9	-	-
2 → 3	128	+8	2/6	1/9	-	-
3 → 4	202	-19	2/6	2/35	-	0/2
4 → 5	222	+5	2/6	1/3	-	0/3
6 → 5	065	-29	2/12	-	-	2/1
6 → 7	241					
9 → 8	200					
9 → 10	064					
11 → 10	216					
11 → 12	072					
13 → 12	224					
13 → 14	089					
15 → 14	293					
15 → 16	121					
17 → 16						

BOULDER
CHOKE
SQUEEZE

LINK
BETWEEN
PAUL BREN
+
STEVE MORSELEY'S
SURVEY

009

+32

2/6

-

-

-

From PAULS → STEVE'S STATIONS

Ridge Cave Sump chamber (take II)

No	COMP	CLINO	TAPE	P.W	PH	S.H	
0-1	132	-31	1/2				
1-2	113	+21	0/9				
2-3	128	+8	1/9				
3-4	202	-19	2/35				
4-5	222	+5	1/3				
6-5	065	-29	2/72				
6-7	241	-5	14/01	7/4	2	1/97	← not which station??
7-8	200	-50	3/18	7/4	2	0/2	←
9-8	064	-2	17/8	-	-	-	←
9-10	216	+3	8/22	8	10	2	←
11-10	072	-9	12/55	12	10	2	←
11-12	224	-8	13/5	12	13	1/5	←
13-12	089	-6	7/1	12	-	2/5	←
13-14	293	-7	5/65	0/5	-	1/5	←
15-14	121	+2	2/71	0/5	-	1/3	←
15-16	332	+7	3/43	2/5	-	1/6	←
15-16 16-17	239	0	3/45	3	-	1/6	←

Boulder choke
squeeze

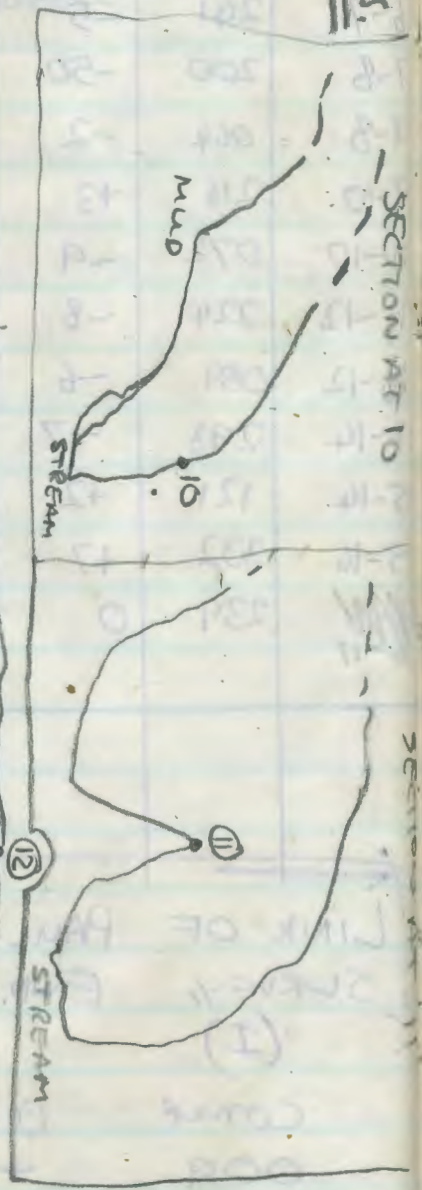
LINK OF PAUL BRENNAN SURVEY TO STEVE MAYERS SURVEY, END OF PAUL TO "BEGINNING" OF STEVE: (I) (H) (into cave)

COMP 009 CLINO +32 TAPE 2/6

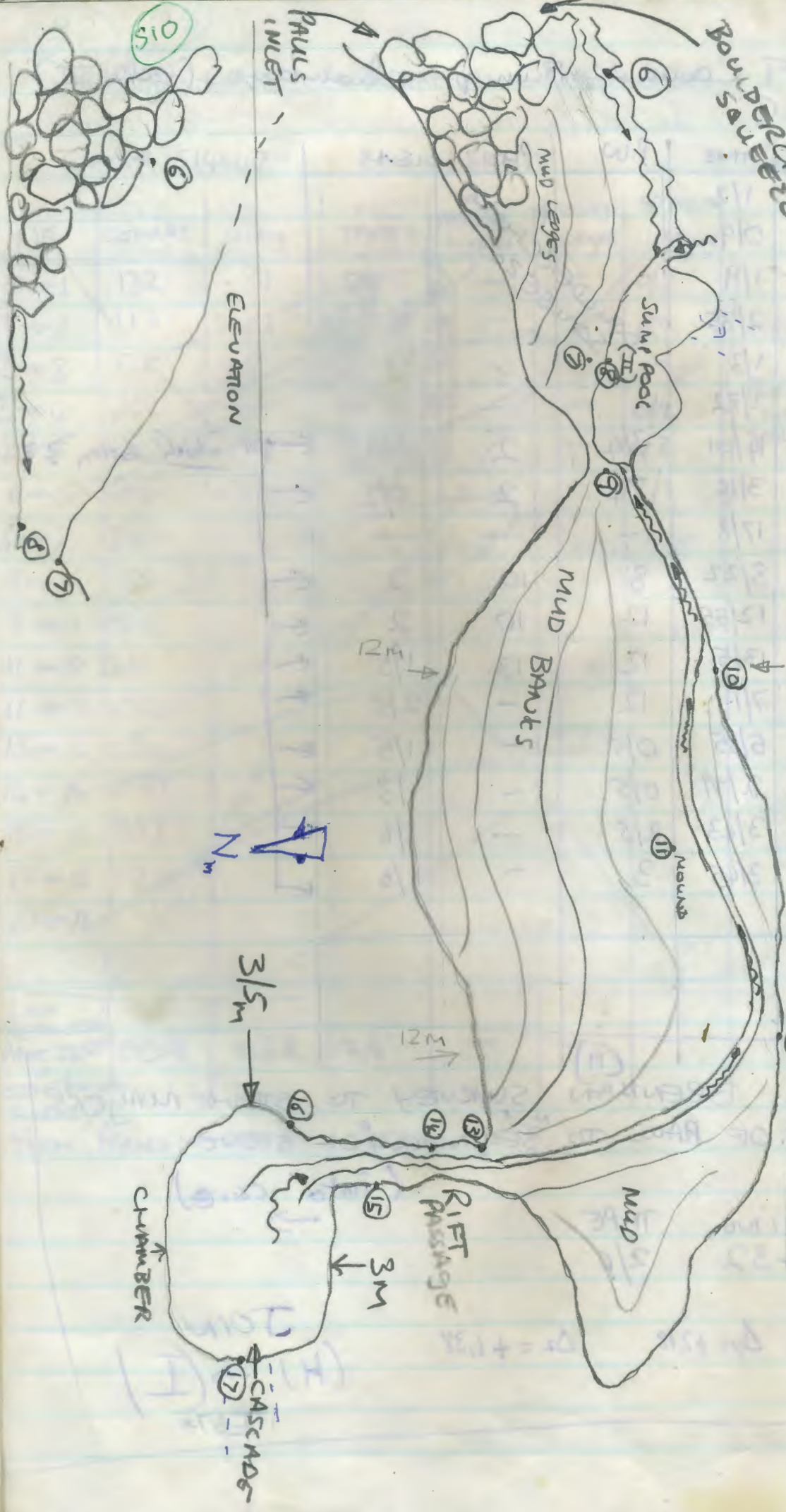
⇒ Δx = +0.34 Δy = +2.18 Δz = +1.38

JOIN (H) → (I) #67*

SUMP POOL CHAMBERS:



Boulder Choke
Boulder Sausage



N6 Survey Phil D & Dave H evaluated 31/7/86 by Gerhard relative to last year's limit of survey!!

S11

leg	tape	comp	clino	East Δx	North Δy	Up Δz	Station	x	y	z
0-1	1.20	132	-31	+0.76	-0.69	-0.62	0	-104.41	-45.70	-168.33
1-2	0.90	113	+21	+0.77	-0.33	+0.32	1	-103.64	-46.39	-168.95
2-3	1.90	128	+8	+1.58	-1.16	+0.26	2	-102.87	-46.72	-168.62
3-4	2.35	202	-12	-0.83	-2.06	-0.77	3	-101.38	-47.88	-168.36
4-5	1.30	222	+5	-0.87	-0.96	+0.11	4	-102.22	-49.94	-169.13
5-6	2.72	065	-29	+2.16	+1.01	-1.32	5	-103.08	-50.90	-169.01
6-7	14.01	241	-5	-12.21	-6.77	-1.22	6	-105.24	-51.90	-167.69
7-8	3.18	260	+50	-0.70	-1.92	-2.44	7	-117.45	-58.67	-168.91
8-9	19.80	064	-2	+15.99	+7.80	-0.62	8	-118.15	-60.59	-171.25
9-10	8.22	216	+3	-4.82	-6.64	+0.43	9	-134.13	-68.39	-170.73
10-11	12.55	072	-5	+11.79	+3.83	-1.96	10	-138.96	-75.03	-170.30
11-12	13.50	224	-8	-9.29	-9.62	-1.88	11	-150.75	-78.86	-168.34
12-13	7.10	089	-6	+7.06	+0.12	-0.74	12	-160.03	-88.58	-170.21
13-14	5.65	293	-7	-5.16	+2.19	-0.69	13	-167.09	-88.60	-169.57
14-15	2.71	121	+2	+2.32	-1.39	+0.09	14	-172.26	-86.41	-170.16
15-16	3.43	332	+7	-1.80	+3.01	+0.42	15	-174.58	-85.02	-170.26
16-17	3.45	239	0	-2.96	-1.78	0	16	-176.18	-82.01	-169.84
							17	-173.22	-80.23	-169.84

Trip 7 in Computer

Topographic Ocean

Some further station coordinates relative to last year's limit of survey.

Name	Date	Station	x	y	z	Notes
Phyllis Paul B	29/7/86	station 17:	-27.27	+19.85	-102.65	(see above)
Steve Mayers	29/7/86	station 67:	-26.93	+22.03	-102.27	
"	"	station 65:	-26.95	+24.00	-107.66	(as checked by Phil D & Dave H)
"	"	" 64:	-26.95	+24.00	-142.96	
"	"	" 34:	-59.60	+5.40	-157.82	
"	"	" 12:	-42.80	-18.76	-162.69	
"	"	" 1 equals (presumably ?) station 0 of Phil D & Dave H, see this page				

(512)

2/6 ENT. Measured from elevation

- P1 (station 0 → 5) 122 M
- P2 (8 → 12) 63
- P3 (12 → 15) 17
- P4 (19 → 20) 22
- P5 (L3 - L6) 75 (The Security)
- P6 (L8 - L11) 58

Station	Start	End	Dist	Height	Depth	Notes
0	0	5	122			
8	8	12	63			
12	12	15	17			
19	19	20	22			
L3	L3	L6	75			(The Security)
L8	L8	L11	58			

Survey trip
K on Computer

The surface link from Ridge Lane first survey station to 2/6 Lip of Shaft, according to my surface survey of last year 183
 dist, 135.5m bearing 228.5°
 ind, +30°
 $\Delta x = -76.5m$ $\Delta y = -89.3m$
 $\Delta z = +67.2m$ ($\pm 3m$)
 More accurate data to be obtained by Marcus Windhager
 31st August Ugerhand

"They numbers of the 1 big 1"

2/6 SURVEY.

24/7/86

CLINO 510270

COMPASS 514447

513

Book P. DUNCAN, INSTRUMENTS - D. HORSLEY, TAPE R. TAYLOR.

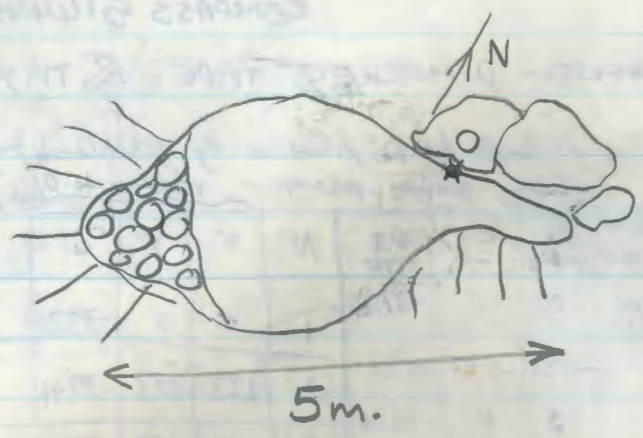
Station 0 = green splash (leg from lip of shaft to be filled in by G. Niklasch)
 Easting, Northing, pos. = up
 relative to 0 (not to lip of shaft)
 see below

No	COMP	CLINO	TAPE	P HEIGHT	P WIDTH	STATION HEIGHT	Δx	Δy	Δz	N°	X	Y	Z
0→1	—	-90	37/2	—	—	ENT	0	0	-37.20	1	0	0	-37.20
2→1	236	+8	1/5	—	3m	—	-1.23	-0.83	+0.21	2	1.23	0.83	-37.41
2→3	—	-90	46/2	—	—	—	0	0	-46.20	3	1.23	0.83	-83.61
3→4	066	-66	11/34	—	—	—	4.21	11.88	-10.36	4	5.45	2.71	-93.97
4→5	—	-90	24/35	—	—	—	0	0	-24.35	5	5.45	2.71	-118.32
6→5	238	+19	11/81	—	4m	0/2	-9.47	-5.92	+3.85	6	14.91	8.62	-122.16
6→7	356	+18	21/82	—	5m	0/7	-1.45	+20.70	+6.74	7	13.47	29.33	-115.42
7→8	211	-18	4/7	—	—	1/6	-2.30	-3.83	-1.45	8	11.17	25.59	-116.87
9→8	—	+90	29/4	—	—	—	0	0	+29.40	9	11.17	25.59	-146.27
9→10	040	+35	8/25	—	6m	2	44.34	45.18	+4.73	10	15.51	30.67	-141.54
10→11	—	-90	7/5	—	—	—	0	0	-7.50	11	15.51	30.67	-149.04
11→12	—	-90	29/15	—	—	—	0	0	-29.15	12	15.51	30.67	-178.19
13→12	221	-41	3/28	—	4m	F	-1.62	-1.87	-2.15	13	17.13	32.54	-176.04
13→14	082	-30	4/68	—	2m	—	44.01	+0.56	-2.34	14	21.15	33.10	-178.38
14→15	063	-68	18/5	—	1m	1/5	+6.17	+3.15	-17.15	15	29.32	36.25	-195.53
16→15	229	+6	4/63	—	1m	1m	-3.48	-3.02	+0.48	16	30.80	39.27	-196.02
16→17	030	-23	7/73	—	1/5m	1m	+3.56	+6.16	-3.02	17	34.35	45.43	-199.04
18→17	269	+50	4/17	—	1m	1/5	-2.68	-0.05	+3.19	18	37.03	45.48	-202.23
18→19	140	-35	1/21	—	1m	—	+0.64	-0.76	-0.69	19	32.67	44.72	-202.92
19→20	—	-90	21/77	—	—	—	0	0	-21.77	20	37.67	44.72	-224.69
21→20	239	+16	4/7	—	4m	—	-3.87	-2.33	+1.30	21	41.54	47.05	-225.99
21→22	348	-29	3/16	—	4m	1/5	-0.57	+2.70	-1.53	22	40.97	49.75	-227.52
23→22	—	+90	21/00	—	—	—	0	0	+21.00	23	40.97	49.75	-248.52
24→23	232	-40	2/02	—	4m	2	-1.22	-0.95	-1.30	24	42.19	50.70	-247.22
24→25	047	-59	12/1	—	—	—	+4.56	+4.25	-10.37	25	46.75	54.95	-257.60

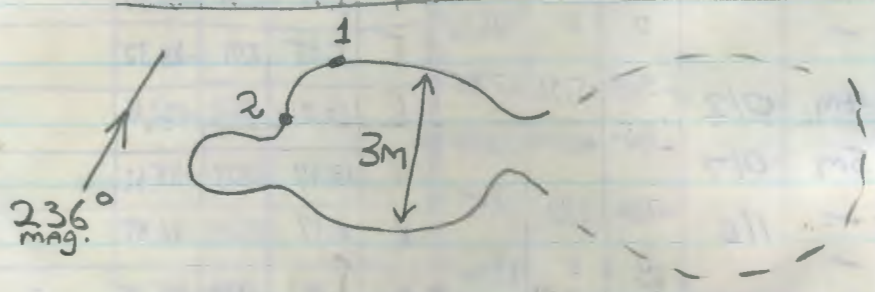
PS The leg from 26 lip of shaft (from which depth counts!) to the green splash is dist. 5.50m, bearing 230°, incl. -67°, $\Delta x = -1.65m$, $\Delta y = -1.38m$, $\Delta z = -5.06m$.
 Thus depth of station 25 is actually 262.66m, etc.

S14

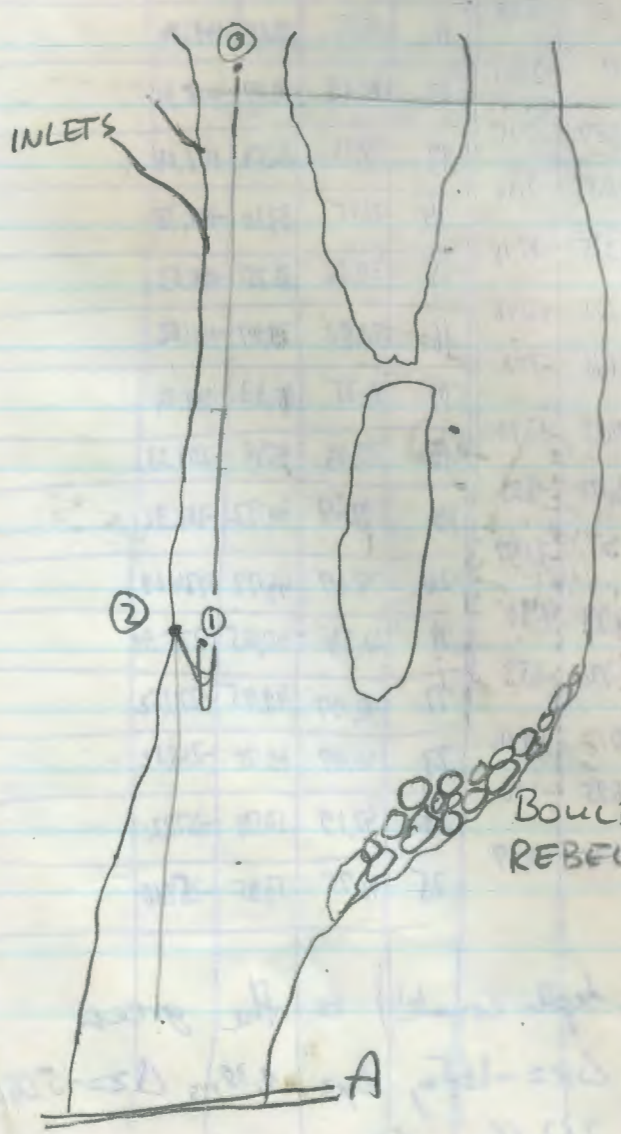
2/6 Drawings



PLAN VIEW AT STATION ①

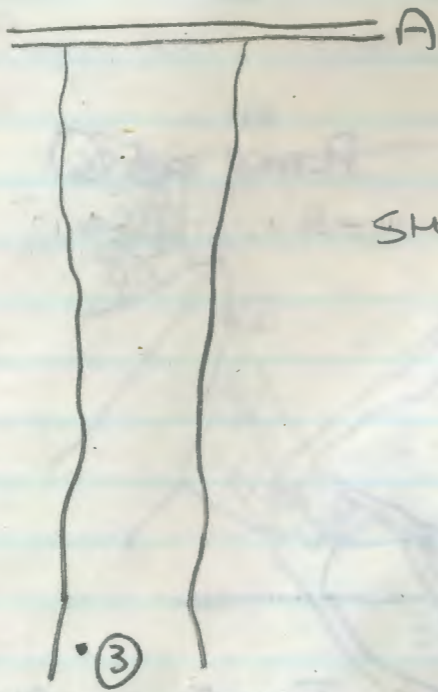


PLAN AT ①



ENT
SHAFT
AVERAGE WIDTH \approx 5m

BOULDER FLOOR \approx 10m BELOW
REBELAY AT ②



PLAN AT (3)



PLAN AT (4)

BOTTOM OF SHAFT.

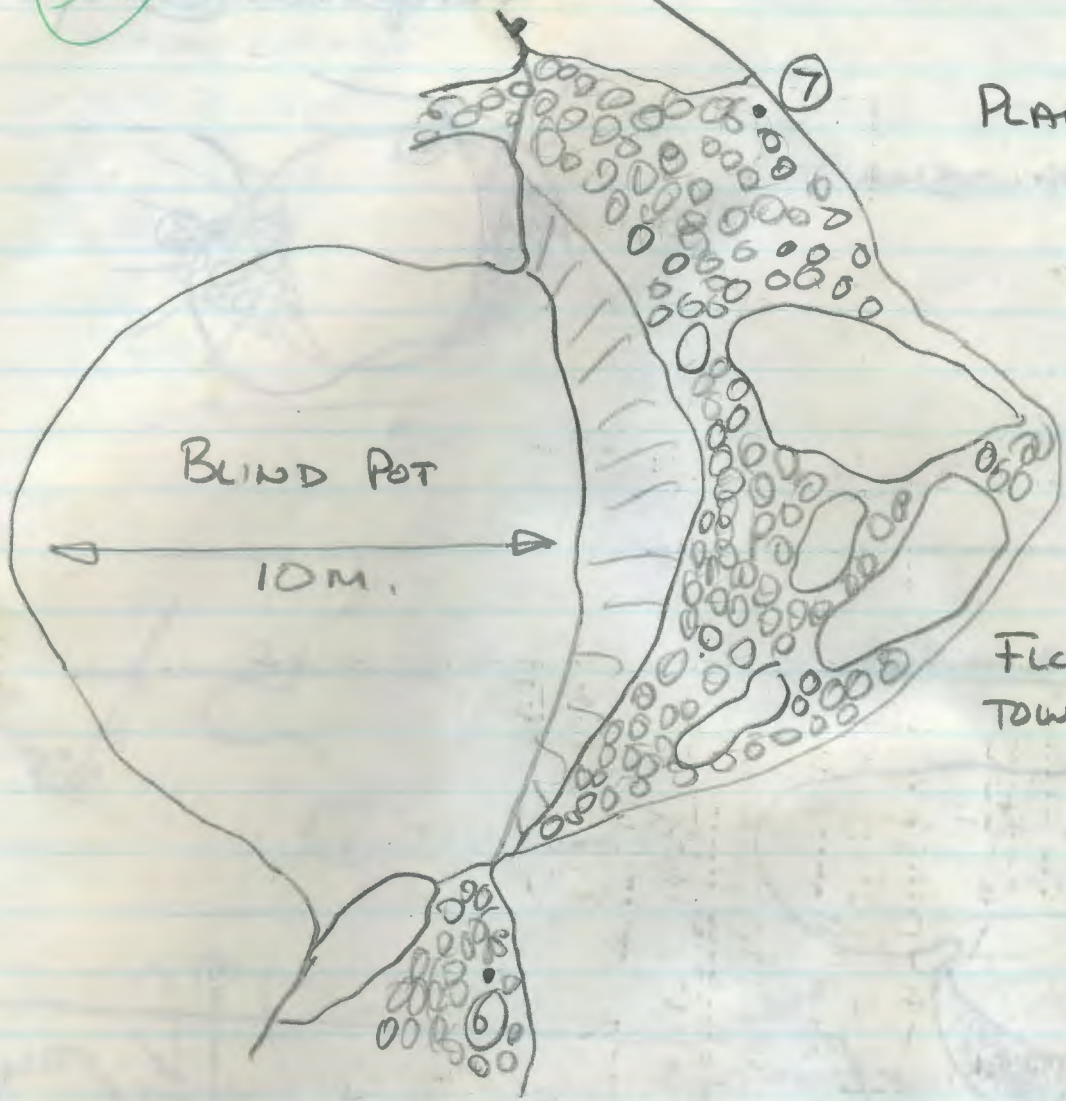
FLOOR OF SHAFT.



S16

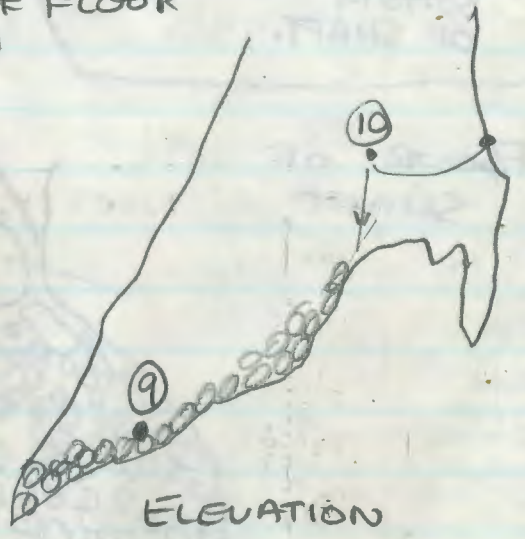
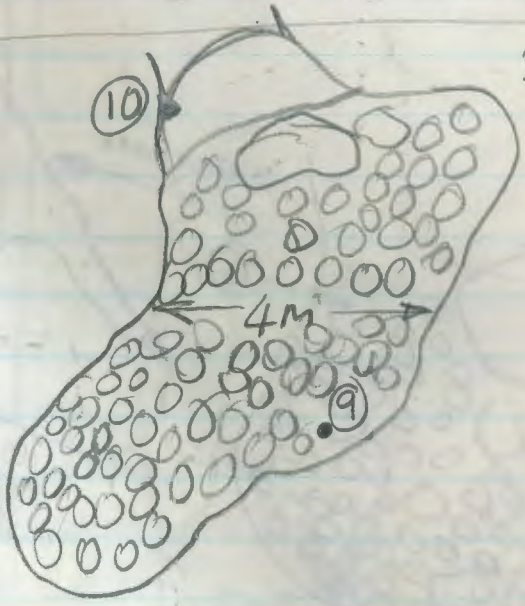
⑧ PATCH.

PLAN at ⑥

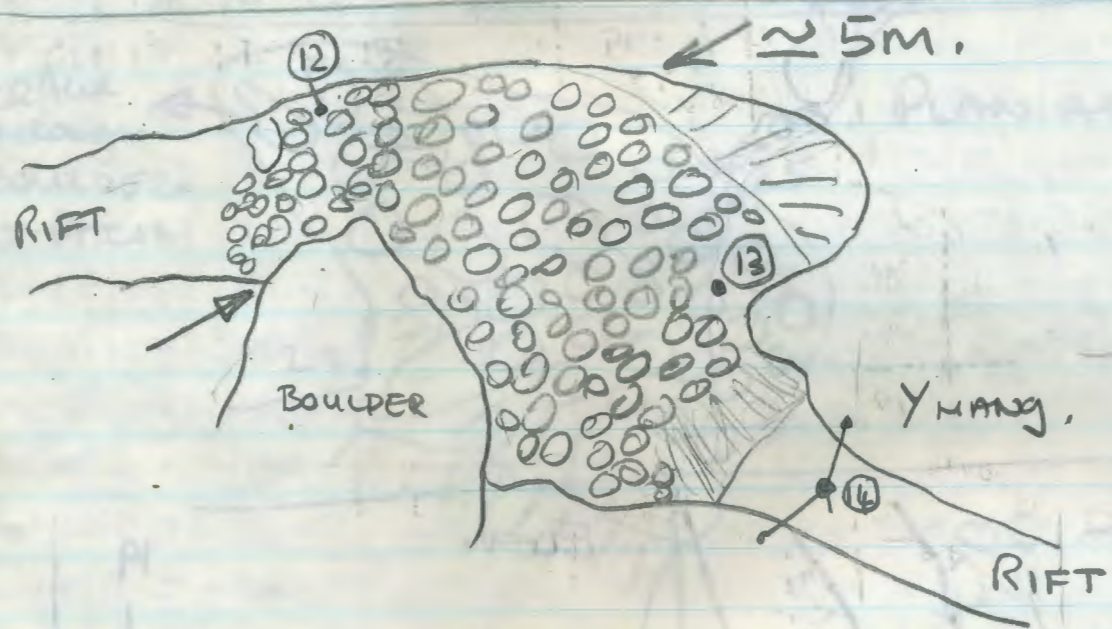
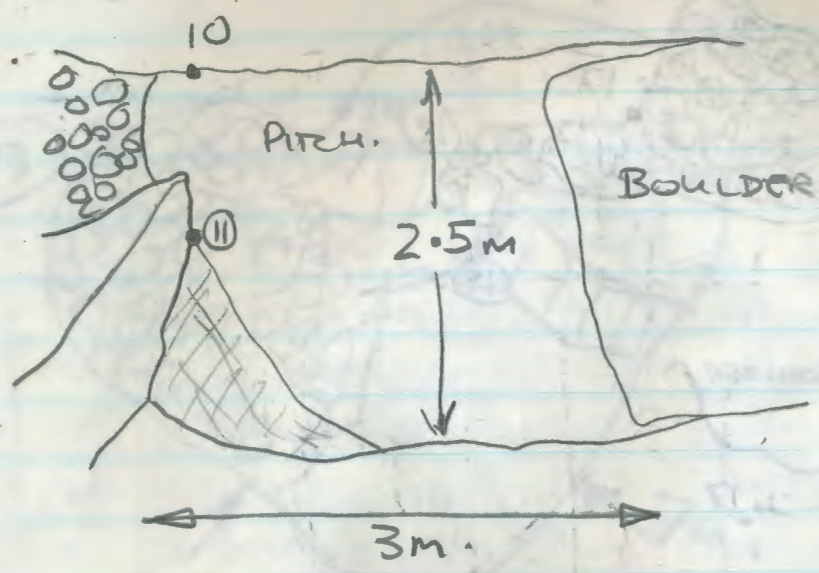


FLOOR SLOPING TOWARDS BLIND POT

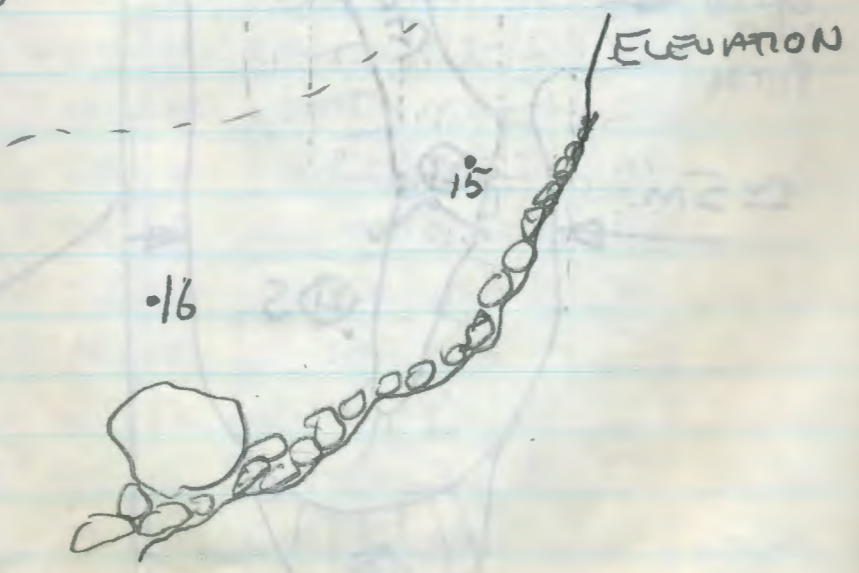
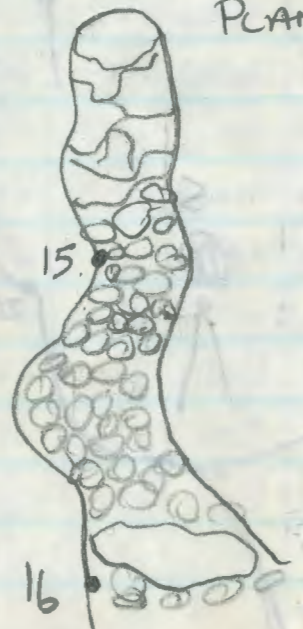
PLAN OF FLOOR AT ⑨



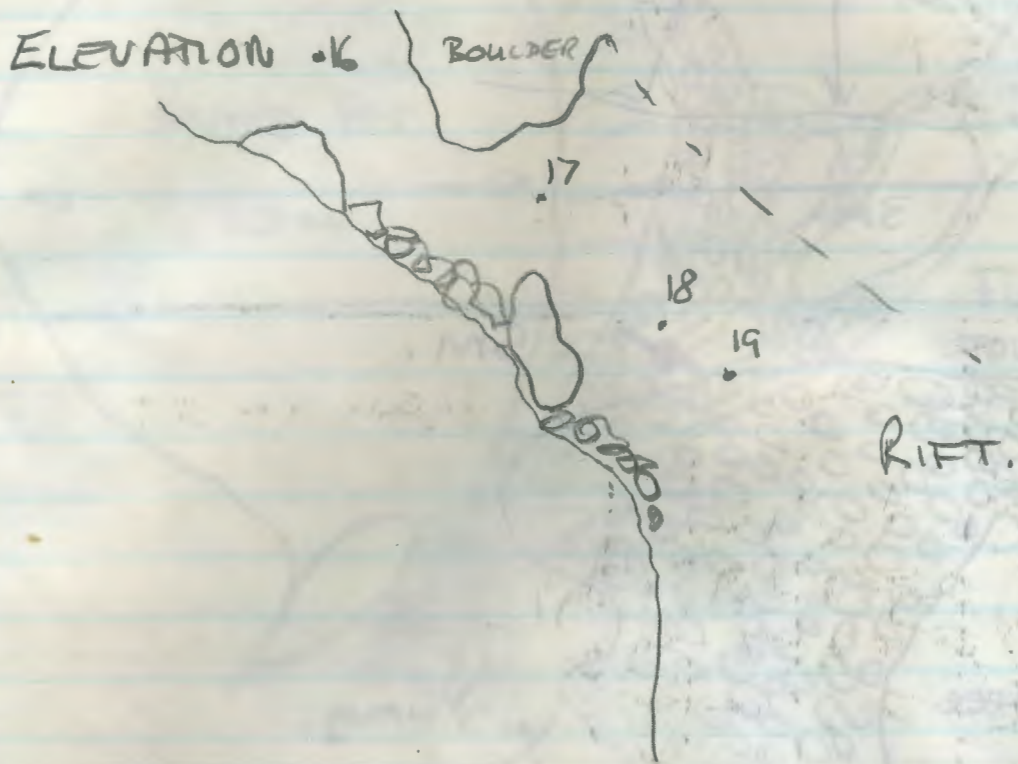
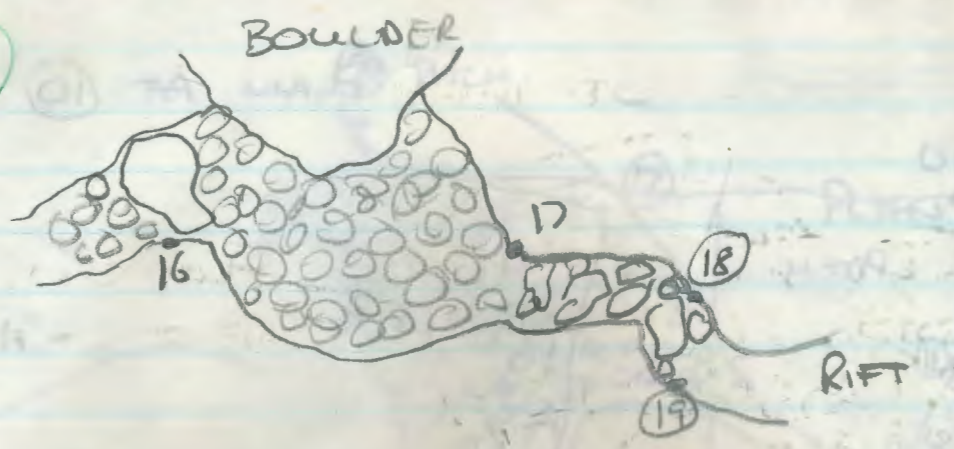
PLAN AT 10



PLAN AT 15



518

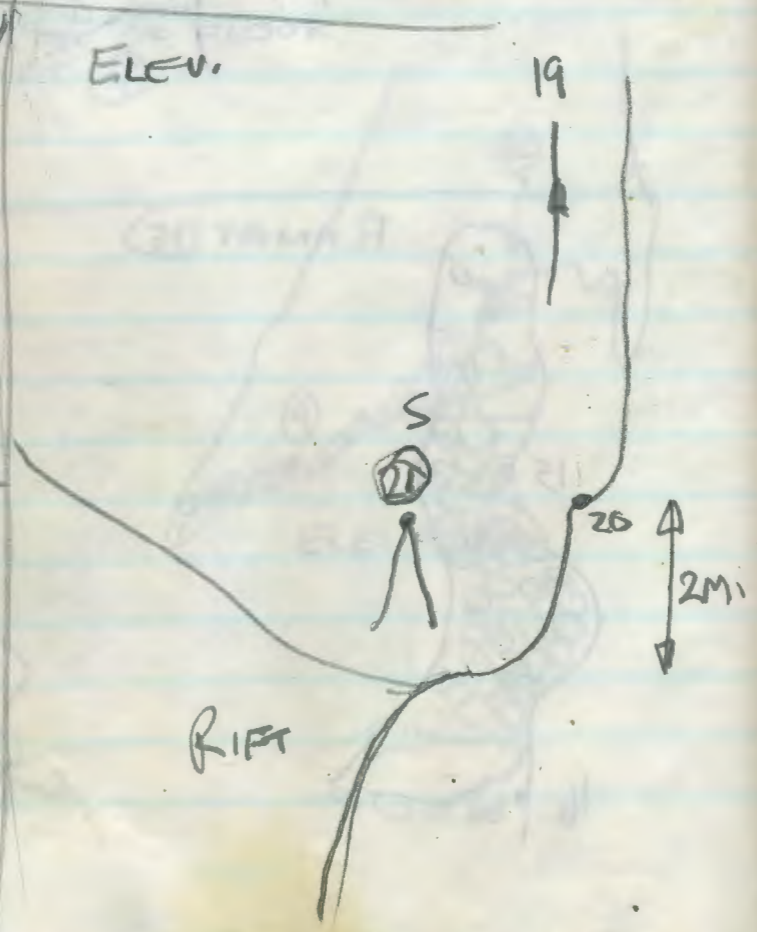
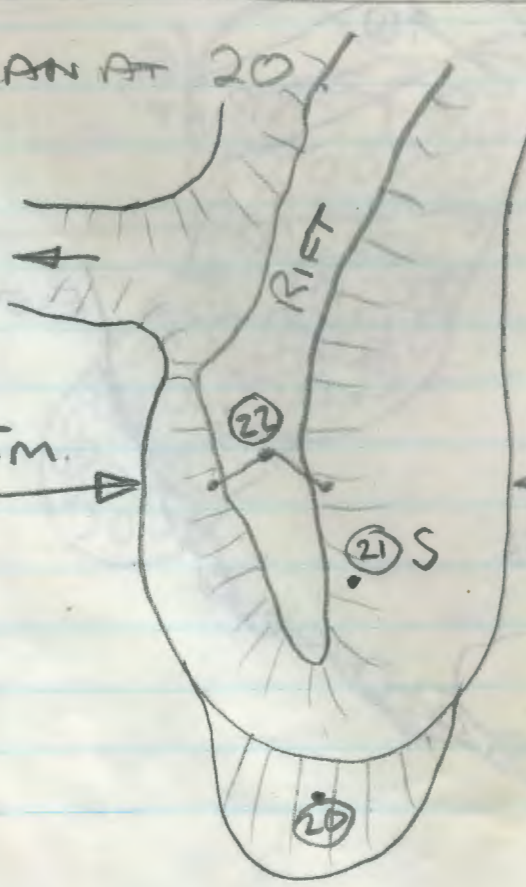


PLAN AT 20

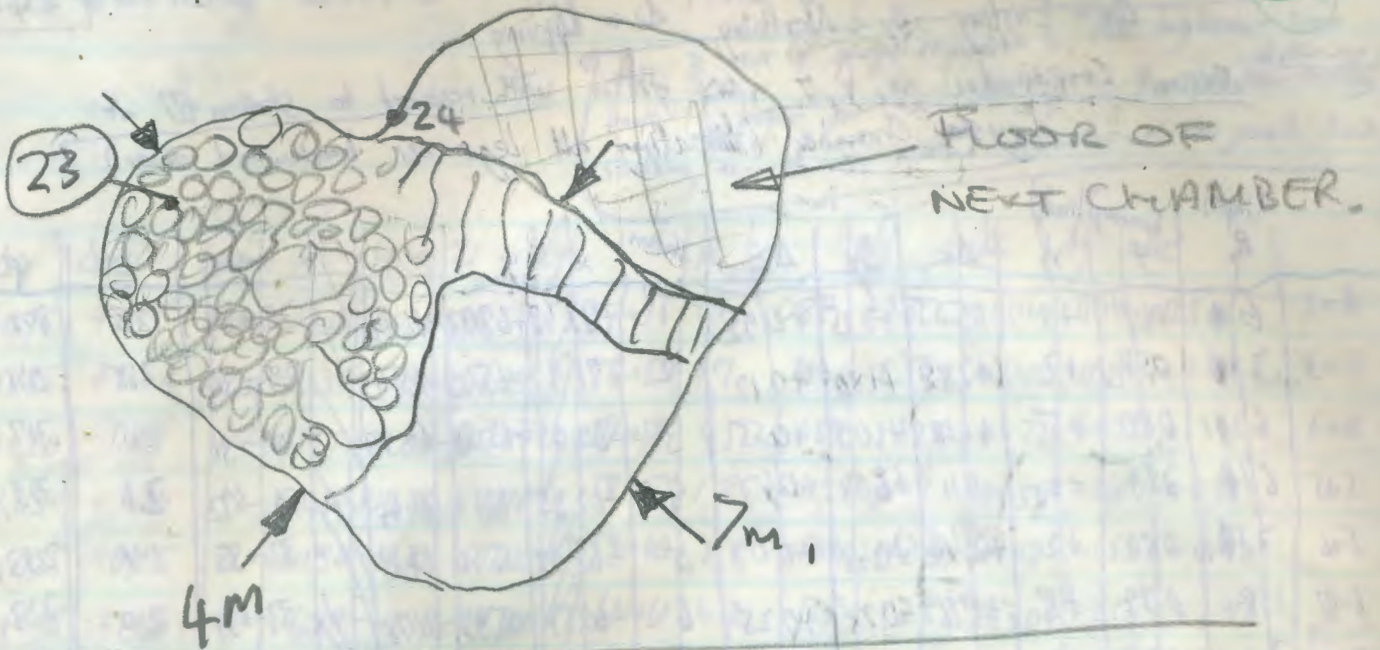
ELEV.

WAY ON TO NEXT PITCH

≈ 5m.



PLAN AT BOTTOM OF RIFT



CRAWL THROUGH Boulders TO PITCH

PLAN AT 25



26/1/88

Evaluation of Ridge Cave survey Steve M. / Martin M.

(See above)

Summit to Crystal Chamber

By Gerhard & hp 5c

(520)

$\Delta x = \text{Easting}$, $\Delta y = \text{Northing}$, $\Delta z = \text{Upping}$

Station Coordinates x, y, z are given with respect to station 67 at Crystal Chamber (treating all legs as backward ones)!

	(loop) R	(bearing) P	(incl) S	Δx	Δy	Δz	station	x	y	z		R	P	S
1-2	6.4	067	+9	+5.55	+2.35	+0.95	summit	-77.48	-67.73	-66.06	28-29	2.8	304	+3
2-3	3.4	058	+2	+2.88	+1.80	+0.12	2	-71.93	-65.38	-65.11	29-30	2.5	041	+12
3-4	6.3	080	+5	+6.18	+1.03	+0.55	3	-69.05	-63.58	-64.99	30-31	2.5	317	-49
4-5	6.1	359	-4	-0.11	+6.08	-0.43	4	-62.87	-62.49	-64.44	31-32	2.1	359	+12
5-6	2.5	080	+2	+2.46	+0.43	+0.09	5	-62.97	-56.40	-64.86	32-33	1.4	293	-2
6-7	1.8	099	+8	+1.76	-0.28	+0.25	6	-60.51	-55.97	-64.78	33-34	2.0	323	+66
7-8	2.1	037	+2	+1.26	+1.68	+0.07	7	-58.75	-56.25	-64.53	34-35	5.0	002	0
8-9	5.7	024	+1	+2.32	+5.21	+0.10	8	-57.49	-53.57	-64.45	35-36	2.6	294	+27
9-10	7.7	022	0	+2.88	+7.14	0	9	-55.17	-49.37	-64.35	36-37	3.4	034	+24
10-11	2.8	322	+6.5	-0.73	+0.93	+2.54	10	-52.29	-42.23	-64.35	37-38	2.1	039	+8
11-12	7.3	086	+11	+7.15	+0.50	+1.39	11	-53.02	-41.29	-61.82	38-39	3.2	309	+3
12-13	2.2	067	-26	+1.82	+0.77	-0.96	12	-45.87	-40.79	-60.42	39-40	1.6	341	+7
13-14	3.8	072	+7	+3.59	+1.17	+0.46	13	-44.05	-40.02	-61.39	40-41	3.5	094	+3
14-15	3.8	048	+19	+2.67	+2.40	+1.24	14	-40.46	-38.86	-60.92	41-42	2.1	040	+1
15-16	2.4	061	-23	+1.93	+1.07	-0.94	15	-37.79	-36.45	-59.69	42-43	2.8	334	+6
16-17	2.3	050	+23	+1.62	+1.36	+0.90	16	-35.86	-35.38	-60.63	43-44	1.9	283	+51
17-18	1.7	078	-30	+1.44	+0.31	-0.85	17	-34.24	-34.02	-59.73	44-45	1.6	030	+3
18-19	6.6	082	-4	+1.58	+0.22	-0.11	18	-32.80	-33.71	-60.58	45-46	2.2	320	+42
19-20	2.1	352	+2	-0.29	+2.08	+0.07	19	-31.21	-33.49	-60.69	46-47	1.1	007	+6
20-21	1.9	032	+4	+1.00	+1.61	+0.13	20	-31.57	-31.41	-60.62	47-48	3.1	038	+23
21-22	1.9	308	+48	-1.00	+0.78	+1.41	21	-30.50	-29.81	-60.48	48-49	1.1	064	+20
22-23	3.7	267	-4	-3.69	-0.19	-0.26	22	-31.50	-29.02	-59.07	49-50	1.4	024	0
23-24	1.3	349	+8	-0.25	+1.26	+0.18	23	-31.19	-29.22	-59.33	50-51	2.2	101	+60
24-25	2.8	082	-1	+2.77	+0.39	-0.05	24	-35.44	-27.25	-59.15	51-52	3.1	081	+47
25-26	1.5	113	+35	+1.13	-0.48	+0.88	25	-32.66	-27.56	-59.20	52-53	2.5	101	+45
26-27	2.7	038	+32	+1.41	+1.80	+1.43	26	-31.53	-28.04	-58.34	53-54	4.6	023	+8
27-28	2.1	032	+10	+1.10	+1.75	+0.36	27	-30.12	-26.24	-56.91	54-55	1.8	112	+18

The gap at Crystal Chamber to be filled in 26/9/86 by
 Dave Horsley & Phil Duncan. (about 6' 2')

821

This is out of page sequence in the logbook - turn
 back 5 pages for the linkings to the previous survey
 sections, as well as for station coordinates w.r.t. last year's limit!

Δx	Δy	Δz	Station	X	Y	Z	R	CP	Δx	Δy	Δz		
-2.32	+1.56	+0.15	28	-29.03	-24.48	-56.54	55-56	1.2	088	+28	+1.06	+0.04	+0.56
+1.60	+1.85	+0.52	29	-31.35	-22.92	-56.39	56-57	1.7	104	+32	+1.40	-0.35	+0.90
-1.12	+1.20	-1.89	30	-29.74	-21.08	-55.87	57-58	4.5	087	+20	+4.22	+0.22	+1.54
-0.04	+2.05	+0.44	31	-30.88	-19.88	-57.46	58-59	1.8	119	+4	+1.52	-0.87	+0.13
-1.29	+0.55	-0.05	32	-30.30	-17.82	-57.32	59-60	2.1	145	+26	+1.08	-1.55	+0.92
-0.49	+0.65	+1.83	33	-32.18	-17.28	-57.38	60-61	4.2	125	+28	+3.04	-2.13	+1.97
+0.17	+5.00	0	34	-32.67	-16.63	-55.55	61-62	3.3	117	+24	+2.69	-1.37	+1.34
-2.12	+0.94	+1.18	35	-32.50	-11.63	-55.55	62-63	8.9	142	+78	+1.01	-1.55	+8.71
+1.74	+2.58	+1.38	36	-34.61	-10.69	-54.37	63-64	5.8	120	+23	+4.62	-2.67	+2.27
+1.31	+1.62	+0.29	37	-32.88	-8.11	-52.98	64-65	16.8	(0)	+92	0	0	+16.8
-2.48	+2.01	+0.17	38	-31.57	-8.50	-52.69	65-66	6.6	220	+45	-3.00	-3.58	+4.67
-0.52	+1.50	+0.19	39	-34.05	-4.48	-52.52	66-67	3.5	062	+12	+3.02	+1.64	+0.73
+3.49	-0.24	+0.18	40	-34.57	-2.98	-52.33	Station	X	Y	Z			
+1.35	+1.61	+0.04	41	-31.08	-2.23	-52.15	55	-20.42	+12.19	-40.53			
-1.22	+2.50	-0.29	42	-29.73	-1.62	-52.11	56	-19.65	+12.23	-39.92			
-1.17	+0.87	+1.48	43	-30.95	+0.88	-52.40	57	-18.25	+4.88	-38.07			
+0.80	+1.38	+0.08	44	-32.12	+1.15	-50.92	58	-14.03	+2.00	-37.53			
-1.05	+1.25	+1.47	45	-31.32	+2.54	-50.84	59	-12.46	+4.23	-37.40			
+0.13	+1.09	+0.12	46	-32.37	+3.79	-49.37	60	-11.38	+8.68	-36.48			
+1.76	+2.25	+1.21	47	-32.24	+4.88	-49.25	61	-8.34	+7.56	-34.57			
+0.93	+0.45	+0.38	48	-30.48	+7.12	-48.04	62	-5.65	+6.19	-33.17			
+0.57	+1.28	0	49	-29.55	+7.58	-47.67	63	-4.65	+4.64	-24.46			
+1.08	-0.21	+1.91	50	-28.98	+8.86	-47.62	64	-0.02	+6.97	-22.19			
+2.09	+0.33	+2.27	51	-27.90	+8.65	-45.76	65	-0.02	+1.97	-5.39			
+1.74	-0.34	+1.77	52	-25.81	+8.98	-43.49	66	-3.02	-1.61	-0.73			
+1.78	+4.19	+0.64	53	-24.08	+8.64	-41.73	67	0	0	0			
+1.59	-0.64	+0.56	54	-22.30	+2.83	-41.09	Crystal Chamber						

Where are Dave's and Phil's survey notes?? ~~copy~~, found them way back.

522

Summary of 2/6 Connection to Ridge

2/8/86

Survey Trip L
on Computer

P Cooper Book
R Geyser Instruments
& Naylor Tape

Climo 510270
Compass 514447

Start of survey is large S on peak at head of Split Creek
Final station is top of boulder directly below Pine Pitch. No mark
could be found but this point is the landing for the pine pitch.

	Compass	Climo	Tape	Station	Passage ht	P.W. All	Station ht.
1 → 2	158°	-15°	5.2 m	1	?	1 m	1.4
1 → 2	248	-25	4.85	2	?	0.75	1.7
3 → 2	129	-14	2.0	3	?	0.5	?
3 → 4	217	-84	15.65	4	?	?	?
4 → 5	351	-38	1.2	5	?	?	?
5 → 6	0	-90	60.3	6	75	15	0
7 → 6	630	+37	10.7	7	"	"	0
7 → 8	239	-65	9.45	8	85	12	?
9 → 8	141	+62	15.1	9	?	?	1
9 → 10	009	-65	26.8	10	?	?	?
10 → 11	0	-90	21.4	11	?	2	0
12 → 11	147	-8	5.75	12	?	2	1.8
12 → 13	300	-48	10.1	13	?	1	1.5
14 → 13	153	+17	2.6	14	?	1	?
14 → 15	028	+19	7.5	15	?	2.5	3
16 → 15	150	-40	5.2	16	?	1	1.8
16 → 17	330	-3	5.7	17	?	1	?
18 → 17	175	-30	4.6	18	?	1	?
18 → 19	004	+5	6.3	19	?	0.5	?
20 → 19	195	-16	8.0	20	?	1	?
20 → 21	37°	+23	11.65	21	?	1.5	0

	Compass	Climb	Tape	Station	PH	PW	SH
22 → 21	190	-32	9.6	22	?	2m	1.8
22 → 23	38	-59	26.6	23	?	?	1.5
24 → 23	15	+30	15.9	24	?	?	0.5

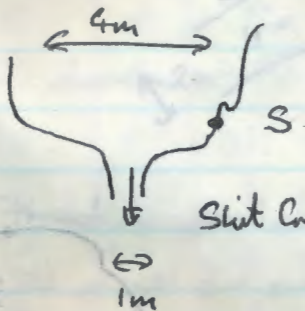
NB 26m legs at an inclination of -59° are bound to produce several metres horizontal error! Compliments - yaband.

Notes Station 5 is built at rebelay of 60m pitch.
2m climb down between stations 12-13

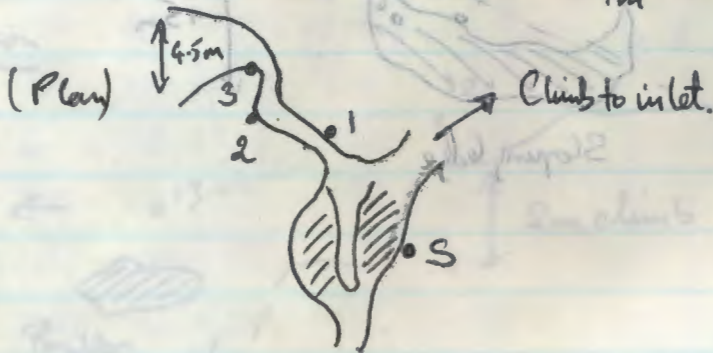
Procedures

Slit Creek

(Section)

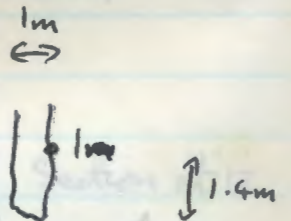


Slit Creek pitch descends.

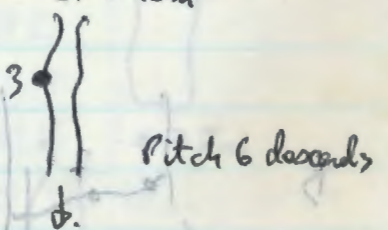


Pitch 5 enters.

Section at 1



Section at 3



Pitch 6 descends

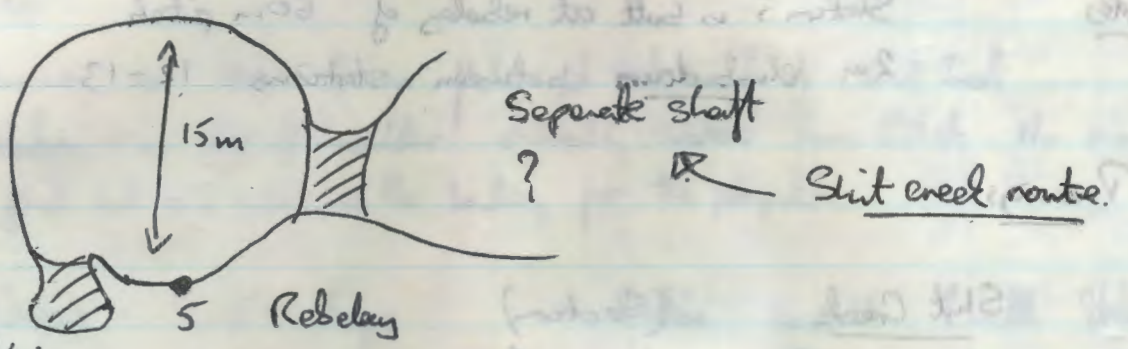


219
(5 down)
201

G24

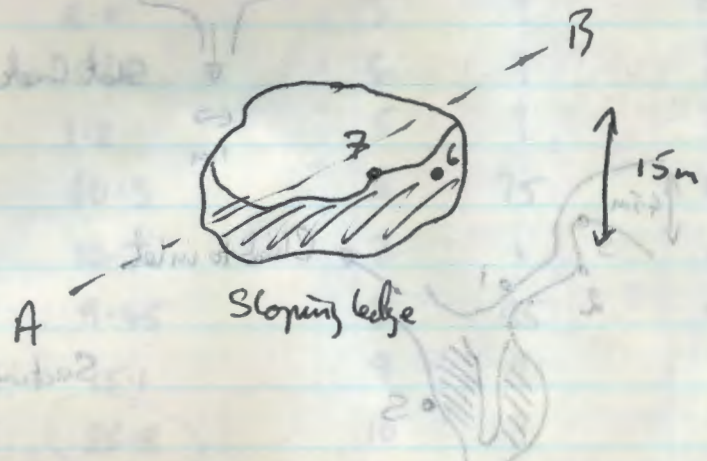
Plan at level of bolt rebelay (Station 5)

15m down shaft from top of pitel.
Shaft is in 2 hangs of 15m and 60m.

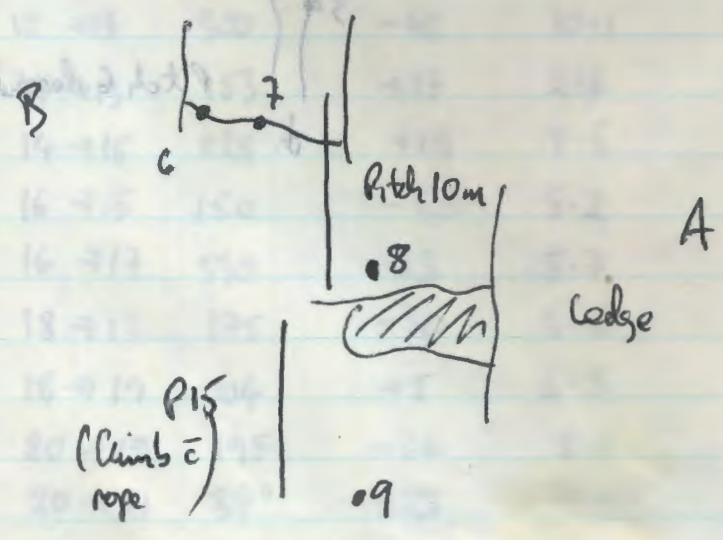


Small ledge immediately below top take off

Plan at base of pitel



Section on A - B

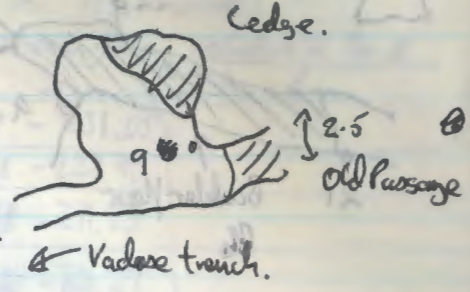
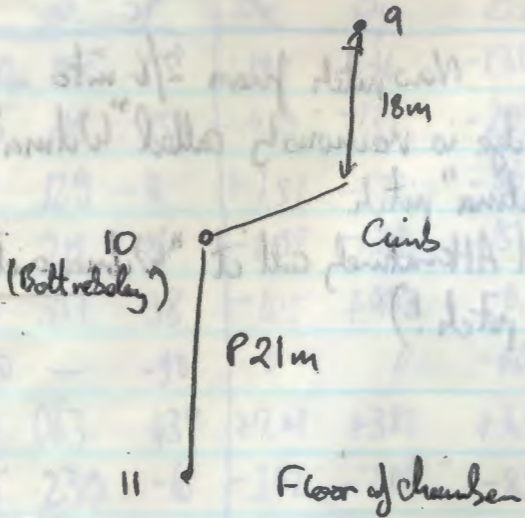


Station 9 is 3m to (B) of second rebelay after big ledge of station 6.

B

A

Plan at 9

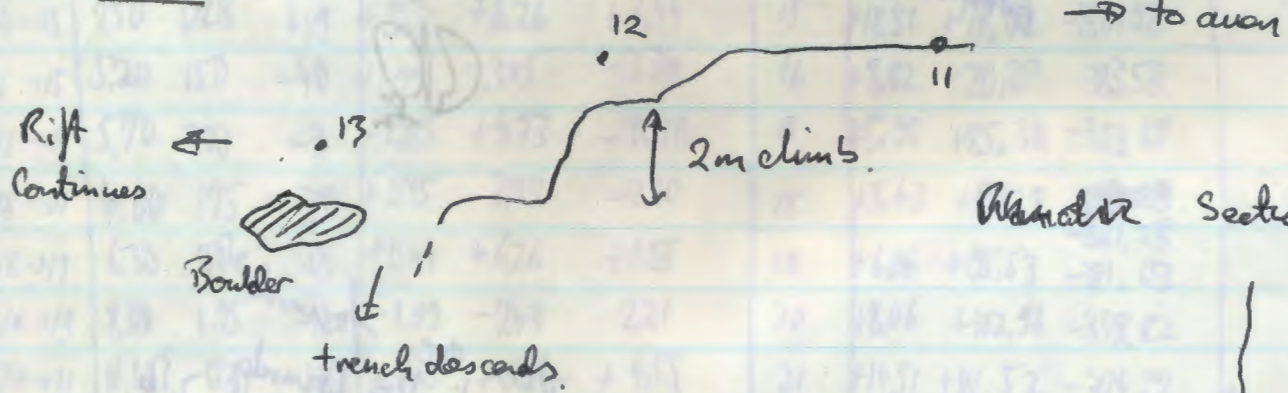


Plan at 11

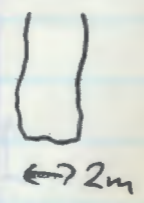


After station 11 route enters vadose trench.

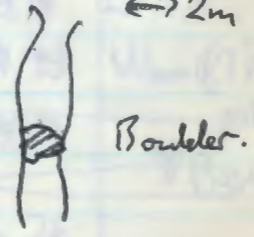
Section



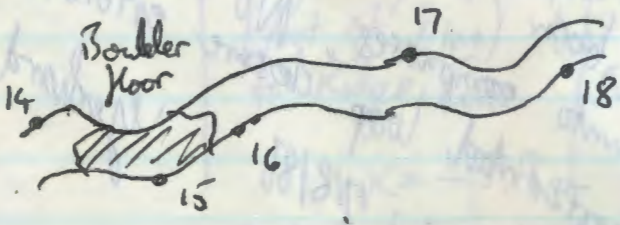
Section at 12



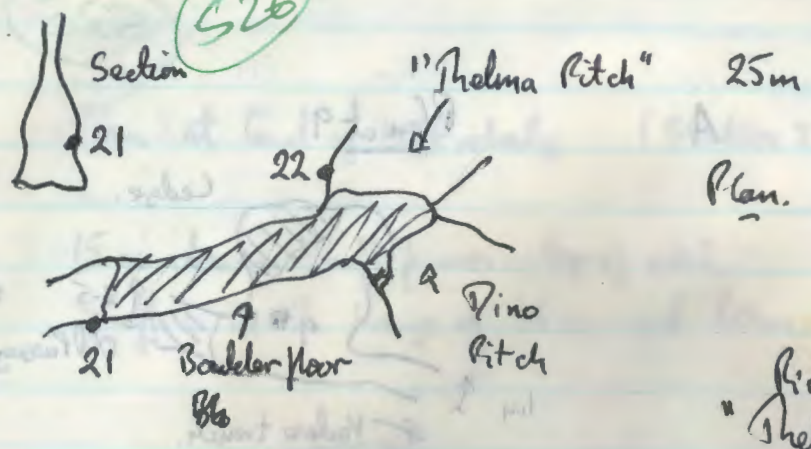
Section at 13



Still decorated vadose trench continues from stations 13 to 21

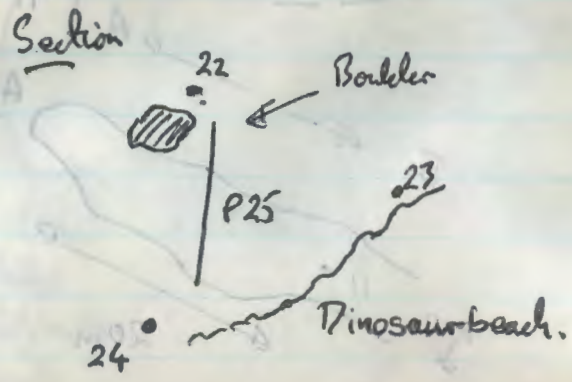


(526)



Plan.

Now pitch from 2/6 into
 ridge is variously called "Wilma" or
 "Thelma" pitch.
 (Alternatively call it "Wilma and Thelma
 pitch!")



24 is boulder at foot of Dino pitch. Couldn't find any
 survey stations but this is the boulder two back on.
 (Station C15 of RIDGE on computer, leg 73)

PS: The red/brown iron ore found
 abundantly in D'Beach, Big Crumby
 Big Beluga etc. in some parts of 2/6
 has been tested not to effect.
 Sumto compasses. No excuse for
 horizontal loop closure errors!!
 7/8/86 Usherford

m

Evaluation of above 26 survey

7/18/86

S27

Begins at head of Slut Creek, station 21 of previous survey
 (marked 'S' on the wall)

Leg	R	φ	Z	Ent			Station	Coordinates now given			relative to top of shaft
				Δx	Δy	Δz		x	y	z	
1→5	5.20m	158°	-15°	+1.88	-3.66	-1.35	0 = previous 21	+39.89	+45.67	-231.05	
1→2	6.85	248	-25	-4.08	-1.65	-2.05	1	+38.01	+50.33	-229.70	
3→2	2.00	129	-4	+1.51	-1.22	-0.48	2	+38.93	+48.68	-231.75	
3→4	15.65	217	-84	-0.98	-1.31	-15.56	3	+32.52	+49.90	-231.27	
4→5	1.20	351	-38	-0.15	+0.93	-0.74	4	+31.44	+48.60	-246.83	
5→6	60.30	—	-90	0	0	-60.30	5	+31.29	+49.53	-247.57	
7→6	10.70	063	+37	+7.61	+3.88	+6.44	6	+31.29	+49.53	-307.87	100m' pitch
7→8	9.45	239	-65	-3.62	-2.06	-8.56	7	+23.68	+45.65	-314.31	and its
9→8	15.10	147	+62	+4.46	-5.51	+13.33	8	+20.28	+43.59	-322.88	Successors
9→10	26.80	009	-65	+1.77	+1.19	-24.29	9	+15.79	+49.10	-336.21	
10→11	21.40	—	-90	0	0	-21.40	10	+17.57	+60.29	-360.50	
12→11	5.75	147	-8	+3.10	-4.78	-0.80	11	+17.57	+60.29	-381.90	
12→13	10.10	300	-48	-5.85	+3.38	-7.51	12	+14.46	+65.06	-381.10	
14→13	2.60	153	+17	+1.13	-2.22	+0.76	13	+8.61	+68.44	-388.60	decorated ribs
14→15	7.50	028	+19	+3.33	+6.26	+2.44	14	+7.48	+70.66	-389.36	
16→15	5.20	150	-40	+1.99	-3.45	-3.34	15	+10.81	+76.92	-386.92	
16→17	5.70	330	-3	-2.85	+4.93	-0.30	16	+8.82	+80.37	-383.58	
18→17	4.60	175	-30	+0.35	-3.97	-2.30	17	+5.97	+85.30	-383.88	
18→19	6.30	004	+5	+0.44	+6.26	+0.55	18	+5.63	+89.27	-381.58	
20→19	8.00	195	-16	-1.99	-7.43	-2.21	19	+6.06	+95.53	-381.03	
20→21	11.65	037	+23	+6.45	+8.56	+4.55	20	+8.06	+102.96	-378.82	
22→21	9.60	190	-32	-1.41	-8.02	-5.09	21	+14.51	+111.52	-374.27	
22→23	26.60	058	-59	+8.43	+10.80	-22.80	22	+15.92	+119.54	-369.18	
24→23	15.90	015	+30	+3.56	+13.30	+7.95	23	+24.36	+130.33	-391.99	Within 1/2 beam pitch
							24	+20.79	+117.03	-399.94	D. Beach

Using last year's surface survey, the last station 24 (foot of Dino) has coordinates with respect to Ridge Cave Survey Station 0:

$$x = -55.7m \quad y = +27.7m \quad z = -332.7m$$

I lack last year's data at the moment, but this looks not too much out! Congratulations,
 Ugerhard

F20 Survey 1986 - beginning at survey station at end of '85 survey
ie bottom of pitch below calamity Lane.

Danell (tape), Fred (instr), Richard (book)

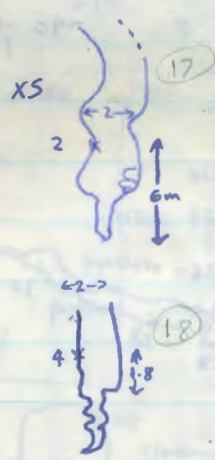
5-7 August 1988

S → S	Tape	Bearing	Inclination	Pw	Above floor.
1 → 2	8.10	149	+27	2m	1=1985 point, 2=4m.
3 → 2	7.45	294	-14	2.5	3=5m
3 → 4	6.25	174	+51	2	5
5 → 4	9.10	349	-39	2	5= standing height (HM) from ledge.
5 → 6	3.88	070	-28	1	6= knot secondary.
7 → 6	5.35	223	+69	1	7 on semi pitch = diagonal abseil.
7 → 8	5.97	100	-47	1	8 below rebelay.
18 → 9	6.30	0	-90	1	
10 → 9	4.10	figure uncreadable ? = 06	+59	0.5	thin rift bearing difficult but v. steep Entered as '206' SGA
11 → 10	2.10	0	+04		
12 → 11	2.81	244	+16		5m below
13 → 12	2.24	290	+45	0.5	
14 → 13	4.9	42	+44	0.5	

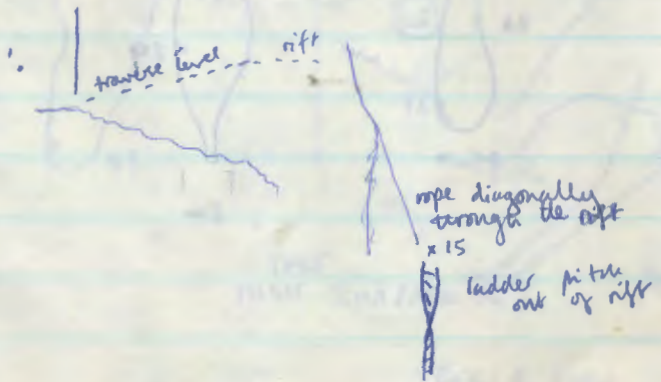
(M)



Xsections



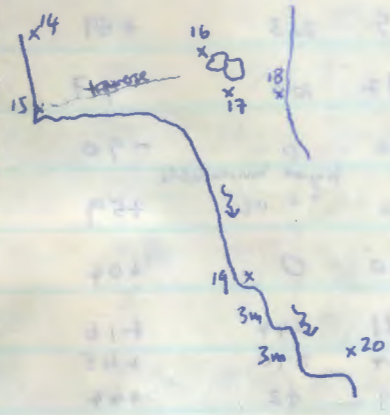
Rough Elevation from memory



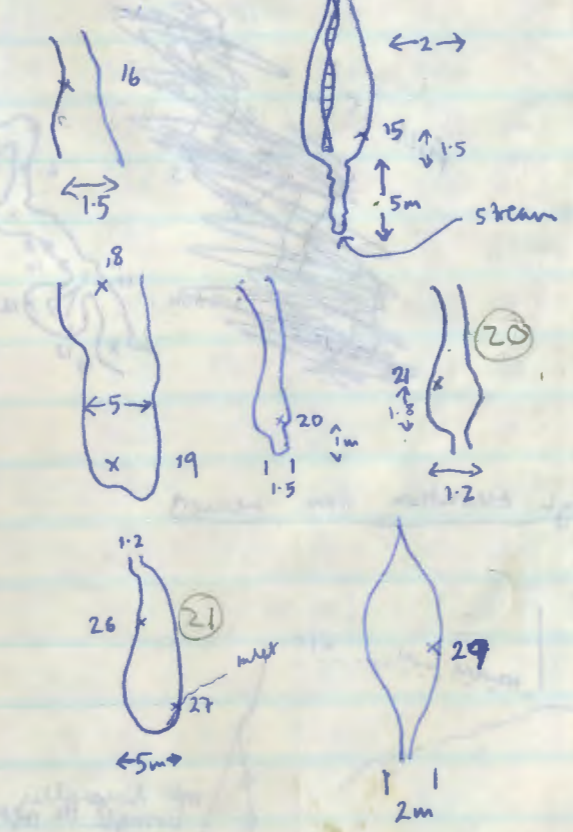
S→S	Time	Bearing	Inclination	Dist	above floor
14→15	11.59	137	-79	2m	14 = ladder 15 see below 16 up in pit
16→15	10.84	42	-41	1.5m	
16→17	5.53	114	+64	1.0	
17→18	1.78	96	-16	5m	
19→18	24.25	0	+90	5m	19 = 1.8m above floor
20→19	13.14	253	+43	1.5m	20 = 1m
20→21	9.84	184	+13	1.2	1.8 above a ledge
22→21	5.70	027	-13	1.2	top of a pit
22→23	6.95	217	-71		23 = 5m above the stream
24→23	1.38	299	+33	0.5	24 = 5m
24→25	2.84	157	-58	0.5	25 = 2° slope
25→26	8.10	183	-65	2m	
27→26	23.50	286	+75	5m	27 on the floor
27→28	7.15	032	-41	1.5m	
29→28	2.10	122	-10	1.5m	
29→30	5.32	351	-18	2m	30 = bottom of rope
31→30	15.45	0	-90	5m	ie pit up 31 = top



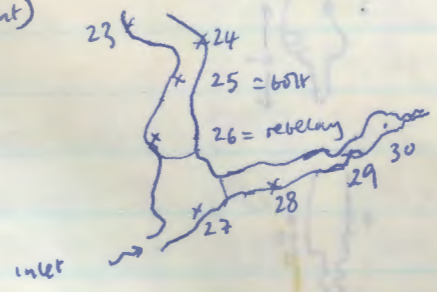
Elevation (drawn in cave)



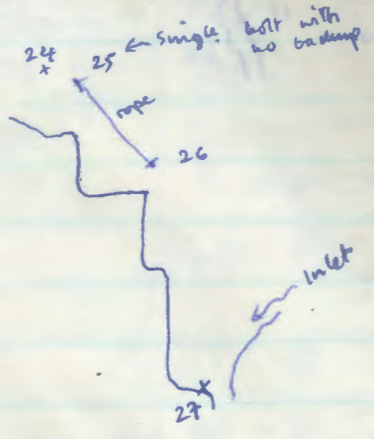
Cross Sections



Plan (cont)



Elevation (again drawn underground!)

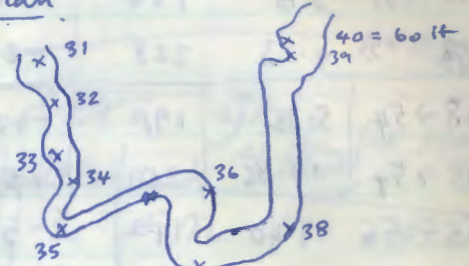


f20 (cont).

S30

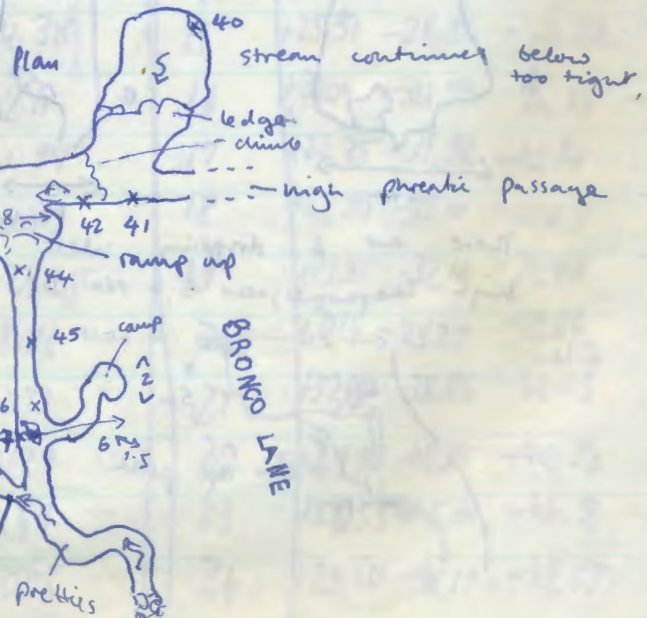
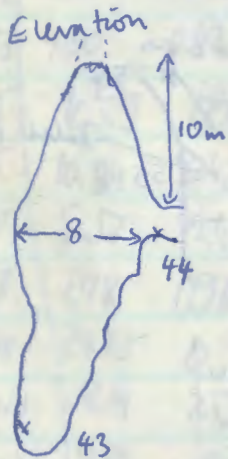
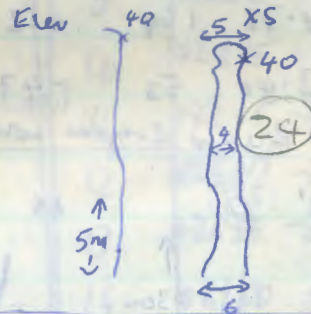
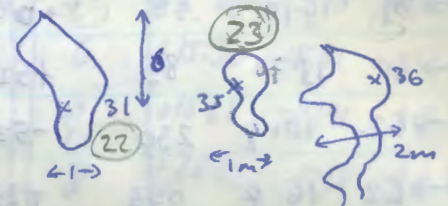
S→S	Time	bearing	Inclination	Av	above floor ↓	below roof
32→31	2:33	146	-03	1.5	Night in	31 = 6m
32→33	2:35	043	+04	1.0	Amnesia ∴ no floor	32 = 4m
34→33	3:09	159	+19	1.0	phreatic tube with moose trench below	33 = 2m
34→35	3:44	042	-18	1.0		34 = 1m 35 = 0m 36 = 1m
36→35	5:05	128	+4	1.0		
36→37	3:33	320	+4	2m		37 = 1m
38→37	2:89	198	+30	1m		
38→39	10:38	297	-11	1.5m		
39→40	0:68	345	+8	1.5m		
40→41	13:80	017	-52	7m		
42→41	3:90	266	-31	2m		
42→43	10:45	66	-2	3m		
44→43	25:48	176	-62	2m at 0.6m 43		
44→45	16:42	49	+7	2m		
46→45	11:33	254	+9			
46→47	9:27	045	+12	4		

Plan



Night in Amnesia - what a terrible name!

XS



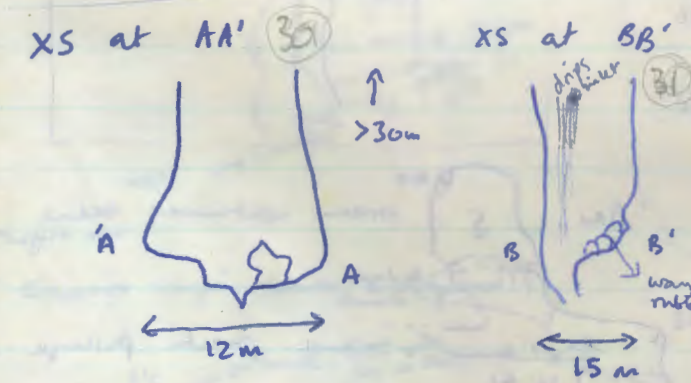
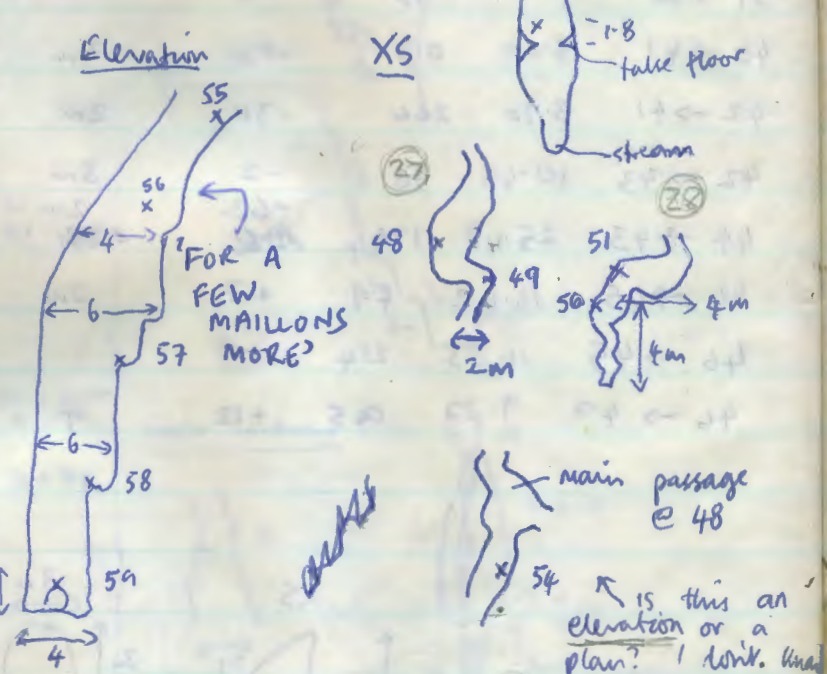
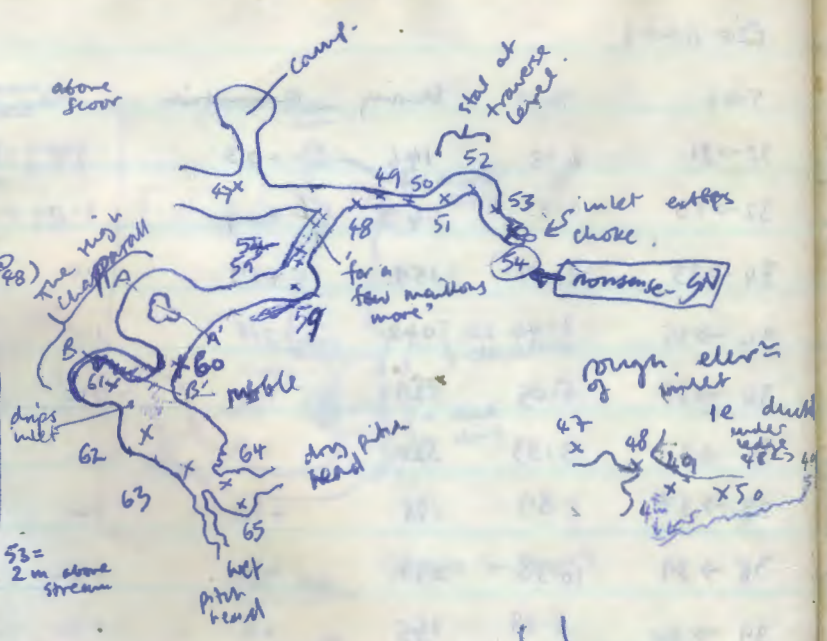
THE HIGH CHAPARRAL

FOR A FEW
MILLIONS
MORE

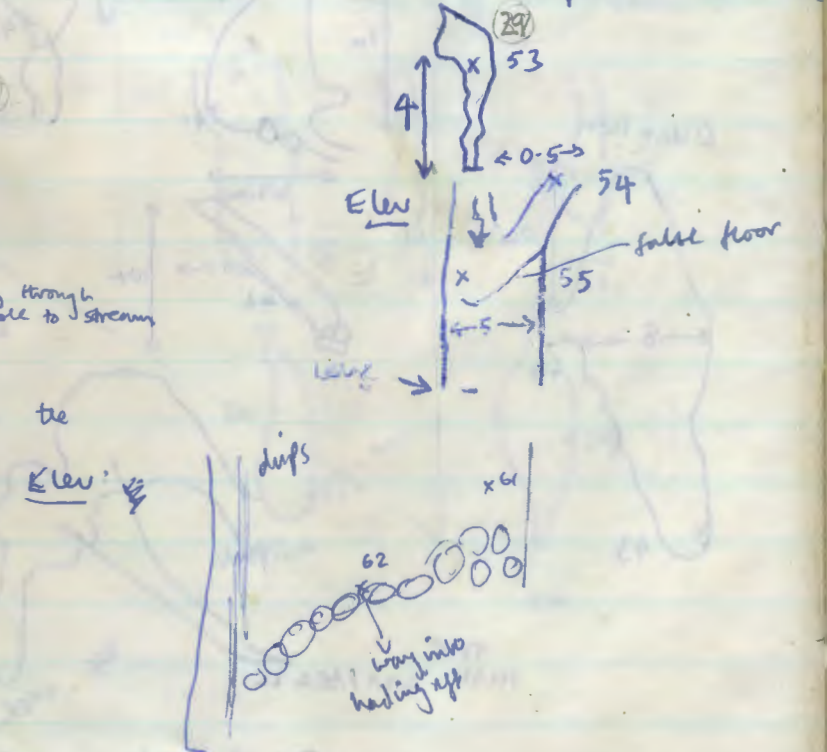
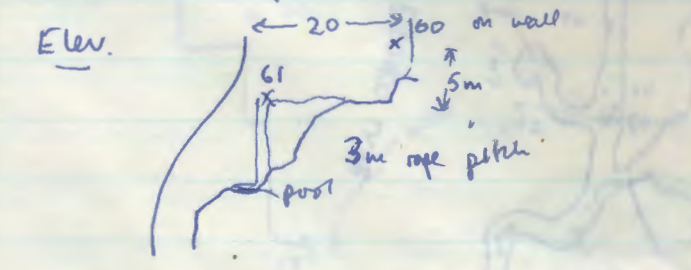
F20 survey (cont)

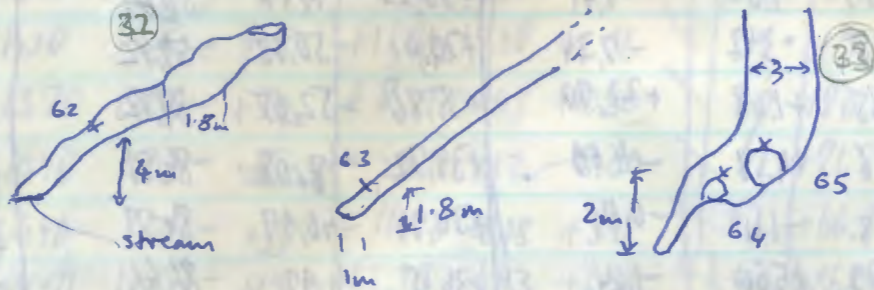
(53)

S→S	Tape	Bearing	Inclination	Av
55→56	8.40	142	-54	7
48→47	10.27	224	+10	2m (28)
48→49	3.87	004	-48	2m
50→49	5.50	240	+2	1m
50→51	5.42	346	+16	2m
52→51	3.15	177	-2	1.5
52→53	4.23	228	-25	1.5
48→54	5.35	191	-42	1m
55→54	17.86	269	+53	
55→56	8.40	142	-54	3m
57→56	15.00	188	+69	3
57→58	17.85	161	-70	4
58→59	14.25	146	-74	4
60→59	14.10	58	+08	3
61→60	13.70	83	+52	15
61→62	10.4	230	-52	
63→62	16.4	053	+35	1m
63→64	4.71	164	+12	blocks
65→64	3.41	53	-47	3



There are 2 dripping inlets in the high Chaparral, near B, & near G2.





Evaluation of the above

leg	R	g	α	Δx	Δy	Δz	Station	GN as from last year's limit of survey		
1-2	810	149	+27	+3.72	-6.19	+3.68	2	+3.72	-6.19	+3.68
3-2	7.45	294	-14	-6.60	+2.94	-1.80	3	+10.32	-2.13	+5.48
3-4	6.25	174	+51	+0.41	-3.91	+4.86	4	+10.73	-13.04	+10.34
5-4	9.10	349	-39	-1.35	+6.94	-5.73	5	+12.08	-19.98	+16.06
5-6	3.88	070	-28	+3.22	+1.17	-1.82	6	+15.30	-18.81	+14.24
7-6	5.35	223	+69	-1.31	-1.40	+4.99	7	+16.61	-17.41	+9.25
7-8	5.97	100	-47	+4.01	-0.71	-4.37	8	+20.62	-18.11	+4.88
8-9	6.30	0	-90	0	0	-6.30	9	+20.62	-18.11	-1.42
10-9	4.10	300	+59	-1.83	+1.06	+3.51	10	+22.45	-19.17	-4.93
(variation over the whole 360° causes $\pm 2.1m$ difference in horizontal leg)										
11-10	2.10	0	+4	0	+2.09	+0.15	11	+22.45	-21.26	-5.08
12-11	2.81	244	+16	-2.43	-1.18	+0.77	12	+24.87	-20.08	-5.85
13-12	2.24	290	+45	-1.49	+0.54	+1.58	13	+26.36	-20.62	-7.44
14-13	4.90	042	+44	+2.36	+2.62	+3.40	14	+29.00	-23.24	-10.84
14-15	1.59	137	-79	+1.51	-1.62	-11.38	15	+25.51	-24.86	-22.02
16-15	10.84	042	-41	+5.47	+6.08	-7.11	16	+20.04	-30.94	-15.11
16-17	5.53	114	+64	+2.21	-0.89	+4.97	17	+22.25	-31.92	-10.14
17-18	1.78	096	-16	+1.70	-0.18	-0.49	18	+23.95	-32.10	-10.63
19-18	24.25	0	+90	0	0	+24.25	19	+23.95	-32.10	-34.88
20-19	13.14	253	+43	-9.19	-2.81	+8.96	20	+33.14	-29.29	-43.84
20-21	9.84	184	+13	-0.67	-9.56	+2.21	21	+32.48	-38.86	-41.63
22-21	5.70	027	-13	+2.52	+4.95	-1.28	22	+29.95	-43.81	-40.34
22-23	6.95	217	-71	-1.36	-1.81	-6.57	23	+28.59	-45.61	-46.91
24-23	1.38	289	+83	-1.01	+0.56	+0.75	24	+29.60	-46.17	-47.67

433

Evaluation of above P20 Survey (cont'd) 8/8/86 G.N.

leg	R	g	d	E			N			Station
				Δx	Δy	Δz	Δx	Δy	Δz	
24-25	2.84	157	-58	+0.59	-1.39	-2.41	+30.19	-47.56	-50.07	25
25-26	8.10	183	-65	-0.18	-3.42	-7.34	+30.01	-50.98	-57.42	26
27-26	2.350 2.86	155 286	55 +75	-5.85	+1.68	+22.70	+35.86	-52.65	-80.12	27
27-28	2.15 2.10	122 122	41 41	+2.86	+4.58	-4.69	+38.72	-48.08	-84.81	28
29-28	2.10 5.32	122 351	10 18	+1.78	-1.11	-0.04	+36.94	-46.97	-84.77	29
29-30	5.32 0	351 0	18 -90	-0.79	+5.00	-1.64	+36.15	-41.97	-86.41	30
31-30	15.45	0	-90	0	0	-15.45	+36.15	-41.97	-70.26 (note -)	31
32-31	2.33	146	-3	+1.30	-1.93	-0.12	+34.85	-40.04	-70.84	32
32-33	2.35	043	+4	+1.60	+1.71	+0.16	+36.45	-38.33	-70.68	33
34-33	3.09	159	+19	+1.05	-2.93	+1.01	+35.40	-35.60	-71.68	34
34-35	3.44	042	-18	+2.19	+2.43	-1.06	+37.59	-33.17	-72.95	35
36-35	5.05	128	+4	+3.97	-3.10	+0.35	+33.62	-30.06	-73.10	36
36-37	3.33	320	+4	-2.14	+2.54	+0.23	+31.48	-27.52	-72.87	37
38-37	2.89	198	+30	-0.77	-2.38	+1.45	+32.26	-25.14	-74.31	38
38-39	10.38 10.38	297	-11	-9.08	+4.63	-1.98	+23.18	-20.51	-76.29	39
39-40	0.68	345	+8	-0.17	+0.65	+0.09	+23.00	-19.86	-76.20	40
40-41	13.80	017	-52	+2.48	+8.12	-10.87	+25.49	-11.74	-87.07	41
42-41	3.90	266	-31	-3.33	-0.23	-2.01	+28.82	-11.51	-85.06	42
42-43	10.45	066	-2	+9.54	+4.25	-0.36	+38.36	-7.26	-85.43	43
44-43	25.48	176	-62	+0.83	-1.93	-2.50	+39.53	+4.68	-62.93	44
44-45	6.42	049	+7	+12.30	+10.69	+2.00	+49.83	+15.37	-60.93	45
46-45	11.33	254	+9	-10.76	-3.08	+1.77	+60.59	+18.45	-62.70	46
46-47	9.27	045	+12	+6.41	+6.41	+1.93	67.00 +67.00	+24.86	-60.77	47
48-47	10.27	224	+10	-7.03	-7.28	+1.78	+74.02	+32.14	-62.56	48
48-49	3.87	004	-48	+0.18	+2.58	-2.88	+74.20	+34.72	-65.43	49
50-49	5.50	240	+2	-4.76	-2.75	+0.19	+78.96	+32.47	-65.63	50
50-51 50-51	5.42	346	+16	-1.26	+5.06	+1.49	+77.70	+42.53	-64.13	51
52-51	3.15	177	-2	+0.16	-3.14	-0.11	+77.54	+45.67	-64.02	52
52-53	4.23	228	-25	-2.85	-2.57	-1.79	+74.69	+43.10	-65.81	53
54-53	5.35	191	-42	-0.76	-3.40	-3.58	+73.26	+28.24	-66.14	54
55-54	17.86	269	+53	-10.75	-0.19	+14.26	+84.01	+28.42	-80.40	55
55-56	8.40	142	54	+3.04	-3.89	-6.80	+87.05	+24.53	-87.20	56

down

Crossing
upstream

by	R	9	4	0x	0y	0z	Station	X	Y	Z
57-58	15.20	188	+69	-0.75	-5.32	+14.00	57	+87.80	+29.86	-101.20
58-59	17.85	160	+70	+1.99	-5.77	-16.77	58	+89.79	+24.08	-112.97
59-60	14.25	146	-74	+2.20	-3.26	-13.70	59	+91.98	+20.83	-131.69
60-61	12.70	083	+52	+8.37	+1.03	+10.80	60	+80.14	+13.43	-132.63
61-62	10.40	230	-52	-4.90	-4.12	-8.20	61	+71.77	+12.40	-144.43
62-63	16.40	053	+35	+10.73	+8.08	+9.41	62	+66.86	+8.28	-152.63
63-64	4.71	164	+12	+1.27	-4.43	+0.98	63	+56.14	+0.20	-162.03
64-65	3.41	053	-47	+1.86	+1.40	-2.49	64	+57.41	-4.23	-161.05
65-66							65	+55.55	-5.63	-158.56

-3.22
-1.62
-5.44

- depth at (63) thus seems to be -54cm, assuming last years lim. a. sur. was at -382m.
- the thing is not heading for FV56; (well not very much anyway)



present limit
(too deep for L. Victoria if surface figures are correct)

last survey pt. in 1985 F28
(F17) is at
263-86 / 93-08 / -381-84

535

F20 The final Conflict.

8/8/86

Book - Phil Duncan

Instruments - Martin May,

TAPS - Phil Rose,

Compass. 514447

Cline 510270

(N) on computer...

THE NUMBERS.

Nº	COMPAS	CLINO	TAPS	PASSAGE WIDTH	PASSAGE HEIGHT	STATION HEIGHT	(at station)
0 → 1	172	-12	4/37	2	0/5	1/5	1
2 → 1	015	+42	1/32	—	—	—	2
3 → 2	055	+55	10/15				3
4 → 3	025	+65	11/42				4
5 → 4	269	+61	14/35				5
5 → 6	228	-14	9/42	1/5	4	3	6
7 → 6	355	+22	3/66	1/5	2	1/5	7
7 → 8	250	-2	8/70	2/5	2	1/5	8
9 → 8	090	+4	6/54	1	4/5	4	9
9 → 10	219	-34	4/32	1/6	6	3	10
11 → 10	075	+10	7/2	2	6	1/5	11
11 → 12	244	+2	8/96	0/5	5	—	12
13 → 12	076	-21	17/1	1/4	—	—	13
13 → 14	250	-1	27/6	2	INLET	—	14
15 → 14	045	+22	16/6	1/5	4	1	15
15 → 16	253	0	17	0/8	—	—	16
17 → 16	041	-1	7/54	1/5	5	1/5	17
17 → 18	254	-1	22/58	1	6	1/5	18
18 → 19	250	+60	4/38	1	1	0/5	19
20 → 19	073	-6	6/6	1	1	0/5	20
20 → 21	239	-10	26/5	2	4	1/5	21
22 → 21	063	+4	10/35	1	2	0/5	22
22 → 23	254	+7	13/5				23
24 → 23	064	+6	15/75				(23)

RIFT

THE REST OF THE NUMBERS

c/o Gerhard and his hp 15C =

836

leg	East North Up			Station	as from last year's print cont'd from previous page		
	Δx	Δy	Δz		X	Y	Z
1>1	+0.59	-4.23	-0.91	1	+56.14	-9.86	-159.47
2>1	+0.25	+0.95	+0.88	2	+55.89	-10.81	-160.35
3>2	+4.77	+3.34	+8.31	3	+51.12	-14.15	-168.67
4>3	+2.04	+4.37	+10.35	4	+49.08	-18.52	-179.02
5>4	-6.96	-0.12	+12.55	5	+56.04	-18.40	-191.57
5>6	-6.79	-6.12	-2.28	6	+49.24	-24.52	-193.85
7>6	-0.30	+3.38	+1.37	7	+49.54	-27.90	-195.22
7>8	-8.17	-2.97	-0.30	8	+41.37	-30.87	-195.52
9>8	+6.52	0	+0.46	9	+34.85	-30.87	-195.98
9>10	-2.25	-2.78	-2.42	10	+32.59	-33.65	-198.39
11>10	+6.85	+1.84	+1.25	11	+25.74	-35.49	-199.64
11>12	+8.05	-3.93	+0.34	12	+17.69	-39.41	-199.33
13>12	+15.49	+3.86	-6.13	13	+2.20	-43.28	-193.20
13>14	-25.93	-9.44	-0.48	14	-23.73	-52.72	-193.68
15>14	+10.88	+10.88	+6.22	15	-34.61	-63.60	-199.90
15>16	-16.26	-4.97	0	16	-50.87	-68.57	-199.90
17>16	+4.95	+5.69	-0.13	17	-55.81	-74.26	-199.77
17>18	-21.67	-6.21	-0.39	18	-77.49	-80.47	-200.16
18>19	-2.06	-0.75	+3.79	19	-79.54	-81.22	-196.37
20>19	+6.28	+1.92	-0.69	20	-85.82	-83.14	-195.68
20>21	-22.37	-13.44	-4.60	21	-108.19	-96.58	-200.28
22>21	+9.20	+4.69	+0.72	22	-117.39	-101.27	-201.00
22>23	-12.88	+3.69	+1.65	23	-130.27	-104.96	-199.36

is this a backward leg?
or silly mid-off!

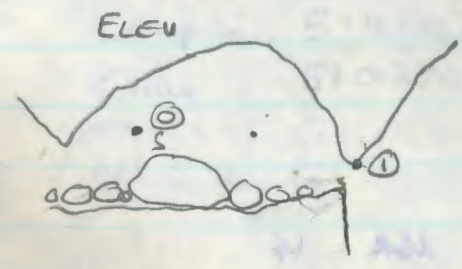
AB this must be a forward leg - have checked this (carefully) with Phil & Phil

total depth ~ 584m

COMPUTED TOTAL DEPTH (SAR) = -581.2

F20 DRAWINGS FROM LIMIT OF PREVIOUS SURVEY TO SUMP

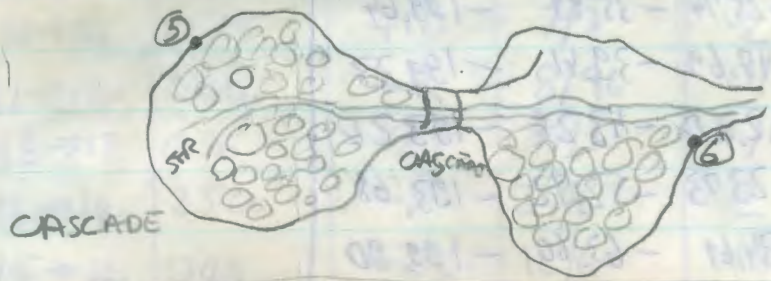
PLAN



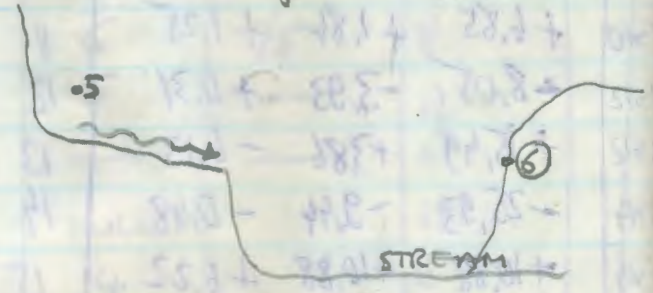
PLAN



PLAN (SPLIT AT 5)



ELEV HIGH CHAMBER



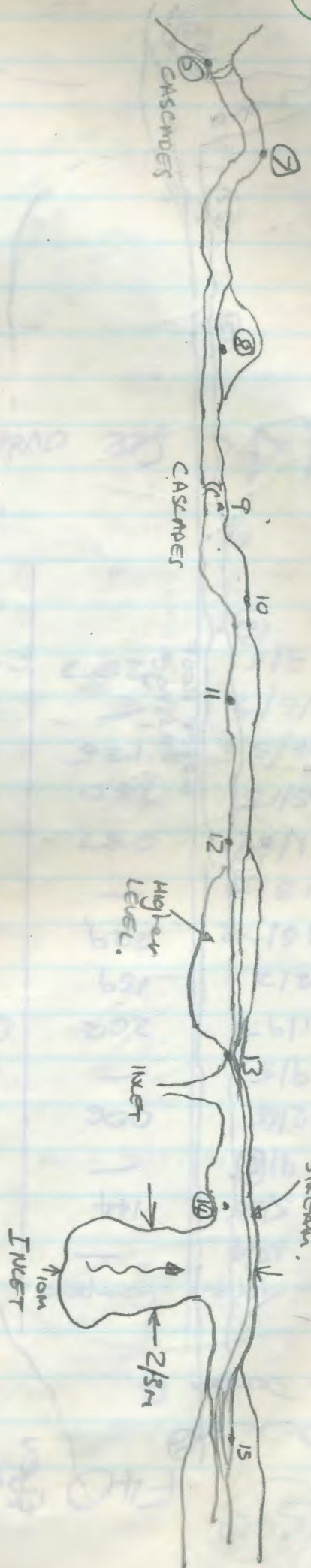
1/872

High level

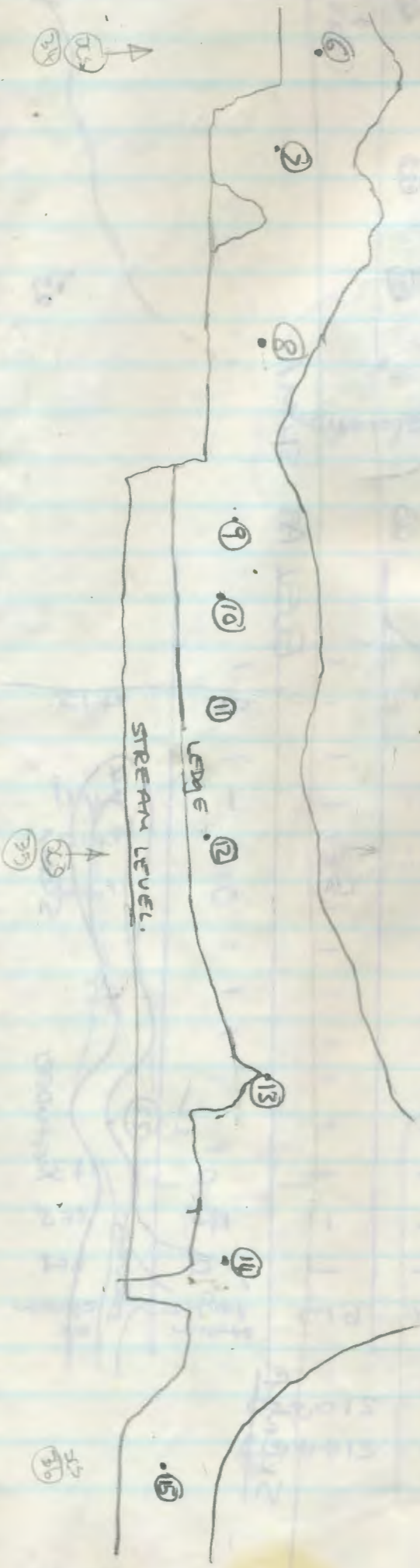
5,182 - (122) 11920 TOTAL 12040

PURETANIC CANYON.

PLAN



ELEVATION

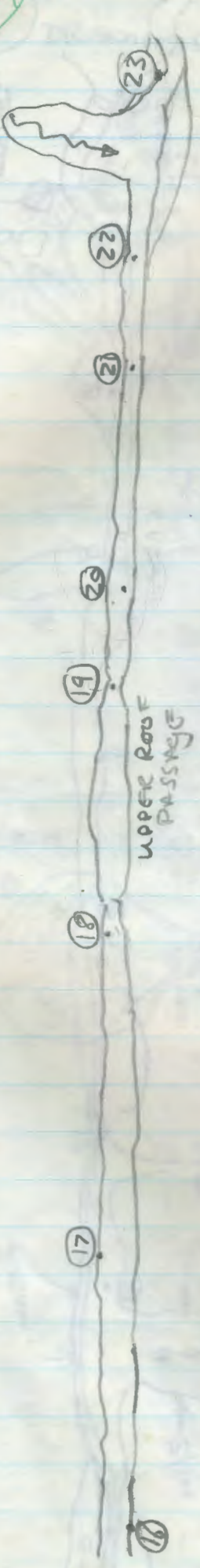


F20 PHREATIC CANYON CONT'D

PLAN

(539)

INLET



UPPER ROOF PASSAGE

ELEV

16

17

18

18

18

19

20

21

22

23

22

21

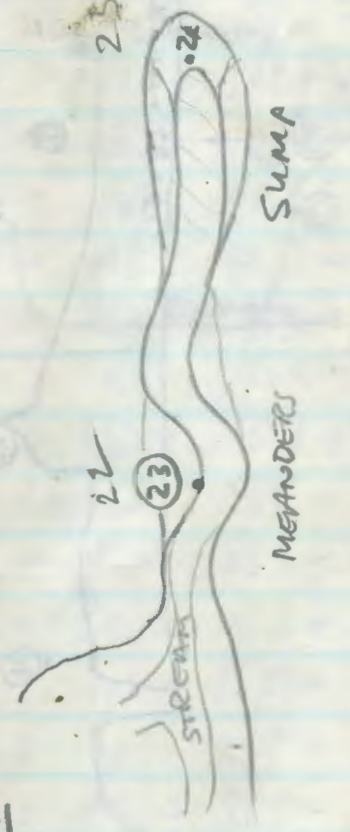
20

19

23

ELEV AT SUMP

Sump



STREAM

MEANDERS

SUMP

22

23

24

23

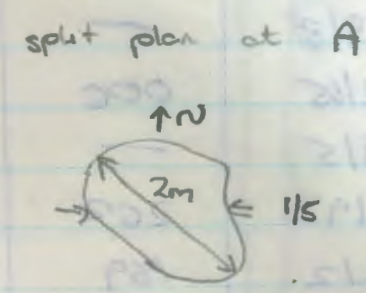
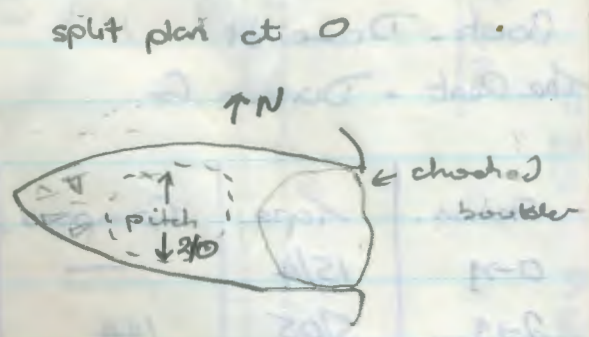
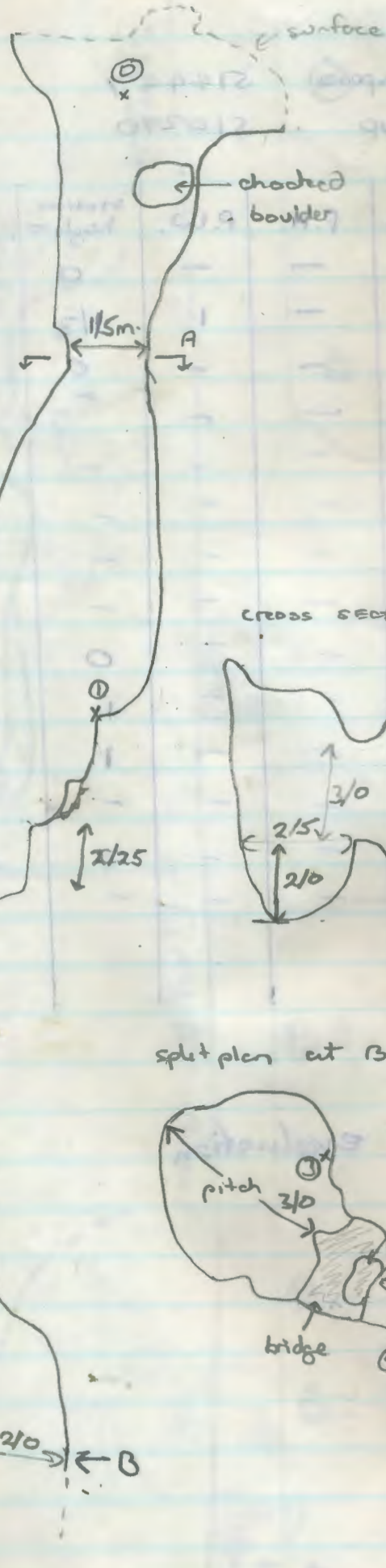
23

29

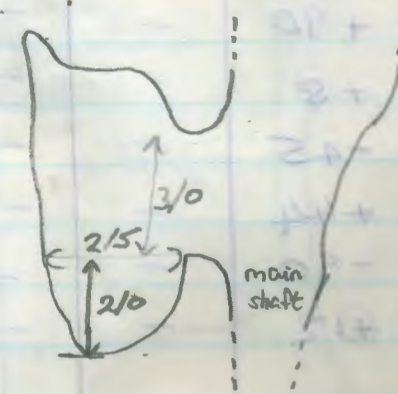
1/67m

300 fcs

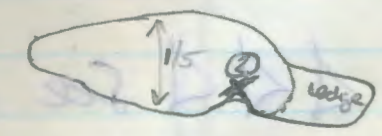
W ← → E



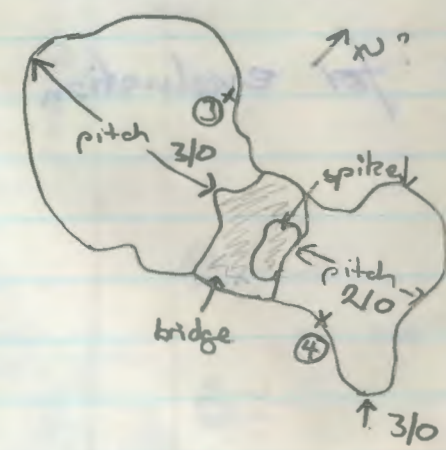
cross section at x-x



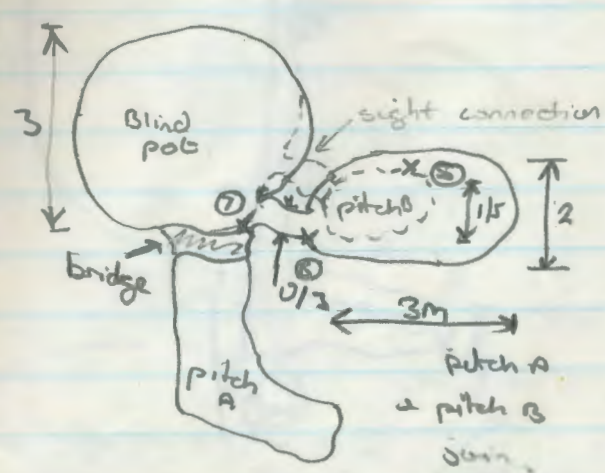
split plan at station ②



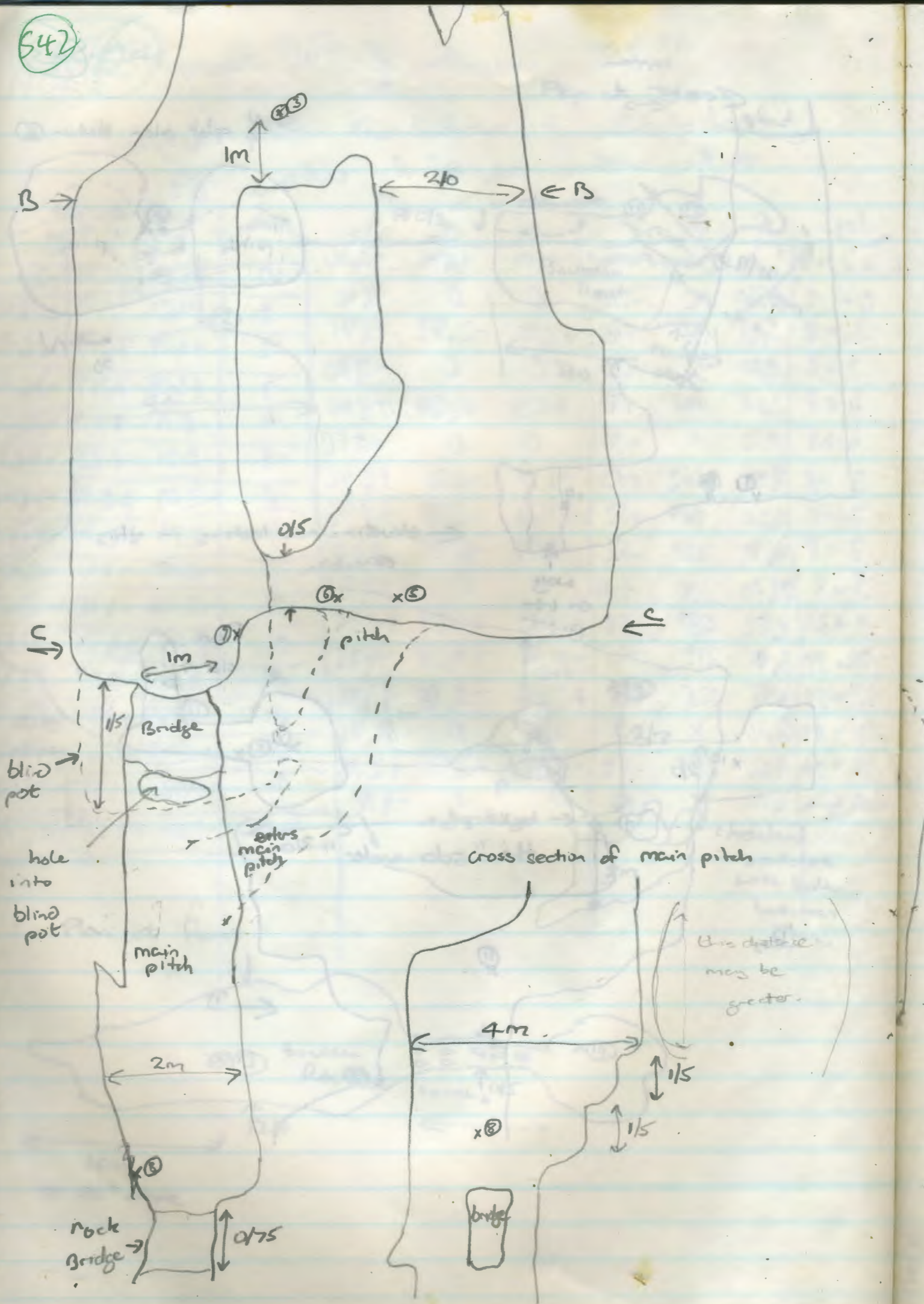
split plan at B-B



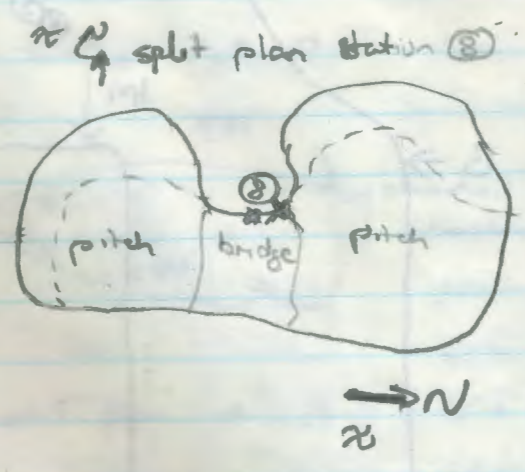
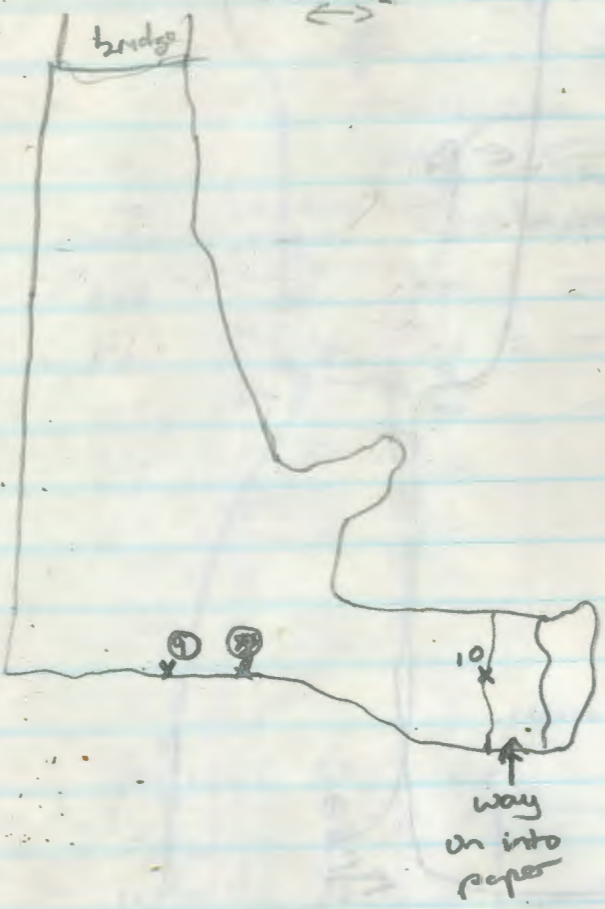
split plan at case



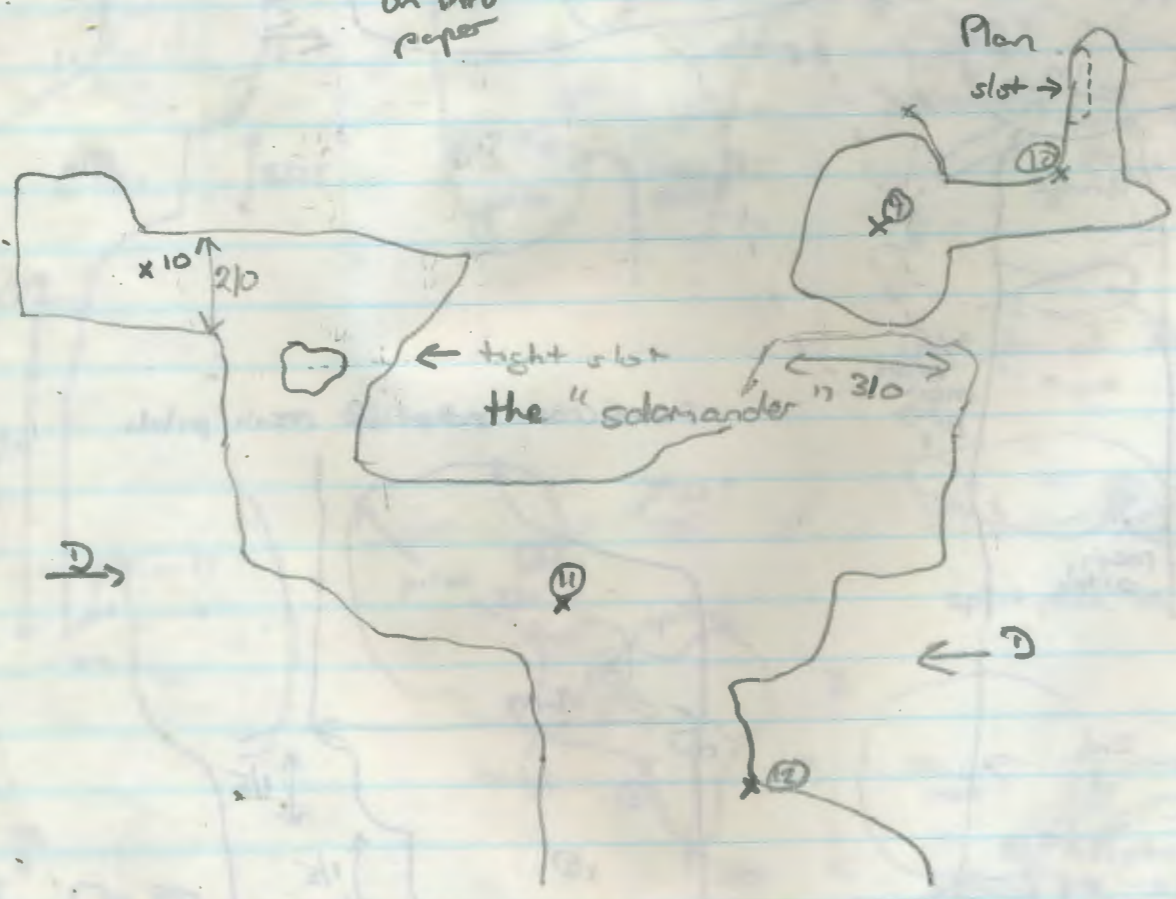
542



up river
W ← E

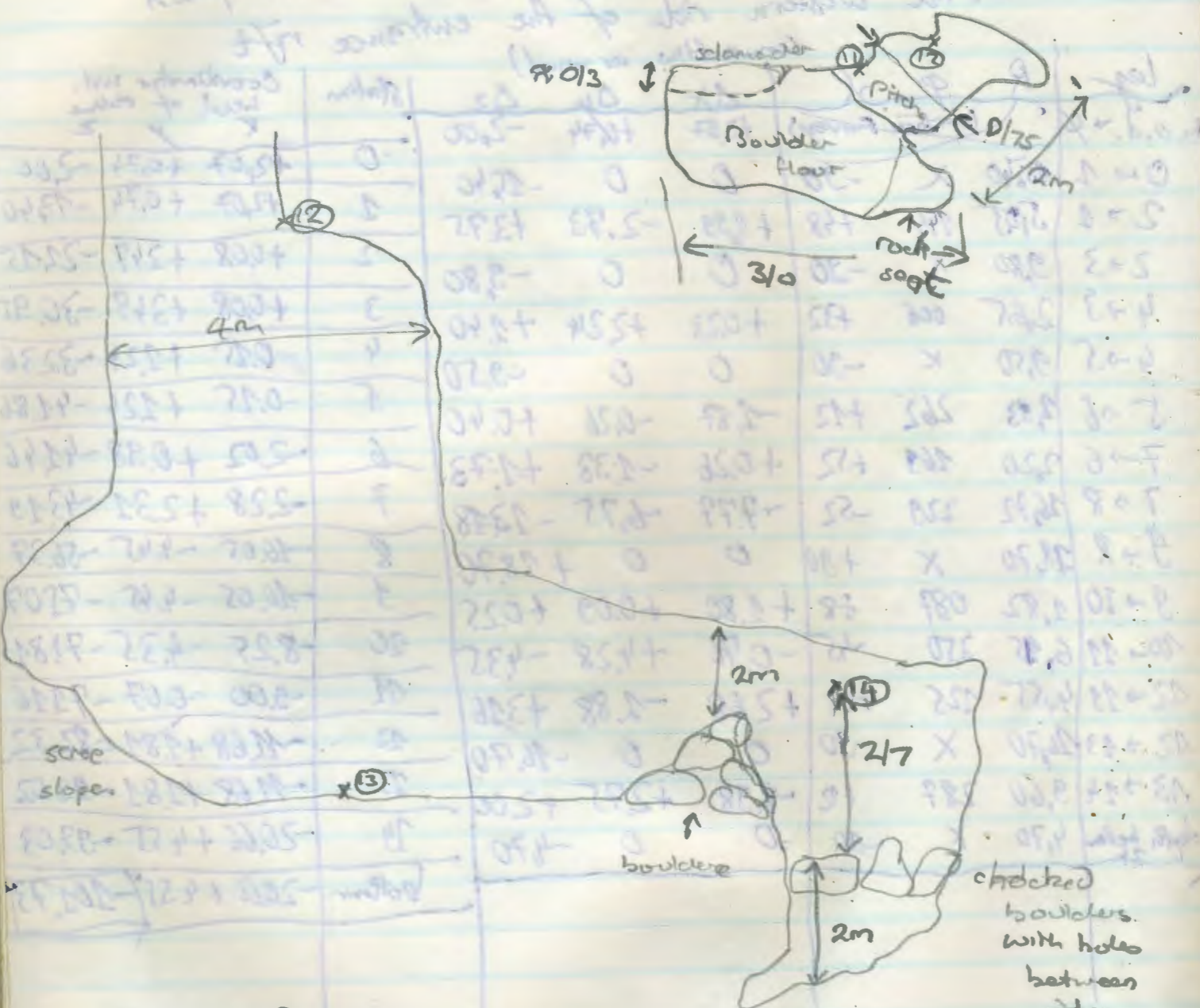


← elevations now looking in this direction

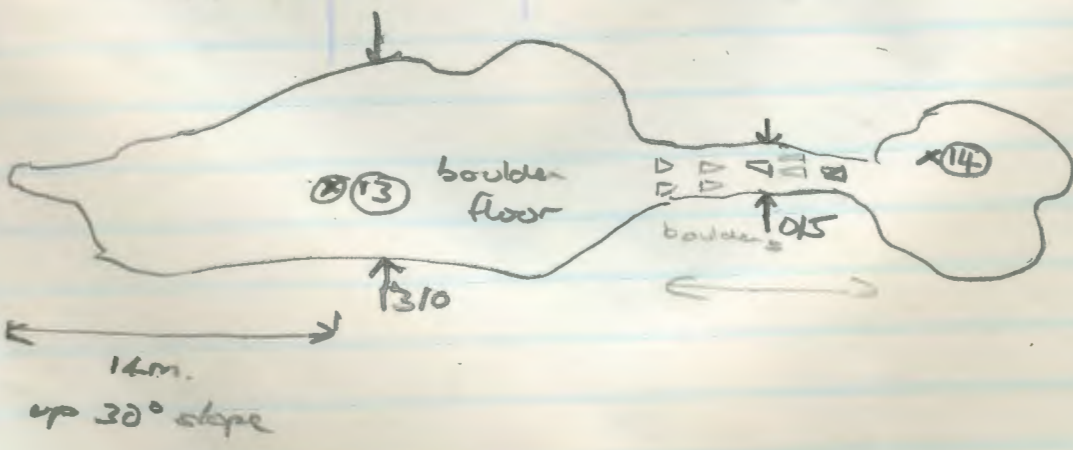


544

Plan of DEED



Plan of floor



17/8/88 evaluation of F40 survey (5.45) (90)

'head of doline' is marked with little red splash on the western side of the entrance rift

(conventions as usual)

leg	R	φ	α	Δx	Δy	Δz	station	Coordinates wrt. head of doline		
								x	y	z
o.d. → 0				+2.07	+0.74	-2.00	0	+2.07	+0.74	-2.00
0 → 1	15.40	X	-90	0	0	-15.40	1	+2.07	+0.74	-17.40
1 → 2	5.05	144	+48	+2.99	-2.73	+3.75	2	+0.08	+3.47	-24.15
2 → 3	9.80	X	-90	0	0	-9.80	3	+0.08	+3.47	-30.95
3 → 4	2.65	006	+32	+0.23	+2.24	+2.40	4	-0.15	+2.24	-32.36
4 → 5	9.50	X	-90	0	0	-9.50	5	-0.15	+2.24	-41.86
5 → 6	2.93	262	+12	-1.87	-0.26	+0.40	6	-2.02	+0.98	-41.46
6 → 7	2.20	169	+52	+0.26	-1.33	+1.73	7	-2.28	+2.31	-43.19
7 → 8	16.72	229	-52	-7.77	-6.75	-13.48	8	-10.05	-4.45	-56.37
8 → 9	18.70	X	+90	0	0	+18.70	9	-10.05	-4.45	-75.07
9 → 10	1.82	087	+88	+1.80	+0.09	+0.25	10	-8.25	-4.35	-71.81
10 → 11	6.95	350	-45	-0.76	+4.28	-4.35	11	-9.00	-0.07	-79.16
11 → 12	4.55	125	+44	+2.68	-1.88	+3.16	12	-11.68	+1.81	-82.32
12 → 13	16.70	X	-90	0	0	-16.70	13	-11.68	+1.81	-99.02
13 → 14	9.60	287	+12	-8.98	+2.75	+2.00	14	-20.66	+4.55	-97.03
depth below 24	4.70	X	-90	0	0	-4.70	bottom	-20.66	+4.55	-101.73