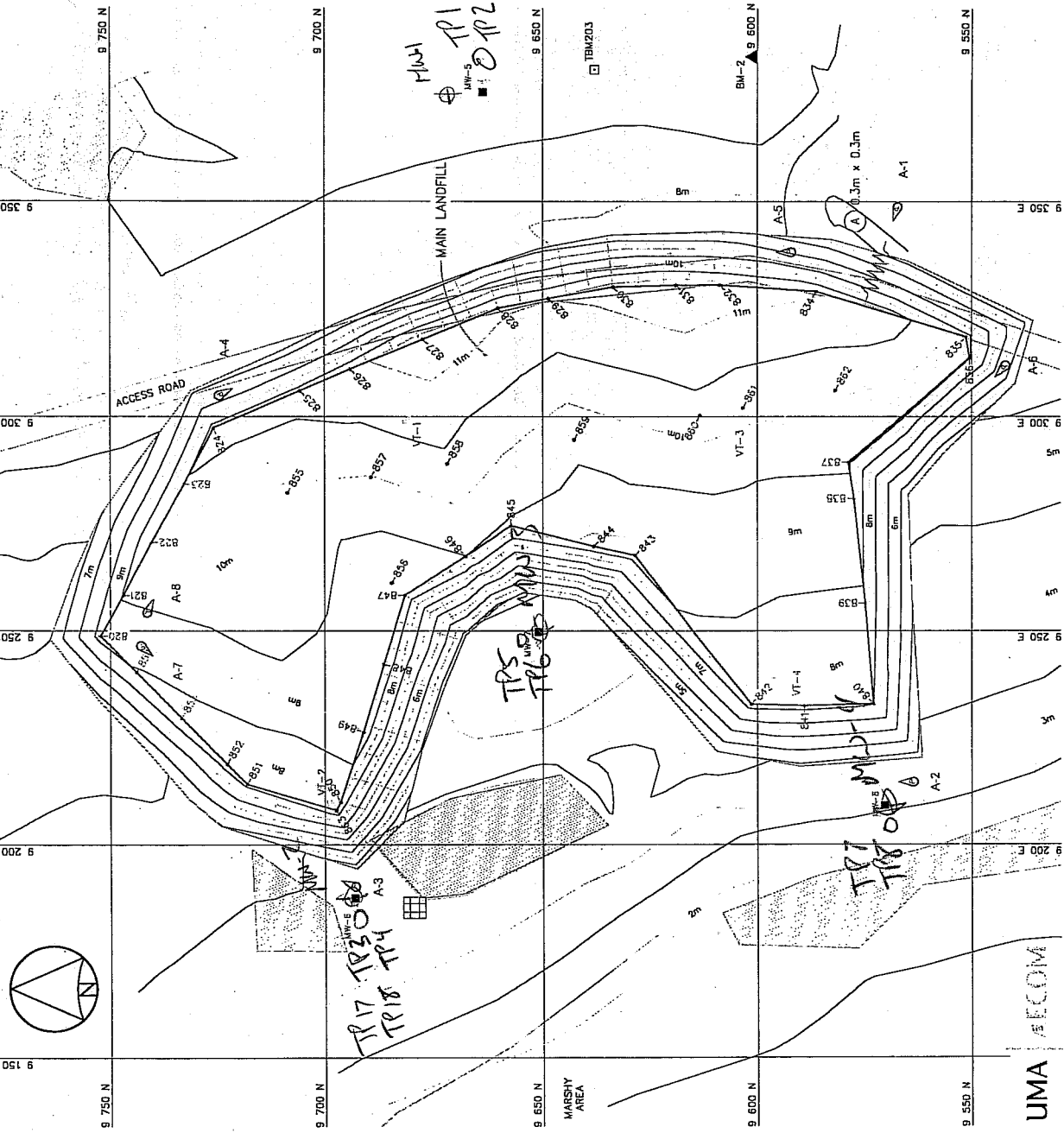
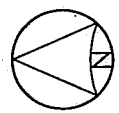




BENCHMARKS		
NO.	COORDINATES	
	NORTHING	EASTING
BM-203	9 637.763	9 380.841
BM-204	9 777.435	9 356.332
BM-205	9 601.307	9 354.159

COORDINATE POINTS (AS-BUILT)		
FINAL LANDFILL SURFACE		
NO.	NORTHING	EASTING
820	9 752.2	9 748.8
821	9 716.9	9 285.2
822	9 740.2	9 270.7
823	9 732.6	9 284.3
824	9 725.6	9 297.4
825	9 705.7	9 305.9
826	9 694.0	9 310.9
827	9 677.5	9 317.8
828	9 660.4	9 325.0
829	9 646.6	9 327.3
830	9 633.4	9 330.0
831	9 618.8	9 330.4
832	9 608.6	9 330.5
833	9 586.4	9 329.0
834	9 551.3	9 318.4
835	9 550.5	9 313.6
836	9 579.0	9 289.4
837	9 577.7	9 281.0
838	9 575.1	9 255.5
839	9 573.1	9 232.9
840	9 569.1	9 232.4
841	9 601.5	9 232.8
842	9 601.5	9 232.8
843	9 637.9	9 269.7
844	9 657.4	9 274.6
845	9 667.8	9 267.4
846	9 681.6	9 258.3
847	9 686.4	9 242.1
848	9 691.0	9 226.3
849	9 696.3	9 210.0
850	9 716.0	9 214.2
851	9 722.6	9 218.9
852	9 733.2	9 220.6
853	9 743.8	9 240.3
854	9 708.5	9 282.3
855	9 684.6	9 281.1
856	9 669.9	9 285.9
857	9 672.0	9 282.1
858	9 642.6	9 294.6
859	9 613.1	9 309.2
860	9 603.3	9 302.0
861	9 582.0	9 306.0
862	9 597.4	9 208.1
863	9 597.4	9 208.1

RECORD DRAWING
NOT FOR CONSTRUCTION

- LEGEND:
- TEMPORARY BENCHMARK
 - PERMANENT BENCHMARK
 - MONITORING WELL LOCATION
 - VERTICAL THERMISTOR
 - COORDINATE POINT
 - MONITORING SOIL SAMPLE LOCATION
 - PHOTOGRAPH REFERENCE
 - SETTLEMENT (NTS)
 - EROSION (NTS)
 - SPONDING
 - OBSERVATION OF CHECKLIST ITEM

MONITORING WELLS		
NO.	NORTHING	EASTING
1W-5	9 663.625	9 378.293
1W-6	9 683.324	9 185.410
1W-7	9 680.712	9 247.115
1W-8	9 571.386	9 205.859

THERMISTORS		
NO.	NORTHING	EASTING
VT-1	9 681.73	9 288.360
VT-2	9 658.633	9 288.668
VT-3	9 602.186	9 297.756
VT-4	9 585.565	9 233.676



Main Landfill

UMA AECOM

Thermal Monitoring Ground Temperature Annual Maintenance Report

Contractor Name: <u>Dennis L.</u>	Inspection Date: <u>Aug 16</u>
Prepared By: <u>Dennis L.</u>	

Thermistor Information

Site Name: PIN-3	Thermistor Location	Main Landfill	
Thermistor Number: VT1	Inclination	Vertical	
Install Date: 5-Sep-04	First Date Event	23-Aug-05	Last Date Event 23-Aug-05
Coordinates and Elevation	N 9681.35	E 9291.581	Elev 10.714
Length of Cable (m) 7.8	Cable Lead Above Ground (m) 2.6	Nodal Points	11
Datalogger Serial # 108043	Cable Serial Number		1607

Code: PIN-3VT1

Thermistor Inspection

	Good	Needs Maintenance
Casing	☒	☐
Cover	☒	☐
Data Logger	☒	☐
Cable	☒	☐
Beads	☒	☐
Battery Installation Date	<u>Aug 16, 2006</u>	
Battery Levels	Main <u>11.34 V (Best)</u>	Aux <u>12.29 V (Good)</u>

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	8.944	11.11
2	10.26	9.44
3	11.72	6.82
4	13.19	4.41
5	14.86	1.97
6	16.54	-0.14
7	18.11	-1.92
8	19.16	-3.00

Bead	ohms	Degrees C
9	20.03	-3.88
10	21.24	-4.97
11	21.70	-5.40

Observations and Proposed Maintenance

Key hard to insert
Easy to turn once inserted
Replaced Batteries Aug 16 2006
Memory used
8 Aug 23 2005 → Aug 16, 2006 = 398 memory

Thermal Monitoring Ground Temperature Annual Maintenance Report

Contractor Name: <u>Dennis Lu</u> <u>CELL</u>	Inspection Date: <u>Aug 16</u>
Prepared By: <u>Dennis Lu</u>	

Thermistor Information

Site Name:	PIN-3	Thermistor Location	Main Landfill		
Thermistor Number:	VT2	Inclination	Vertical		
Install Date:	5-Sep-04	First Date Event	23-Aug-05	Last Date Event	23-Aug-05
Coordinates and Elevation	N	9698.82	E	9209.988	Elev 7.92
Length of Cable (m)	9.5	Cable Lead Above Ground (m)	4.9	Nodal Points	14
Datalogger Serial #	111103		Cable Serial Number	1608	

Code PIN-3VT2

Thermistor Inspection

	Good	Needs Maintenance
Casing	☒	☐
Cover	☒	☐
Data Logger	☒	☐
Cable	☒	☐
Beads	☒	☐
Battery Installation Date	<u>Aug 16, 2006</u>	
Battery Levels	Main <u>11.34</u>	Aux <u>13.14</u>

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	6.083	18.54
2	5.921	18.03
3	6.180	18.14
4	5.894	15.86
5	8.133	11.62
6	9.982	9.94
7	11.23	7.57
8	12.95	4.71

Bead	ohms	Degrees C
9	14.86	1.77
10	16.32	0.13
11	16.70	-0.26
12	17.69	-1.49
13	18.42	-2.27
14	19.20	-3.06
	✓	

Observations and Proposed Maintenance

398

key hard to insert

Thermal Monitoring Ground Temperature Annual Maintenance Report

Contractor Name: <u>Dennis Lu GLL</u>	Inspection Date: <u>Aug 16</u>
Prepared By: <u>Dennis Lu</u>	

Thermistor Information

Site Name:	PIN-3	Thermistor Location	Main Landfill			
Thermistor Number:	VT3	Inclination	Vertical			
Install Date:	5-Sep-04	First Date Event	23-Aug-05 Last Date Event	23-Aug-05		
Coordinates and Elevation	N	9602.44	E	9298.113	Elev	10.014
Length of Cable (m)	7.8	Cable Lead Above Ground (m)	2.7	Nodal Points	11	
Datalogger Serial #	111108			Cable Serial Number	1609	

Code PIN-3VT3

Thermistor Inspection

	Good	Needs Maintenance
Casing	☒	☐
Cover	☒	☐
Data Logger	☒	☐
Cable	☒	☐
Beads	☒	☐
Battery Installation Date	<u>Aug 16, 2006</u>	
Battery Levels	Main <u>11.34</u>	Aux <u>12.41</u>

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	8.929	11.25
2	10.38	9.23
3	11.84	6.60
4	13.31	4.25
5	15.34	1.31
6	16.84	-0.47
7	18.30	-2.11
8	19.33	-3.16

Bead	ohms	Degrees C
9	20.48	-4.28
10	21.38	-5.10
11	21.92	-5.54
	✓	

Observations and Proposed Maintenance

key hard to insert
398 Memory
EBA has masterlock key
Unable to use finger key in other lock

Thermal Monitoring Ground Temperature Annual Maintenance Report

Contractor Name:	Inspection Date:
Prepared By:	

Thermistor Information

Site Name: PIN-3	Thermistor Location: Main Landfill	
Thermistor Number: VT4	Inclination: Vertical	
Install Date: 5-Sep-04	First Date Event: 23-Aug-05	Last Date Event: 23-Aug-05
Coordinates and Elevation: N 9588.91	E 9233.938	Elev: 7.82
Length of Cable (m): 8.2	Cable Lead Above Ground (m): 3.7	Nodal Points: 12
Datalogger Serial #: 108093	Cable Serial Number: 1610	

Code: PIN-3VT4

Thermistor Inspection

	Good	Needs Maintenance
Casing	☒	☐
Cover	☒	☐
Data Logger	☒	☐
Cable	☒	☐
Beads	☒	☐
Battery Installation Date	Aug 16, 2006	
Battery Levels	Main 11.34	Aux 13.38

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	6.222	19.71
2	5.971	17.70
3	8.782	11.46
4	10.46	9.00
5	11.61	6.95
6	13.18	4.39
7	14.71	2.17
8	16.48	-0.100

Bead	ohms	Degrees C
9	17.19	-0.92
10	18.13	-1.96
11	18.90	
12	19.18	
	✓	

Observations and Proposed Maintenance

37% Memory
Key hard to insert

Table 4: Monitoring Well Observations (MW-05)

Development of Monitoring Wells (2005)			
Site Name:	PIN-3-mon		
Date of Sampling Event:	25-Aug-05 Aug 16	Time: 10:26 am	10:00 am
Names of Samplers:	Alissa Lunney		
	Vanessa Bacher		
	Tim Casson		
Monitoring Well ID:	BMW-05		
Landfill Name:	Main Landfill		
Sample Number:	26748 MW-1		
Condition of Well:	good		
Purging: (Y/N)	Y	Procedure/Equipment:	Paris LTR Waterra Tube with foot valve
Volume Purged Water=	6L well dry after 6L		
Sampling Equipment:	Waterra Tube with foot valve		
Filtration: (Y/N)			
Acidification: (Y/N)			
Decontamination required: (Y/N)	Y		
Number washes:	1		
Number rinses:	2		
Measured Data			
Well height above ground=	60 48		
Diameter of well (cm)=	2.54 2"		
Depth of installation (cm)=	390	From ground surface	
Length screened section (cm)=	333		
Depth to top of screen=	57	From ground surface	
Depth to water surface (cm)=	120 230	Method:	Electric meter
Static water level (cm)=	119	From ground surface	
Depth to bottom (cm)=	276 360	Evidence of sludge etc:	NO
		Evidence of freezing/siltation: (compare to installation record)	
Free product thickness (mm)=	n/a 1/4	Method:	Interface meter
pH=	7.49 6.40		
Conductivity (uS/cm)=	957 1354	Temp compensated	
Temperature (degC)=	3.5 9.0		
Depth of water (cm)=	97 130		
Well volume of water (mL)=	491.53 2.6 L		
Turbidity (NTU)=	not available		
Length screen collecting water=	97		
Shape factor=	38.48		

n/a=not applicable

Table 5: Monitoring Well Observations (MW-06)

Development of Monitoring Wells (2005)			
Site Name:	PIN-3-mon		
Date of Sampling Event:	25 Aug 05 Aug 16	Time: 40:00 am 11:30	
Names of Samplers:	Alissa Lumley		
	Vanessa Bacher		
	Tim Casson		
Monitoring Well ID:	MW-06		
Landfill Name:	Main Landfill		
Sample Number:	26747 MW-2		
Condition of Well:	good		
Purging: (Y/N)	Y	Procedure/Equipment:	Waterra Tube with foot valve
Volume Purged Water=	1 10 L		
Sampling Equipment:	Waterra Tube with foot valve		
Filtration: (Y/N)	N		
Acidification: (Y/N)	N		
Decontamination required: (Y/N)	Y		
Number washes:	1		
Number rinses:	2		
Measured Data			
Well height above ground=	62	52 ground	
Diameter of well (cm)=	254 21		
Depth of installation (cm)=	473	From ground surface	
Length screened section (cm)=	300		
Depth to top of screen=	53	From ground surface	
Depth to water surface (cm)=	158 159	Method:	Interface Electric meter
Static water level (cm)=	96	From ground surface	
Depth to bottom (cm)=	246	Evidence of sludge etc:	some sand possibly bentonite mix at bottom of well
		Evidence of freezing/siltation: (compare to installation record)	
Free product thickness (mm)=	n/a	Method:	Interface meter
pH=	9.37 9.44		
Conductivity (uS/cm)=	714 1119		
Temperature (degC)=	4 9.0		
Depth of water (cm)=	28 157		
Well volume of water (mL)=	445.90 3.1 L		
Turbidity (NTU)=	not available		
Length screen collecting water=	88		
Shape factor=	34.70		

n/a=not applicable

Test pit dup TP3 = TP17
TP4 = TP18

Table 6: Monitoring Well Observations (MW-07)

Development of Monitoring Wells (2005)			
Site Name:	PIN-3-mon		
Date of Sampling Event:	25-Aug-05 <i>Aug 16</i>	Time: 9:15 am. 2:00pm	
Names of Samplers:	Alissa Lunney		
	Vanessa Bacher		
	Tim Casson		
Monitoring Well ID:	MAV-07		
Landfill Name:	Main Landfill		
Sample Number:	26746 <i>MA-3</i>	Had to return to well at 2 pm to fill 1L HDPE bottle	
Condition of Well:	good	(not enough water)	
Purging: (Y/N)	Y	Procedure/Equipment:	Waterra Tube with foot valve
Volume Purged Water=	<i>8 6</i>		
Sampling Equipment:	Waterra Tube with foot valve <i>Packable</i>		
Filtration: (Y/N)	N		
Acidification: (Y/N)	N		
Decontamination required: (Y/N)	Y		
Number washes:	1		
Number rinses:	2		
Measured Data			
Well height above ground=	55		
Diameter of well (cm)=	2.54		
Depth of installation (cm)=	480	From ground surface	
Length screened section (cm)=	300		
Depth to top of screen=	60	From ground surface	
Depth to water surface (cm)=	251 241	Method:	Electric meter
Static water level (cm)=	176	From ground surface	
Depth to bottom (cm)=	264 341	Evidence of sludge etc:	
		Evidence of freezing/siltation: (compare to installation record)	
Free product thickness (mm)=	n/a	Method:	Interface meter
pH=	11.13 12.22		
Conductivity (uS/cm)=	1968 1659		
Temperature (degC)=	4.8 10.9		
Depth of water (cm)=	33 100		
Well volume of water (mL)=	16721 2.0L		
Turbidity (NTU)=	not available		
Length screen collecting water=	33		
Shape factor=	13.85		

n/a=not applicable

Table 7: Monitoring Well Observations (MW-08)

Development of Monitoring Wells (2005)

Site Name:	PIN-3-mon		
Date of Sampling Event:	25-Aug-05 Aug 16	Time:	9:00 am 15:30
Names of Samplers:	Alissa Lundrey	Dennis La	
	Vanessa Bacher	Dennis Kadsoni	
	Tim Casson		
Monitoring Well ID:	MW-08	MW-4	
Landfill Name:	Main Landfill	Main Landfill	
Sample Number:	26744/45 (duplicate)	MW-4	
Condition of Well:	good	Good	
Purging: (Y/N)	Y	Procedure/Equipment:	Waterra Tube with foot valve
Volume Purged Water=	4		
Sampling Equipment:	Waterra Tube with foot valve	peristaltic	
Filtration: (Y/N)	N	N	
Acidification: (Y/N)	N	N	
Decontamination required: (Y/N)	Y		
Number washes:	1		
Number rinses:	2		
Measured Data			
Well height above ground=	60 46 + screen set in 15 cm		
Diameter of well (cm)=	2.54		
Depth of installation (cm)=	475	From ground surface	
Length screened section (cm)=	300		
Depth to top of screen=	55	From ground surface	
Depth to water surface (cm)=	134.5 106	Method:	Electric meter
Static water level (cm)=	71.5	From ground surface	
Depth to bottom (cm)=	242 316	Evidence of sludge etc:	
		Evidence of freezing/siltation: (compare to installation record)	
Free product thickness (mm)=	n/a	Method:	Interface meter
pH=	7.04	8.71 pH	
Conductivity (uS/cm)=	280	549	
Temperature (degC)=	21	9.8°C	
Depth of water (cm)=	140.5 210		
Well volume of water (mL)=	550.0 4700		
Turbidity (NTU)=	not available		
Length screen collecting water=	110.5		
Shape factor=	42.95		

n/a=not applicable

Aug 16

DEW P100-3

Main Landfill

BMW-5 (MW-1 + TP-1, TP-2)

TP-1 0-15 cm

TP-2 40-50 cm

0-10 cm first shattered rock with organic

(brown) clay

10-50 fine sand with cobble sized

rock

no smells detected

MW-6 (MW-2 + TP-3, TP-4)

TP-17, TP-18

TP-3 0-15 cm TP-17 dump

TP-4 40-50 cm TP-18 dump

0-10 cm dark brown organic layer with

root

10-50 cm fine light brown sand

MW-7 (MW-3 + TP-5, TP-6)

TP-5 0-15 cm

TP-6 20-30 cm refusal

0-30 fine sand with cobble matrix

30 - bedrock? refusal in 3 locations

MW-8 = (MW-4, TP-7, TP-7)

TP-7 = 0-15

TP-7 = 40-50

0-10 cm = dark organic layer with roots

10-50 = light brown, fine sand

60725

Aug 16

Main landfill - Photo Record

ML-1 @ 407983 / 7597587 looking N
img-0016 along eastern edge of lf → no
problem w fog skip panorama for now

ML-2 @ 408002 / 7597620 looking N
img-0017 taken from mid slope

ML-3st @ 408012 / 7597652 looking N
taken from toe of slope 2 shot panoramic
(only 1 shot)

ML-4 408000 / 7597652 looking N
from crest @ E side landfill (panoramic not
Sta 19 and Sta 20 but only 2 is really good)
Sta 20 is the shot

ML-5st Panoramic from 407978 / 7597714
looking W → E sign on VT-1
Sta 21 - Sta 25 4 photos → pretty foggy

ML-6st 2 shots 407984 / 7597733 looking N
to NE corner of landfill standing mid slope
Sta-0025 & Sta-0026
↑ best

Aug 16 / 2006

ML-7 407971 / 7597762 looking 300°
slope stable but rutted → fog worsening
img-0027

ML-8 407959 / 7597768 near crest
img-0028 minor rutting from original fill placement
→ no apparent degradation / not problematic

ML-9st Panoramic of landfill looking S
407947 / 7597770 5 photos L to R
Sta-0029 to Sta-0033 Sta-0030 is best for ML-9

ML-10 407932 / 7597789 looking 120°
img-0034 from NW corner of landfill road for scale

ML-11 407955 / 7597779 looking 300°
img-0035 viewed from mid slope

ML-12st 407920 / 7597793 2 photos looking 220°
Sta-0036 & Sta-0037 NW corner of landfill mid-slope

Break for lunch
- photographed some Muskrat & flora

6 60725

ML-13 407881/7597767 (MLW-6)

img-0047 looking S slope in good shape, no problematic
erosion → vegetation & marshy area
img-0048 appears at toe → but no signs of
duplicate/deleted sedge

ML-14 407863/7597724 looking E

img-0049 slope in good shape viewed from toe area
standing on organic

ML-15 407899/7597729 looking 120°

img-0050 from crest (hanger in background)
→ sign near rut

ML-16 407935/7597694 looking E

img-0051 towards minor rut in slope - not problem but
monitor to ensure doesn't degrade

st

ML-17 407945/7597693 looking south
from crest

sta-0052

& sta-0053

Aug 16/2006 7

st

ML-18 407894/7597643 looking S

2 photos

sta-0054

& sta-0055

ML-19 407890/7597603 looking E

from near bottom slope

sta-0056

sta-0057

ML-20 panoramic 6 shots left to right
Tyr of landfill looking N

towards 2 theri-ators 407974/7597610

sta-0058

to sta-0063

FOG LIFTING

ML-21 407969/7597626 looking N towards

img-0064 area of possible settlement
- middle of last spot @ 407962/7597617

Finished inspection - moving to South Beach

Photo of an old muskox img-0065

Moving on to South Beach