

Observers: CL

Center for Snow and Avalanche Studies

Profile # 1

Time: 1020 MST

Snowpack Profile

Date: 12/1/12

Location: GASP

Elev. 11,060' Aspect: NE Boot Pen: 24 cm \angle : 3°

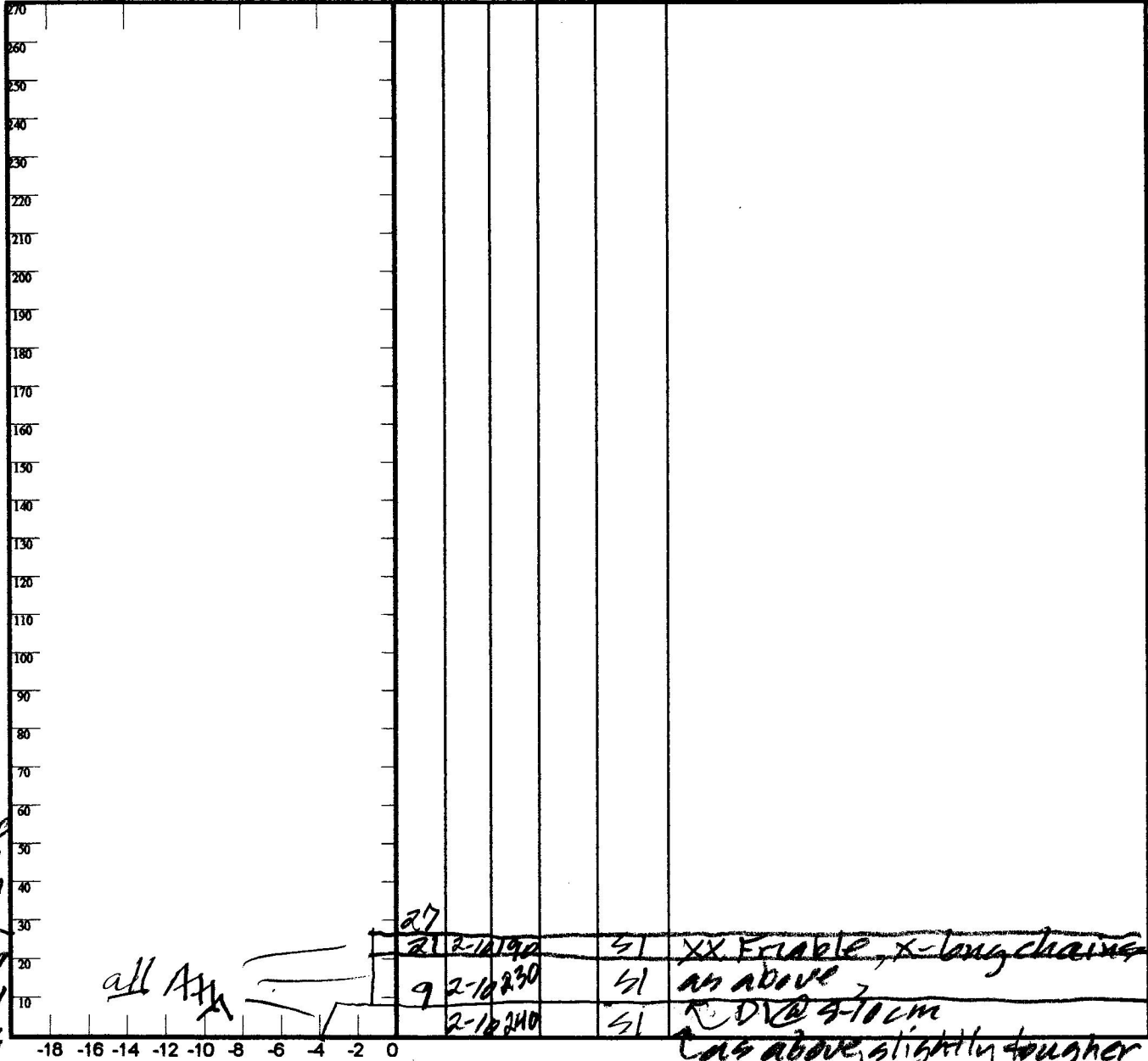
Air T: +2°C Sky: 0

Precip: Nil Wind: lt Prior Pit: # -; -1-1

Total Snowpack SWE: 55 mm H₂O

Notes: H_s = 0.25; ρ = 830 kg/m³

T° K P 1F 4F F H E ρ θ DOD Notes



SWE

55

Potential Slab				Weak Layer & Bed Surface						
Ref	$H_{2O_{Nor}} \div H_{Nor} = \rho_{kg}$	$\sin \angle \times H_{Nor} \times \rho \times 9.8 = T_{Slab}$		F	E	T _{WL}	S	C	RB	Shear Quality
A	mm \div m =	X X X 9.8 =								
B	mm \div m =	X X X 9.8 =								

Notes:

Observers: CL, AT

Center for Snow and Avalanche Studies

Profile # 2

Time: 1210

Snowpack Profile

Date: 1/2/13

Location: GASP

Elev. 16,000' Aspect: NE

Boot Pen: 78 cm \angle : 3°

Air T: -7 °C Sky: 0

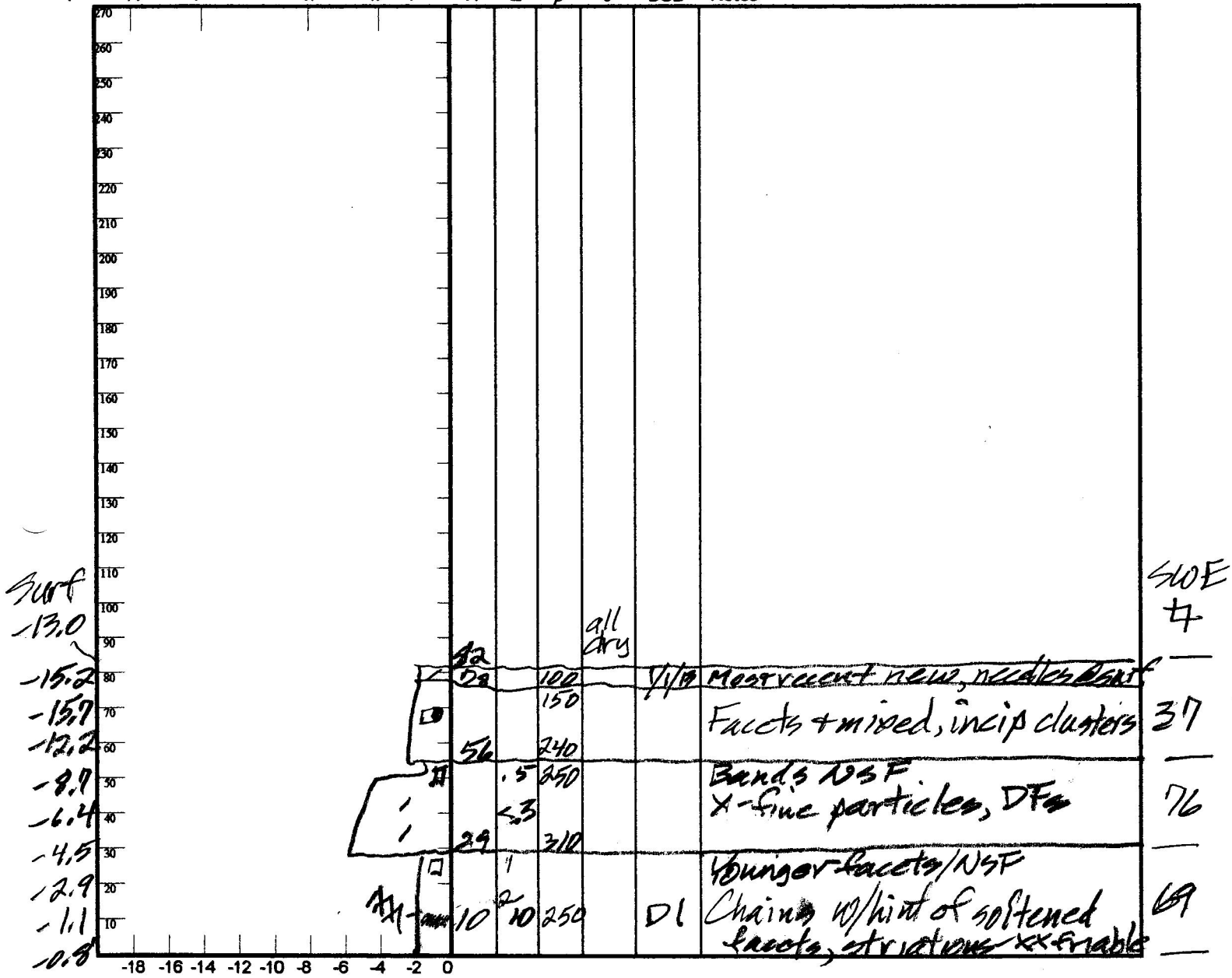
Precip: Nil Wind: Nil

Prior Pit: # 1; 12112

Total Snowpack SWE: 132 mm H₂O

Notes: H_s = 0.83m; $\rho = 219$ kg/m³

T° K P 1F 4F F H E ρ θ DOD Notes



Potential Slab				Weak Layer & Bed Surface						
Ref	$H_{2ONor} \div H_{Nor} = \rho_{kg}$	$\sin \angle \times H_{Nor} \times \rho \times 9.8 = T_{Slab}$		F	E	T _{WL}	S	C	RB	Shear Quality
A	mm \div m =	X X X 9.8 =								
B	mm \div m =	X X X 9.8 =								

Notes:

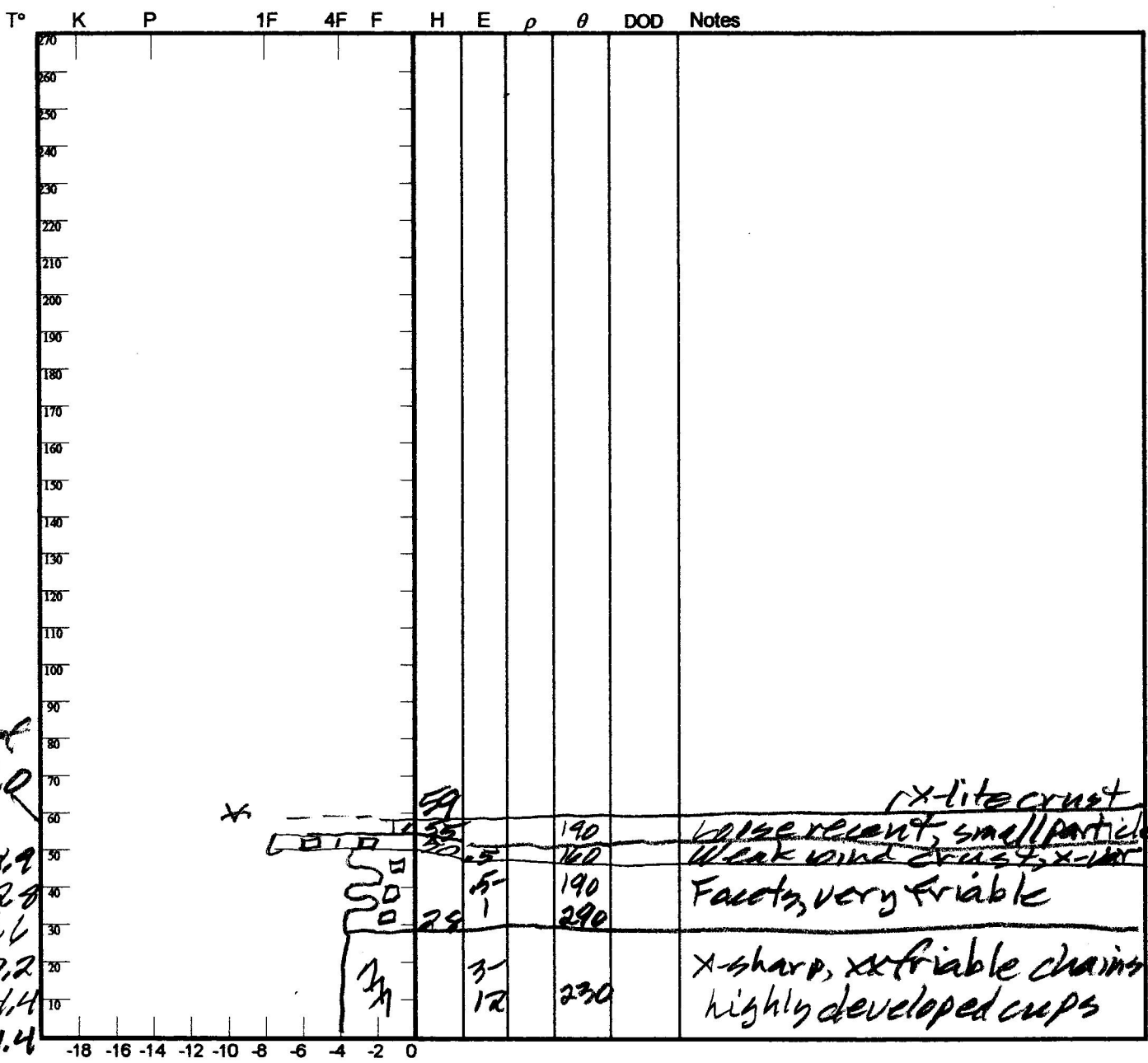
Observers: CLTAT
 Time: 1100 MST
 Location: SBS P
 Air T: -7 °C Sky: 0
 Total Snowpack SWE: 133 mm H₂O

Center for Snow and Avalanche Studies

Profile # 3

Snowpack Profile

Elev. 12,145' Aspect: NE Boot Pen: 16 cm \angle : 3°
 Precip: Nil Wind: Nil Prior Pit: # 1; 1-1
 Notes: H₂O = 0.9m; $\rho = 225$ kg/m³



Surf -21.0
 -18.9
 -12.8
 A/L
 -9.2
 -4.4
 -1.4

SWE

 62

 171

Potential Slab			Weak Layer & Bed Surface						
Ref	$H_{2O_{Nor}} \div H_{Nor} = \rho_{kg}$	$\sin \angle \times H_{Nor} \times \rho \times 9.8 = \tau_{Slab}$	F	E	T _{WL}	S	C	RB	Shear Quality
A	mm ÷ m =	X X X 9.8 =							
B	mm ÷ m =	X X X 9.8 =							

Notes:

Observers: CLTAT

Center for Snow and Avalanche Studies

Profile # 4

Time: 1100

Snowpack Profile

Date: 21/4/13

Location: SASP

Elev. 11,040' Aspect: NE

Boot Pen: 41 cm \angle : 3°

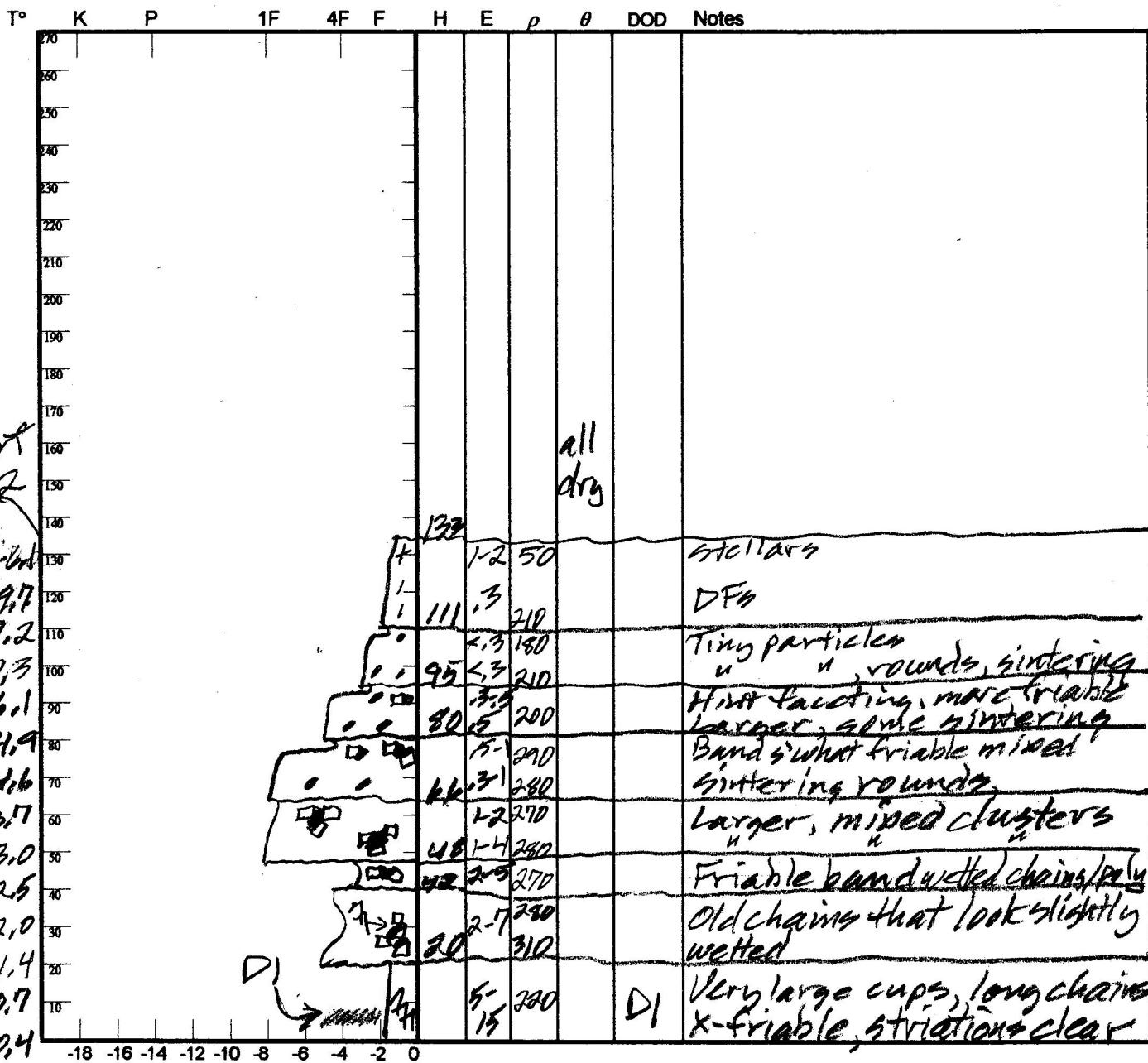
Air T: +4°C Sky: 0

Precip: Nil Wind: Nil

Prior Pit: # 2; 112113

Total Snowpack SWE: 305 mm H₂O

Notes: H_st = 1.30 m; $\rho = 235$ kg/m³



SWT
4.2
-6.1
-9.7
-9.2
-17.3
-6.1
-4.9
-4.6
-3.7
-3.0
-2.5
-2.0
-1.4
-0.7
-0.4

SWE
26
30
31
39
45
70
64

Potential Slab			Weak Layer & Bed Surface						
Ref	$H_{2O_{Nor}} \div H_{Nor} = \rho_{kg}$	$\sin \angle \times H_{Nor} \times \rho \times 9.8 = \tau_{slab}$	F	E	T _{wl}	S	C	RB	Shear Quality
A	mm ÷ m =	X X X 9.8 =							
B	mm ÷ m =	X X X 9.8 =							
Notes:									

Observers: CL, AT

Center for Snow and Avalanche Studies

Profile # 5

Time: 1030

Snowpack Profile

Date: 2/16/13

Location: Blw 4th Crust

Elev. 11,550'

Aspect: 145°

Boot Pen: 35 cm

∠: 27°

Air T: +3 °C

Sky: 0

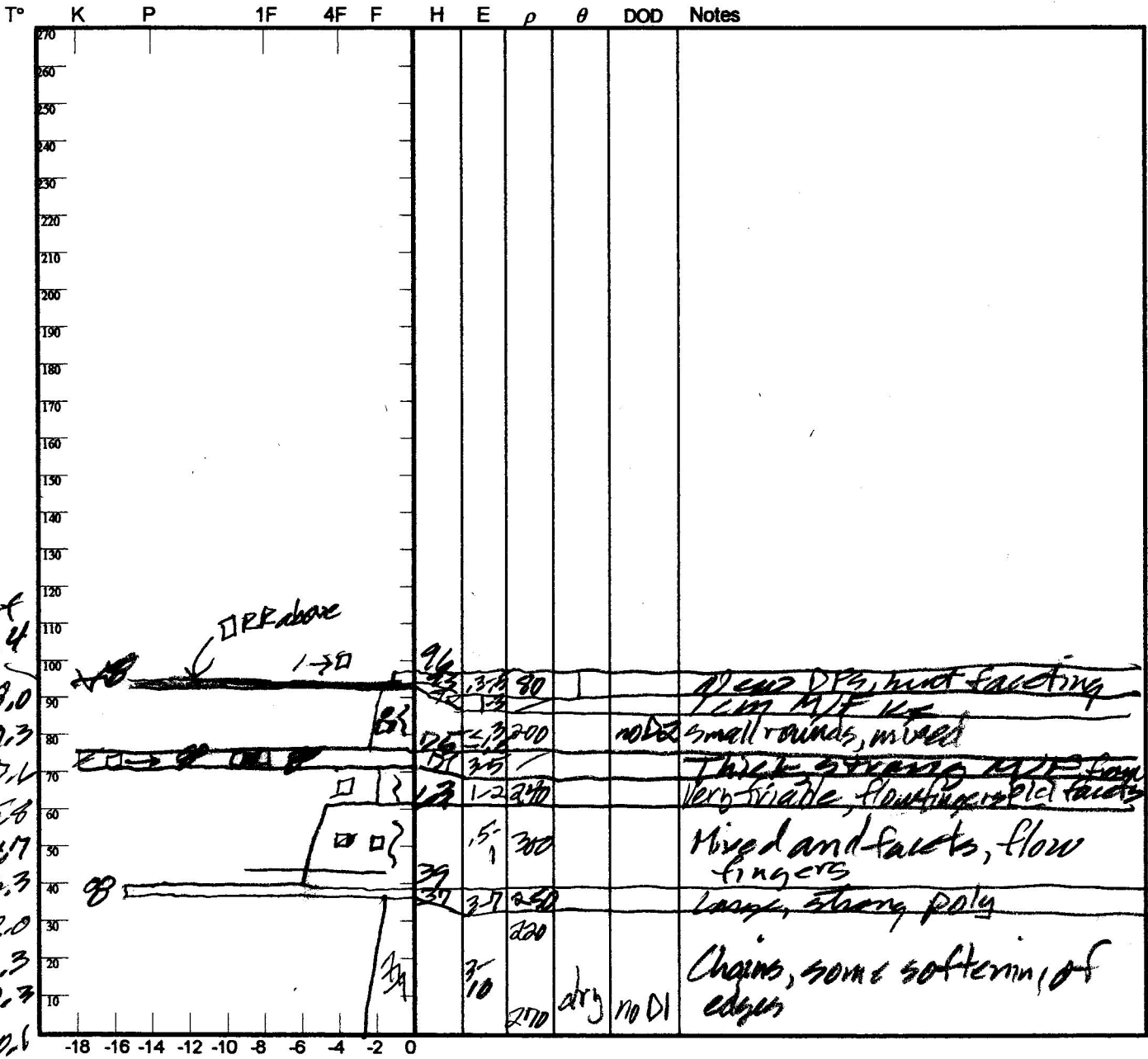
Precip: Nil

Wind: Nil

Prior Pit: # —; —

Total Snowpack SWE: 213 mm H₂O

Notes: HST = 0.92; ρ = 232 kg/m³



Potential Slab			Weak Layer & Bed Surface						
Ref	H ₂ O _{Nor} ÷ H _{Nor} = ρ _{kg}	Sin ∠ x H _{Nor} x ρ x 9.8 = T _{Slab}	F	E	T _{WL}	S	C	RB	Shear Quality
A	mm ÷ m =	X X X 9.8 =							
B	mm ÷ m =	X X X 9.8 =							

Notes: CT=0 when saw hit ~39 cm crust; CT=3 @ 92 crust
 CT=11 @ 75 cm crust; column follows in depth near W/SO's tape
 ECTA 13 in slab 75-96 cm; ECTA X; POT END @ 100 cm @ 11/20/03 level
 RB @ 75 cm level

Observers: CL, AT

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Profile # 6

Time: 1030

Snowpack Profile

Date: 3.1.13

Location: GAMP

Elev. 11,060'

Aspect: NE

Boot Pen: 40 cm

α : 3°

Air T: -5 °C

Sky: ☉

Precip: SF

Wind: 4+

Prior Pit: # 4; 2.4.13

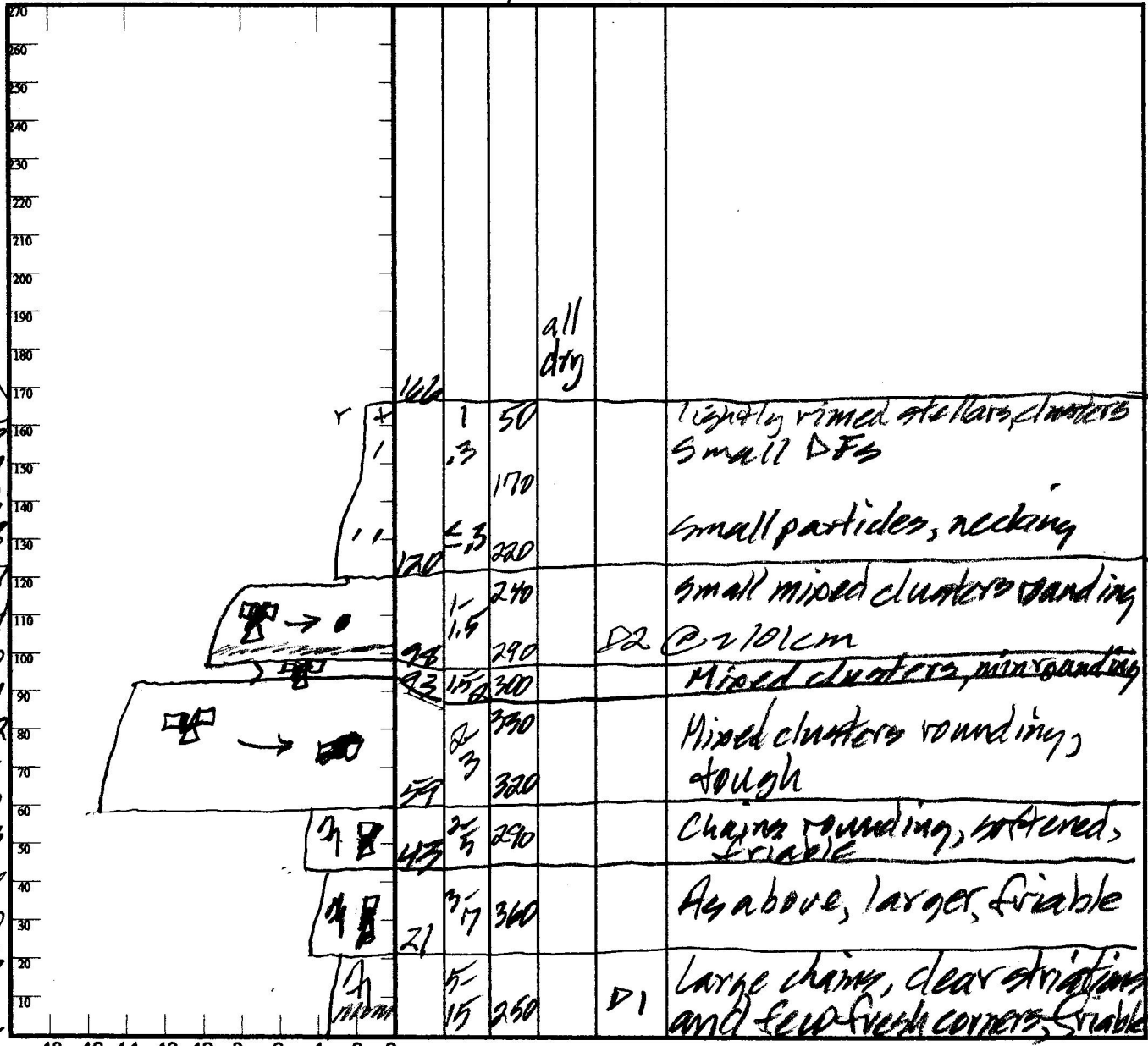
Total Snowpack SWE: 419 mm H₂O

Notes: H_{tot} = 1.65 m; $\rho = 254$ kg/m³

T° K P 1F 4F F H E ρ θ DOD Notes

Sump
-28

-3.5
-9.7
-10.6
-9.8
-8.7
-7.4
-7.0
-5.9
-5.2
-4.4
-4.0
-3.3
-2.4
-2.0
-1.6
-1.0
-0.5



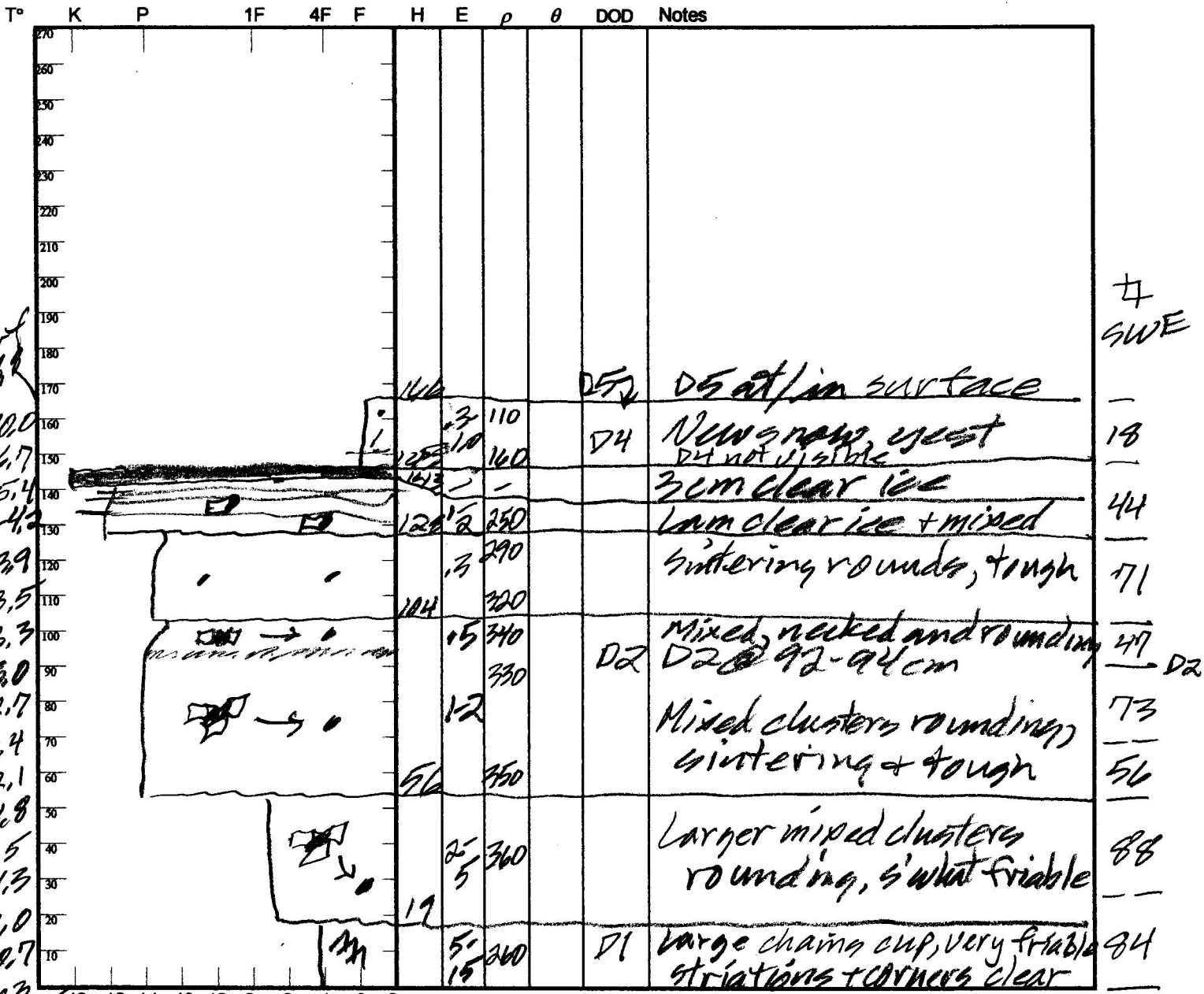
4
SWE

28
33
61
20
58
44
47
76
52

Potential Slab				Weak Layer & Bed Surface						
Ref	$H_{2O_{Nor}} \div H_{Nor} = \rho_{kg}$	$\sin \angle \times H_{Nor} \times \rho \times 9.8 = T_{Slab}$		F	E	T _{wl}	S	C	RB	Shear Quality
A	mm ÷ m =	X X X 9.8 =								
B	mm ÷ m =	X X X 9.8 =								

Notes:

Observers: CUZAT Center for Snow and Avalanche Studies Profile # 17
 Time: 0750 MST Snowpack Profile Date: 3/22/13
 Location: SASP Elev. 11,000' Aspect: NE Boot Pen: 35 cm \angle : 3°
 Air T: -6 °C Sky: Ⓚ Precip: Nil Wind: LT Prior Pit: # 4; 3/7/13
 Total Snowpack SWE: 481 mm H₂O Notes: H_s = 1.66 m ; $\rho = 290$ kg/m³
 mean $t_{not} = -3.5$



Handwritten temperature profile on the left side of the graph:
 -4.2
 -3.9
 -3.5
 -3.3
 -3.0
 -2.7
 -2.4
 -2.1
 -1.8
 -1.5
 -1.3
 -1.0
 -0.7
 -0.3
 -0.1

Handwritten notes on the right side of the graph:
 4 SWE
 18
 44
 71
 77
 73
 56
 88
 84

Potential Slab			Weak Layer & Bed Surface						
Ref	$H_{2ONor} \div H_{Nor} = \rho_{kg}$	$\sin \angle \times H_{Nor} \times \rho \times 9.8 = \tau_{slab}$	F	E	T _{wl}	S	C	RB	Shear Quality
A	mm \div m =	X X X 9.8 =							
B	mm \div m =	X X X 9.8 =							

Notes:

Observers: CLYAT

Center for Snow and Avalanche Studies

Profile # 8

Time: 0845 MDT

Snowpack Profile

Date: 4.1.13

Location: GASP

Elev. 11,060

Aspect: NE

Boot Pen: 5 cm

\angle : 3°

Air T: 12 °C

Sky: 0

Precip: N:1

Wind: LT

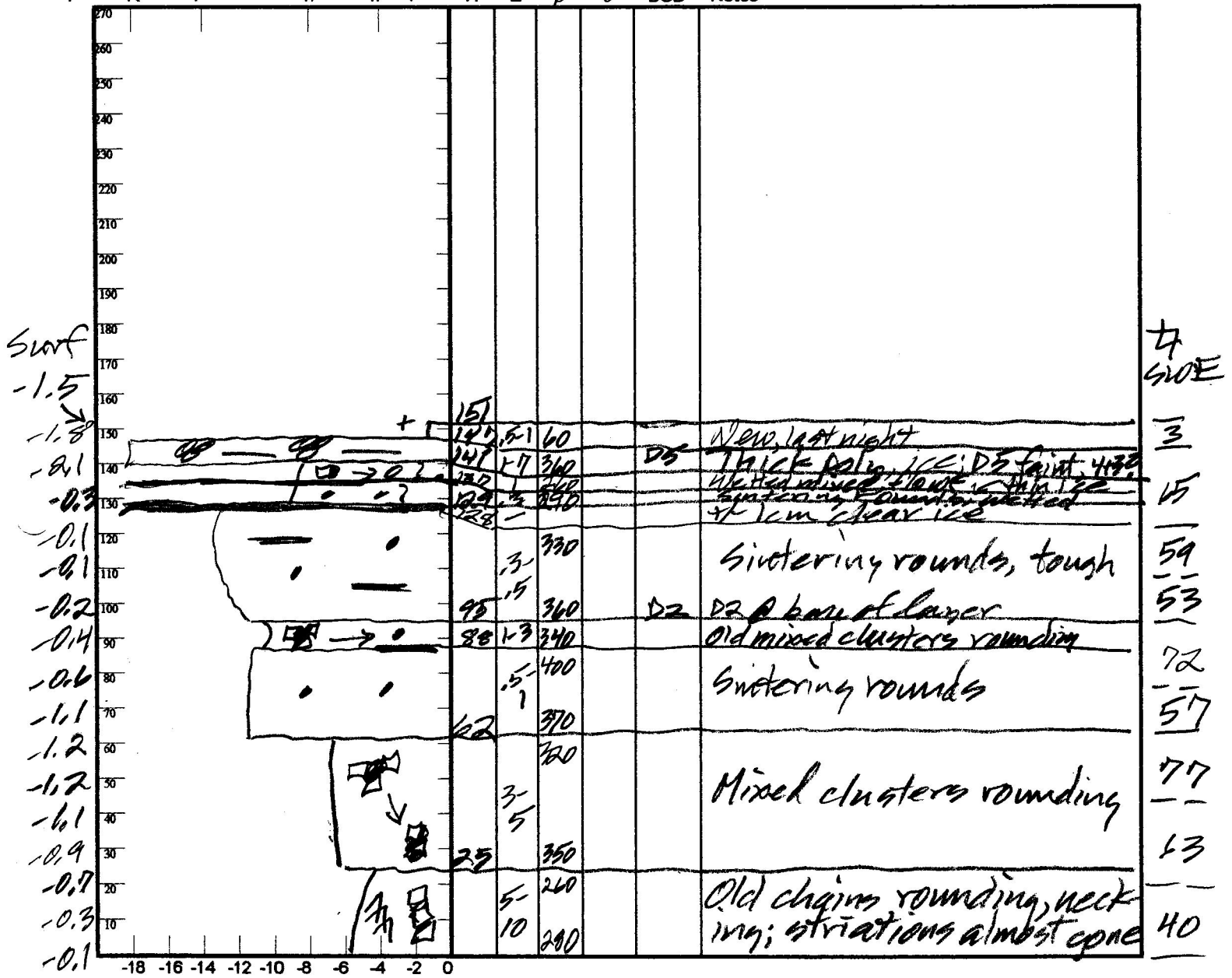
Prior Pit: # 7; 3

288/13

Total Snowpack SWE: 489 mm H₂O

Notes: H_{ice} = 1,49 m; $\bar{\rho}$ = 328 kg/m³

T° K P 1F 4F F H E ρ θ DOD Notes



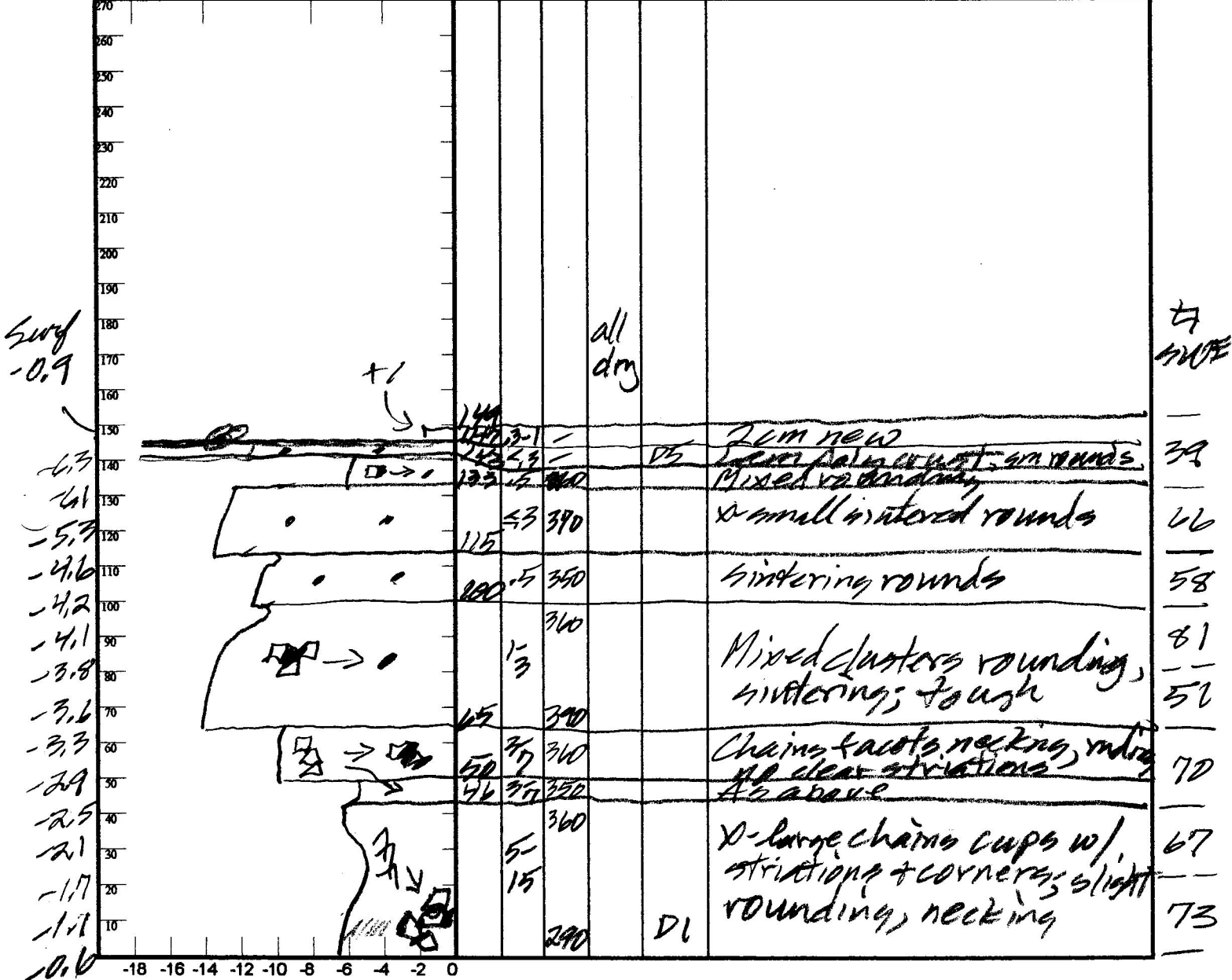
$\bar{\rho} = 0.6$

Potential Slab				Weak Layer & Bed Surface						
Ref	$H_{2ONor} \div H_{Nor} = \rho_{kg}$	$\sin \angle \times H_{Nor} \times \rho \times 9.8 = T_{Slab}$		F	E	T _{WL}	S	C	RB	Shear Quality
A	mm ÷ m =	X X X 9.8 =								
B	mm ÷ m =	X X X 9.8 =								

Notes:

Observers: CAAT Center for Snow and Avalanche Studies Profile # 9
 Time: 0915 MST Snowpack Profile Date: 4/3/13
 Location: SBP Elev. 12,140' Aspect: NE Boot Pen: 7 cm \angle : 3 °
 Air T: 2 °C Sky: ① Precip: L+-- Wind: N2:1 Prior Pit: # 3; 113113
 Total Snowpack SWE: 505 mm H₂O Notes: H₂O = 1.50 m; $\rho = 337$ kg/m³
DR not visible; mean snot = -3.1 °C

T° K P 1F 4F F H E ρ θ DOD Notes



Ref	Potential Slab			Weak Layer & Bed Surface						
	$H_{2O_{Nor}} \div H_{Nor} = \rho_{kg}$	$\sin \angle \times H_{Nor} \times \rho \times 9.8 = T_{slab}$		F	E	T _{wl}	S	C	RB	Shear Quality
A	mm ÷ m =	X X X 9.8 =								
B	mm ÷ m =	X X X 9.8 =								

Notes:

Observers: CLTAT

Center for Snow and Avalanche Studies

Profile # 20

Time: 1315

Snowpack Profile

Date: 4/10/13

Location: GAPP

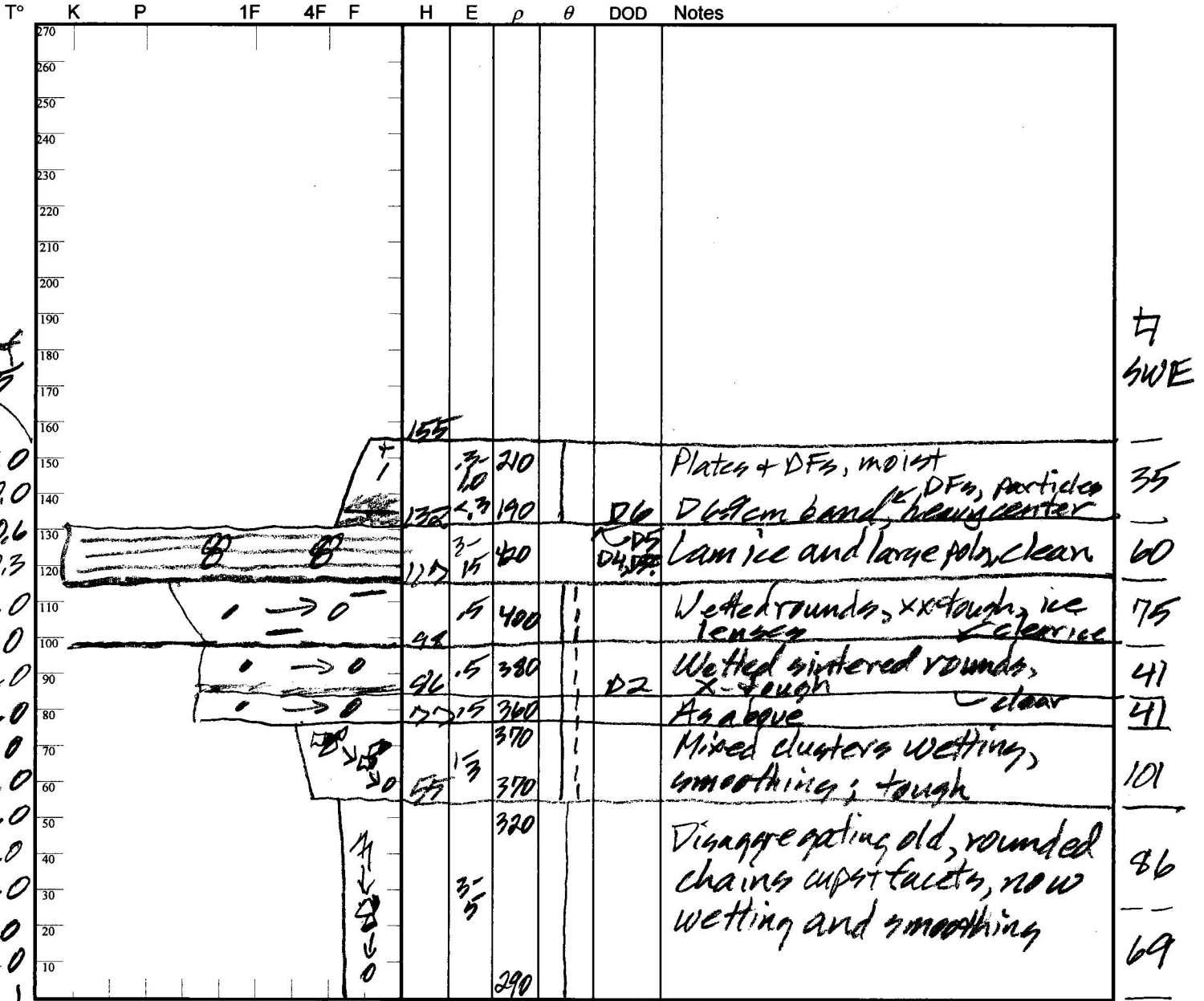
Elev. 11,060' Aspect: NE Boot Pen: 28 cm \angle : 3°

Air T: -8 °C Sky: 0

Precip: LT Wind: LT Prior Pit: # 8; 4/1/13

Total Snowpack SWE: 508 mm H₂O
mean SNOT = -0.15

Notes: H_s = 1.48m, $\rho = 343 \text{ kg/m}^3$



SURF
 -1.5
 0.0
 0.0
 -0.6
 -0.3
 0.0
 0.0
 0.0
 0.0
 0.0
 0.0
 0.0
 0.0
 0.0
 0.0
 0.0
 0.0
 0.0
 -0.15

7
 SWE
 35
 60
 75
 41
 41
 101
 86
 69

Potential Slab			Weak Layer & Bed Surface						
Ref	$H_{2O_{Nor}} \div H_{Nor} = \rho_{kg}$	$\sin \angle \times H_{Nor} \times \rho \times 9.8 = \tau_{slab}$	F	E	T _{wl}	S	C	RB	Shear Quality
A	mm ÷ m =	X X X 9.8 =							
B	mm ÷ m =	X X X 9.8 =							

Notes:

Observers: CUAAT

Center for Snow and Avalanche Studies

Profile # 12

Time: 0915 MST

Snowpack Profile

Date: 4/22/13

Location: GASP

Elev. 11,000

Aspect: NE

Boot Pen: 8 cm

\angle : 3 °

Air T: 45 °C

Sky: ⊙

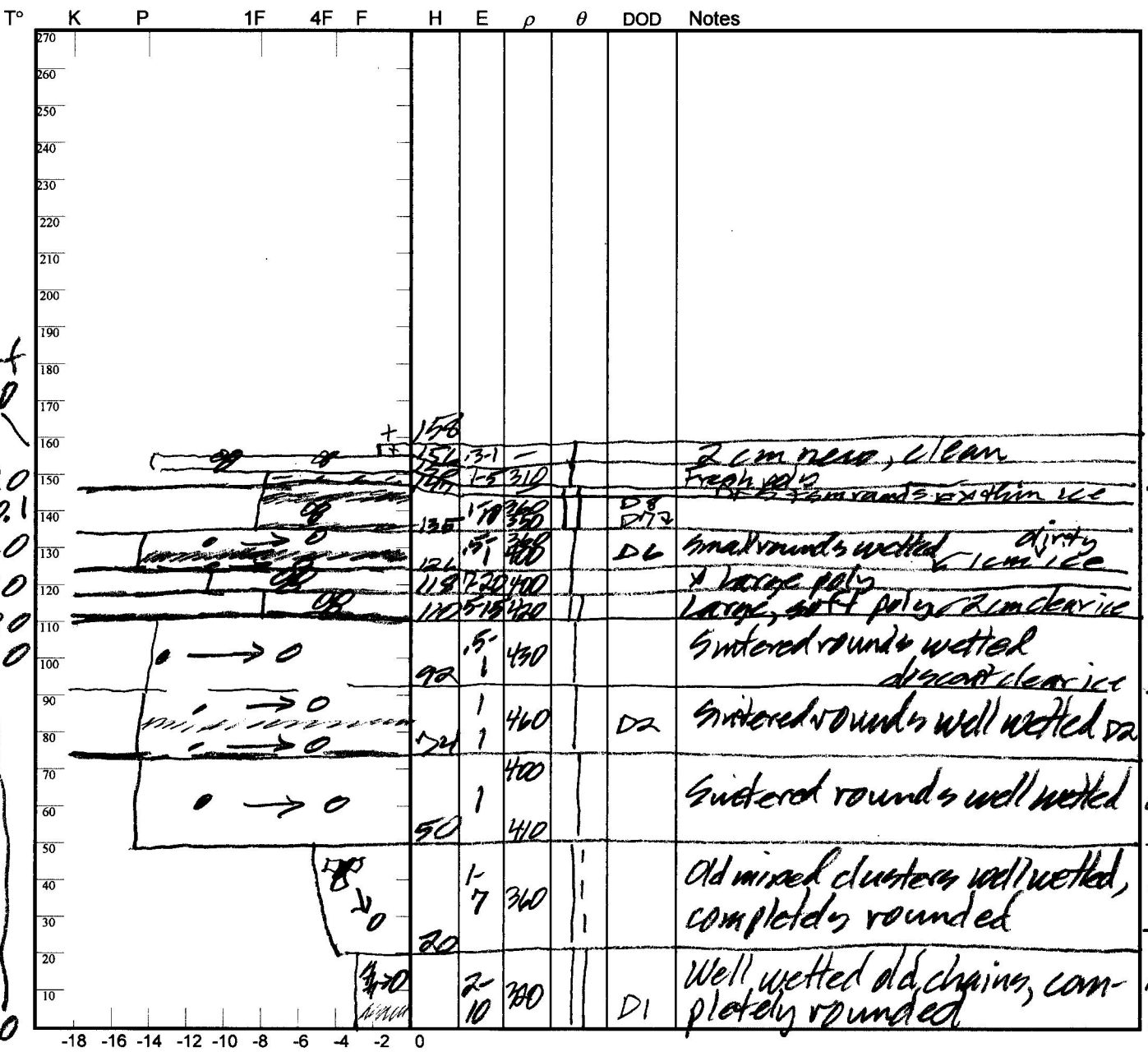
Precip: Nil

Wind: LT

Prior Pit: # 11; 4/16/13

Total Snowpack SWE: 624 mm H₂O

Notes: H₂O = 1.56 m; $\rho = 395$ kg/m³



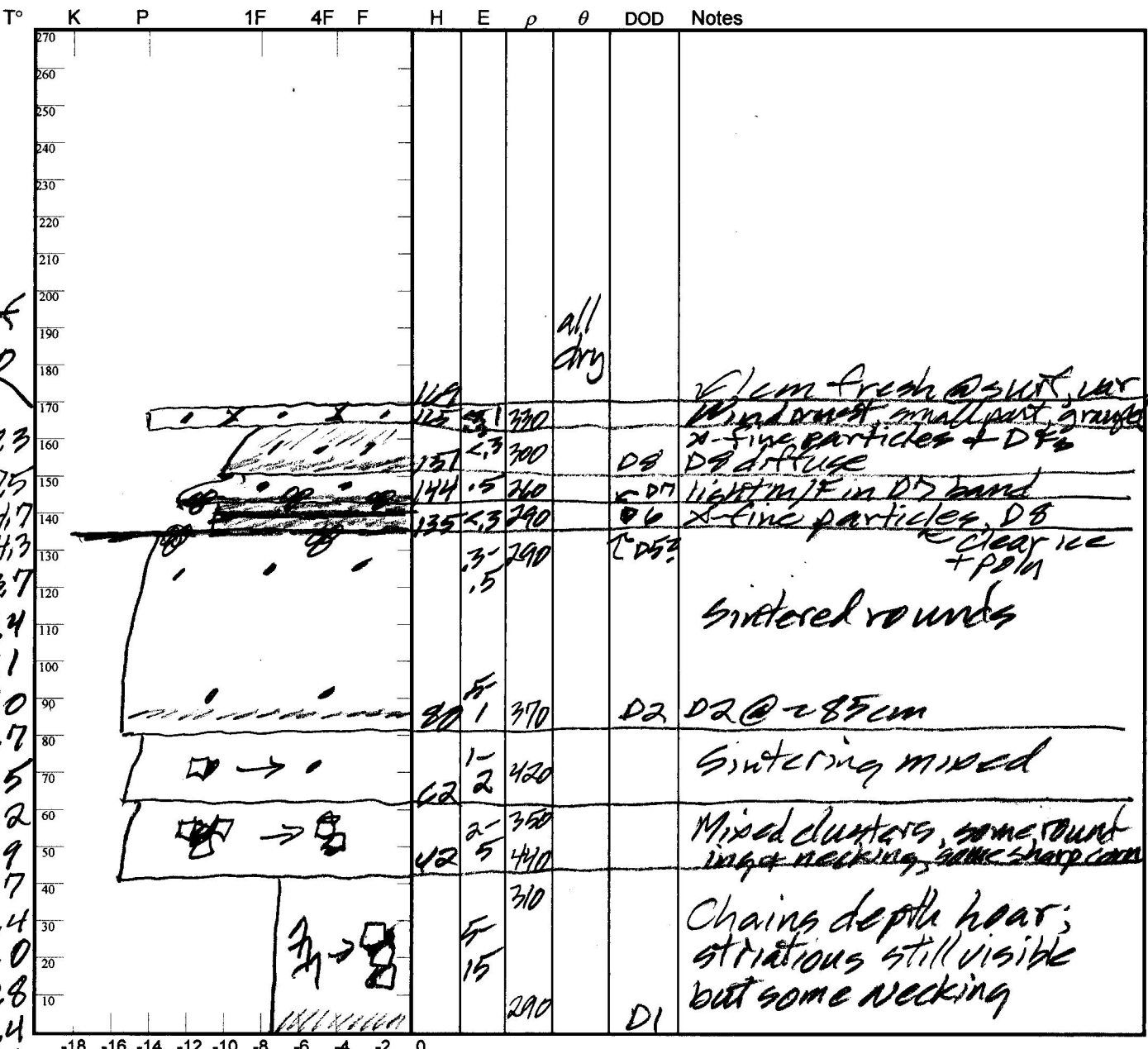
Surf 0.0
 0.0
 -0.1
 0.0
 0.0
 0.0
 0.0
 0.0

7
 SWE
 2
 24
 31
 41
 77
 76
 39
 48
 95
 86
 105

Potential Slab			Weak Layer & Bed Surface						
Ref	$H_2O_{Nor} \div H_{Nor} = \rho_{kg}$	$\sin \angle \times H_{Nor} \times \rho \times 9.8 = \tau_{Slab}$	F	E	TWL	S	C	RB	Shear Quality
A	mm \div m =	X X X 9.8 =							
B	mm \div m =	X X X 9.8 =							

Notes:

Observers: UAT Center for Snow and Avalanche Studies Profile # 13
 Time: 0845 MST Snowpack Profile Date: 4/24/13
 Location: SBCP Elev. 12,140 Aspect: NE Boot Pen: 10 cm \angle : 3 °
 Air T: 2 °C Sky: 0 Precip: Nil Wind: Nil Prior Pit: # 9; 4/3/13
 Total Snowpack SWE: 589 mm H₂O Notes: H₂O = 1.48 m; $\rho = 350$ kg/m³
mean snow T = -3.40 °C



Snow
 16.0
 -10.3
 -7.5
 -4.7
 -4.3
 -3.7
 -3.4
 -3.1
 -3.0
 -2.7
 -2.5
 -2.2
 -1.9
 -1.7
 -1.4
 -1.0
 -0.8
 -0.4
 -0.2

77
 76
 38
 41
 83
 91
 50
 77
 82
 70
 56

Potential Slab			Weak Layer & Bed Surface						
Ref	$H_2O_{Nor} \div H_{Nor} = \rho_{kg}$	$\sin \angle \times H_{Nor} \times \rho \times 9.8 = \tau_{Slab}$	F	E	T _{WL}	S	C	RB	Shear Quality
A	mm ÷ m =	X X X 9.8 =							
B	mm ÷ m =	X X X 9.8 =							

Notes:

Observers: 0750 MST Center for Snow and Avalanche Studies

Profile # 14

Time: 06 + AT

Snowpack Profile

Date: 4/30/13

Location: GASP

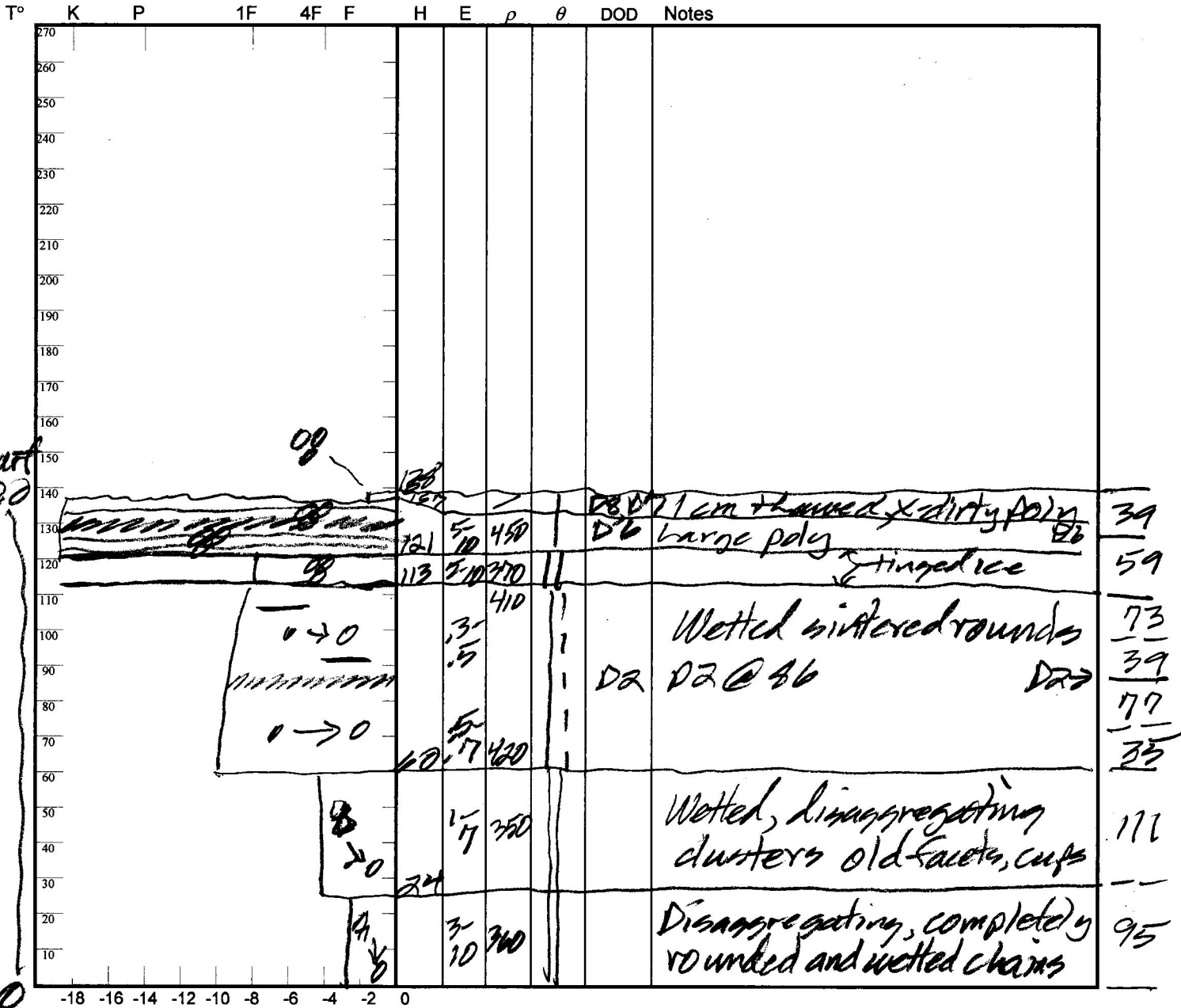
Elev. 11,000' Aspect: N/E Boot Pen: 1 cm \angle : 30

Air T: +9 °C Sky: 0

Precip: Nil Wind: LT Prior Pit: # 12; 4/23/13

Total Snowpack SWE: 528 mm H₂O

Notes: H₂O = 1,34; ρ = 380 kg/m³



Potential Slab			Weak Layer & Bed Surface						
Ref	$H_2O_{Nor} \div H_{Nor} = \rho_{kg}$	$\sin \angle \times H_{Nor} \times \rho \times 9.8 = \tau_{Slab}$	F	E	T _{WL}	S	C	RB	Shear Quality
A	mm ÷ m =	X X X 9.8 =							
B	mm ÷ m =	X X X 9.8 =							

Notes:

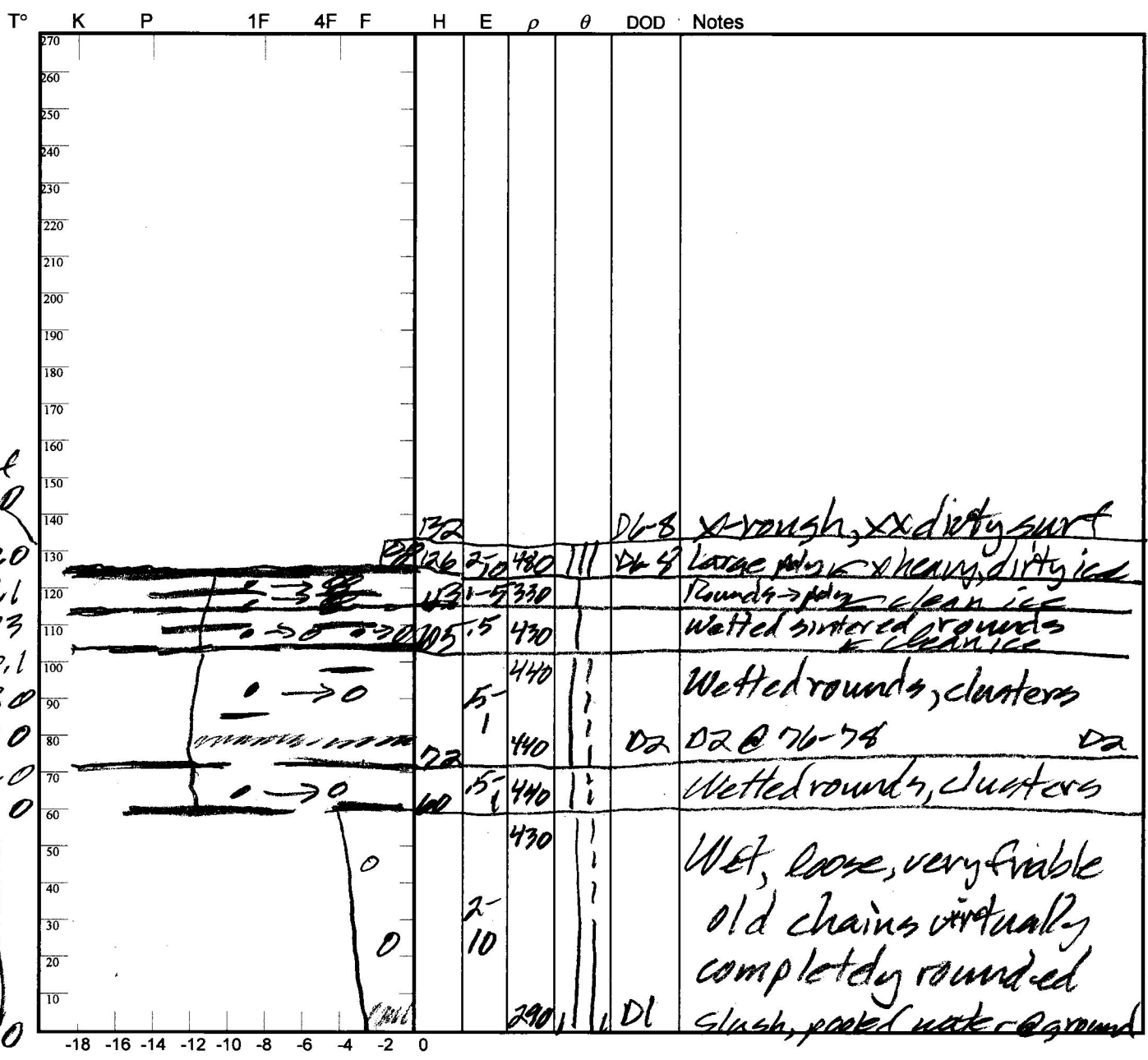
Observers: CHAT
 Time: 1030 MST
 Location: S BGP
 Air T: 0 °C
 Total Snowpack SWE: 577 mm H₂O

Center for Snow and Avalanche Studies

Profile # 15

Snowpack Profile

Elev. 11,140' Aspect: NE Boot Pen: 3 cm
 Precip: Nil Wind: lt/Mod Prior Pit: # 17; 4 24/13
 Notes: H_{GT} = 1.28 m; $\bar{\rho}$ = 416 kg/m³



4
SWE

19

73

71

64

90

91

125

Potential Slab			Weak Layer & Bed Surface						
Ref	$H_2O_{Nor} \div H_{Nor} = \rho_{kg}$	$\sin \angle \times H_{Nor} \times \rho \times 9.8 = \tau_{Slab}$	F	E	T _{wl}	S	C	RB	Shear Quality
A	mm ÷ m =	X X X 9.8 =							
B	mm ÷ m =	X X X 9.8 =							

Notes:

Observers: CR

Center for Snow and Avalanche Studies

Profile # 16

Time: 1125 MST

Snowpack Profile

Date: 5/6/13

Location: AAAP

Elev. 11,040' Aspect: NF

Boot Pen: 5 cm \angle : 3°

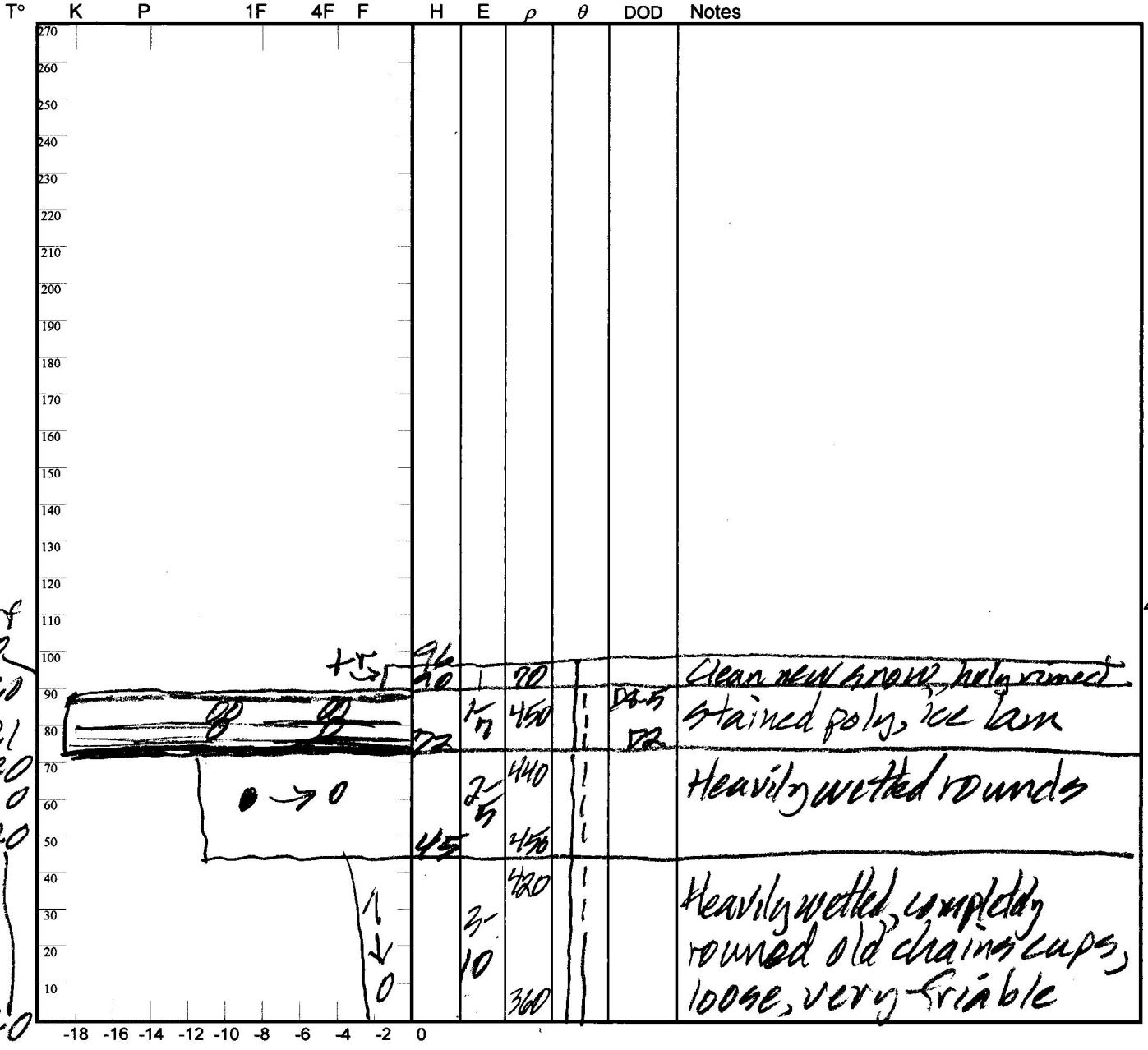
Air T: +1 °C Sky: ☉

Precip: 9" Wind: Nil

Prior Pit: # 14; 4/30/13

Total Snowpack SWE: 405 mm H₂O

Notes: H₂O = 0.96 m; $\bar{\rho} = 413 \text{ kg/m}^3$



Handwritten notes on the right side of the graph:

- 27
- 100E
- 67
- 42
- 42
- 67
- 57
- 84
- 80

Potential Slab			Weak Layer & Bed Surface						
Ref	$H_2O_{Nor} \div H_{Nor} = \rho_{kg}$	$\sin \angle \times H_{Nor} \times \rho \times 9.8 = \tau_{Slab}$	F	E	T _{WL}	S	C	RB	Shear Quality
A	mm ÷ m =	X X X 9.8 =							
B	mm ÷ m =	X X X 9.8 =							

Notes:

Observers: CLTKB

Center for Snow and Avalanche Studies

Profile # 117

Time: 0800 MST

Snowpack Profile

Date: 5/13/13

Location: SASP

Elev. 11,000' Aspect: NE

Boot Pen: 1 cm \angle : 3°

Air T: -10°C

Sky: 0

Precip: Nil

Wind: Nil

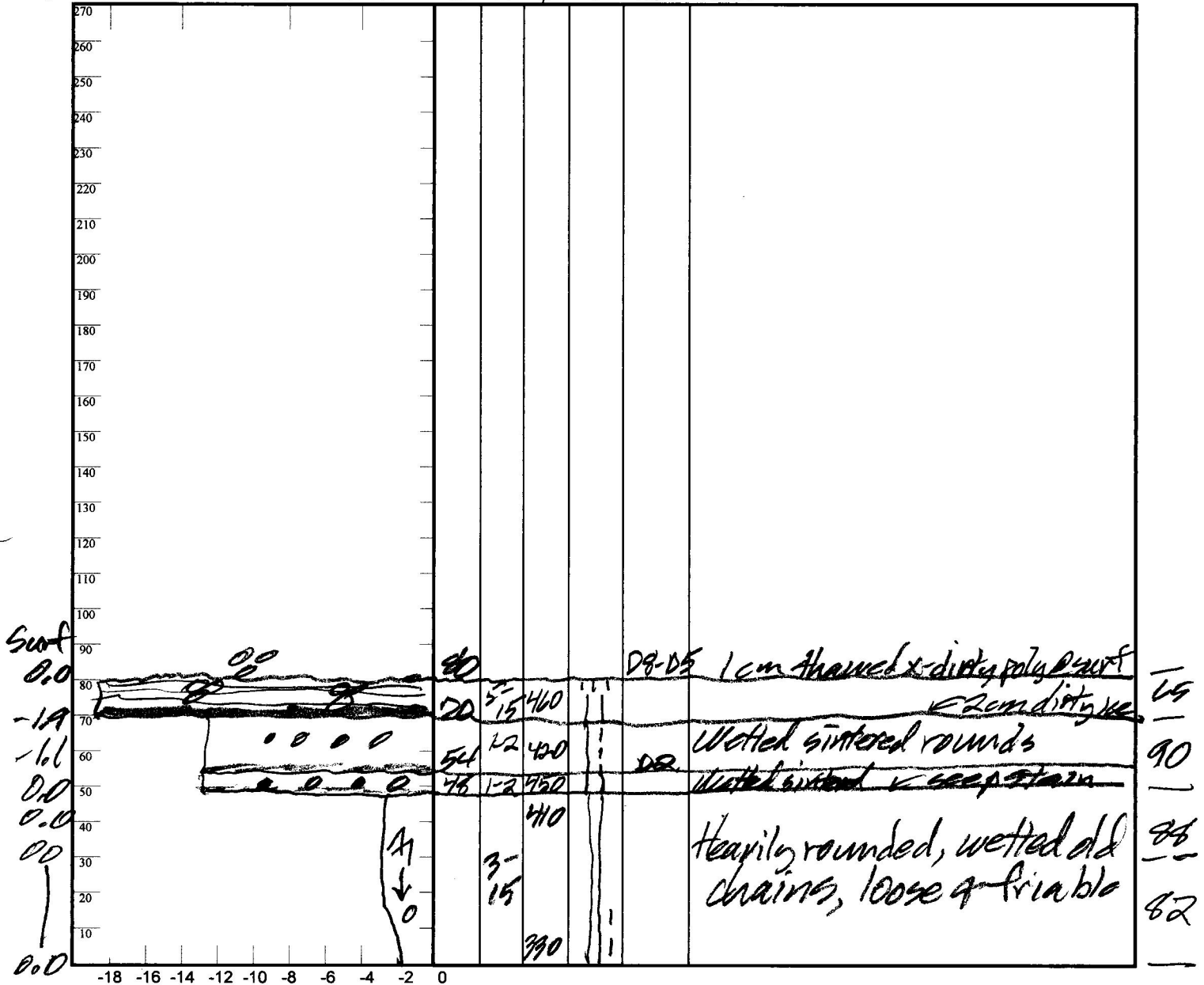
Prior Pit: # 16; 5/6/13

Total Snowpack SWE: 325 mm H₂O

Notes: H_{ice} = 0.175m; $\rho = 422$ kg/m³

collected "ALM" concentrated and 0.5m² samples - 1009, 102, 103(e)

T° K P 1F 4F F H E ρ θ DOD Notes



Potential Slab			Weak Layer & Bed Surface						
Ref	$H_2O_{Nor} \div H_{Nor} = \rho_{kg}$	$\sin \angle \times H_{Nor} \times \rho \times 9.8 = \tau_{Slab}$	F	E	T _{wl}	S	C	RB	Shear Quality
A	mm ÷ m =	X X X 9.8 =							
B	mm ÷ m =	X X X 9.8 =							

Notes:

V. 11/20/03