

Little Hamilton Bay

Log Transfer Facility Bark Monitoring Survey

303D List Transects
Survey Date June 6, 2002

Longitude 133°48'761"

Latitude 56°53'745"

*0.53 ac
0.62 recalc*

Submitted to:

United States Department of Agriculture
United States Forest Service, Region 10
Tongass National Forest
Federal Building
648 Mission Street
Ketchikan, Alaska 99901

Prepared by:

Stephen Haggitt
P.O. Box 61
Craig Alaska 99921

Submitted July 15, 2002

Introduction

An underwater reconnaissance was requested to determine the representative condition of an area operating as a Log Transfer Facility (LTF). The survey dive was conducted on June 6, 2002. The site surveyed is located on the north side of Little Hamilton Island adjacent to Kupreanof Island¹. This report was conducted under the authority of USFS contract Number 53-0116-2-00486.

This inspection documented findings according to the stipulations in the United States Forest Service (USFS) Permit Dive Monitoring contract No. 53-0116-2-00486, and the Alaska Department of Environmental Conservation (ADEC), Environmental Protection Agency (EPA) and NPDES requirements. The percentage of bark coverage was determined by using the protocol for operating a bark-monitoring program given in the EPA General Permit. An additional category was inserted into the sample point tables to report the depth and type of material covering the bark. The area calculation used in this report is outlined in the ADEC publication "**Required Method for Bark Monitoring Surveys under the LTF General Permits**".

Methods

Linear Transects:

The parallel transects running perpendicular to the log transfer ramp were initially located by assessing maps and diagrams created by Otto Cornthwaite in the March 1994 bark monitoring survey. The spacing between transects was not available in the report, the following method was used to determine the original spacing:

The site map was superimposed on an electronic chart to determine transect length. This was compared to the data tables in the report. The shoreline points were matched between the electronic chart and the drawing in the report. The scale contained in the report was adjusted to match the transect lengths. It was then deduced that the transect spacing was approximately 25 feet apart.

The transects followed the headings established in previous bark monitoring surveys at the site. Two separate magnetic compasses were compared to determine the bearings. Transducers and transponders were used in conjunction with DGPS to monitoring the diver's progress.

¹ Please see Appendix A for area and site map.

Sample Points:

Samples were taken at intervals of 15 linear feet along each transect. This interval distance was established with the use of a metal ruler 48 inches in length, laid end over end. The sample points began at 15 linear feet from the beginning of each transect and continued along the transect, terminated by the requisite of beyond the area of bark accumulation, or to a water depth of 60 feet at MLLW, whichever is first.

At each sample point observations were noted on the abundance and type of marine organisms present, the native vegetation, and composition of the substrate. Data including the water depth, current direction, and estimated current velocity also were incorporated into the field notes. Each of the sample points also included relevant observations on operational debris and existing bark debris. Photographic documentation² was used at representative sample locations to record algal life, animal life, substrate, and debris present. Sample location depth notations are based on readings from a Cochran Consulting Nemeses IIA dive computer calibrated for saltwater and altitude.

Findings

Survey Area:

The total area covered by this survey was 2.16 acres (8783 m²).

Zone of Deposit:

The ZOD for the Little Hamilton Bay LTF is 1.08 acres. Consisting of 0.53 acres (2160 m²) continuous and, 0.55 acres (2265 m²) discontinuous.

Log Transfer Ramp:

The reference point hub position, located at the seaward end of the low angle ramp was recorded using a Raytheon DGPS. The coordinates for this hub are N 56°53 745 by W 133° 48 761

Weather conditions during the survey consisted of clear skies with winds less than five knots. Diving commenced at 7 a.m. during low tide. The tidal station (subordinate station #1619) was used to correct depths to MLLW. The station reported a tide level of 5.2 ft at 7 a.m. The current conditions remained negligible. Seawater temperature was recorded at 44 degrees F. The horizontal visibility was estimated to be 3 feet.

13 transects aligned perpendicular to the reference point on bearings labeled 314° . crossed the inlet. Each transect was spaced 25 feet apart. A total of 253 sample locations were assessed.

Site conditions remained steady with winds less than five knots and clear skies. Diving concluded at 10 a.m. during high tide. The tidal station (subordinate station #1619) was

² Please see Appendix C for photographic documentation.

used for depth corrections, reporting a 11.5 ft tide level at 10 a.m.³. Current velocity was negligible. The horizontal visibility remained constant and was estimated to be 3 feet.

Each transect terminated at the opposite shore. The slope for these transects remained steady at gradients of 2 to 1.

Observations

Log Transfer Ramp:

The parallel transects established for this report were not ideally suited to the zone of deposit. They did however serve to further refine the zones of continuous and discontinuous bark debris. The surface of the bark debris was uniformly covered with a fine layer of silt. The silt covering ranged from a light dusting to 3" covering. The site does not appear to have much water movement and combined with a fine silt substrate, the visibility in the area is markedly low. While photographic representation is poor as a result of the conditions, confidence in the measurements and findings remained at an acceptable level. It would be advantages to survey this area in the future within a timing window that mitigates plankton bloom and attenuates visibility.

Conclusions

The 1994 survey did not provide area calculations. It contained a map with scale that indicated the survey area to be approximately 600 by 800 feet. A review of the data tables contained in the report and a site visit indicated that the total survey area was probably about 1.72 acres. The report stated that the area had at the time approximately 88% coverage or 1.51 acres. This figure compares with the results of the 2002 survey that encompassed an area of 2.16 acres, and indicated 1.08 acres for the zone of deposit on the same (marginally extended) transects. It is noted however that although the sub-bottom contains a zone of deposit that would cause it to exceed its allowable area, at this time it is covered in silt ranging in depth from 1 centimeter to 7.5 centimeters. Therefore the determination below is based on accumulation of surface debris.

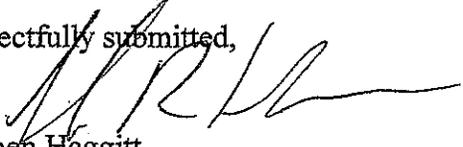
³ Please see Appendix B for tidal information.

The General Permit AK-G70-1000 requires the bank monitoring survey to evaluate whether the discharge site has exceeded the zone of deposit. The ADEC has defined the ZOD as the outer boundary of the project area.

In accordance with the requirements listed above and with regard to the project area that was surveyed according to the methods approved by the EPA and ADEC, it is my opinion that the discharge site has not exceeded the zone of deposit.

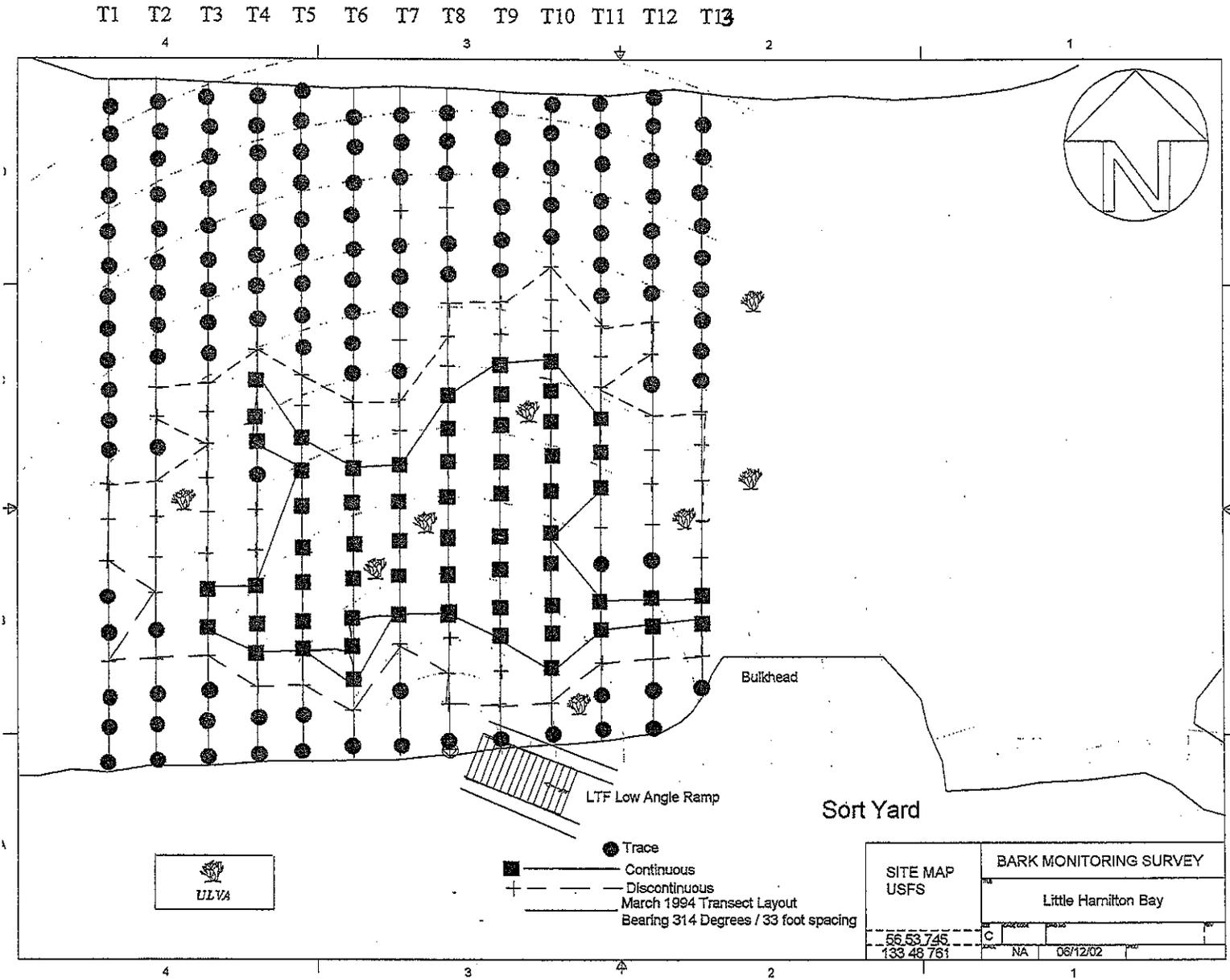
If you have need of further service regarding this report, please contact me directly at (253) 209 9380. E-mail correspondence can be forwarded to Haggitt1@juno.com. I appreciate the opportunity to provide you with this report.

Respectfully submitted,



Stephen Haggitt
July 13, 2002

Appendix A



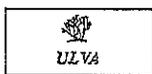
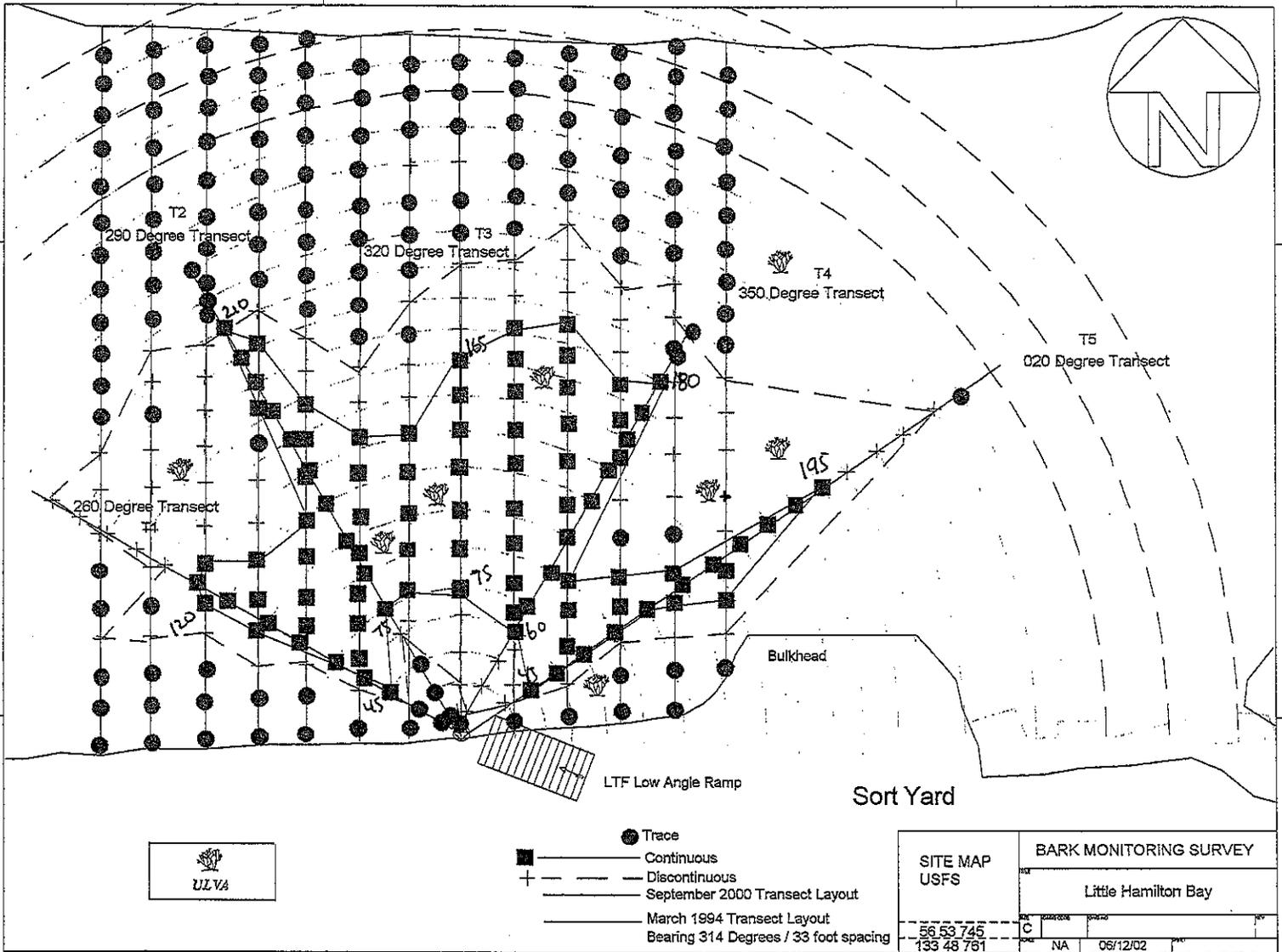
T1 T2 T3 T4 T5 T6 T7 T8 T9 T10 T11 T12 T13

4

3

2

1



- Trace
- Continuous
- + Discontinuous
- September 2000 Transect Layout
- March 1994 Transect Layout
- Bearing 314 Degrees / 33 foot spacing

SITE MAP USFS		BARK MONITORING SURVEY	
Little Hamilton Bay			
DATE	BY	DATE	BY
06/06/02	NA	06/12/02	NA
66 53 745		133 48 781	

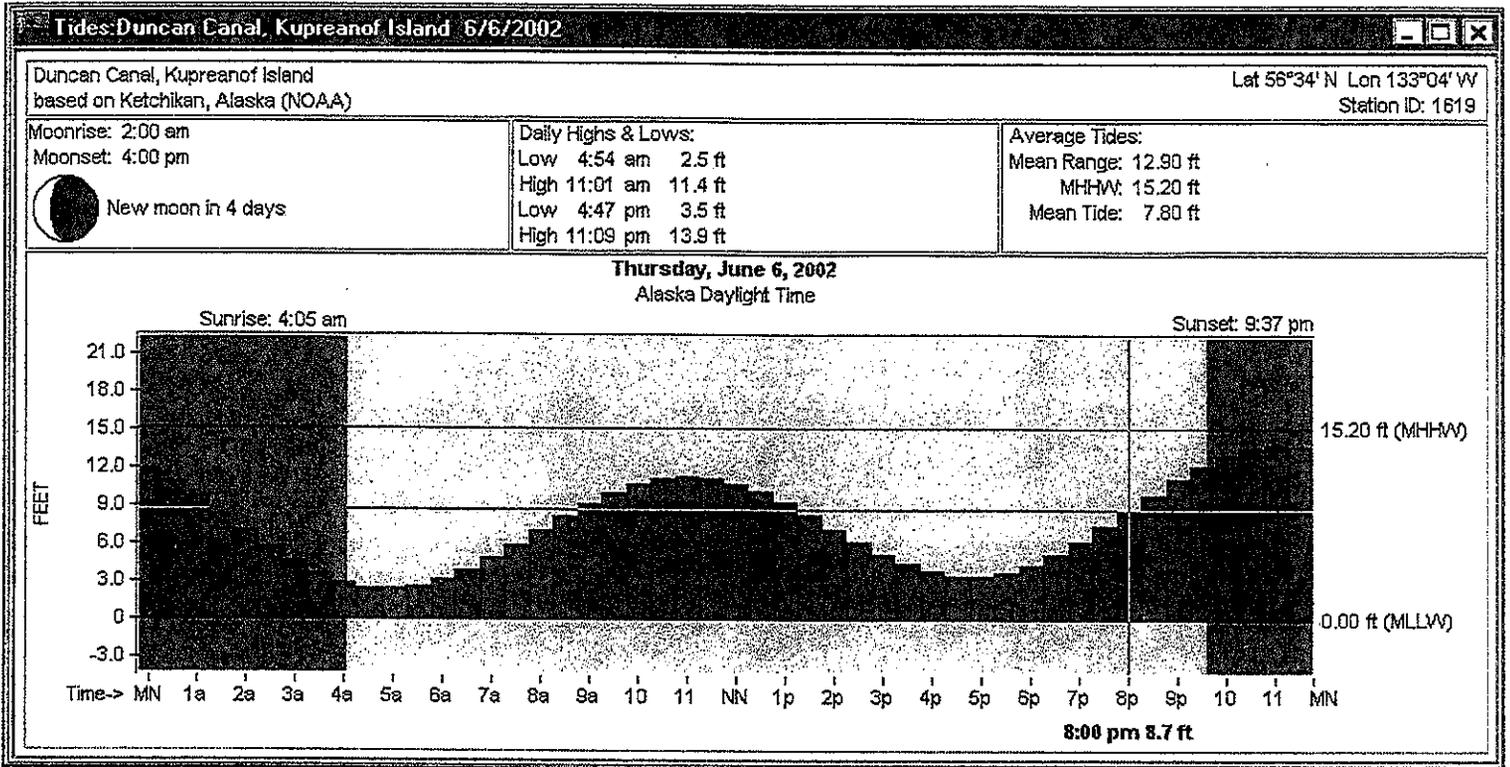
4

3

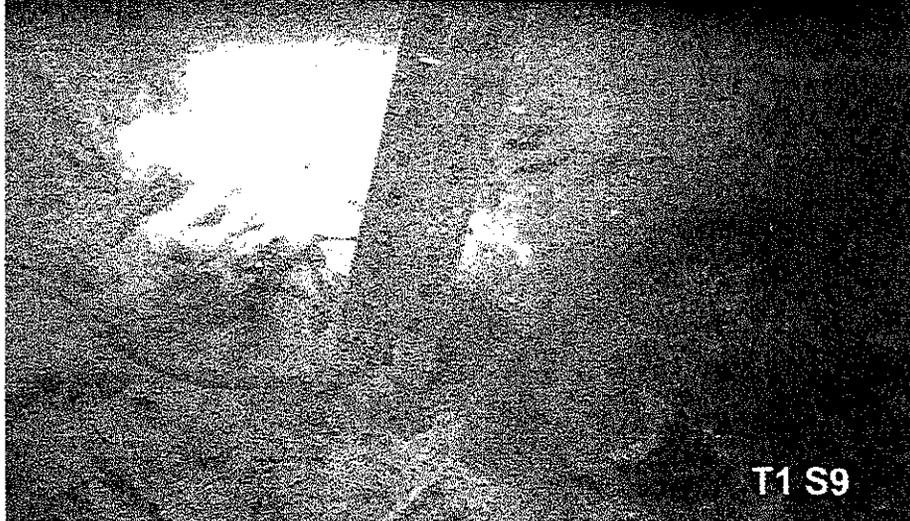
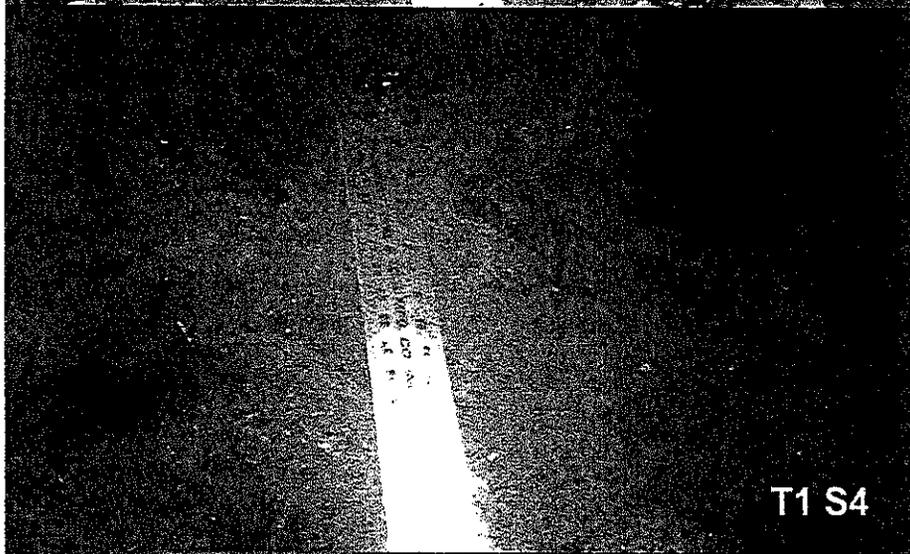
2

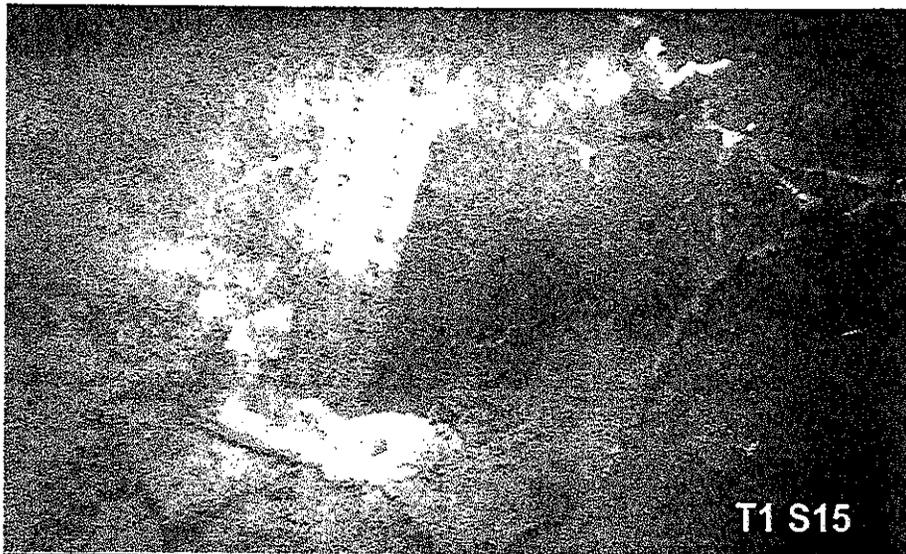
1

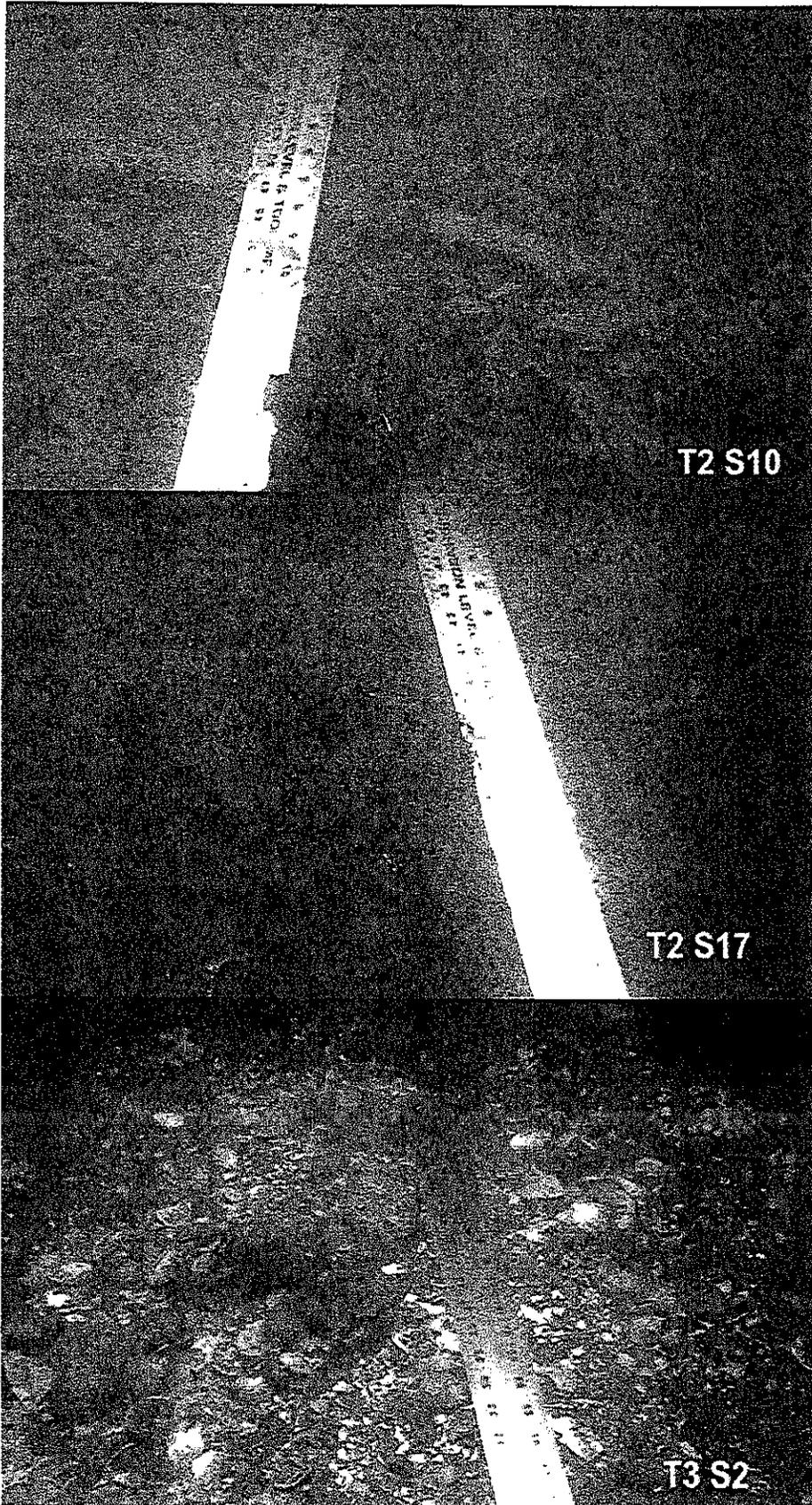
Appendix B

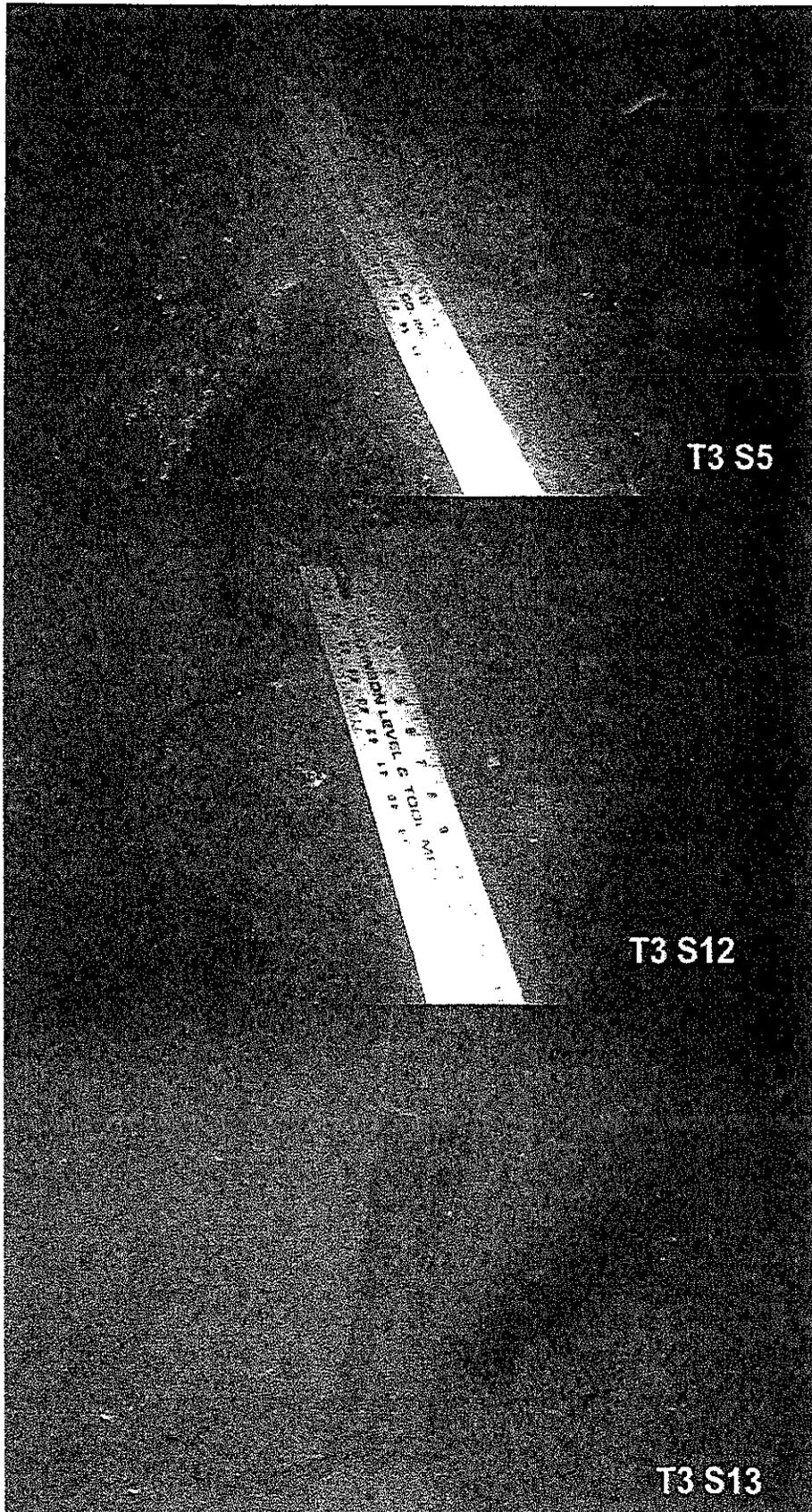


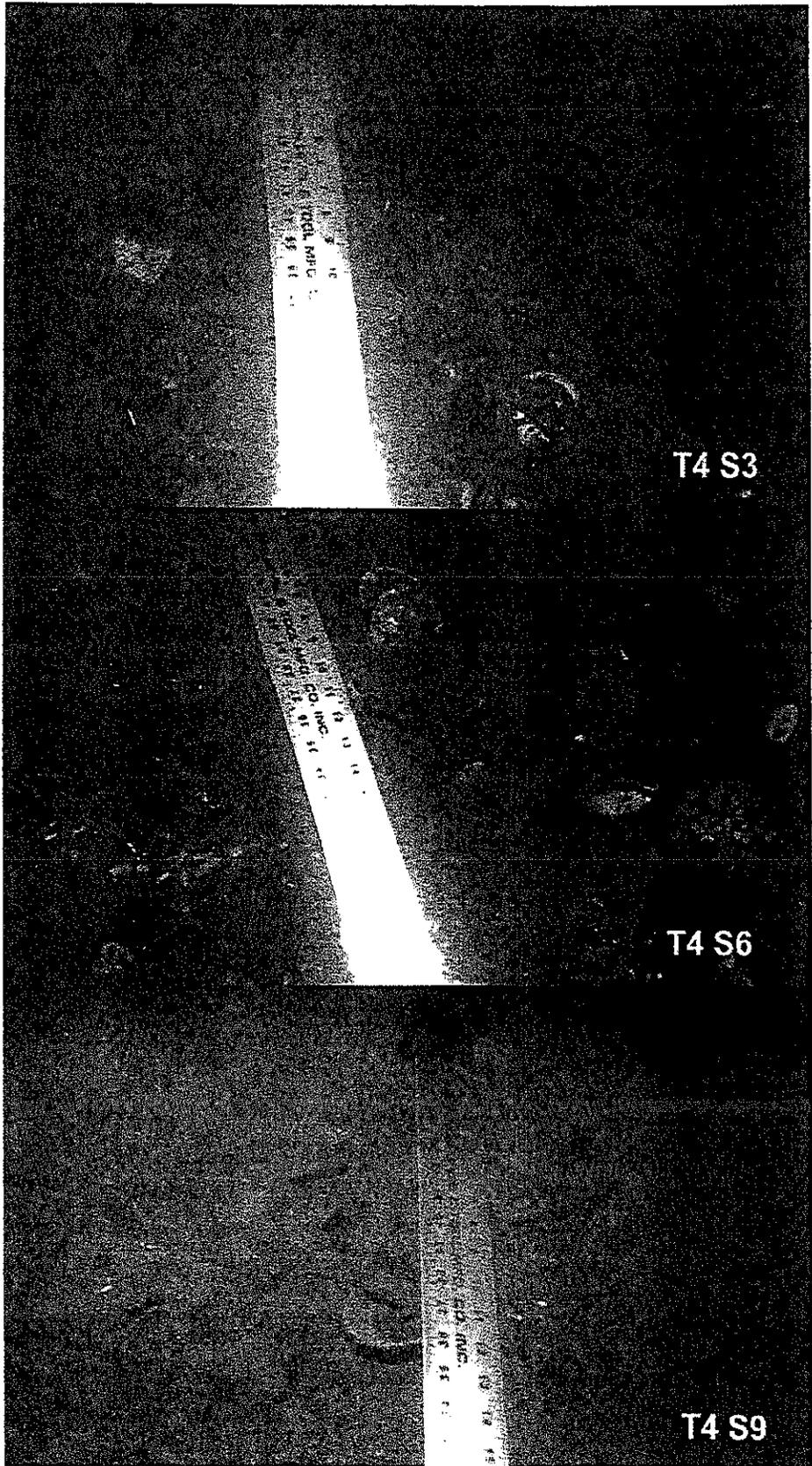
Appendix C







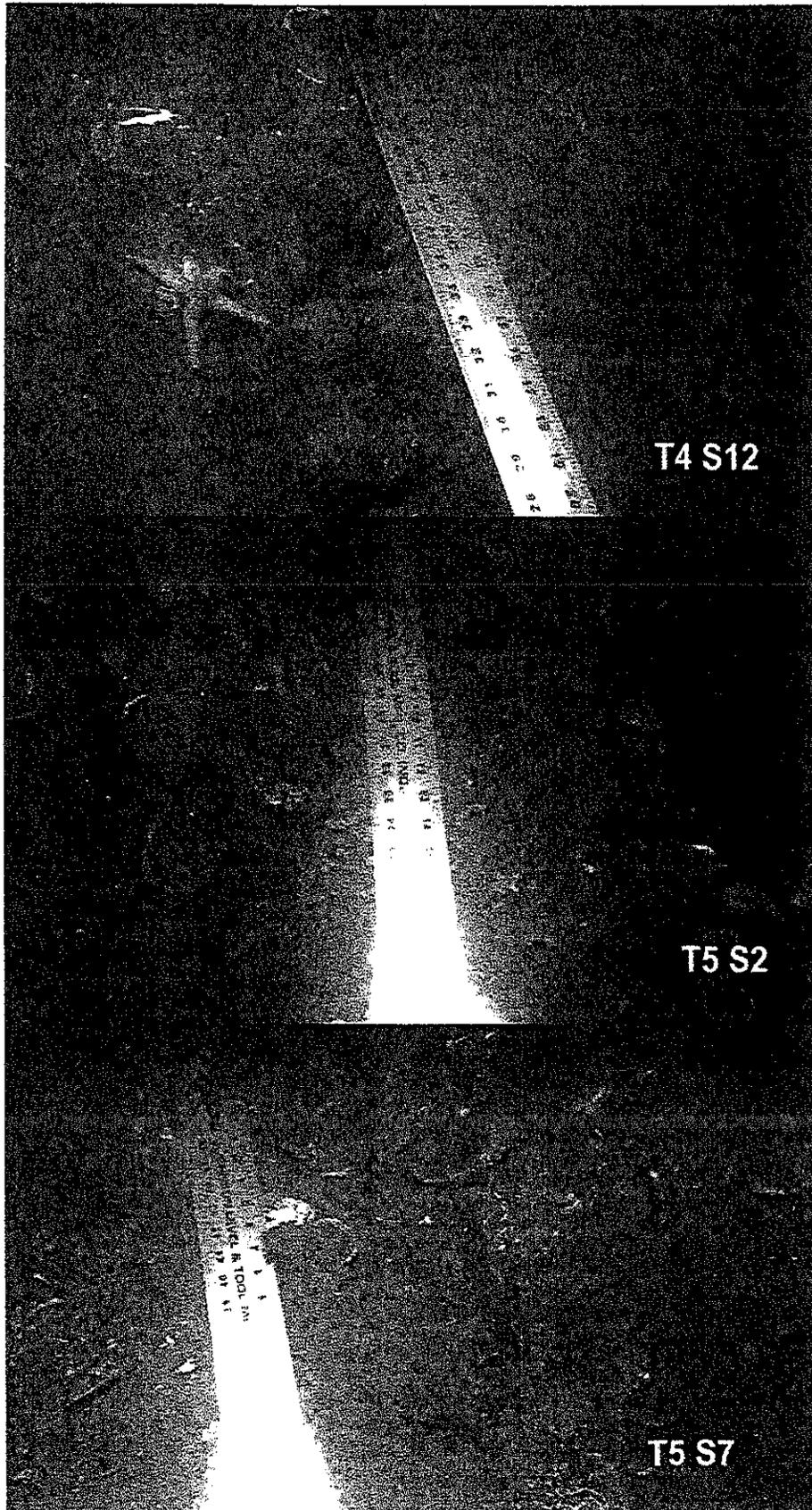


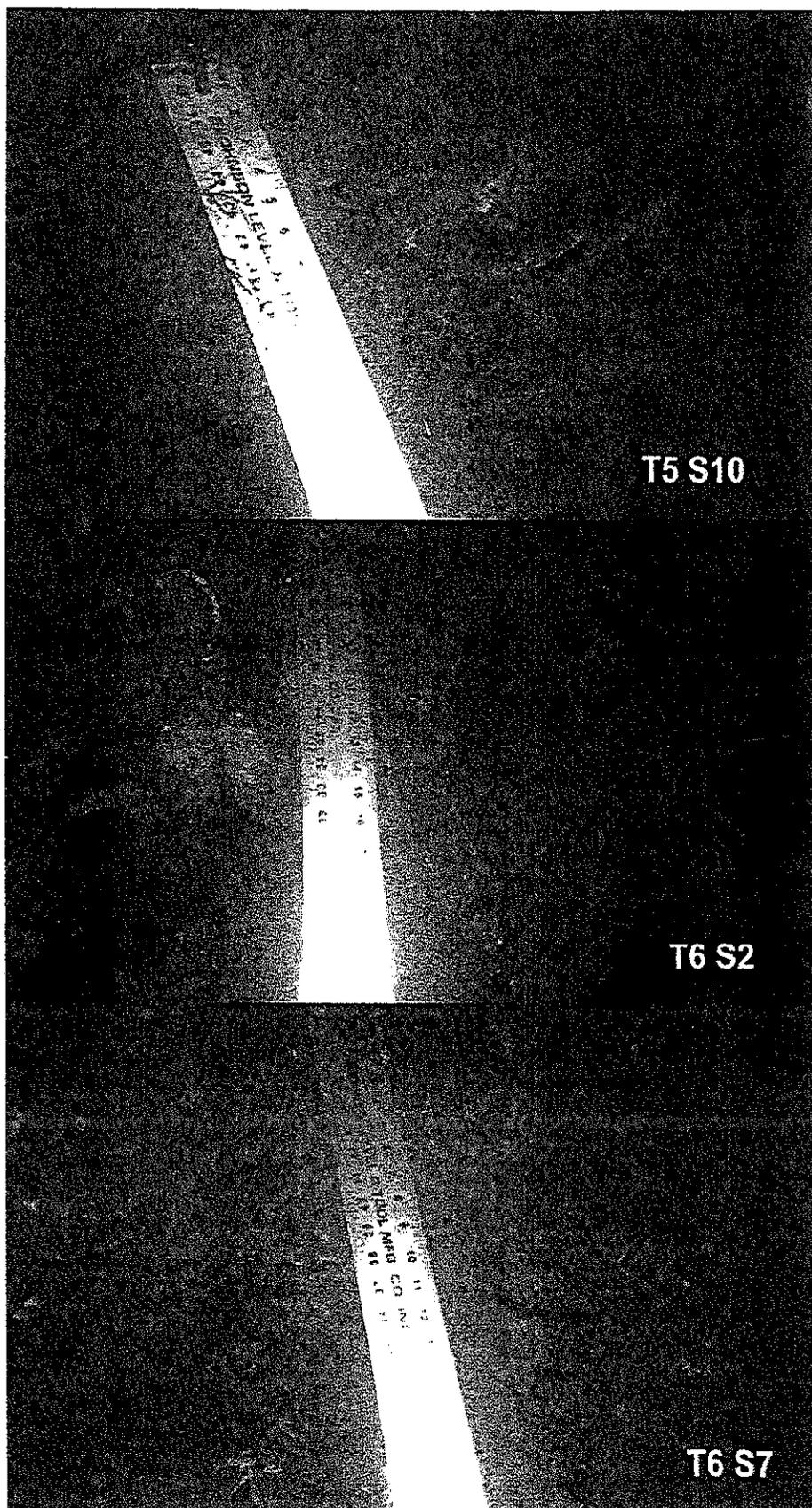


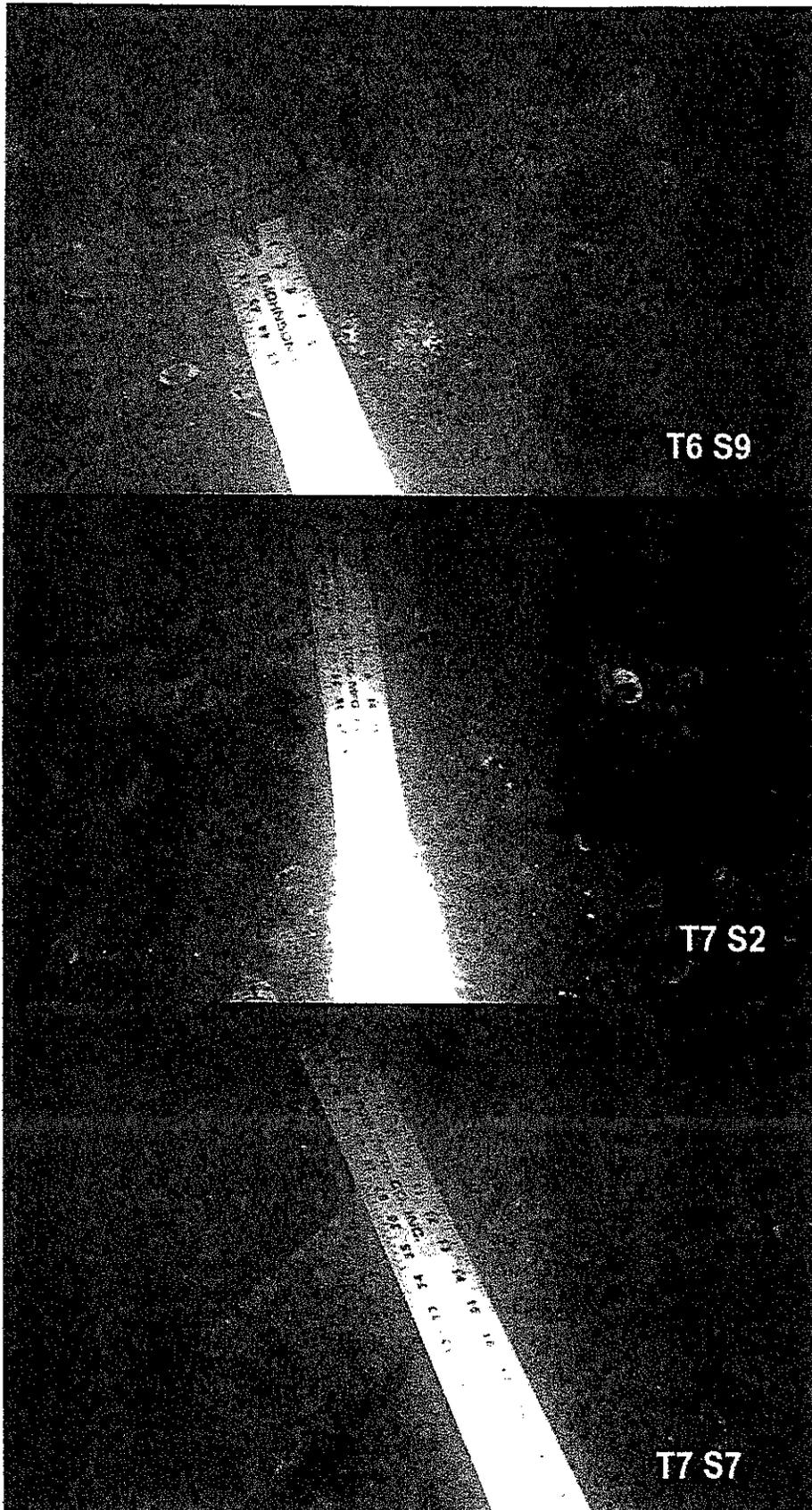
T4 S3

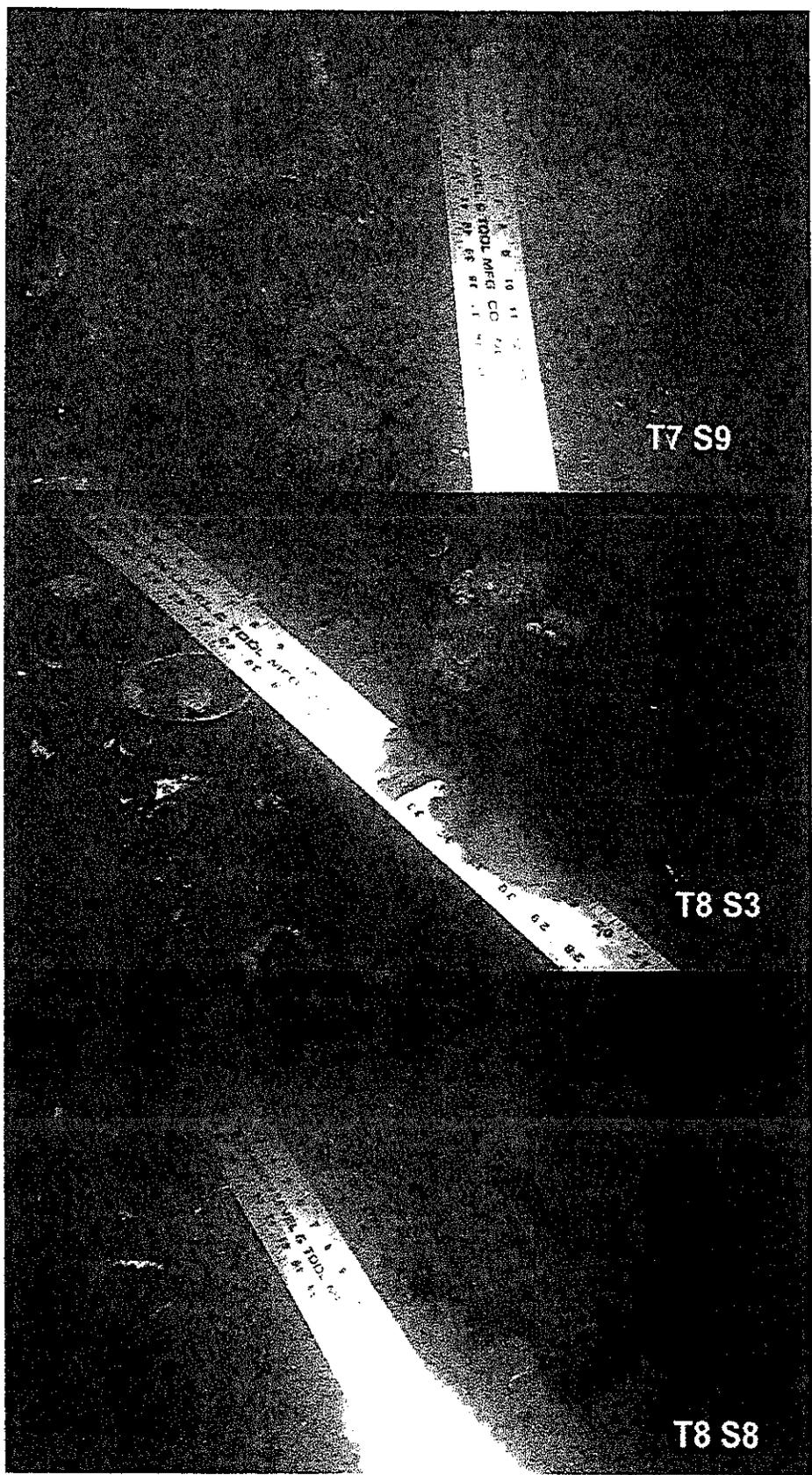
T4 S6

T4 S9





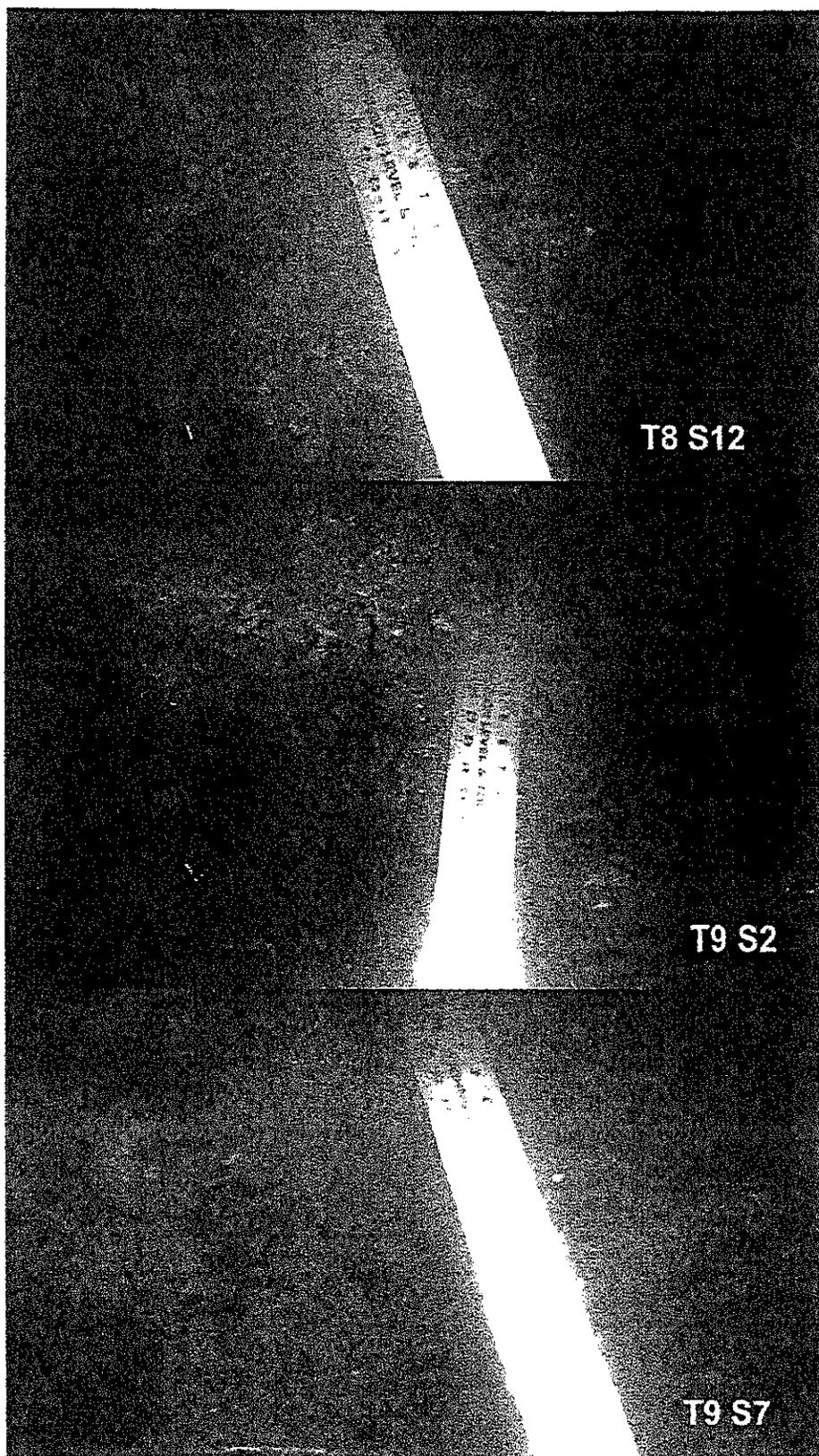


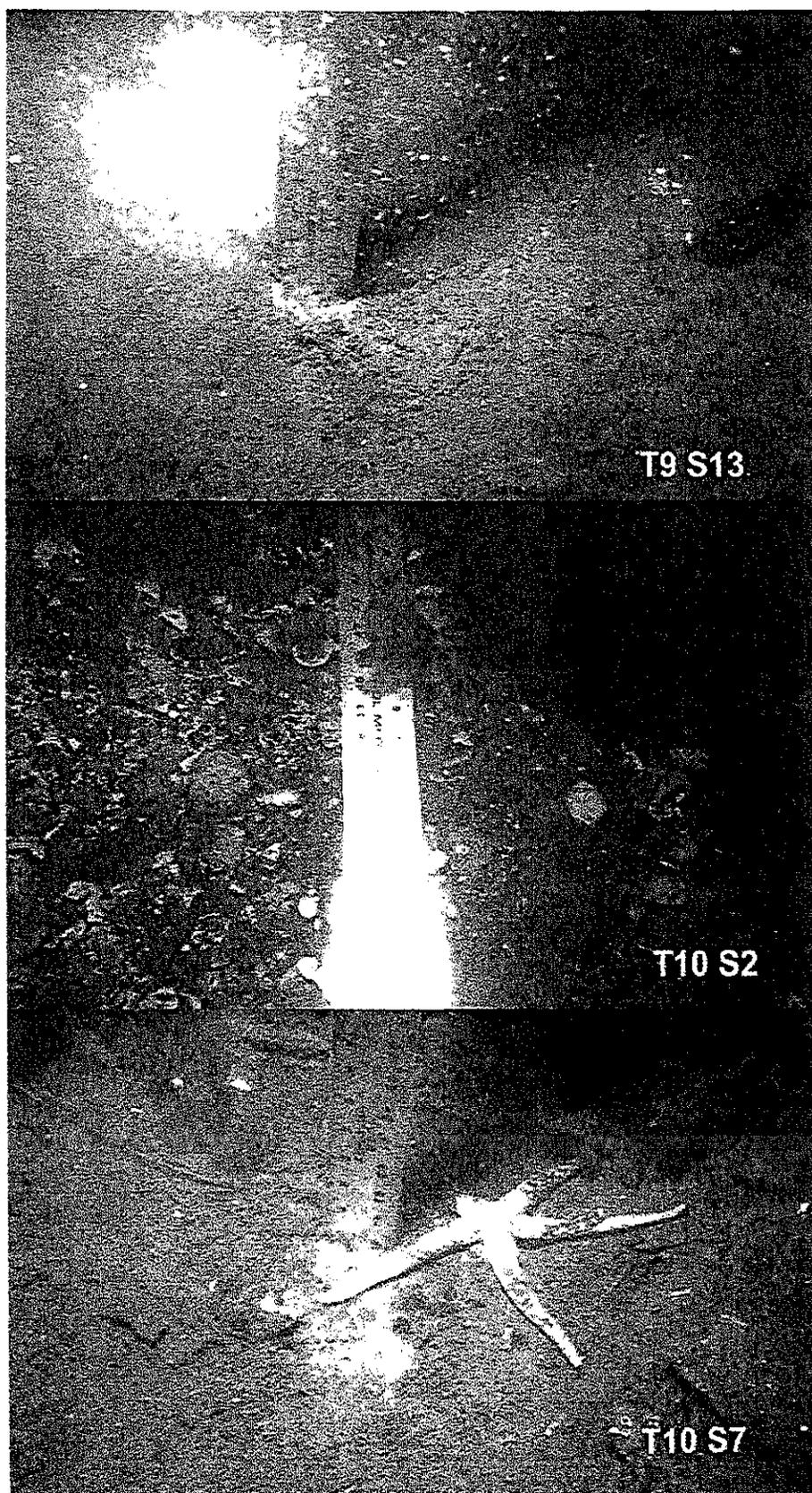


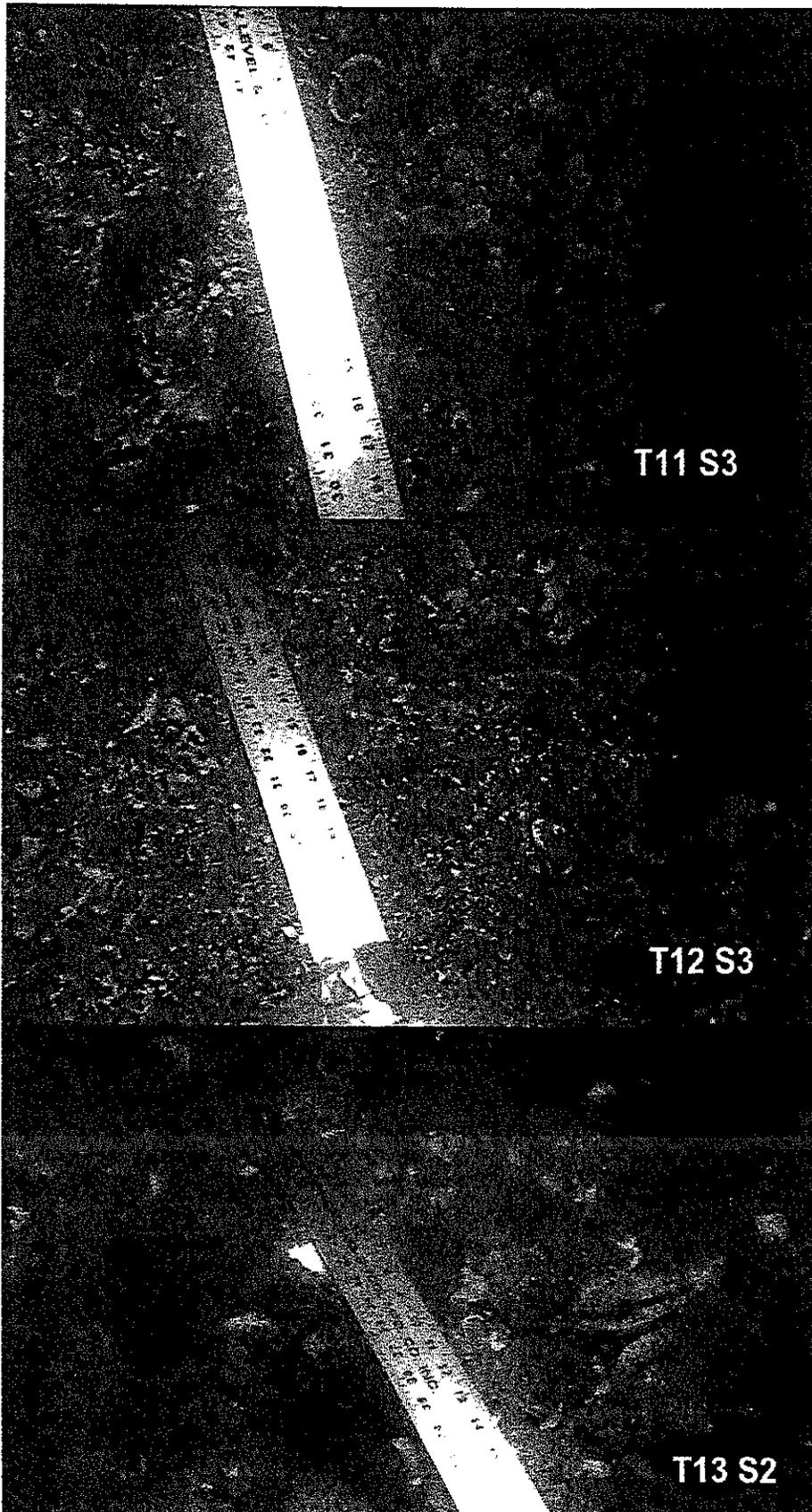
T7 S9

T8 S3

T8 S8







Key:
 Substrate Type; S=Sand, M=Mud, Sl=Silt, R=Rock, C=Cobble, G=Gravel
 Bark Depth recorded in inches

Log Transfer Ramp Transect 1: 314° Bearing

Sample Point	Depth at MLLW	Bark Depth	% of Cover	Substrate type	Depth of sedimentation	Marine Life
1	9			C		
2	10			S-SL		
3	12			S-M		<i>Ulva</i>
4	13	1	10	S-M	1	
5	17			S-M		
6	16			S-M		
7	18	>1	80	S-M	3	<i>Ulva</i>
8	18	>1	60	S-M	3	<i>Ulva</i>
9	19	>1	10	S-M	2	<i>Ulva</i>
10	18			S-M		<i>Ulva</i>
11	19			S-M		<i>Ulva</i>
12	20			S-M		
13	21			S-M		
14	21			S-M		<i>Ulva</i>
15	20			S-M		
16	18			S-M		
17	17			S-M		
18	16			S-M		
19	15			S-M		<i>Ulva</i>
20	14			S-M		<i>Ulva</i>
21	12			S-M		<i>Ulva</i>

Log Transfer Ramp Transect 2: 314° Bearing

Sample Point	Depth at MLLW	Bark Depth	% of Cover	Substrate type	Depth of sedimentation	Marine Life
1	9			C		
2	10			S-SL		
3	11			S-M		<i>Ulva</i>
4	13	2	>10	S-M	1	<i>Ulva</i>
5	16			S-M		<i>Ulva</i>
6	16	>1	80	S-M	2	<i>Ulva</i>
7	17	>2	50	S-M	2	
8	18	1	50	S-M	2	
9	19	2	25	S-M	1	
10	18			S-M		<i>Ulva</i>
11	18	1	10	S-M	2	<i>Ulva</i>
12	20	1	10	S-M	3	
13	21			S-M		
14	22			S-M		
15	20			S-M		
16	18			S-M		
17	17			S-M		
18	15			S-M		<i>Ulva</i>
19	15			S-M		<i>Ulva</i>
20	13			S-M		<i>Ulva</i>
21	12			S-M		<i>Ulva</i>

Log Transfer Ramp Transect 3: 314° Bearing

Sample Point	Depth at MLLW	Bark Depth	% of Cover	Substrate type	Depth of sedimentation	Marine Life
1	10			C		
2	10			S-SL		
3	12			S-M		<i>Ulva</i>
4	13	3	50	S-M	1	<i>Ulva</i>
5	14	4	100	S-M	2	<i>Ulva</i>
6	16	4	100	S-M	1	
7	17	3	90	S-M	1	
8	18	2	70	S-M	1	
9	17	1	70	S-M	1	<i>Ulva</i>
10	18	2	50	S-M	1	<i>Ulva</i>
11	19	1	25	S-M	2	<i>Ulva</i>
12	21	2	70	S-M	2	
13	21			S-M		
14	20			S-M		<i>Ulva</i>
15	20			S-M		
16	18			S-M		
17	16			S-M		<i>Ulva</i>
18	14			S-M		<i>Ulva</i>
19	14			S-M		<i>Ulva</i>
20	12			S-M		
21	11			S-M		

Log Transfer Ramp Transect 4: 314° Bearing

Sample Point	Depth at MLLW	Bark Depth	% of Cover	Substrate type	Depth of sedimentation	Marine Life
1	8			C		
2	9			S-SL		
3	11	>1	20	S-M		<i>Ulva</i>
4	12	4	100	S-M	1	
5	13	4	100	S-M	1	<i>Ulva</i>
6	15	4	100	S-M	1	<i>Ulva</i>
7	17	3	50	S-M	1	
8	17	2	25	S-M	2	
9	17			S-M		<i>Ulva</i>
10	18			S-M		<i>Ulva</i>
11	18	4	100	S-M	3	<i>Ulva</i>
12	19	4	100	S-M	3	
13	19	4	100	S-M	3	
14	20	3	40	S-M	3	<i>Ulva</i>
15	20			S-M		
16	17			S-M		
17	16			S-M		
18	14			S-M		
19	14			S-M		<i>Ulva</i>
20	12			S-M		<i>Ulva</i>
21	11			S-M		<i>Ulva</i>

Log Transfer Ramp Transect 5: 314° Bearing

Sample Point	Depth at MLLW	Bark Depth	% of Cover	Substrate type	Depth of sedimentation	Marine Life
1	7			C		
2	8			S-SL		
3	10	3	25	S-M	>1	<i>Ulva</i>
4	11	4	100	S-M	1	
5	11	4	100	S-M	1	<i>Ulva</i>
6	12	4	100	S-M	1	<i>Ulva</i>
7	14	3	100	S-M	1	
8	14	3	100	S-M	1	
9	17	4	100	S-M	2	<i>Ulva</i>
10	19	2	100	S-M	3	<i>Ulva</i>
11	18	1	70	S-M	3	<i>Ulva</i>
12	18	1	50	S-M	3	
13	19			S-M		
14	20			S-M		<i>Ulva</i>
15	20			S-M		
16	18			S-M		
17	17			S-M		
18	15			S-M		
19	15			S-M		<i>Ulva</i>
20	13			S-M		<i>Ulva</i>
21	13			S-M		<i>Ulva</i>

Log Transfer Ramp Transect 6: 314° Bearing

Sample Point	Depth at MLLW	Bark Depth	% of Cover	Substrate type	Depth of sedimentation	Marine Life
1	8			C		
2	8	1	10	S-SL		<i>Ulva</i>
3	10	2	100	S-M	1	<i>Ulva</i>
4	12	2	100	S-M	1	
5	12	3	100	S-M	1	<i>Ulva</i>
6	12	2	100	S-M	3	<i>Ulva</i>
7	15	2	100	S-M	3	
8	14	1	100	S-M	2	
9	16	2	100	S-M	4	<i>Ulva</i>
10	19	1	10	S-M	4	
11	18	>1	>10	S-M	4	<i>Ulva</i>
12	19			S-M		
13	19			S-M		
14	18			S-M		<i>Ulva</i>
15	19			S-M		
16	18			S-M		<i>Ulva</i>
17	17			S-M		
18	15			S-M		
19	15			S-M		
20	12			S-M		<i>Ulva</i>

Log Transfer Ramp Transect 7: 314° Bearing

Sample Point	Depth at MLLW	Bark Depth	% of Cover	Substrate type	Depth of sedimentation	Marine Life
1	8			C		
2	9			S-SL		
3	10	4	50	S-M	1	<i>Ulva</i>
4	13	5	100	S-M	1	
5	13	4	100	S-M	1	<i>Ulva</i>
6	14	4	100	S-M	2	<i>Ulva</i>
7	14	4	100	S-M	2	
8	14	6	100	S-M	1	
9	16	3	90	S-M	2	<i>Ulva</i>
10	21	2	60	S-M	2	<i>Ulva</i>
11	20			S-M		<i>Ulva</i>
12	20	2	20	S-M	3	
13	20			S-M		
14	18			S-M		<i>Ulva</i>
15	19			S-M		
16	18	>1	>10	S-M	4	
17	16			S-M		
18	14			S-M		
19	15			S-M		<i>Ulva</i>

Log Transfer Ramp Transect 8: 314° Bearing

Sample Point	Depth at MLLW	Bark Depth	% of Cover	Substrate type	Depth of sedimentation	Marine Life
1	12	6	40	C		
2	10	6	40	S-SL		
3	12	6	60	S-M		<i>Ulva</i>
4	13	7	60	S-M		
5	17	6	100	S-M		<i>Ulva</i>
6	17	6	100	S-M	>1	<i>Ulva</i>
7	18	6	100	S-M	>1	
8	18	7	100	S-M	>1	
9	18	6	100	S-M	>1	
10	19	4	100	S-M	>1	
11	19	5	100	S-M	>1	<i>Ulva</i>
12	20	4	30	S-M	2	
13	20	4	20	S-M	1	
14	21	4	10	S-M	1	<i>Ulva</i>
15	20			S-M		<i>Ulva</i>
16	19			S-M		<i>Ulva</i>
17	19	>1	>10	S-M	3	
18	17			S-M		
19	16			S-M		<i>Ulva</i>
20	12			S-M		<i>Ulva</i>

Log Transfer Ramp Transect 9: 314° Bearing

Sample Point	Depth at MLLW	Bark Depth	% of Cover	Substrate type	Depth of sedimentation	Marine Life
1	12			C		
2	15	1	20	S-SL	>1	
3	15	3	20	S-M	1	<i>Ulva</i>
4	16	4	100	S-M	1	
5	17	4	100	S-M	1	<i>Ulva</i>
6	17	5	100	S-M	1	<i>Ulva</i>
7	19	3	100	S-M	1	
8	18	2	100	S-M	3	
9	18	3	100	S-M	3	<i>Ulva</i>
10	20	4	100	S-M	4	<i>Ulva</i>
11	20	3	100	S-M	3	<i>Ulva</i>
12	20	3	20	S-M	2	
13	20	3	10	S-M	4	
14	21			S-M		<i>Ulva</i>
15	20			S-M		
16	19			S-M		
17	19			S-M		
18	17			S-M		
19	16			S-M		<i>Ulva</i>
20	14			S-M		<i>Ulva</i>

Log Transfer Ramp Transect 10: 314° Bearing

Sample Point	Depth at MLLW	Bark Depth	% of Cover	Substrate type	Depth of sedimentation	Marine Life
1	11			C		
2	15	2	40	S-SL	1	
3	15	4	100	S-M	2	<i>Ulva</i>
4	16	5	100	S-M	2	
5	17	6	100	S-M	2	<i>Ulva</i>
6	17	5	100	S-M	4	<i>Ulva</i>
7	19	5	100	S-M	4	
8	18	4	100	S-M	4	
9	18	3	100	S-M	5	
10	19	6	100	S-M	3	
11	19	3	100	S-M	4	
12	18	2	100	S-M	4	
13	18	2	60	S-M	4	
14	17	2	50	S-M	4	<i>Ulva</i>
15	20	2	25	S-M	3	<i>Ulva</i>
16	19			S-M		<i>Ulva</i>
17	16			S-M		<i>Ulva</i>
18	17			S-M		
19	16			S-M		<i>Ulva</i>
20	14			S-M		<i>Ulva</i>

Log Transfer Ramp Transect 11: 314° Bearing

Sample Point	Depth at MLLW	Bark Depth	% of Cover	Substrate type	Depth of sedimentation	Marine Life
1	10			C		
2	11			S-SL		
3	14	1	70	S-M	2	<i>Ulva</i>
4	15	2	100	S-M	2	
5	16	2	100	S-M	3	<i>Ulva</i>
6	17			S-M		<i>Ulva</i>
7	19	>2	50	S-M	2	
8	19	2	100	S-M	2	
9	18	>2	100	S-M	4	<i>Ulva</i>
10	18	1	100	S-M	4	
11	19	1	80	S-M	3	<i>Ulva</i>
12	18	>1	60	S-M	3	
13	18	>1	20	S-M	3	
14	17			S-M		<i>Ulva</i>
15	17			S-M		
16	19			S-M		
17	16			S-M		
18	14			S-M		
19	13			S-M		
20	13			S-M		<i>Ulva</i>

Log Transfer Ramp Transect 12: 314° Bearing

Sample Point	Depth at MLLW	Bark Depth	% of Cover	Substrate type	Depth of sedimentation	Marine Life
1	8			C		
2	12			S-SL		
3	15	2	30	S-M	>1	<i>Ulva</i>
4	17	1	100	S-M	1	
5	18	1	100	S-M	1	<i>Ulva</i>
6	19			S-M		<i>Ulva</i>
7	20	2	90	S-M	2	
8	21	>2	60	S-M	2	
9	19	3	50	S-M	3	<i>Ulva</i>
10	18	2	50	S-M	4	<i>Ulva</i>
11	19			S-M		<i>Ulva</i>
12	18	1	30	S-M	3	
13	18	1	10	S-M	3	
14	17			S-M		<i>Ulva</i>
15	17			S-M		
16	19			S-M		
17	15			S-M		
18	14			S-M		
19	12			S-M		<i>Ulva</i>
20	10			S-M		<i>Ulva</i>

Log Transfer Ramp Transect 13: 314° Bearing

Sample Point	Depth at MLLW	Bark Depth	% of Cover	Substrate type	Depth of sedimentation	Marine Life
1	9			C		
2	11	2	10	S-SL	2	<i>Ulva</i>
3	13	2	100	S-M	3	<i>Ulva</i>
4	14	2	100	S-M	3	
5	15	2	20	S-M	3	
6	16	1	25	S-M	4	<i>Ulva</i>
7	17	>1	40	S-M	5	
8	18	>1	20	S-M	4	
9	19	>1	10	S-M	3	
10	18			S-M		
11	19			S-M		
12	18			S-M		
13	18			S-M		
14	18			S-M		<i>Ulva</i>
15	18			S-M		<i>Ulva</i>
16	18			S-M		<i>Ulva</i>
17	16			S-M		<i>Ulva</i>
18	15			S-M		