

## ARIS SUMMARY SHEET

District Geologist, Smithers

Off Confidential: 89.01.14

ASSESSMENT REPORT 17275

MINING DIVISION: Skeena

PROPERTY: Surf Inlet  
 LOCATION: LAT 53 04 56 LONG 128 53 53  
 UTM 09 5881204 506828  
 NTS 103H02W

CLAIM(S): Surf 1  
 OPERATOR(S): Surf Inlet Mines  
 AUTHOR(S): Burton, R.K.; Gardiner, S.L.

REPORT YEAR: 1988, 102 Pages

COMMODITIES

SEARCHED FOR: Gold

GEOLOGICAL

SUMMARY: Gold mineralization is localized along an extensive northerly trending shear zone which cuts gneiss and diorite of the Upper Cretaceous Coast Plutonic Complex. Gold occurs with pyrite in quartz-ankerite-sericite-sulphide veins within the zone. It had been suggested that recovery of gold from tailings remaining from previous operations (early 1900's to 1942) would be economically viable if an adequate volume of material at a grade of greater than 1.71 grams per tonne was present. The present survey showed that approximately 169 500 tonnes of tailings at an average grade of 1.131 grams per tonne are contained in the area near the mouth of Paradise Creek.

1 K  
 DONE: Drilling, Physical, Geochemical  
 LINE 2.5 km  
 OBDR 108.2 m 31 hole(s)  
 Map(s) - 11; Scale(s) - 1:1000, 1:480  
 SAMP 83 sample(s) ;AU

RELATED  
 REPORTS: 05393, 15369, 15377, 16092  
 MINFILE: 103H 027

LOG NO: 0415	RD.
ACTION:	
FILE NO:	

REPORT  
ON  
VOLUME SURVEYS AND TESTING  
OF  
TAILINGS ON THE SURF ONE  
AND BEAR 1, 2, 3 MINERAL CLAIMS

SURF INLET PROPERTY  
PRINCESS ROYAL ISLAND, BRITISH COLUMBIA

MINING DIVISION: SKEENA  
NTS 103H/2W  
LATITUDE: 53°05'  
LONGITUDE: 128°53'

OWNER(S)  
MATACHEWAN CONSOLIDATED  
MINES, LIMITED  
SURF INLET MINES LTD.

OPERATOR  
SURF INLET MINES LTD.

by  
\*R. Keith Burton  
January, 1988

FILMED

DATE SUBMITTED:  
APRIL, 1988

WORK CARRIED OUT:  
Field Work - October 14-25, 1987  
Report - December, 1987-January, 1988

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

\* See Appendix I

17,275

SUB-RECORDER  
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VANCOUVER, B.C.

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## SUMMARY

The Surf Inlet Area and Pugsley Mines are located on Princess Royal Island, approximately 160 km southeast of Prince Rupert and have been a major source of gold, silver and copper in the past. The main period of operation was between 1917 and 1926.

In 1985 several very large samples were collected of the tailings from previous milling operations. The average assay result of nineteen large samples was 0.061 oz/ton (2.09 g/tonne) gold (Shearer et al, 1986). In 1986, a preliminary survey and calculation of volume of the tailings was carried out (Burton et al, 1986). It had been suggested that recovery of gold from tailings would be originally profitable at a grade of 0.05 oz Au/ton (1.71 g/tonne), provided enough tailings were found here. More detailed work was recommended.

During November 1987, the size and distribution of the tailings area and contained gold values has been evaluated more fully by:

- i) detailed control grid establishment on the tailings area;
- ii) shallow coring of the delta and lower creek on a regular grid basis using a vibra core drill;
- iii) shallow coring of the swamplands adjacent to the lower reaches of Paradise Creek; and
- iv) detailed volume and grade calculations based on survey and sampling data.

Approximately 186,900 tonnes (169,500 tonnes) of tailings at a grade of 0.033 oz Au/ton (1.131 g/tonne) are contained in this area.

## INTRODUCTION

The Surf Inlet property is located on Princess Royal Island on the northwestern coast of British Columbia. Gold mineralization is present in an extensive, complicated shear system hosted by gneiss and diorite of the Coastal Plutonic Complex.

Two underground mines, the Surf Inlet and Pugsley, and milling facilities were developed on the property in the early 1900's. by 1942, 382,351 ounces (11,891,116 g) gold, 200,752 ounces (6,492,187 g) silver and 6,134,341 pounds (2,782,537 kg) copper had been recovered from a total of 1,091,131 tons (989,874 tonnes) produced from the mines. The average head grade was 0.425 oz gold/ton (14.57 g/tonne). Mill recoveries averaged between 88% and 92%.

Tailings remaining from the mill operations are located along the banks of Paradise Creek and in a delta where the creek enters Bear Lake. Results from preliminary sampling and surveying of the tailings indicated the tailings contained significant gold values but that much of the material has been reworked and deposited in Bear Lake.

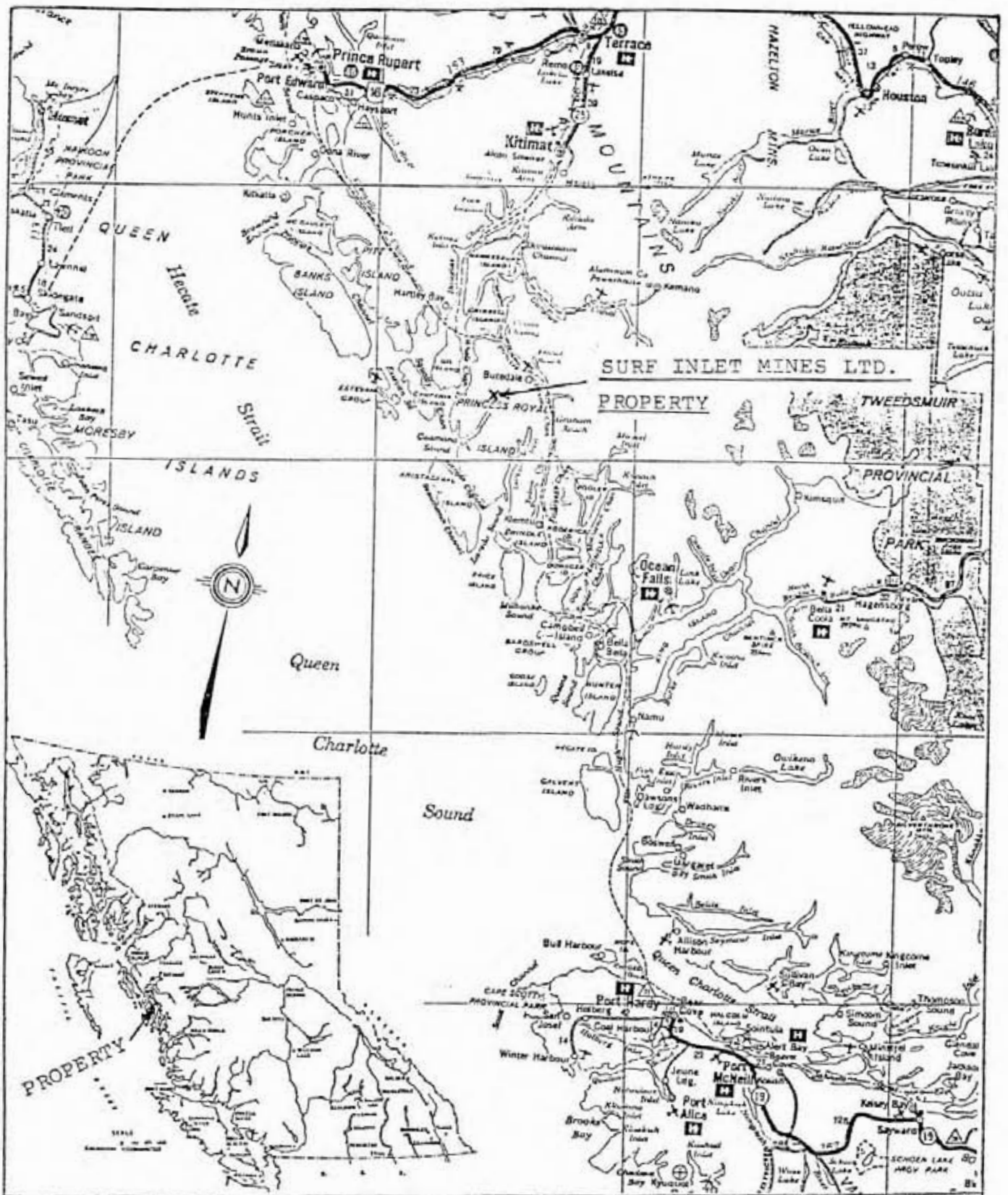
Detailed ground surveys and a vibra core drilling and sampling program was carried out during October, 1987 in order to accurately evaluate the volume and grade of the tailings in the area of Paradise Creek. This report summarizes the results of this program.

## LOCATION AND ACCESS

The Surf and Pugsley Mines are located near the head of Surf Inlet on Princess Royal Island approximately 160 kilometers southeast of the main supply base at Prince Rupert (Figure 1). The property is at 53° 05' N latitude and 128° 53' W longitude in mapsheet NTS 103 H/2W about 105 km southwest of Kitimat and 115 km northwest of Bella Bella. The nearest sizeable community is Hartley Bay, 44 km northeast. Princess Royal Channel, along the east coast of the island is part of the "Inside Passage" for ships travelling between Vancouver and Prince Rupert. Ocean-going ships were able to call on the wharf at the head of Surf Inlet when the mines were in production.

The Surf and Pugsley ore bodies, located on the north and south sides of Paradise Creek, are 11 km from the wharf and hydro-electric power site at the outlet of Cougar Lake. In the past, electric tramways and barges formed the supply link from the mines to tidewater. A tug and barge carrying fifteen 1-ton mine cars operated on the lake. At the mouth of Paradise Creek an overhead trolley electric railroad ran to the camp on an even grade. An incline from the ocean dock to the lake, equipped with an electric hoist completed the transportation. Late November and early December of 1987, a short (approximately 375 m road) was constructed in this area to provide a road plus barge access route to the main part of the property.

Topography in the area is very rugged with steep sided peaks rising to a maximum elevation of 1100 m ASL. The lowest level in the Pugsley Mine is the 1500 level which is 500 feet (152 m) below sea level. The lowest level on the Surf Mine is the 1400 level and is 275 feet (84 m) below sea level.



SURF INLET MINES LTD.  
 SURF INLET PROPERTY, B. C.

LOCATION MAP

FIGURE 1

Scale 1 : 2,400,000



PROPERTY AND TITLE

The property, as shown in Figure 2, consists of the following mineral tenure:

- a) Crown granted mineral claims (a total of 21 claims) optioned from owner, Matachewan Consolidated Mines, Limited

	Lot 1915	Lake Fr.	Lot 32
Bee			
Bench	35	Lakeview	229
Bluebell	2485	Marcia	2484
Bluff	34	Mountain Fr.	37
Cassie	228	Olive	227
DLS	31	Princess Royal	7
Excelsior	9	Sadie	8
Granite	1916	Sea Fr.	1914
Gulch	33	Twin Peaks	38
Independence Fr.	222	UTA Fr.	36
La Quivree	39		

- b) Mineral claims optioned from Matachewan Consolidated Mines, Limited. Registered owner is R.D. McCloskey, who holds the title in trust for Matachewan.

<u>Claims</u>	<u>Units</u>	<u>Rec. Numbers</u>	<u>Expiry Date</u>
Bear 1	15	2221	April 16, 1991
Bear 2	15	2222	April 16, 1990
Bear 3	<u>20</u>	2223	April 16, 1991

Total = 50 units

- c) Mineral claims optioned from owner, Placer Developments Ltd.

<u>Claims</u>	<u>Units</u>	<u>Rec. Numbers</u>	<u>Expiry Date</u>
Jen 1	20	2693	Nov. 27, 1991
Jen 2	20	2694	Nov. 27, 1991
Jen 3	10	2695	Nov. 27, 1991
Jen 4	20	2696	Nov. 27, 1991

Total = 70 units

PROPERTY AND TITLE cont'd...

d) Reverted crown granted mineral claims (a total of 11 claims) optioned from owner, Placer Development Ltd.

<u>Claims</u>	<u>Lot No.</u>	<u>Rec. Numbers</u>	<u>Expiry Date</u>
Sheet Anchor Fr.	2105	1979	Jan. 14, 1991
Summit	226	1980	Jan. 14, 1990
Bonanza	224	1981	Jan. 14, 1990
Anaconda	223	1982	Jan. 14, 1990
Turner Fr.	221	1983	Jan. 14, 1996
Homestake	21	1984	Jan. 14, 1993
Seagull	2097	1985	Jan. 14, 1991
Little Tomy Fr.	2098	1986	Jan. 14, 1991
Brown Bear	2099	1987	Jan. 14, 1991
Sunlight Fr.	2103	1988	Jan. 14, 1991
Sea Lion Fr.	2104	1989	Jan. 14, 1991

e) Mineral claims optioned from owner, Coastoro Resources Limited

<u>Claims</u>	<u>Units</u>	<u>Rec. Numbers</u>	<u>Expiry Date</u>
Cougar 1	6	2614	October 1, 1992
Cougar 2	<u>2</u>	2615	October 1, 1991

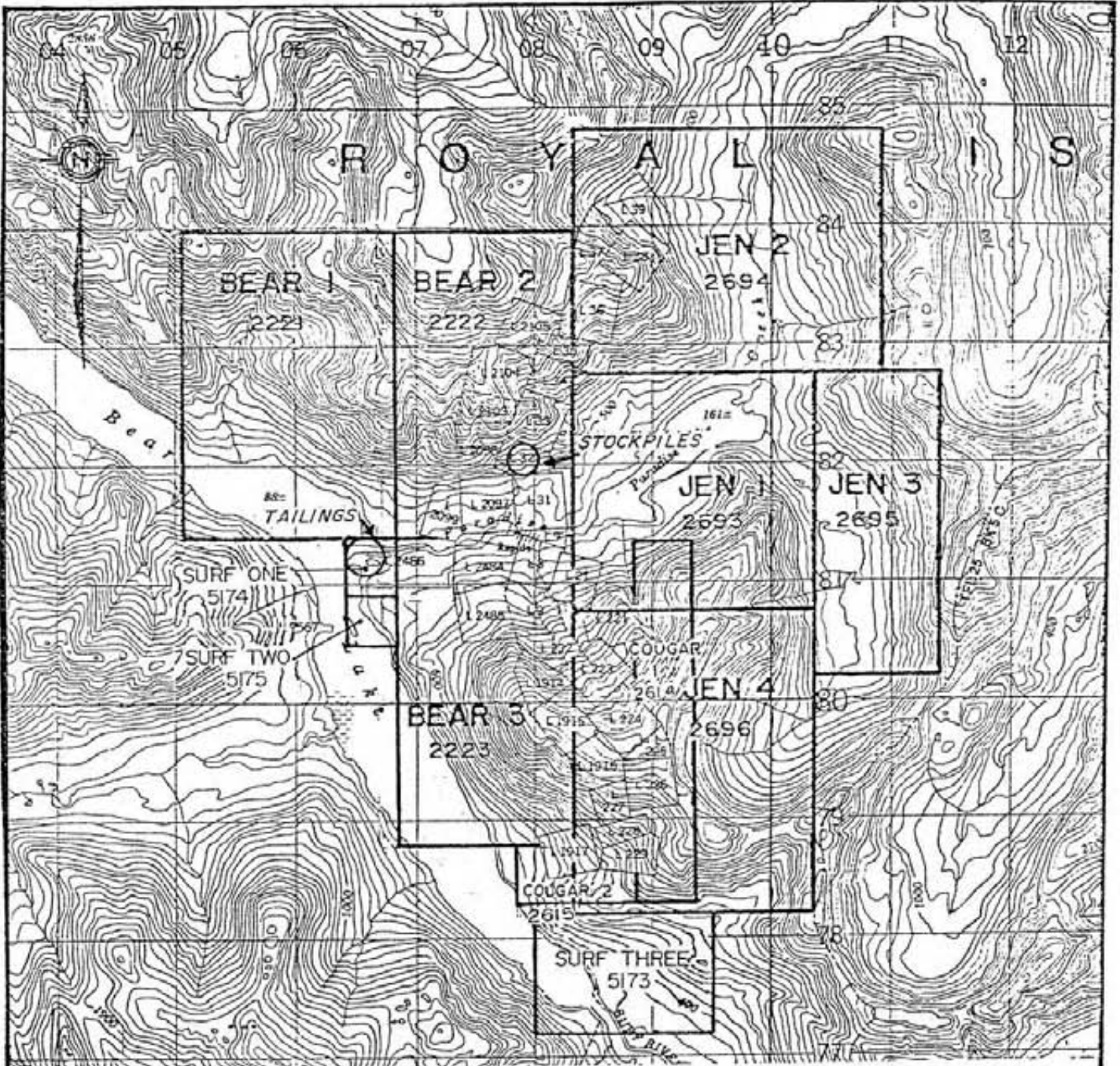
Total 8 units

f) Staked mineral claims

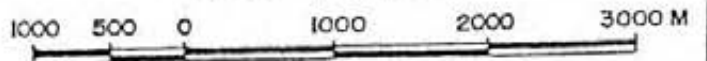
<u>Claims</u>	<u>Units</u>	<u>Rec. Numbers</u>	<u>Expiry Date</u>	<u>Registered in Name of</u>
Surf One	1	5174	Feb. 28, 1991	Surf Inlet Mines Ltd.
Surf Two	1	5175	Feb. 28, 1991	Surf Inlet Mines Ltd.
Surf Three	<u>6</u>	5173	Feb. 28, 1996	Surf Inlet Mines Ltd.

Total 8 units

Mineral claims in sections a to d are held under option by T. van Wollen and M. McClaren. The Cougar claims (in section e are held under option by Fleet Developments Ltd. All options have been assigned to Surf Inlet Mines Ltd.



SCALE 1:50,000



## CLAIM & INDEX MAP

PROJECT: SURF INLET

ENG.: TRM ENGINEERING LTD.

FIGURE 2

## HISTORY

The original discovery of gold in the Surf Inlet area was made in the late 1800's by tracing white quartz float from the bottom of the valley which enters Bear Lake from the east, up to where the vein outcrop on the north and south sides of the valley. The first claims were located in 1898 and are the oldest in the Skeena Mining Division exclusive of the Queen Charlotte Islands.

Trial shipments of the ore were first made in 1902, and although these yielded excellent values in gold (about 5 oz per ton) and copper (about 3%), subsequent work was discouraging (Roddick, 1970). There is no record of the tonnage or value produced in this period and some doubt arose as to the average grade of the ore. Activity on the vigorous development program began. The property was initially known as the "D.L.S. Group" and was owned by Surf Canadian Mines Ltd. in March 1914. The Belmont Canadian Company, developed and bought the property by reorganizing into the Belmont-Surf Inlet Mines Ltd. The property produced continuously from September 1, 1917 to June 30, 1926. Records show that 848,883 tons of ore were produced from which 322,297 oz of gold, 176,734 oz of silver and 5,244,772 pounds of copper were recovered (Dolmage, 1946).

The 1918 Minister of Mines Annual Report indicates a mill recovery of 92%. Dolmage (1946) reports for the period 1916-1926:

During the period, 848,883 tons of ore were mined, of which 57,632 came from the Pugsley. The average grade of this ore was 0.425 ounces of gold, 0.30 ounces of silver and 6 pounds of copper per ton. The maximum daily production was 400 tons and the average operating costs were \$5.20 per ton. To the end of 1925, detail records show that from 822,233 tons of ore mined, 307,452.9 ounces of gold; 169,348 ounces of silver and 5,083,530 pounds of copper were recovered.

The figures quoted by Dolmage indicate approximate gold recoveries of 88% assuming an average head grade of 0.425 oz/ton (14.57 g/tonne). The operators felt that there was no remaining ore when the mine closed in 1926.

In 1934, after the price of gold was raised, a new company was formed, Princess Royal Gold Mines, by J.B. Woodworth, to acquire, rehabilitate and operate the property. This attempt failed and in 1935 the mine was again closed. The company was refinanced in 1936 and its name changed to Surf Inlet Consolidated Mines Ltd. The old mill was originally rated at 300 tons per day but much of the machinery was removed prior to 1934 or had become obsolete. Milling resumed at 50 tons per day in 1936 and was gradually stepped up to a little over 100 tons per day by 1940 (Honsberger, 1973).

## HISTORY cont'd...

Overall, to the end of 1942 when the mine was closed by a scarcity of labour and general war conditions, total recorded production from the property amounted to 1,091,131 tons (989,874 tonnes), of which 169,886 tonnes (154,129 tonnes) came from the Pugsley and the remaining 921,245 tons (835,754 tonnes) from the Surf ore body. From this ore were recovered 382,351 ounces (11,891,116 g) of gold, 208,752 ounces (6,492,187 g) of silver and 6,314,341 pounds (2,782,537 kg) of copper (Dolmage, 1946).

In 1981 Cominco Ltd., in joint venture with Placer Development Ltd., carried out mapping, sampling and diamond drilling programs on the Surf property. Preliminary sampling of the surface stockpiles was also done. Two mine dumps located near the adit of the 550 level of the Surf Inlet Mine were estimated to contain 400,000 tons (362,880 tonnes) at an average grade of 0.087 oz/ton/92.98 g/tonne) gold (Freeze, 1981).

In 1985-1986 TRM Engineering Ltd. and Surf Inlet Mines Ltd. conducted a series of sampling programs and surveys to evaluate the tonnage and grade of the stockpiles and tailings on the dump located near the mouth of Paradise Creek.

In 1985, two large, shallow trench samples were collected from the mine dumps. These assayed; West dump: 0.151 oz/ton (5.18 g/tonne) Au and East dump: 0.067 oz/ton (2.3 g/tonne) Au. Several very large samples were collected of the tailings from previous milling operations of which the average assay result of nineteen large samples was 0.061 oz/ton (2.09 g/tonne) gold (Shearer et al, 1986).

In 1986, a detailed survey of the mine dumps and a preliminary survey of the tailings area was carried out. Approximately 150,000 ton (136,000 tonnes) of material is contained in the mine dumps. It was estimated that the volume of the tailings located near the mouth of Paradise Creek is 588,400 tons (534,000 tonnes) (Burton et al, 1987).

## WORK DONE

Field work was carried out from November 14 to 25, 1987, and included a preparatory survey, clearing for drill sites and vibra core drilling.

The tailings site is located at the confluence of Paradise Creek and Bear Lake. The area can be reached by boat, along Paradise Creek or by foot along the trail from the main campsite. Two 14' boats with 8 hp. outboard motors were used to transport equipment, supplies, and personnel to and from and around the worksite.

It is suspected that during milling operations, the tailings were dumped into the creek near its mouth. The material is presently distributed along the banks of the creek and in a delta at Bear Lake. Part of the tailings are below the water level of the creek and lake. Subsequently a specialized floating platform was used as staging for the vibra sonic drill (see description of drilling below).

### i Survey

Survey equipment (Theodolite and Electronic Distance Measuring devices), chainsaws and axes were used to establish a grid over the tailings area near Bear Lake. All drill sites were located on this grid and cleared. The grid was tied in to existing stations established in the 1986 work program.

The grid shown on Figure 3 was used to establish drill sites and relative offsets, elevation, intersection depths and intervals between cross sections to be used in the volume calculations of the tailings.

Two baselines, from a closed loop traverse, were used to provide accurate survey control for the pickup of the cross sections and drill sites 11 sections at 200 ft. (65 m) intervals with 3 intermediate sections at various spacings (45.72 m, 41.14 m, 10.67 m) were utilized to calculate volume and grade.

### ii Drilling

Thirty-one (31) holes for a total of 355 feet (108.2m) were completed during the program by Pothier Enterprises Ltd. The drill plan is shown in Figure 4. A lightweight sonic drill, called a Vibra Corer, mounted on a floating platform, was utilized (see Appendix V).

Drill logs in Appendix III include a description of the sediments, sample depths, assay results and location data. Material retrieved from drilling was not stored.

WORK DONE cont'd...

Vibra core drill logs were recorded to provide relative depth information for the tailings volume calculations and samples were collected for grade calculations. These data were tied in to the collar information provided by the preparatory survey.

Holes which were not drilled with a shoe were done so under dry conditions (on land drilling) and consequently achieved, for the most part, 100% recovery.

Holes drilled in Bear Lake, required the use of a shoe, at the end of the drill steel, to act as a one way valve so as to maximize recoveries. Note that due to the smaller diameter of shoe (B shoe) versus the drill steel (N rod) an apparently small amount of material (sediments) were recovered. This is because the smaller diameter shoe allows the sediment to go into a larger volume rod and a shrinkage of recovery occurs as opposed to a loss of cored material.

### iii Sampling

Representative samples were taken as a split of the vibra core drill core through each unconsolidated sand and gravel zone, then logged and sent for assay to Min-En Laboratories Inc. A total of 83 samples weighing several pounds (1 kg) each were taken. Assay results are included on the drill logs and with analytical procedures in Appendix IV.

## CALCULATIONS

The area and volume of the tailings along each section line are shown in Figures 5-13 and on Tables 1 & 2. The conversion factor, 100 lbs/ft<sup>3</sup>, is the average weight of dry sand as derived from the Engineering Field Tables of the US Department of Agriculture and Interior (1976). The figures were calculated using the following formula:

$$\text{Vol} = (\text{Area}_L + \text{Area}_{L-1}) \text{Int} / 2$$

$$\text{Area} = 1/2 [EL_1(D_2 - D_n) + \dots + EL_n(D_L - D_{n-1})]$$

Where:

Vol = Average volume between two stations.

Area = Cross sectional area at a station.

Int = Interval between stations.

EL = Elevation at a point on a cross section.

D = Horizontal distance (offset) from centerline at cross section.

i = Subscript referring to current point or stations.

n = Subscript referring to last point or station.

Numeric subscript: refers to point or station number.

Average grade calculation data is shown on Table 3. Using the drill hole results an average grade was calculated for each hole and subsequently each section. The percentage that the volume of that particular section is of the total volume of tailings was calculated. Finally a weighted average of the grade per section was calculated.

Thus a weighted average grade and volume have been established for the tailings piles. Approximately 186,900 tons (169,500 tonnes) of tailings at an average grade of 0.033 oz Au/ton (1.71 g/tonne) are present near the mouth of Paradise Creek.



TAILINGS VOLUME CALCULATION  
AREA CALCULATION DATA  
TABLE 1

(n) North Side of Paradise Creek  
(s) South Side of Paradise Creek

<u>SECTION</u>	<u>DH NO.</u>	<u>OFFSET</u>	<u>ELEV.</u>	<u>SECTION</u>	<u>DH NO.</u>	<u>OFFSET</u>	<u>ELEV.</u>
<u>EASTING</u>	<u>(DISTANCE)</u>			<u>(DISTANCE)</u>			
43+00(n) 1=35	---		---	47+70 (s) 1=200'	001 011	83+00 81+00	29.3 35.3
43+00(s) 1=35	---		---				
43+70(s) 1=135		78+88.5 81+00	36.2 37.5		010	79+00 77+95	35.7 32.0
		81+39.4 81+100 78+88.5	32.0 33.9 36.2	47+70 (n) 1=200'		84+60 85+00 87+70	41.0 44.5 36.0
43+70(n) 1=135'	004	85+18.4 85+52.9 85+70.9 85+52.9 85+18.4	38.0 38.8 38.0 37.0 38.0			88+00 87+70 85+00 84+60	35.0 30.5 36.2 41
45+70(s) 1=200	008 009	79+00 80+00 82+70.4 83+25	39.1 40.1 38.0 32.0	49+70 (s) 1=200	28 24	78+40 81+00 82+90 83+00	32 41.4 42.1 38.0
	009 008	82+70.4 80+00 79+00	35.0 36.2 39.1		24 28	82+90 81+00 78+40	36.7 31.2 32.0
45+70(n) 1=200'	002 005	84+90 85+00 87+00 88+45	32.0 40.0 35.7 32.0	49+70 (n) 1=200		84+05 85+00 87+20 87+90	32.0 44.5 40.3 40.0
	005 002	87+00 85+00 84+90	31.4 32.1 32.0		006 006 013	87+20 87+20 85+00	37.3 37.1
47+70(s) 1=200'	010 011 001	77+95 79+00 81+00 83+00 83+30	32.0 39.2 43.2 40.5 32.8	51+70 (s) 1=200'		84+05 80+85 81+50 82+75 83+10	32.0 43 36 44.4 32.1

TAILINGS VOLUME CALCULATIONS  
TABLE I

<u>SECTION</u>	<u>DH NO.</u>	<u>OFFSET</u>	<u>ELEV.</u>	<u>SECTION</u>	<u>DH NO.</u>	<u>OFFSET</u>	<u>ELEV.</u>
<u>EASTING</u>		<u>(DISTANCE)</u>				<u>(DISTANCE)</u>	
51+70(s)	023	82+75	39.0	55+70 (n)		83+70	42
1=200'	029	81+50	33.5	1=200'	015A	85+00	41.4
		80+85	43.0			86+00	42
51+70(n)		83+90	43.0		015A	85+00	35.2
1=200'	014	85+00	43.5			83+70	42.0
	013	87+00	40.0	55+70 (s)		81+85	42
		87+85	43.0	1=200'	027	82+85	42.8
	013	87+00	37.1			83+00	42.0
	014	85+00	38.2		027	82850	39.2
		83+90	43.0			81+85	42.0
53+70(s)		80+30	43	57+70 (n)		83+90	42
1=200'	030	81+25	36.3	1=200'	016	85+00	41.4
	022	82+75	44.9			85+70	42.0
		83+12	43.0		016	85+00	38.9
	022	82+75	39.5			83+90	42.0
	030	81+25	35.5	57+70 (s)		82+50	44.0
		80+30	43.0		026	82+81.7	43.6
53+70(n)		zero line				83+00	41.0
1=200'	015	85+00	41.5		026	82+81.7	40.9
						82+50	44.0
55+70(s)		81+85	42.0	59+70 (n)		zero line	
1=200'	027	82+85	42.8	1=200'	017	85+00	42.1
		83+00	42.0				
	027	82+85	39.3	59+70 (s)		zero line	
		81+85	42.0	1=200'	025	83+00	45.0

TAILINGS VOLUME CALCULATION  
TABLE I

SECTION EASTING	DH NO.	OFFSET (DISTANCE)	ELEV.	SECTION	DH NO.	OFFSET (DISTANCE)	ELEV.
61+70(n)		84+00	43.0				
1=150'		86+00	43.0				
	018	85+00	38.1				
		84+00	43.0				
61+70(s)		82+75	45.0				
1=150'	025A	83+25	40.0				
		83+50	40.0				
	025A	83+25	41.7				
		82+75	45.0				
62+70(s)		zero line					
1=100'							
63+70(n)		84+00	43.0				
1=200'	019	85+00	43.6				
		86+00	43.0				
	019	85+00	38.1				
		84+00	43.0				
65+70(n)		84+00	44.7				
1=200'	020	84+91	44.7				
		86+00	44.7				
	020	84+91	38.8				
		84+00	44.7				
67+70(n)		84+50	43.6				
1=150'	021	85+00	43.6				
		85+50	43.6				
	021	85+00	38.1				
		84+50	43.6				
68+70(n)		zero line					
1=100'							

TAILINGS VOLUME CALCULATION  
CALCULATION DATA  
"END AREA & VOLUME SUMMARY"  
TABLE II

(n) North Side of Paradise Creek  
(s) South Side of Paradise Creek

SECTION EASTING	END AREA X SQ. FT.	I=DISTANCE BETWEEN SECTIONS LINEAL FEET	VOLUME CUBIC FT.	VOLUME CUBIC FT.
43+00(s)	0	35'		
43+70(s) I=135'	451.62	135'	30,484.35	30,484.35
45+70(s)	1209.78	200	166,140.00	196,624.35
47+70(s)	3401.75	200	461,153.00	657,777.35
49+70(s)	2835.0	200	623,675.00	1,281,452.35
51+70(s)	669.5	200	350,450.00	1,631,902.35
53+70(s)	602.90	200	127,240.00	1,759,142.35
55+70(s)	201.25	200	80,415.00	1,839,557.35
57+70(s)	67.50	200	26,875.00	1,866,432.35
59+70(s)	---	200	6,750.00	1,873,182.35
61+70(s)	63.75	150	4,781.25	1,877,963.60
62+70(s)	---	100	3,187.50	1,881,151.1
<p style="text-align: center;">Volume (southside) = <math>\frac{1,881,151.1 \text{ cu.ft.} \times 100 \text{ lb/cu.ft.}}{2,000}</math> = 94,057.56 tons</p>				
43+00(n)		35		
43+70(n)	47.25	135	3,189.38	3,189.38
45+70(n)	1571.25	200	161,850.00	165,039.38
47+70(n)	2111.5	200	368,275.00	533,314.38
49+70(n)	1600.5	200	371,200.00	904,514.38
51+70(n)	1234.75	200	283,525.00	1,188,039.38
53+70(n)		200	123,475.00	1,311,514.38
55+70(n)	713.0	200	71,300.00	1,382,814.38

TAILINGS VOLUME CALCULATION  
TABLE II

SECTION EASTING	END AREA X SQ. FT.	I= DISTANCE BETWEEN SECTIONS LINEAL FEET	VOLUME CU. YRDS	VOLUME CU. YRDS.
57+70(n)	225.0	200	93,800	1,476,614.38
59+70(n)		200	22,500	1,499,114.38
61+70	550	200	55,000	1,554,114.38
63+70	550	200	110,000	1,664,114.38
65+70	590	200	114,000	1,778,114.38
67+70	275	150	64,875	1,842,989.38
68+70		100	13,750	1,856,739.38

Volume (north side) =  $\frac{1,856,739.38 \text{ cu. ft.} \times 100 \text{ lb/cu. ft.}}{2,000}$   
= 92,836.97 tons

Total Volume of Tailings = 94,057.56 + 92,836.97  
= 186,894.53 tons  
=====  
or 169,500 tonnes

TAILINGS GRADE CALCULATION DATA  
TABLE III

SECTION EASTING	@	AVERAGE GRADE (AU)	% OF VOLUME	= GRADE/SECTION
43+70		.0297	.009	.0003
45+70		.019	.0877	.0017
47+70		.029	.2219	.0065
49+70		.0371	.2662	.0099
51+70		.0343	.1696	.0058
53+70		.0297	.0671	.0020
55+70		.053	.0406	.0022
57+70		.0345	.0323	.0011
61+70		.0344	.0160	.0005
63+70		.033	.0294	.0010
65+70		.043	.0305	.0013
67+70		.033	.0174	.0006

Weighted average grade = 0.0328 or 0.033 oz Au/ton  
(sum of grade/section) = 1.13 grams Au/tonne

Total .0328

## CONCLUSIONS

The 1986 program was followed by an estimate of the volume of tailings in 1986 based on air-photo interpretation and preliminary survey data to define the area of the tailings; a procedure of soundings to measure the "top" of the tailings along the Paradise Creek, was implemented in order to estimate the thickness of the tails. A more detailed volume and grade measurement was carried out in 1987. The data was provided by surveying, vibra core drilling and sampling.

Approximately 186,900 tons (169,500 tonnes) of tailings with an average grade of 0.033 oz Au/ton (1.131 g/tonne) are present. It has been suggested (Burton et al 1987) that recovery of gold from tailings would be originally profitable at a grade of 0.05 oz Au/ton (1.71 g/tonne), provided enough tailings were found here. According to historical records 1,091,131 tons (989,874 tonnes) were milled. Due to the location of the tailings, in and about Paradise Creek, it is apparent that a large amount of the material has been reworked and deposited in Bear Lake beyond the bounds of the survey-area. The 1987 survey has shown that both the volume and grade of the tailings are insufficient. Recovery of gold from this material is not economically viable.

## REFERENCES

- Burton, R.K. et al 1987, Report on Volume Surveys and Testing of Tailings and Mine Dumps on the Lake Fr. Crown Grant and Surf One and Bear 1, 2, 3 Mineral Claims, Assessment Report.
- Dolmage, V. 1946, Surf Inlet Consolidated Gold Mines Ltd. (N.P.L.) Private Report, Surf Inlet Consolidated Gold Mines, July 8, 1946, 11 pp.
- Freeze, A.C. & Juras, S. 1981, COMPLAC Joint Venture, Termination Report. Private report for Cominco Ltd., December 14, 1981, 12 pp.
- Honsberger, J.C. 1973, Report on the Former Surf Inlet Consolidated Gold Mines Property for Matachewan Consolidated Mines, Ltd., July 31, 1973, 25 pp.
- Roddick, J.A. 1970, Douglas Channel - Hecate Strait Map Area, B.C. Geological Survey of Canada, Paper 70-41, 56 pp.
- Shearer, J.T. et al 1986, Report on Preliminary Sampling and Metallurgical Testing of Tailings and Stockpiles on the Lake Fr. Crown Grant and Surf Inlet Property, Princess Royal Island, B.C. Assessment Report.
- US Department of Agriculture and Forest Services, & US Department of Interior-Land Management 1976, Engineering Field Tables, Fourth Edition, 186 pp.



APPENDIX I

## STATEMENT OF QUALIFICATIONS

I, R. Keith Burton, of the City of Aldergrove, in the Province of British Columbia, do hereby certify:

1. I graduated in Mineral Technology from the Northern Alberta Institute of Technology in Edmonton, Alberta in 1981.
2. I have practiced since graduation as a Mineral Technologist, carrying out surveying, prospecting, sampling and drafting. I have worked for B.C. Dept. of Highways, Carolin Mines, Aquarius Resources, TRM Engineering Ltd. and TVW Engineering Ltd.
3. I have personally conducted volume surveys and calculations, survey traverses, prospecting and sampling and supervised in general the field work on the Surf Inlet Property, Princess Royal Island.

\*R. Keith Burton died on March 12, 1988

STATEMENT OF QUALIFICATIONS

I, Sharon L. Gardiner, of the District of North Vancouver, in the Province of British Columbia, do hereby certify:

1. I graduated with a Bachelor of Science, Honours Degree in Earth Sciences (cooperative program) from the University of Waterloo in May, 1979.
2. I have practiced my profession continuously since graduation.
3. I am a Fellow of the Geological Association of Canada.
4. I have compiled this summary using a report by K. Burton. Editing has been completed since his death.

Dated at Vancouver, this 13th day of April, 1988.

  
Sharon L. Gardiner

CERTIFICATION

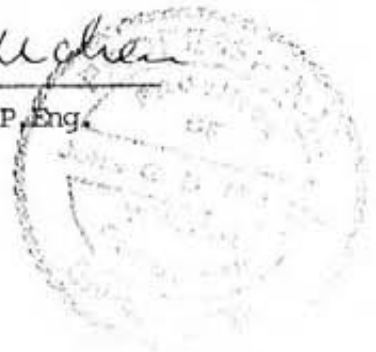
I, John G.B. Michell of the District of North Vancouver, in the Province of British Columbia, do hereby certify:

1. I am a mining engineer residing at 2643 Fromme Road, North Vancouver, British Columbia.
2. I graduated from the Camborne School of Mines, Cornwall, England, in 1951.
3. I have practiced my profession as a mining engineer continuously since graduation in Canada, West Africa and the Philippines.
4. I am a Registered Professional Engineer in the Province of British Columbia. I am also a member of the Canadian Institute of Mining and Metallurgy and of the Society of Mining Engineers of the A.I.M.E.
5. This project was carried out under my supervision.

Dated at Vancouver, British Columbia, this 5<sup>th</sup> day of April, 1988.



J.G.B. Michell, P.Eng.



APPENDIX II

COST STATEMENT

1. Preparatory Survey Oct. 14-18, 1987

Wages:

R.K. Burton	5 days @ \$200/day	\$1,000.00
A. Nicholson	5 days @ \$138/day	690.00
T. Finnigan	5 days @ \$138/day	<u>690.00</u>

\$ 2,380.00

2. Drill Project Oct. 19-23, 1987

Project Supervision, Logging and Sampling:

R.K. Burton	5 days @ \$200/day	1,000.00
T. Finnigan	5 days @ \$138/day	<u>690.00</u>

1,690.00

Drill Contract (Vibra Core Drill):

Includes 2 operators, rental & operation of drill and floating drill platform, and transportation costs from Vancouver to Prince Rupert.

10,658.25

Assays:

83 samples @ \$11.50/sample

954.50

Transportation (Mobilization/Demobilization):

October 19, 23 2 Otter flights \$902 each

1,804.00

Communications

269.59

Accommodation & Food:

35 man days @ \$45/day

1,575.00

Field Equipment and Supplies

275.00

3. Report:

R. K. Burton Dec. 3, 4, 10, 30, Jan. 11-14		
8 days @ \$182.25		1,458.00
S. Gardiner Nov. 12, Jan. 12		
2 days @ \$150.00		300.00
S. Sandquist Dec. 1 day @ \$75		75.00
Drafting, Reproduction		<u>200.00</u>

2,033.00

21,639.34

PAC

6,460.66

\$28,100.00

=====

COST STATEMENT Cont'd...

Drill Costs (Pothier Enterprises Ltd.):

Drilling Cost per foot		\$ 334.50
Equipment Rental	\$25/hr	1,118.75
Labour	\$25/man/hr	3,705.00
Mob/Demob.		<u>5,500.00</u>

\$10,658.25

\*\*\*\*\*

APPENDIX III

Tom Finnigan - core recovery/sampling  
for Trader Res. 1987  
- worked under direct  
supervision of K. Burton



# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE NO. : SITL-87-001  
 CORE SIZE : START N  
 CHANGE B Shoe  
 DATE STARTED : October 20, 1987  
 DATE COMPLETED : October 20, 1987  
 LOGGED BY : RKB  
 DATE : October 20, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 47+70, 83+00  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 40.5 ft (12.34m)

TOTAL LENGTH : 21.33' (6.5m)  
 TOTAL RECOVERY : 5.5' (1.68m)

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH feet	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-001	DEPTH feet	INTERVAL	SAMPLE Nº.	ASSAYS			
									Au g/tonneoz/ton	Au g/tonneoz/ton	depth m
0				0 to 11.2' fine Qtz Dio Sand yellow/gray in colour	0 to 11.2	0 to 11.2	35551A	[11.2]	0.56	0.016	3.41
5											
10				11.2 to 23.95 leaves at 11.2 Coarse Qtz Dio Sand (mica, Qtz hornblende feldspar)	11.2 to 23.95	11.2 to 23.95	35552A	[12.75]	0.15	0.004	3.89
15				@ 15.8 clay/silt gray/white bands 0.1 thick	15.6 to 16.1	15.6 to 16.1	35554A	[ 0.5 ]	0.90	0.026	0.15
20											
25	21.6%			23.95 to 21.33 E.O.H. Organics, brown & roots & swamp	2.62 to 23.95	21.33 to 23.95	35553A	[1.65]	0.02	0.001	0.80

CHONG

TW ENGINEERING LTD.

HOLE N. 3111-07-001

DEPTH feet	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-002	DEPTH feet	INTERVAL	SAMPLE No.	ASSAYS			
									g/tonne Au	oz/ton Au	m
0				0 to 7.85 fine gray/yellow sand/silt	0	0					
					7.85	0 to 7.85	35555A	[7.85']	0.041	0.012	2.39
5											
				7.85' to 18.72' coarse/med Qtz Dio Sand	10.87	7.85 to 18.72	35556A	[10.87]	0.02	0.001	3.31
				9.72 gray clay seam 0.4' thick	0.4	9.23 to 9.63	35558A	[0.4']	0.03	0.001	0.12
10											
				18.72 to 20.15 E.O.H. coarse sand/pebble mixed with fine organic/swamp & roots	6.78	18.72 to 25.5	35557A	[6.78]	0.04	0.001	2.07
15											
				20.15=E.O.H.							
20											
25	47%										

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE NO. : SITL-87-002  
 CORE SIZE : START N  
 CHANGE B Shoe  
 DATE STARTED : October 20, 1987  
 DATE COMPLETED : October 20, 1987  
 LOGGED BY : RKB  
 DATE : October 20, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 45+69.8 84+99.7

TOTAL LENGTH : 20.15' (6.14m)

GRID ZONE CO-ORDINATES : \_\_\_\_\_

TOTAL RECOVERY : 9.4' (2.87m)

ELEVATION AT COLLAR : 40' (12.19m)

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE N<sup>o</sup>. : SITL-87-003  
 CORE SIZE : START N  
 CHANGE B Shoe  
 DATE STARTED : October 20, 1987  
 DATE COMPLETED : October 20, 1987  
 LOGGED BY : RKB  
 DATE : October 20, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 47+69.8, 86+99.8  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 40.0' (12.19 m)

TOTAL LENGTH : (10.9') 3.32m  
 TOTAL RECOVERY : (2.0') 0.61m

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH FEET	% CORE	LITHOLOGY	ALTERATION	GEOLOGIC DESCRIPTION SITL-87-003	DEPTH FEET	INTERVAL	SAMPLE N <sup>o</sup> .	ASSAYS		
									g/tonne Au	oz/ton Au
0				0 to 4.08 fine gray/yellow sand/silt	4.08	0 to 4.08	35559A [4.08]	0.05	0.001	1.24
5				4.08 to 5.22 clay seam	1.14	4.08 to 5.22	35560A [1.14]	0.50	0.015	0.35
				5.22 to 7.27 coarse Qtz Dio with pebbles & gravel & some wood chips	4.32	5.22 to 9.54	35561A [4.32]	0.81	0.024	1.32
10				7.27 to 9.54 no wood, coarse Qtz Dio Sand						
				9.54 to 10.9 wood chips, swamp/roots						
15				10.9=E.O.H.						
25	18%									

CHONG

T.W. ENGINEERING LTD.

HOLE N<sup>o</sup> 35559-003 PAGE 4 OF 4

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE N<sup>o</sup>. : SITL-87-004  
 CORE SIZE : START N  
 CHANGE B shoe  
 DATE STARTED : October 21, 1987  
 DATE COMPLETED : October 21, 1987  
 LOGGED BY : RKB  
 DATE : October 21, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 43+69.8, 85+52.9.  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 38.8' (11.83m)

TOTAL LENGTH : (25.9) 7.9m  
 TOTAL RECOVERY : (12.5) 3.82m

DIRECTION :	Depth	Azimuth	Inclination
	Collar	0°	-90°

DEPTH feet	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-004	DEPTH feet	INTERVAL	SAMPLE N <sup>o</sup> .	ASSAYS		
								g/tonne Au	oz/ton Au	m
0				0 to 2.44' fine sand/silt yellow/gray, minor wood/marsh	2.44	0 to 2.44	35562A [2.44]	0.01	0.001	0.74
5				-2.44 to 12.87' course quartz dio sand firm 2.71 to 5.43' pebbles; gravel mixed	10.45	2.44 to 12.89	35563A [10.45]	0.04	0.001	3.19
15				-12.89 to 16.69' medium sand (Qtz Dio)	3.8	12.89 to 16.69	35564A [3.80]	0.02	0.001	1.16
20				-16.69 to 24.15 Coarse Qtz Dio, wood and swamp at contact (24.15) clay @ 18.05 0.2' thick	7.46	16.69 to 24.15	35565A [7.46]	.010	0.003	2.27
25	48%			-24.15 to 25.9 fine organic ooze with wood (brown)	1.75	24.15 to 25.9	35566A [1.85]	0.065	0.019	0.53
				25.9=E.O.H.						



# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE NO. : SITL-87-005  
 CORE SIZE : START N  
 CHANGE B Shoe  
 DATE STARTED : October 21, 1987  
 DATE COMPLETED : October 21, 1987  
 LOGGED BY : RKB  
 DATE : October 21, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 45+70, 87+00  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 40.5' (12.34m)

TOTAL LENGTH : (20.25') 6.17m  
 TOTAL RECOVERY : (8.25') 2.52m

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH feet	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION	DEPTH feet	INTERVAL	SAMPLE No.	ASSAYS		
									g/tonne Au	oz/ton Au
0				0 to 2.41' fine sand, yellow/gray silt	2.41	0 to 2.41	35567A [ 2.41]	0.04	0.001	0.73
				2.41 to 4.82' coarse sand [pebbles (15%) & gravel (5%) @ 4.4']		2.41 to 4.82	35568A [ 2.41]	0.01	0.001	0.73
5				4.82 to 9.07 coarse & medium sand @ 5.94 gradational contact medium to fine dark to light -clay @ 7.23' (0.5' wide)		4.82 to 9.07	35569A [ 4.25]	0.62	0.018	1.30
				9.07 to 11.89' fine/medium Qtz Dio Sand @ 9.07 gradational contact fine to medium, light to dark		9.07 to 11.89	35570A [ 2.82]	0.04	0.001	0.86
10				11.89 to 12.61 Coarse with pebbles		11.89 to 12.61	35571A [0.72']	0.01	0.001	0.22
				12.61 to 20.25 organics, swamp wood with lake sed organic ooze		12.61 to 20.25	35572A [7.64]	0.02	0.001	2.33
15				20.25'=E.O.H.						
20										
25	41%									

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE N<sup>o</sup>. : SITL-87-006  
 CORE SIZE : START N  
 CHANGE B Shoe  
 DATE STARTED : October 21, 1987  
 DATE COMPLETED : October 21, 1987  
 LOGGED BY : R.K.B.  
 DATE : October 21, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 49+70, 87+20  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 40.3' (12.28m)

TOTAL LENGTH : 3.0' (0.91m)  
 TOTAL RECOVERY : 0.66' (0.20m)

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH FEET	% CORE	LITHOLOGY	ALTERATION	GEOLOGIC DESCRIPTION SITL-87-006	DEPTH FEET	INTERVAL	SAMPLE N <sup>o</sup> .	ASSAYS		
								g/tonne Au	oz/ton Au	m
0				0 to 1.89'		0 to 3'	35573A (3')	1.17	0.034	0.91
				1.89 to 2.29 Brown organics & silty (50%) (50%)						
5				2.29 to 3.0 Clay (gray)						
				3.0 E.O.H.						
10										
15										
20										
25	22%									

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 HOLE N<sup>o</sup> SITL-87-006 PAGE 2... OF ...2.

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE NO. : SITL-87-007  
 CORE SIZE : START N  
 CHANGE B Shoe  
 DATE STARTED : October 21, 1987  
 DATE COMPLETED : October 21, 1987  
 LOGGED BY : RKB  
 DATE : October 21, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 43+69.8, 81+00  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 40.9' (12.47m)

TOTAL LENGTH : (23.55) 7.19m  
 TOTAL RECOVERY : (10.46) 3.19m

DIRECTION :	Depth	Azimuth	Inclination
	Collar	0°	-90°

DEPTH feet	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION	DEPTH feet	INTERVAL	SAMPLE No.	ASSAYS			
									g/tonne Au	oz/ton Au	m
				SITL-87-007							
0				0 to 8.0 fine sand/silt yellow/gray		0 to 8	35574A	[3.55]	1.21	0.035	2.44
				5.8 to 8.0 clay, gradational contact from sand to silt to clay		8 to 8					
				8.0 to 23.6 Qtz Dio coarse sand		8 to 23.6	35575A	[6.91]	0.22	0.006	4.75
5											
				23.6=E.O.H.		5.8 to 8.0	35576A	[0.96]	1.30	0.038	6.7
10											
15											
20											
25	44%										

CHONG

TW ENGINEERING LTD.

HOLE NO. SITL-87-007

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE NO. : SITL-87-008  
 CORE SIZE : START N  
 CHANGE B Shoe  
 DATE STARTED : October 21, 1987  
 DATE COMPLETED : October 21, 1987  
 LOGGED BY : RKB  
 DATE : October 21, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 45+70, 80+00  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 40.1' (12.22m)

TOTAL LENGTH : (12.34) 3.76m  
 TOTAL RECOVERY : (5.51) 1.68m

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH feet	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION	DEPTH feet	INTERVAL	SAMPLE Nº.	ASSAYS			
									g/tonne Au	oz/ton Au	m
0				0 to 3.86 organic/leaves on top, fine sand yellow & gray	0.019/ 3.86	0 to 3.08	35577A	[3.08]	0.50	0.015	0.94
				3.08 to 3.86 clay [with fine silt & clay] coarse sand 80%, pebbles 15%, gravel 5% (Qtz Dio)		3.08 to 3.86	35578A	[0.78]	1.19	0.035	0.24
5						3.86 to 8.48	35579A	[4.62]	0.02	0.001	1.41
				8.48 to 12.11 coarse sand/organics		8.48 to 12.11	35580A	[3.63]	0.01	0.001	1.11
10				8.48 to 10.02 gradational contact coarse sand to fine							
				@ 10.02 wood chip 10.02 to 12.11 silt/organics (swamp & ooze)							
15											
20											
25	43%										



# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE N<sup>o</sup>. : SITL-87-009  
 CORE SIZE : START N  
 CHANGE B Shoe  
 DATE STARTED : October 21, 1987  
 DATE COMPLETED : October 21, 1987  
 LOGGED BY : RKB  
 DATE : October 21, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 45+70, 82+70.4  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 38.0' (11.58m)

TOTAL LENGTH : (12.1) 3.69m  
 TOTAL RECOVERY : (5.15) 1.57m

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH feet	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-009	DEPTH feet	INTERVAL	SAMPLE Nº.	ASSAYS		
									g/tonne Au	oz/ton Au
0				0 to 2.70 fine sand, humus/organic at surface	0.040 3.01	0 to 2.20	35581A [2.70]	1.41	0.041	0.82
				@ 1.31 (0.31') of fine silt/clay grad contact from 2.16 to 2.70		1.31 to 1.62	35582A [0.31]	1.20	0.035	0.09
5				2.70 to 6.71 coarse sand 65%, pebbles 35% gravel 10% (Qtz Dio Sand)		2.70 to 5.71	35583A [4.01]	0.19	0.006	1.22
				6.71 to 9.33 gradational contact medium sand (35%) to organics & wood (65%)		5.71 to 9.33	35584A [2.62]	0.01	0.001	0.80
10				9.33 to 12.1 organic ooze & swamp		9.33 to 12.1	35585A [2.77]	0.02	0.001	0.84
				12.1 E.O.H.						
25	43%									

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE N<sup>o</sup>. : SITL-87-010  
 CORE SIZE : START N  
 CHANGE B Shoe  
 DATE STARTED : October 21, 1987  
 DATE COMPLETED : October 21, 1987  
 LOGGED BY : RKB  
 DATE : October 21, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 47+70, 79+00  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 39.2' (11.95m)

TOTAL LENGTH : 3.25m (10.66')  
 TOTAL RECOVERY : 1.12m (3.67')

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH FEET	% CORE	LITHOLOGY	ALTERATION	GEOLOGIC DESCRIPTION SITL-87-010	DEPTH FEET	INTERVAL	SAMPLE N <sup>o</sup> .	ASSAYS			
									g/tonne Au	oz/ton Au	m
0				0.00 to 0.95 Clay (gray)		0 to 0.95	35586A	[0.95]	1.30	0.038	0.29
				0.95 to 3.33 fine white silty sand	0.034 / 3.33	0.95 to 3.33	35587A	[2.38]	1.12	0.033	0.73
5				3.33 to 10.66 organics/swamp		3.33 to 10.66	35588A	[7.33]	0.05	0.001	2.23
10				@10.47 0.2' of medium Qtz Dio sand/organics 15% 35%							
				-10.66=E.O.H.							
25	34.5%										

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale 103/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE No. : SITL-87-011  
 CORE SIZE : START N  
 CHANGE B Shoe  
 DATE STARTED : October 21, 1987  
 DATE COMPLETED : October 21, 1987  
 LOGGED BY : RKB  
 DATE : October 21, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 47+70, 81+00  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 43.7' (13.32m)

TOTAL LENGTH : 5.75m 18.86'  
 TOTAL RECOVERY : 2.58m 8.46'

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH FEET	% CORE	LITHOLOGY	ALTERATION	GEOLOGIC DESCRIPTION SITL-87-011	DEPTH FEET	INTERVAL	SAMPLE N <sup>o</sup> .	ASSAYS		
								g/tonne Au	oz/ton Au	m
0				0.0 to 0.51 organics & soil (leaves & humus)		0 to 0.51				0.16
				0.51 to 7.68 fine sand (yellow/gray)		0 to 7.68	35589A	1.41	0.041	2.19
5				Clay @ 7.68 to 8.41		7.68 to 8.41	35591A	1.02	0.030	0.10
				8.41 to 9.14 gradational contact to coarse sand wood & organics at contact with coarse sand						
10				9.14 to 17.40 coarse sand (pebbles, gravel & wood between 9.14 to 10.97) chunk of wood (1") @ 15.2'		9.14 to 17.40	35590A	0.05	0.001	2.52
15				17.40 to 18.86 organic ooze/coarse sand (60%) (40%)		17.40 to 18.86				0.45
25	45%									

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE N<sup>o</sup>. : SITL - 87-012  
 CORE SIZE : START N  
 CHANGE B Shoe  
 DATE STARTED : October 22, 1987  
 DATE COMPLETED : October 22, 1987  
 LOGGED BY : T.F.  
 DATE : October 22, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 47+70, 84+99.8  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 44.5' (13.56m)

TOTAL LENGTH : 15.5' 4.72m  
 TOTAL RECOVERY : 5.25' 1.60m

DIRECTION :	Depth	Azimuth	Inclination
	Collar	0°	90°

DEPTH FEET	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-012	DEPTH FEET	INTERVAL	SAMPLE Nº.	ASSAYS		
									g/tonne Au	oz/ton Au
0				0 to 1.52 sand (fine)	0	to	35592A	1.60	0.047	
1					1.52'					
2				1.52 to 2.53 clay (yellow/gray)	1.52	to	35593A	0.98	0.029	
3				2.53 to 4.05 E.O.H. organics/coarse sand	1.01'	to	35594A	0.03	0.001	
4					2.53	to				
5					1.52'	to				
6					4.05					
7										
	40%									



# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE N<sup>o</sup>. : SITL-87-013  
 CORE SIZE : START N  
 CHANGE B Shoe  
 DATE STARTED : October 22, 1987  
 DATE COMPLETED : October 22, 1987  
 LOGGED BY : T.F.  
 DATE : October 22, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 49+70, 84+99.8  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 44.5' (13.56m)

TOTAL LENGTH : (10') 3.05m  
 TOTAL RECOVERY : (6.4') 1.95m

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH meters	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-013	DEPTH meters	INTERVAL	SAMPLE N <sup>o</sup> .	ASSAYS	
								g/tonne Au	oz/ton Au
0				0 to 1.25 Sand, Silt	1.25	0 to .25	35595A	1.10	0.032
1				1.25 to 2.25 gray clay coarse sand/pebbles & minor bits of wood					
2				2.25 to 3.05 E.O.H. leaves organic ooze & muskeg					
3									
4									
5									
	64%								

TWM ENGINEERING LTD. HOLE No. SITL-87-013 PAGE 4 OF 6

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE NO. : SITL-87-014  
 CORE SIZE : START N  
 CHANGE B Shoe  
 DATE STARTED : October 22, 1987  
 DATE COMPLETED : October 22, 1987  
 LOGGED BY : T.F.  
 DATE : October 22, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 51+70, 84+99.8  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 43.5' (13.26m)

TOTAL LENGTH : 10' 3.05m  
 TOTAL RECOVERY : 5.2' 1.58m

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH meters	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-014	DEPTH meters	INTERVAL	SAMPLE N <sup>o</sup> .	ASSAYS		
									g/tonne Au	oz/ton Au
0				0 to 0.47 brown/yellow fine sand/silt	0.47	0 to 0.47	35598A	0.97	0.028	
1				0.47 to 1.61 gray clay mixed with organics at upper contact	1.14	0.47 to 0.61	35599A	0.87	0.025	
2				1.61 to 3.05 muskeg	1.44	0.61 to 0.61	35600A	0.13	0.004	
3										
4										
5										
	85%									

CHONG

TW ENGINEERING LTD.

HOLE N<sup>o</sup> SITL-87-014 PAGE 2 OF 2

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE NO. : SITL-87-015  
 CORE SIZE : START N  
 CHANGE \_\_\_\_\_  
 DATE STARTED : October 22, 1987  
 DATE COMPLETED : October 22, 1987  
 LOGGED BY : T.F.  
 DATE : October 22, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 85+00, 53+70  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 41.5' (12.65m)

TOTAL LENGTH : \_\_\_\_\_  
 TOTAL RECOVERY : \_\_\_\_\_

DIRECTION :

Depth	Azimuth	Inclination
Collar		

Note: Abandoned, no core recovered, located in muskeg & swamp area.

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE NO. : SITL-87-015A  
 CORE SIZE : START N  
 CHANGE B Shoe  
 DATE STARTED : October 22, 1987  
 DATE COMPLETED : October 22, 1987  
 LOGGED BY : T.F.  
 DATE : October 22, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 55+69.9, 84+99.8  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 41.4' (12.62m)

TOTAL LENGTH : 8.5' 2.59m  
 TOTAL RECOVERY : 4.4' 1.34m

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH meters	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-015 A	DEPTH meters	INTERVAL	SAMPLE N <sup>o</sup> .	ASSAYS	
								g/tonne Au	oz/ton Au
0				0 to 0.73 gray clay	0.73	0	35551B	1.00	0.029
1				0.73 to 1.89 muskeg; sand	1.16	0.73 to 1.16	35552B	0.60	0.018
2									
3				1.89 to 2.59 E.O.H. muskeg & coarse sand	0.70	1.16 to 2.59	35553B	0.20	0.006
4									
5									

52%

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE N<sup>o</sup>. : SITL-87-016  
 CORE SIZE : START N  
 CHANGE B Shoe  
 DATE STARTED : October 22, 1987  
 DATE COMPLETED : October 22, 1987  
 LOGGED BY : T.F.  
 DATE : October 22, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 57+69.8, 84+99.8  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 41.4' (12.62m)

TOTAL LENGTH : 3' 0.91m  
 TOTAL RECOVERY : 1' 0.30m

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°



DEPTH meters	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION	DEPTH meters	INTERVAL	SAMPLE No.	ASSAYS		
									g/tonne	oz/ton
0				0 to 0.75 fine sand	0.75	0 to 0.75	35554B		1.15	0.034
1				0.75 to 1.00 E.O.H. muskeg	0.25	0.75 to 1.00				
2										
3										
4										
5										
6										
7										
8										
9										

CHONG

TJV ENGINEERING LTD.

HOLE N° SJMCR8-008

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE N<sup>o</sup>. : SITL-87-017  
 CORE SIZE : START N  
 CHANGE \_\_\_\_\_  
 DATE STARTED : October 22, 1987  
 DATE COMPLETED : October 22, 1987  
 LOGGED BY : T.F.  
 DATE : October 22, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 59+69.6, 85+00  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 42.1' (12.83m)

TOTAL LENGTH : 4.5' (1.37m)  
 TOTAL RECOVERY : 4.5' (1.37m)

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH metres	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-017	DEPTH metres	INTERVAL	SAMPLE Nº.	ASSAYS		
									g/tonne Au	oz/ton Au
0				0 to 1.37 E.O.H.  all muskeg roots & grass	0 to 1.37		N/S			
1										
2										

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE NO. : SITL-87-018  
 CORE SIZE : START N  
 CHANGE B Shoe  
 DATE STARTED : October 22, 1987  
 DATE COMPLETED : October 22, 1987  
 LOGGED BY : T.F.  
 DATE : October 22, 1987

### SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 61+70, 85+00  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 44.4' (13.53m)

TOTAL LENGTH : 5.5' (1.68m)  
 TOTAL RECOVERY : 2.7' (0.82m)

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH metres	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-018	DEPTH metres	INTERVAL	SAMPLE N <sup>o</sup> .	ASSAYS		
									g/tonne Au	oz/ton Au
0				0 to 0.93 yellow/white sand -fine!	0.93	0 to 0.93	35555B		1.39	0.041
1				0.93 to 1.67 E.O.H. gray clay, roots at bottom of hole	0.74	0 to 1.67	35556B		0.70	0.020
2										
3										

CHONG

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE N<sup>o</sup>. : SITL-87-019  
 CORE SIZE : START N  
 CHANGE \_\_\_\_\_  
 DATE STARTED : October 22, 1987  
 DATE COMPLETED : October 22, 1987  
 LOGGED BY : RKB  
 DATE : October 22, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 63+70, 85+00  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 43.6' (13.29m)

TOTAL LENGTH : 1.67m (5.48')  
 TOTAL RECOVERY : 100%

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH metres	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-019	DEPTH metres	INTERVAL	SAMPLE No.	ASSAYS	
								g/tonne Au	oz/ton Au
0				0 to 0.86 yellow/white fine sand/silt	0.86	0 to 0.86	35559B	1.20	0.035
1				0.86 to 1.48 gray clay (yellow at top)	0.62	0.86 to 1.48	35560B	1.06	0.031
2				1.48 to 1.67 E.O.H. muskeg	0.19	1.48 to 1.67	35561B	0.18	0.005
3									

76%

CHONG

T.W. ENGINEERING LTD.

HOLE No. SITL-87-019 PAGE 4... 2

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE No. : SITL-87-020  
 CORE SIZE : START N  
 CHANGE \_\_\_\_\_  
 DATE STARTED : October 22, 1987  
 DATE COMPLETED : October 22, 1987  
 LOGGED BY : R.K.B.  
 DATE : October 22, 1987

### SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 65+60.7, 84+90.6  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 44.7' (13.62m)

TOTAL LENGTH : 3.20m (10.5')  
 TOTAL RECOVERY : 100%

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°



DEPTH metres	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION	DEPTH metres	INTERVAL	SAMPLE Nº.	ASSAYS		
									g/tonne	oz/ton
0				0 to 0.84 yellow silty sand	0.84	0 to 0.84	35562B		1.59	0.046
1				0.84 to 1.74 gray clay	0.90	0.84 to 1.74	35563B		1.40	0.041
2				1.74 to 3.20 E.O.H. muskey	1.46	1.74 to 3.20				
3										
4										
5										
	50%									

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE NO. : SITL-87-021  
 CORE SIZE : START N  
 CHANGE \_\_\_\_\_  
 DATE STARTED : October 22, 1987  
 DATE COMPLETED : October 22, 1987  
 LOGGED BY : RKB  
 DATE : October 22, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 67+71.3, 85+00  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 43.6' (13.29m)

TOTAL LENGTH : 1.65m (5.41')  
 TOTAL RECOVERY : 100%

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH metres	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-021	DEPTH metres	INTERVAL	SAMPLE N <sup>o</sup> .	ASSAYS	
								g/tonne Au	oz/ton Au
0				0 to 0.60 yellow/white silty sand	0.60	0 to 0.60	35557B	1.28	0.037
1				0.60 to 1.67 E.O.H. gray clay muskeg at 1.65	1.07	0.60 to 1.67	35578B	1.07	0.031
2									
3									

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE NO. : SITL-87-022  
 CORE SIZE : START N  
 CHANGE B Shoe  
 DATE STARTED : October 22, 1987  
 DATE COMPLETED : October 22, 1987  
 LOGGED BY : RKB  
 DATE : October 22, 1987

### SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 53+70, 82+75  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 44.9' (13.69m)

TOTAL LENGTH : 1.67m (5.48')  
 TOTAL RECOVERY : 100%

DIRECTION :	Depth	Azimuth	Inclination
	Collar	0°	-90°

DEPTH meters	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-022	DEPTH meters	INTERVAL	SAMPLE Nº.	ASSAYS	
								g/tonne Au	oz/ton Au
0				0 to 1.30 brown/yellow silty sand	1.30	0 to 1.30	35564B	1.39	0.041
1				1.30 to 1.60 gray glass muskeg at 1.60 to 1.67 E.O.H.	0.30	1.30 to 1.60	35567B	1.24	0.036
2									
3									
4									

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE No. : SITL-87-023  
 CORE SIZE : START N  
 CHANGE \_\_\_\_\_  
 DATE STARTED : October 22, 1987  
 DATE COMPLETED : October 22, 1987  
 LOGGED BY : RKB  
 DATE : October 22, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 51+70, 82+75  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 44.4' (13.53m)

TOTAL LENGTH : 1.67 m (5.48')  
 TOTAL RECOVERY : 100%

DIRECTION :	Depth	Azimuth	Inclination
	Collar	0°	-90°

DEPTH meters	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-023	DEPTH meters	INTERVAL	SAMPLE N <sup>o</sup> .	ASSAYS	
								g/tonne Au	oz/ton Au
0.1				0 to 1.03 gray silty sand	1.03	0 to 1.03	35566B	1.60	0.047
1				1.03 to 1.65 brown/yellow clay	0.62	1.03 to 1.67	35567B	1.40	0.041
2				1.65 to 1.67 E.O.H. muskeg					
3									
4									

63%

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE NO. : SITL-87-024  
 CORE SIZE : START N  
 CHANGE \_\_\_\_\_  
 DATE STARTED : October 22nd, 1987  
 DATE COMPLETED : October 22, 1987  
 LOGGED BY : RKB  
 DATE : October 22, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 49+68.0, 82 + 89.9  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 42.1' (12.83m)

TOTAL LENGTH : 1.67 m (5.48')  
 TOTAL RECOVERY : 100%

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90%



DEPTH meters	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-024	DEPTH meters	INTERVAL	SAMPLE №.	ASSAYS	
								g/tonne Au	oz/ton Au
0				0 to 1.06 light grey silty sand	1.06	0 to 1.06	35568B	1.42	0.041
1				1.06 to 1.67 E.O.H. grey clay (organics at bottom)	0.61	1.06 to 1.67	35569B	0.71	0.021
2									
3									
	35%								

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE N<sup>o</sup>. : SITL-87-025  
 CORE SIZE : START N  
 CHANGE \_\_\_\_\_  
 DATE STARTED : October 23, 1987  
 DATE COMPLETED : October 23, 1987  
 LOGGED BY : R.K.B.  
 DATE : October 23, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 83+00, 59+70  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 44.0' (13.41m)

TOTAL LENGTH : \_\_\_\_\_  
 TOTAL RECOVERY : 0%

DIRECTION :

Depth	Azimuth	Inclination
Collar		

Note: Hole was abandoned as no core was recovered, located in a muskeg & swamp area.

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE N<sup>o</sup>. : SITL-87-025A  
 CORE SIZE : START N  
 CHANGE \_\_\_\_\_  
 DATE STARTED : October 23, 1987  
 DATE COMPLETED : October 23, 1987  
 LOGGED BY : R.K.B.  
 DATE : October 23, 1987

### SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 61+70, 83+25  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 45.2' (13.78m)

TOTAL LENGTH : 3.20m (10.5')  
 TOTAL RECOVERY : 100%

DIRECTION :	Depth	Azimuth	Inclination
	Collar	0°	-90°

DEPTH metres	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-025A	DEPTH metres	INTERVAL	SAMPLE Nº.	ASSAYS		
									g/tonne	oz/ton
0				0 to 0.18 organics/humus		0 to 0.18				
				0.18 to 1.29 yellow/brown silty sand		0.18 to 1.29	1.11 to 35570B	1.33	0.039	
1				1.29 to 1.55 gray clay		1.29 to 1.55	0.26 to 35571B	0.87	0.025	
				1.55 to 3.20 E.O.H. muskeg		1.55 to 3.20	1.65 to			
2										
3										

27%

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE N<sup>o</sup>. : SITL-87-026  
 CORE SIZE : START N  
 CHANGE \_\_\_\_\_  
 DATE STARTED : October 23, 1987  
 DATE COMPLETED : October 23, 1987  
 LOGGED BY : R.K.B.  
 DATE : October 23, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : \_\_\_\_\_  
 GRID ZONE CO-ORDINATES : 57+70, 82+81.7  
 ELEVATION AT COLLAR : 43.6' (13.29 m)

TOTAL LENGTH : 3.20m (10.5')  
 TOTAL RECOVERY : 100%

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH metres	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-026	DEPTH metres	INTERVAL	SAMPLE N <sup>o</sup> .	ASSAYS	
								g/tonne Au	oz/ton Au
0				0 to 0.56 organics & fine sand					
				0.56 to 0.98 fine silty sand (yellowish)	0.42	0.56 to 0.98	35572B	1.22	0.036
1				0.98 to 1.37 white/gray silt-clay	0.39	0.98 to 1.37	35573B	1.20	0.035
2				1.37 to 2.35 E.O.H. organics, muskeg & humus					
3									
	36%								

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE No. : SITL-87-027  
 CORE SIZE : START N  
 CHANGE \_\_\_\_\_  
 DATE STARTED : October 23, 1987  
 DATE COMPLETED : October 23, 1987  
 LOGGED BY : RKB  
 DATE : October 23, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 55+70, 82+82.1  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 44.3' (13.50m)

TOTAL LENGTH : 2.20m (7.22')  
 TOTAL RECOVERY : 100%

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH meters	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-027	DEPTH meters	INTERVAL	SAMPLE Nº.	ASSAYS	
								g/tonne Au	oz/ton Au
0				0 to 0.48 humus; coarse sand					
1				0.48 to 1.08 yellowish silty sand	0.60	0.48 to 1.08	35574B	1.62	0.047
				1.08 to 1.56 white/grey silty clay	0.48	1.08 to 1.56	35575B	2.10	0.061
2									
3									
	31%								



# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE NO. : SITL-87-028  
 CORE SIZE : START N  
 CHANGE \_\_\_\_\_  
 DATE STARTED : October 23, 1987  
 DATE COMPLETED : October 23, 1987  
 LOGGED BY : RKB  
 DATE : October 23, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : \_\_\_\_\_  
 GRID ZONE CO-ORDINATES : 49 + 68.9, 81 + 00  
 ELEVATION AT COLLAR : 42.4' (12.92m)

TOTAL LENGTH : 4.06 m (13.32')  
 TOTAL RECOVERY : 100%

DIRECTION :	Depth	Azimuth	Inclination
	Collar	0°	-90°

DEPTH meters	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-028	DEPTH meters	INTERVAL	SAMPLE Nº.	ASSAYS	
								g/tonne	oz/ton
0				0 to 0.31 organics & humus					
				0.31 to 1.09 yellow/brown silty sand	0.78	0.31 to 1.09	35576B	1.46	0.043
1				1.09 to 3.43 white & gray silty sand (f. om 1.52 to 1.96 gray silty section)	2.34	1.09 to 3.43	35577B	1.69	0.049
2									
3				3.43 to 4.42 E.O.H. organics with (pebbles & gravel at 3.93 to 4.06)					
4									

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE No. : SITL-87-029  
 CORE SIZE : START N  
 CHANGE \_\_\_\_\_  
 DATE STARTED : October 23, 1987  
 DATE COMPLETED : October 23, 1987  
 LOGGED BY : RKB  
 DATE : October 23, 1987

### SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 51 + 70, 81 + 50  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 41.0' (134.51 m)

TOTAL LENGTH : 2.90 m 9.51'  
 TOTAL RECOVERY : 100%

DIRECTION :	Depth	Azimuth	Inclination
	Collar	0°	-90°

DEPTH meters	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-029	DEPTH meters	INTERVAL	SAMPLE N <sup>o</sup> .	ASSAYS	
								g/tonne Au	oz/ton Au
0				0 to 1.52 humus					
1				1.52 to 1.83 brown organic ooze & silt	0.31	1.52 to 1.83	35578B	0.93	0.027
2				1.83 to 2.29 yellow gray silt	0.46	1.83 to 2.29	35579B	1.04	0.030
3				2.29 to 2.44 organics, black humus	0.46	2.44 to 2.90	35580B	0.04	0.001
4									



DEPTH meters	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-030	DEPTH meters	INTERVAL	SAMPLE N <sup>o</sup> .	ASSAYS	
								g/tonne Au	oz/ton Au
0				0 to 1.52 organics, grass					
1				1.52 to 1.60 organic ooze/muskeg					
				1.60 to 1.83 brown/gray silt	0.23	.60	35581B	1.00	0.029
2				1.83 to 2.13 E.O.H. brown organics		.83			
3									
4									
5									

CHONG

# TVW ENGINEERING LTD.

# VIBRA-CORE DRILL LOG

PROJECT : Surf Inlet  
 ZONE : Tailings Site, Bear Lake  
 LOCATION (N.T.S.) : Butedale, 103 H/2  
 CLAIM : \_\_\_\_\_  
 MINING DIVISION : Skeena

HOLE NO. : SITL-87-031  
 CORE SIZE : START N  
 CHANGE \_\_\_\_\_  
 DATE STARTED : October 23, 1987  
 DATE COMPLETED : October 23, 1987  
 LOGGED BY : RKB  
 DATE : October 23, 1987

## SURVEY INFORMATION

GRID CO-ORDINATES (LAT., LONG.) : 51 + 70, 87 + 00  
 GRID ZONE CO-ORDINATES : \_\_\_\_\_  
 ELEVATION AT COLLAR : 40.5' (12.34m)

TOTAL LENGTH : 1.52 m 5'  
 TOTAL RECOVERY : 100%

DIRECTION :

Depth	Azimuth	Inclination
Collar	0°	-90°

DEPTH meters	% CORE	LITHOLOGY	ALTERA- TION	GEOLOGIC DESCRIPTION SITL-87-031	DEPTH meters	INTERVAL	SAMPLE No.	ASSAYS	
								g/tonne Au	oz/ton Au
0				0 to 0.15 organics (stained orange)					
				0.15 to 0.55 gray silt	0.48	0.15 to 0.55	35582B	1.40	0.041
1				0.55 to 1.03 light gray & gray green silt	0.48	0.55 to 1.03			
2				1.03 to 1.52 organics/muskeg/humus					
3									
4									
5									



APPENDIX IV

Routine Gold-Assay Procedures  
Used by Min-En Labs. Ltd.

1. Samples are received, cataloged and dried at 105°C if necessary.
2. Whole sample is passed through a primary crusher which reduces sample to  $-\frac{1}{2}$  inch.
3. Whole sample is further passed through a secondary crusher which further reduces the sample to -10 mesh.
4. The whole sample is riffled through a  $\frac{1}{2}$  inch riffle to obtain a subsample of approx 300-400 grams. The remaining reject is bagged and stored.
5. The above 300-400 gram split is then pulverized to obtain -150 mesh using ring 3 dimensional action mill pulverizer.
6. Sample pulp is now rolled and analysed.
7. The sample pulp is assayed for gold using a 1 assay ton fire assay preconcentration and atomic absorption finishing techniques.
8. The remaining sample pulp is retained and stored.

**MIN-EN LABORATORIES LTD.**

*Specialists in Mineral Environments*

705 West 15th Street North Vancouver, B.C. Canada V7M 1T2

TEL: (604) 980-5814 OR (604) 988-4524

TELEX: VIA USA 7601067 UC

**Certificate of ASSAY**

Company: TVM ENGINEERING LTD.

File: 7-1761/P1

Project: SURF INLET

Date: NOV 6/87

Attention: JOHN MICHELL

Type: ROCK ASSAY

We hereby certify the following results for samples submitted.

Sample Number	AU G/TONNE	AG OZ/TON
35 551 A	.36	0.016
35 552 A	.15	0.004
35 553 A	.02	0.001
35 554 A	.90	0.026
35 555 A	.41	0.012
35 556 A	.02	0.001
35 557 A	.04	0.001
35 558 A	.03	0.001
35 559 A	.05	0.001
35 560 A	.50	0.015
35 561 A	.81	0.024
35 562 A	.01	0.001
35 563 A	.04	0.001
35 564 A	.02	0.001
35 565 A	.10	0.003
35 566 A	.65	0.019
35 567 A	.04	0.001
35 568 A	.01	0.001
35 569 A	.62	0.018
35 570 A	.04	0.001
35 571 A	.01	0.001
35 572 A	.02	0.001
35 573 A	1.17	0.034
35 574 A	1.21	0.035
35 575 A	.22	0.006
35 576 A	1.30	0.038
35 577 A	.50	0.015
35 578 A	1.19	0.035
35 579 A	.02	0.001
35 580 A	.01	0.001

Certified by \_\_\_\_\_

MIN-EN LABORATORIES LTD.

MIN-EN LABORATORIES LTD.

Specialists in Mineral Environments

705 West 15th Street North Vancouver, B.C. Canada V7M 1T2

E: (604)980-5814 OR (604)988-4524

TELEX: VIA USA 7601067 UC

Certificate of ASSAY

Company: TVW ENGINEERING  
Project: SURF. INLET  
Attention: J. MICHELL

File: 7-1761/P2  
Date: NOV 6/87  
Type: ROCK ASSAY

We hereby certify the following results for samples submitted.

Sample Number	AU G/TONNE	AU OZ/TON
35 581 A	1.41	0.041
35 582 A	1.20	0.035
35 583 A	.19	0.006
35 584 A	.01	0.001
35 585 A	.02	0.001
35 586 A	1.30	0.038
35 587 A	1.12	0.033
35 588 A	.05	0.001
35 589 A	1.41	0.041
35 590 A	.05	0.001
35 591 A	1.02	0.030
35 592 A	1.60	0.047
35 593 A	.98	0.029
35 594 A	.03	0.001
35 595 A	1.10	0.032
35 596 A	.77	0.022
35 597 A	.21	0.006
35 598 A	.97	0.028
35 599 A	.87	0.025
35 600 A	.13	0.004
35 551 B	1.00	0.029
35 552 B	.60	0.018
35 553 B	.20	0.006
35 554 B	1.15	0.034
35 555 B	1.39	0.041
35 556 B	.70	0.020
35 557 B	1.28	0.037
35 558 B	1.07	0.031
35 559 B	1.20	0.035
35 560 B	1.06	0.031

Certified by



MIN-EN LABORATORIES LTD.

MIN-EN LABORATORIES LTD.

Specialists in Mineral Environments

705 West 15th Street North Vancouver, B.C. Canada V7M 1T2

(604)980-5814 DR (604)988-4524

TELEX: VIA USA 7601067 UC

Certificate of ASSAY

Company: TVW ENGINEERING LTD.  
 Project: SURF INLET  
 Attention:

File: 7-1761/P3  
 Date: NOV 5/87  
 Type: ROCK ASSAY

We hereby certify the following results for samples submitted.

Sample Number	AU G/TONNE	AU OZ/TON
35 561 B	.18	0.005
35 562 B	1.59	0.046
35 563 B	1.40	0.041
35 564 B	1.39	0.041
35 565 B	1.24	0.036
35 566 B	1.60	0.047
35 567 B	1.40	0.041
35 568 B	1.42	0.041
35 569 B	.71	0.021
35 570 B	1.33	0.039
35 571 B	.87	0.025
35 572 B	1.22	0.036
35 573 B	1.20	0.035
35 574 B	1.62	0.047
35 575 B	2.10	0.061
35 576 B	1.46	0.043
35 577 B	1.69	0.049
35 578 B	.93	0.027
35 579 B	1.04	0.030
35 580 B	.04	0.001
35 581 B	1.00	0.029
35 582 B	1.40	0.041
35 583 B	1.21	0.035

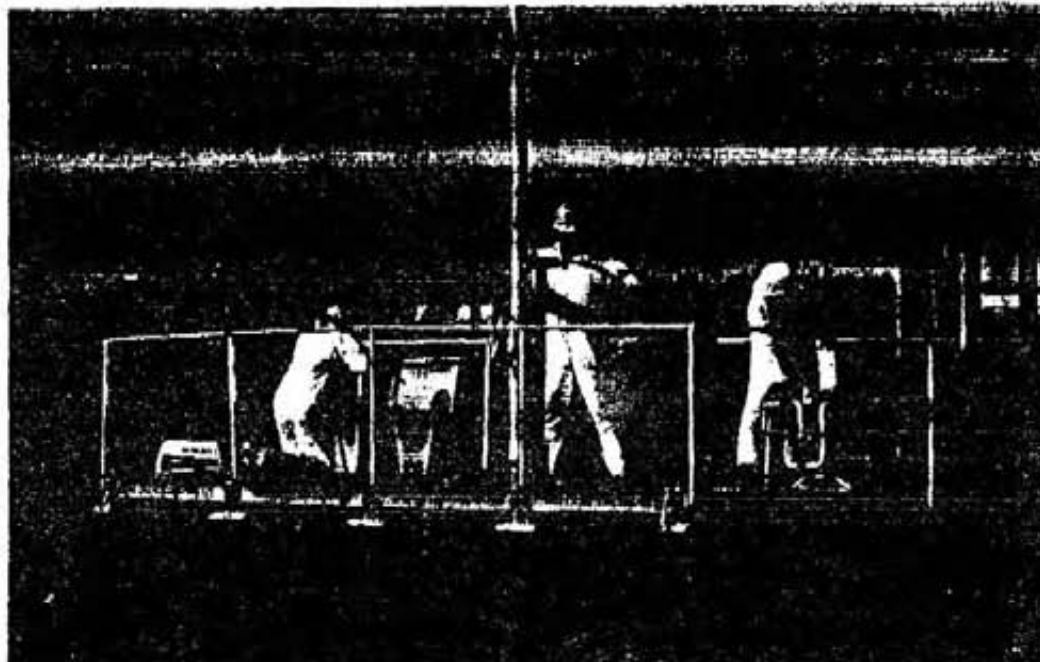
Certified by

MIN-EN LABORATORIES LTD.

APPENDIX V

## The Vibra Corer Portable Sonic Sampling Drill

The Sediment Sampler That Recovers  
Clean Cores in Record Time



▲ A light-weight, portable pontoon platform allows easy maneuverability for drilling operations with the Vibra Corer™.

Vi-Cor Technologies Inc. has introduced a sonic drill that revolutionizes sediment sampling for environmental purposes. The Vibra Corer™ is a small, light-weight sonic drill capable of drilling up to five feet in 10 seconds, consistently recovering undisturbed, uncontaminated cores and penetrating formations to record depths. It is easy to use and economical to operate.

If your task is to obtain accurate, clean, representative sediment samples quickly and cost-effectively, see how the Vibra Corer™ can make your job easier.

Vibra Corer™ Portable Sonic Sampling Drill  
Clean Cores in Record Time

The Vibra Corer™ operates on a simple principle of drill-string oscillation. The drill head, powered by an eight-h.p. Honda engine, produces 12,000 vibrations per minute and transfers them to the drill string. The imparted vibrations liquify only the particles coming into direct

contact with the drill rods, allowing the rods to penetrate the soils aided by the weight of the drill and rods. The vibration frequency of the Vibra Corer™ is adjustable, enabling the operator to tune into the natural frequency of the strata being sampled, control the rate of penetration and obtain truly representative, intact samples.

A continuous sediment core is fed into the center of the drill rod for later recovery and laboratory analysis. The drill needs no casing for operation onshore or offshore. It is designed for use with standard-size drill rods, but can drive and retrieve stainless steel or aluminum. Because the drill penetrates by vibration, not by rotation or percussion, there is no need for drilling fluids, which contaminate the sample in conventional drilling methods.

The Vibra Corer™ produces a continuous, undisturbed and uncontaminated sediment sample with a 95-percent recovery ratio—an essential, and unique, capability in environmental sampling. Conventional soil classification tests, EPA toxicity tests and bio-assay analyses all can be conducted from samples retained in clear plastic, brass or stainless steel liners.

## Easy to Transport, Easy to Operate

The entire drilling system weighs only 150 pounds, including the 25-pound drill head, 85-pound Honda power plant, flexible drive cable, hoisting and pull-down system, and drive shoe and retaining spring. The system is easily carried by two persons, making it ideal for remote sites and deployment over water.

Vibra Corer™ and its accessories are simple to operate, with a minimum of training required. Operators can be trained in less than a day at Vi-Cor facilities or on your site. Or, if you prefer, Vi-Cor can supply you with the names of trained personnel or companies in your area that can operate the unit.

## Portable Pontoon System Supports Drill

Vi-Cor has designed a light-weight, modular pontoon drilling platform to accompany the Vibra Corer™. Like the drill itself, the platform is completely portable. Available with 15- or 20-foot pontoons, it breaks down into three 125-pound units and can be transported easily in a half-ton pick-up. It can be inflated, assembled and prepared for sampling in 40 minutes (and it disassembles just as quickly).

The platform can be powered by a small outboard engine or towed by a small boat. Its anchoring system allows easy maneuverability on a drilling grid in tight quarters.

## High Speed, High Efficiency, Low Cost

Capital equipment and mobilization costs for standard drilling operations over water are prohibitive, and most drilling systems are limited to 20-foot depths. But the Vibra Corer™ pontoon system is completely self-propelled, easy to operate on even the smallest body of water and

transportable by sea, air or land. And the Vibra Corer™ is not limited to 20-foot-deep samples.

Because the Vibra Corer™ recovers completely uncontaminated samples, you avoid the high cost of second and third attempts to obtain an accurate core—another common occurrence with conventional sediment drilling methods. The Vibra Corer™ allows you to set up, obtain your sample, view the layers exactly as they appeared in-situ through transparent liners, leave the site quickly and send the samples to the laboratory for analysis—all with the assurance the job was done right, the *first* time.

## Accessories Provide Even More Versatility

The Vibra Corer™ Side Ejector allows selective sampling. It can be mounted at any point along the drill string and will eject unwanted material from the drill hole until the desired depth or stratum has been reached.

A holder for inner core liners, available in a variety of sizes, protects the transparent plastic or stainless steel liners, ensuring easy, safe handling of samples.

## A Proven Track Record

The Vibra Corer™ has been used in diverse sediment sampling projects throughout the world. From the Rocky Mountain Arsenal in Colorado and a New Jersey river (where the Environmental Protection Agency required toxicity tests), to the Expo '86 site in Vancouver, B.C. and the construction site for a new container port in Hong Kong, customers have lauded the drill's unique capabilities and outstanding performance.

Wherever you need to sample sediments—whether from wetlands, marshes, deltas, estuaries, rivers, lakes, streams, bays, settling lagoons, tailings ponds or cooling ponds—the Vibra Corer™ system is the most accurate, cost-effective method available. Order yours today.



POTHIER ENTERPRISES LTD.

A.J. (ANDREW) POTHIER

TEL: (604) 536-6961

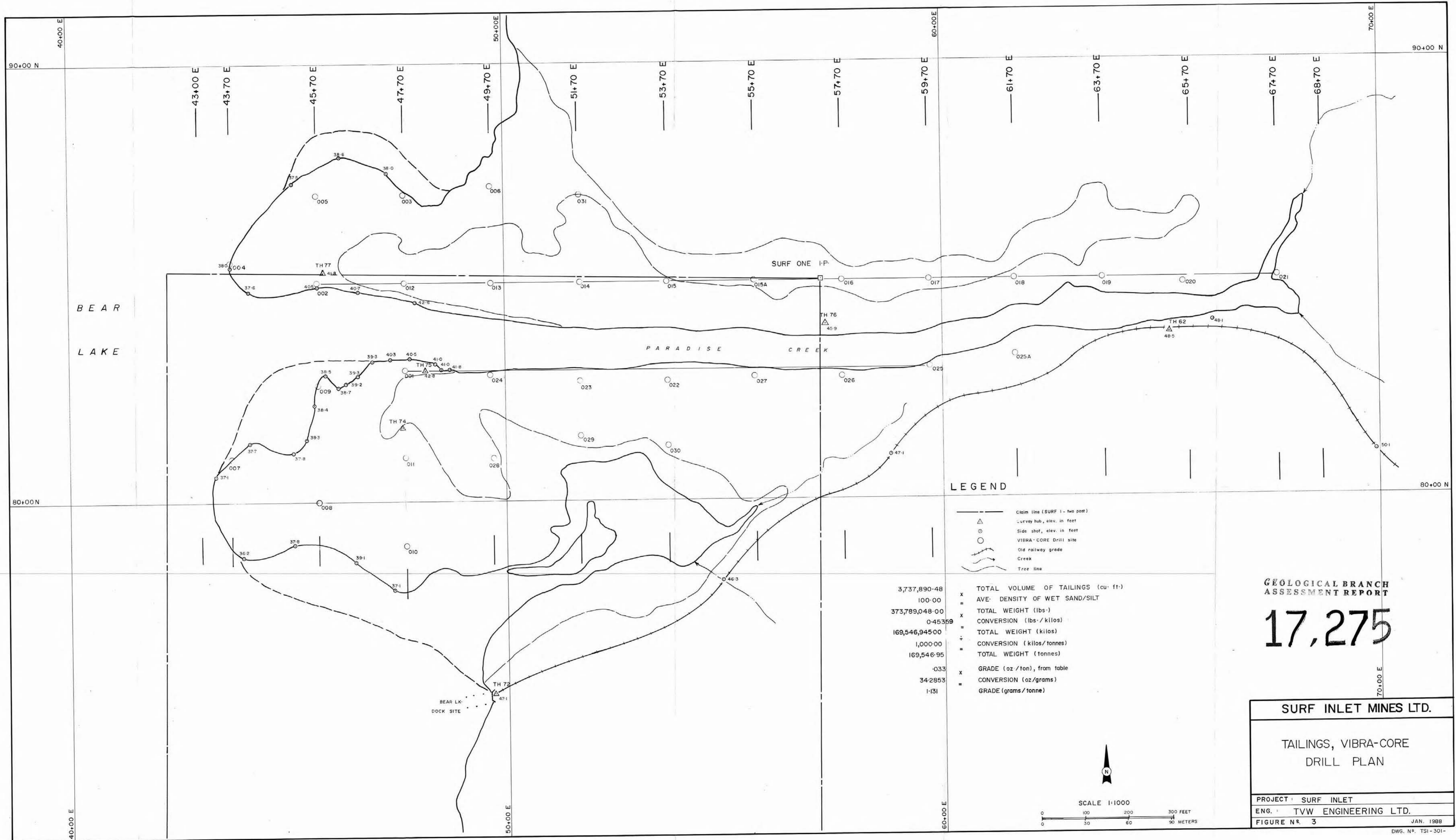
RES: (604) 536-0430

FAX: (604) 536-8389

1915-165A SINFET  
SURREY, B.C. V4B 5A8







**LEGEND**

- Claim line (SURF 1 - two post)
- △ Survey hub, elev. in feet
- Side shot, elev. in feet
- Vibra-core Drill site
- Old railway grade
- ~ Creek
- Tree line

3,737,890.48	TOTAL VOLUME OF TAILINGS (cu. ft.)
100.00	Ave. DENSITY OF WET SAND/SILT
373,789,048.00	TOTAL WEIGHT (lbs.)
0.45359	CONVERSION (lbs./kilos)
169,546,945.00	TOTAL WEIGHT (kilos)
1,000.00	CONVERSION (kilos/tonnes)
169,546.95	TOTAL WEIGHT (tonnes)
.033	GRADE (oz./ton), from table
34.2853	CONVERSION (oz./grams)
1.131	GRADE (grams/tonne)

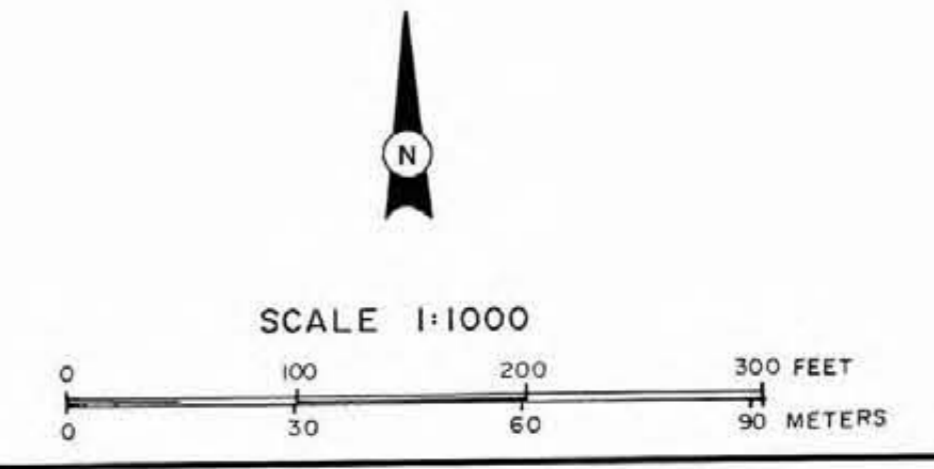
**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**17,275**

**SURF INLET MINES LTD.**

TAILINGS, VIBRA-CORE  
DRILL PLAN

PROJECT: SURF INLET  
 ENG.: TVW ENGINEERING LTD.  
 FIGURE NO. 3  
 JAN. 1988



EL. 100'

Sea level

43+70 (n,s)

	n	s
A =	47.25	451.62
I =	135	135
V =	3189.38	30,484.35
EV =		

019/1.8  
SITL-87-004  
E.O.H. 20.3'

035/8.0  
SITL-87-007  
E.O.H. 23.6

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

17,275

83+00 N

83+00 N

Sea level

EL. -100'

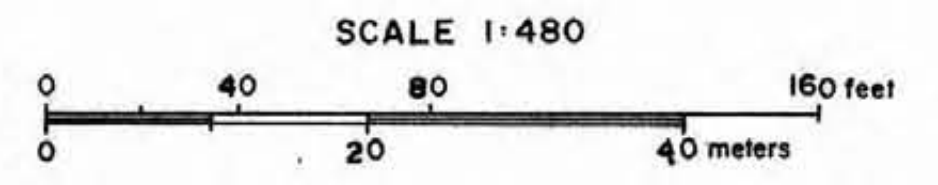
43+00 (n,s)

	n/s
A =	0
I =	35'
V =	0
EV =	

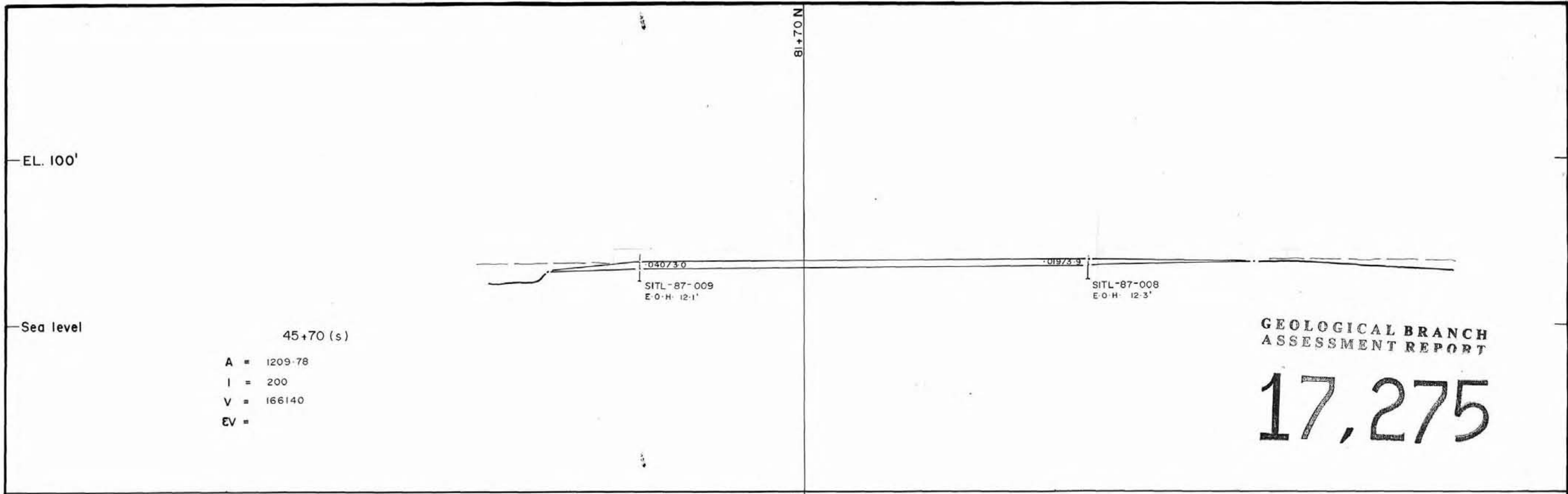
**LEGEND**

7920/42.1 = Offset (lat.)/elevation in feet

- A = Area of cross section (sq. ft.)
- I = Interval between sections (feet)
- V = Volume of section (cu. ft.)
- EV = Sum of volume of sections

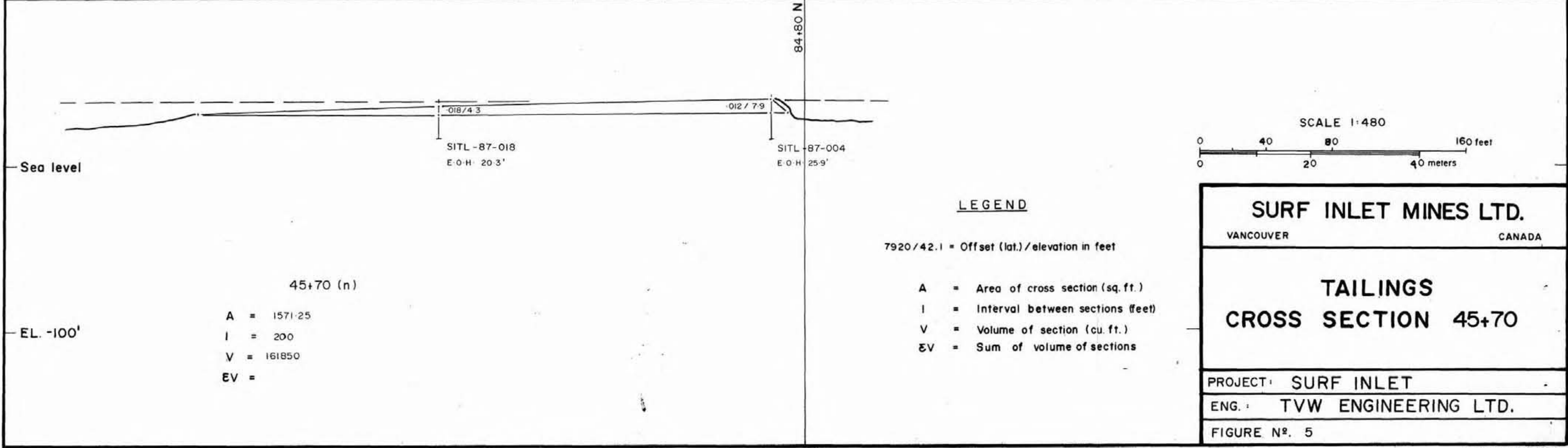


<b>SURF INLET MINES LTD.</b>	
VANCOUVER	CANADA
<b>TAILINGS</b>	
<b>CROSS SECTION 43+00</b>	
<b>&amp; 43+70</b>	
PROJECT: SURF INLET	
ENG.: TVW ENGINEERING LTD.	
FIGURE No. 4	

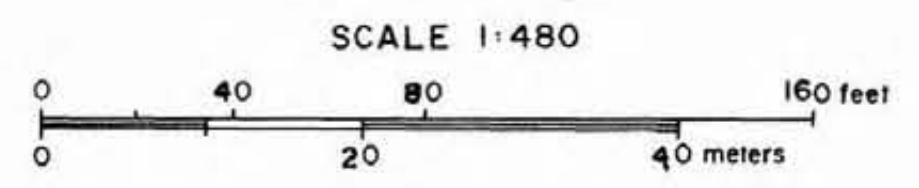


45+70 (s)  
 A = 1209.78  
 I = 200  
 V = 166140  
 EV =

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45+70 (n)  
 A = 1571.25  
 I = 200  
 V = 161850  
 EV =

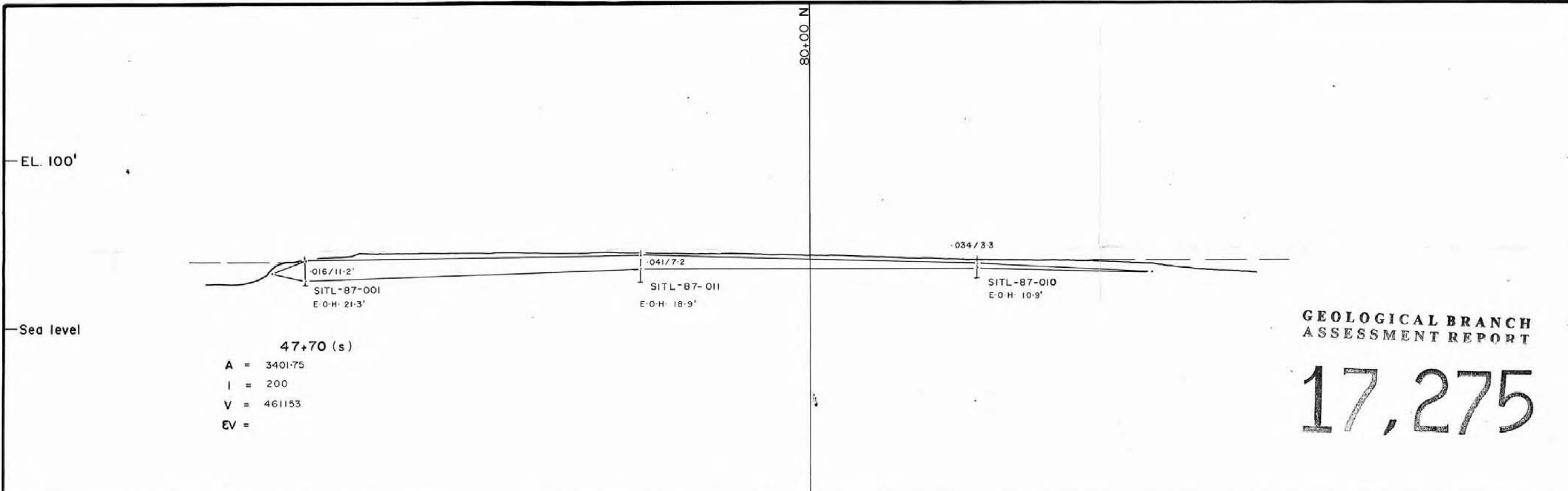


LEGEND

7920/42.1 = Offset (lat.) / elevation in feet

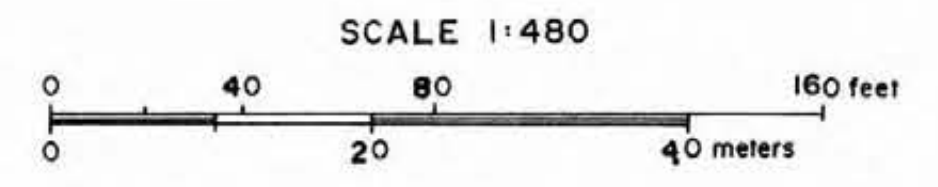
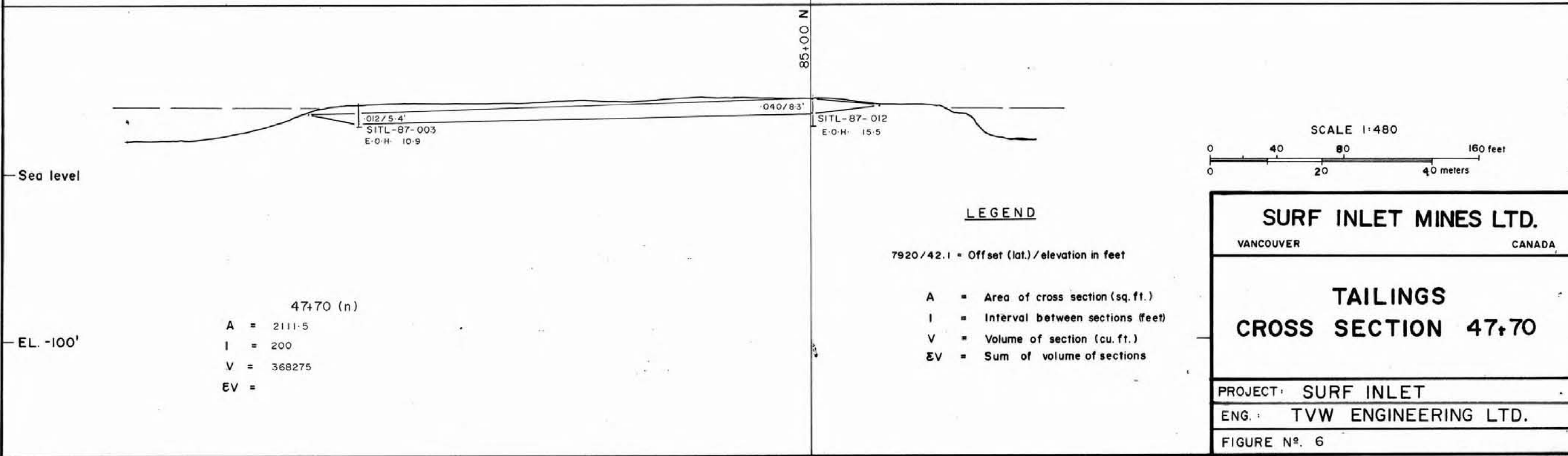
- A = Area of cross section (sq. ft.)
- I = Interval between sections (feet)
- V = Volume of section (cu. ft.)
- EV = Sum of volume of sections

<b>SURF INLET MINES LTD.</b>	
VANCOUVER	CANADA
<b>TAILINGS CROSS SECTION 45+70</b>	
PROJECT: SURF INLET	
ENG.: TVW ENGINEERING LTD.	
FIGURE NO. 5	



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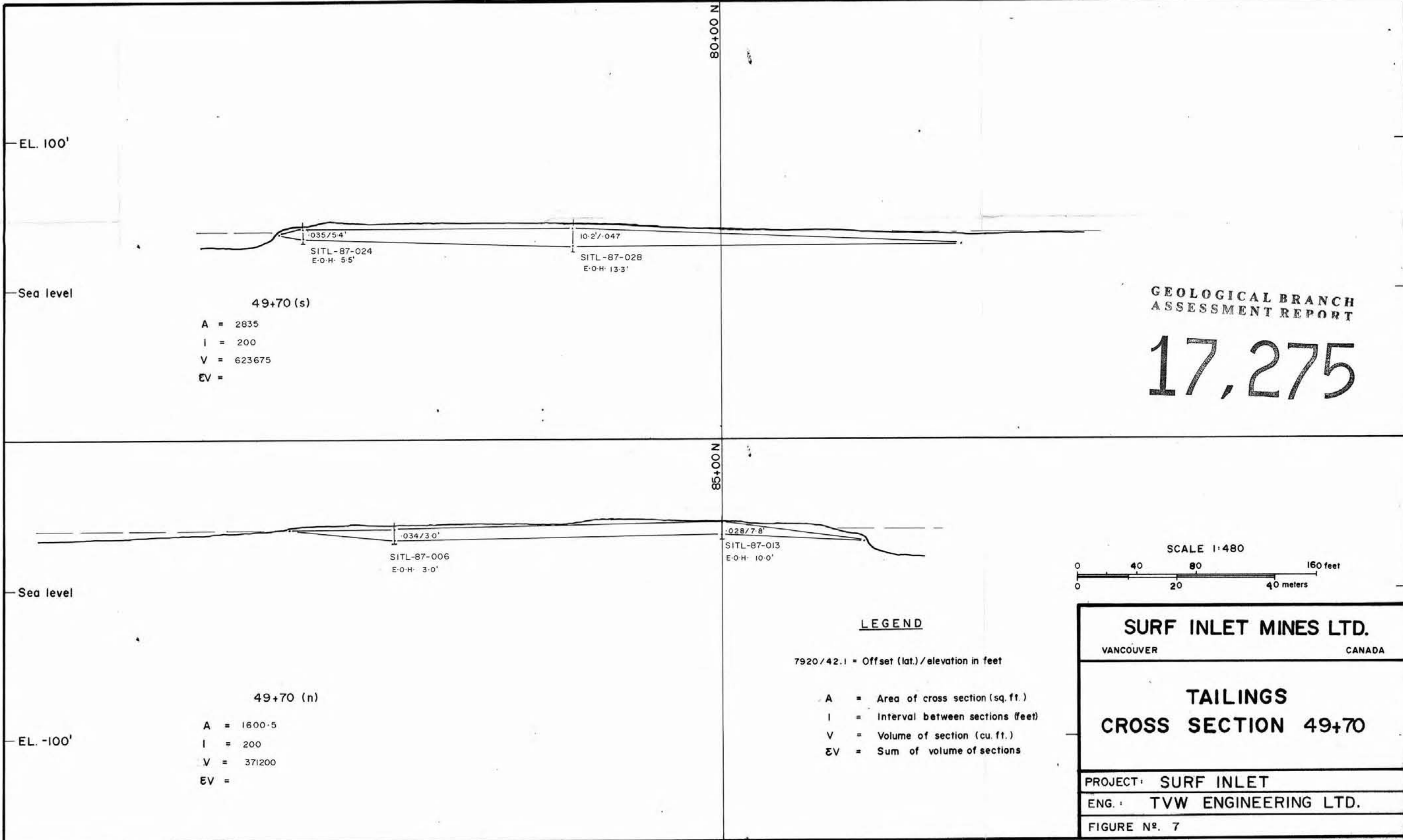


LEGEND

7920/42.1 = Offset (lat.)/elevation in feet

- A = Area of cross section (sq. ft.)
- I = Interval between sections (feet)
- V = Volume of section (cu. ft.)
- ΣV = Sum of volume of sections

<b>SURF INLET MINES LTD.</b>	
VANCOUVER	CANADA
<b>TAILINGS CROSS SECTION 47+70</b>	
PROJECT: SURF INLET	
ENG.: TVW ENGINEERING LTD.	
FIGURE No. 6	



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EL. 100'

Sea level

SITL-87-024  
E-O-H: 55'

SITL-87-028  
E-O-H: 13.3'

49+70 (s)

A = 2835  
I = 200  
V = 623675  
EV =

80+00 N

Sea level

EL. -100'

SITL-87-006  
E-O-H: 3.0'

SITL-87-013  
E-O-H: 10.0'

49+70 (n)

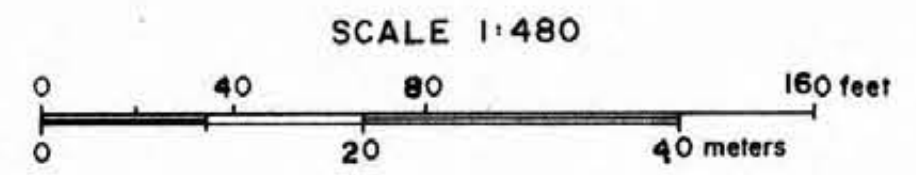
A = 1600.5  
I = 200  
V = 371200  
EV =

85+00 N

LEGEND

7920/42.1 = Offset (lat.) / elevation in feet

- A = Area of cross section (sq. ft.)
- I = Interval between sections (feet)
- V = Volume of section (cu. ft.)
- EV = Sum of volume of sections



**SURF INLET MINES LTD.**  
VANCOUVER CANADA

**TAILINGS  
CROSS SECTION 49+70**

PROJECT: SURF INLET  
ENG.: TVW ENGINEERING LTD.  
FIGURE NO. 7

EL. 100'

Sea level

037/2.9  
SITL-87-031  
E-O.H. 5'

026/5.3

SITL-87-014  
E-O.H. 10'

045/5.4  
SITL-87-023  
E-O.H. 5.5'

029/2.5

SITL-87-029  
E-O.H. 9.5'

51+70 (n,s)

	N	S
A =	1234.75	669.5
I =	200	200
V =	350450	283525
EV =		

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83+00 N

82+00 N

Sea level

SITL-87-015

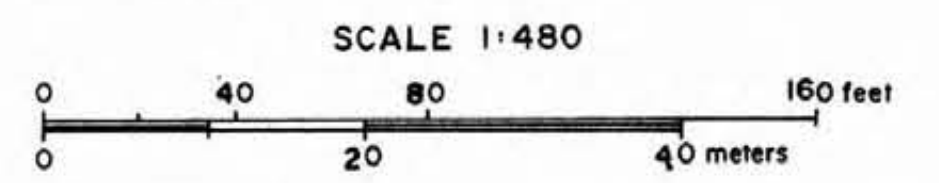
53+70 (n,s)

040/5.2  
SITL-87-022  
E-O.H. 5.5'

029/0.8  
SITL-87-030  
E-O.H. 7.0'

	N	S
A =	0	602.9
I =	200	200
V =	1234.75	127240
EV =		

EL. -100'

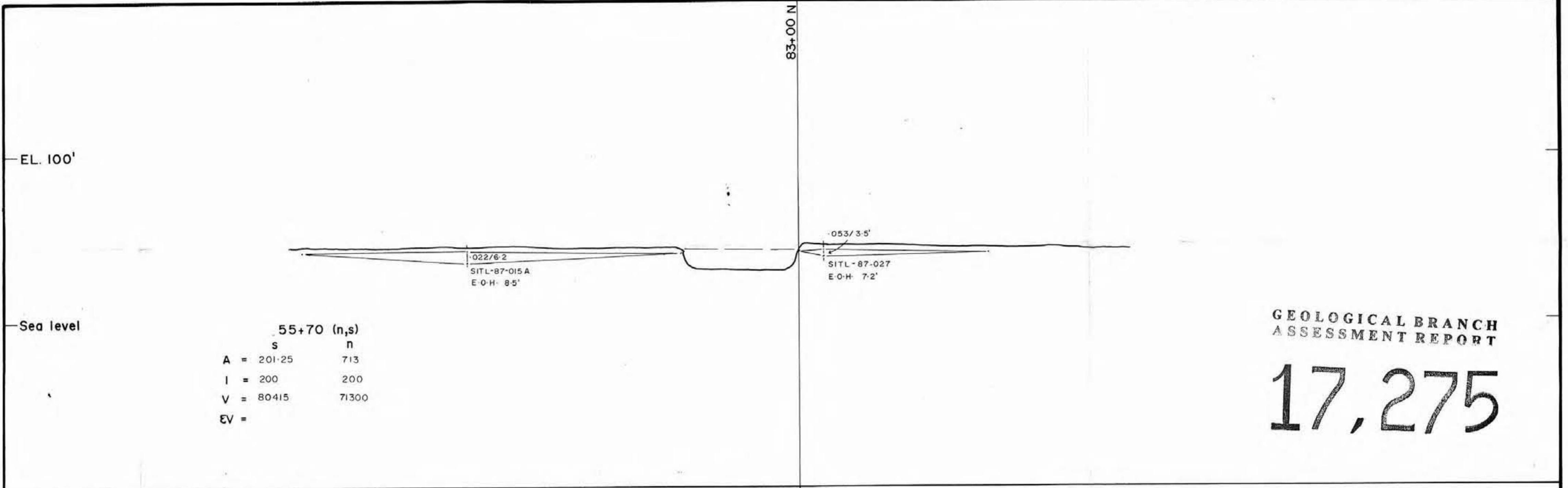


LEGEND

7920/42.1 = Offset (lat.) / elevation in feet

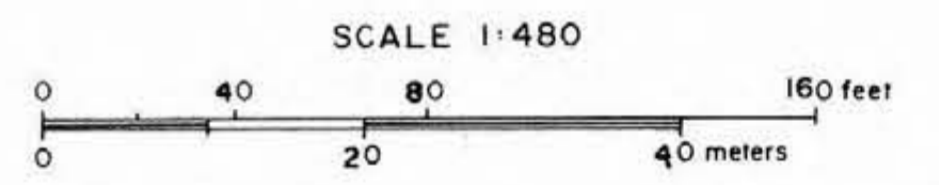
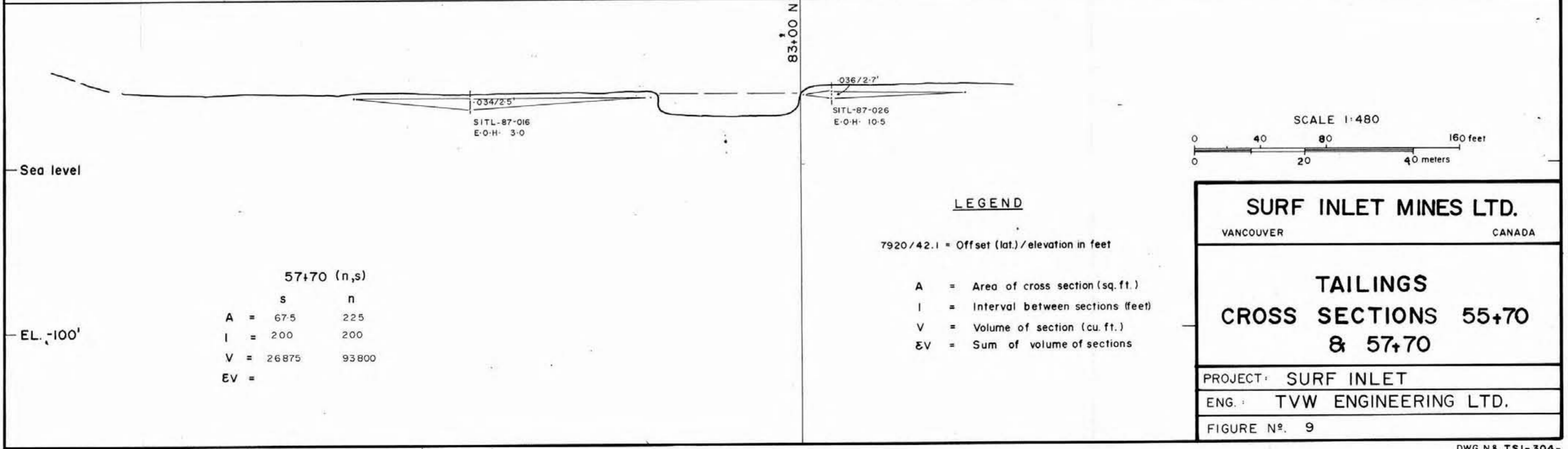
- A = Area of cross section (sq. ft.)
- I = Interval between sections (feet)
- V = Volume of section (cu. ft.)
- EV = Sum of volume of sections

<b>SURF INLET MINES LTD.</b>	
VANCOUVER	CANADA
<b>TAILINGS</b>	
<b>CROSS SECTIONS 51+70</b>	
<b>&amp; 53+70</b>	
PROJECT: SURF INLET	
ENG.: TVW ENGINEERING LTD.	
FIGURE No. 8	



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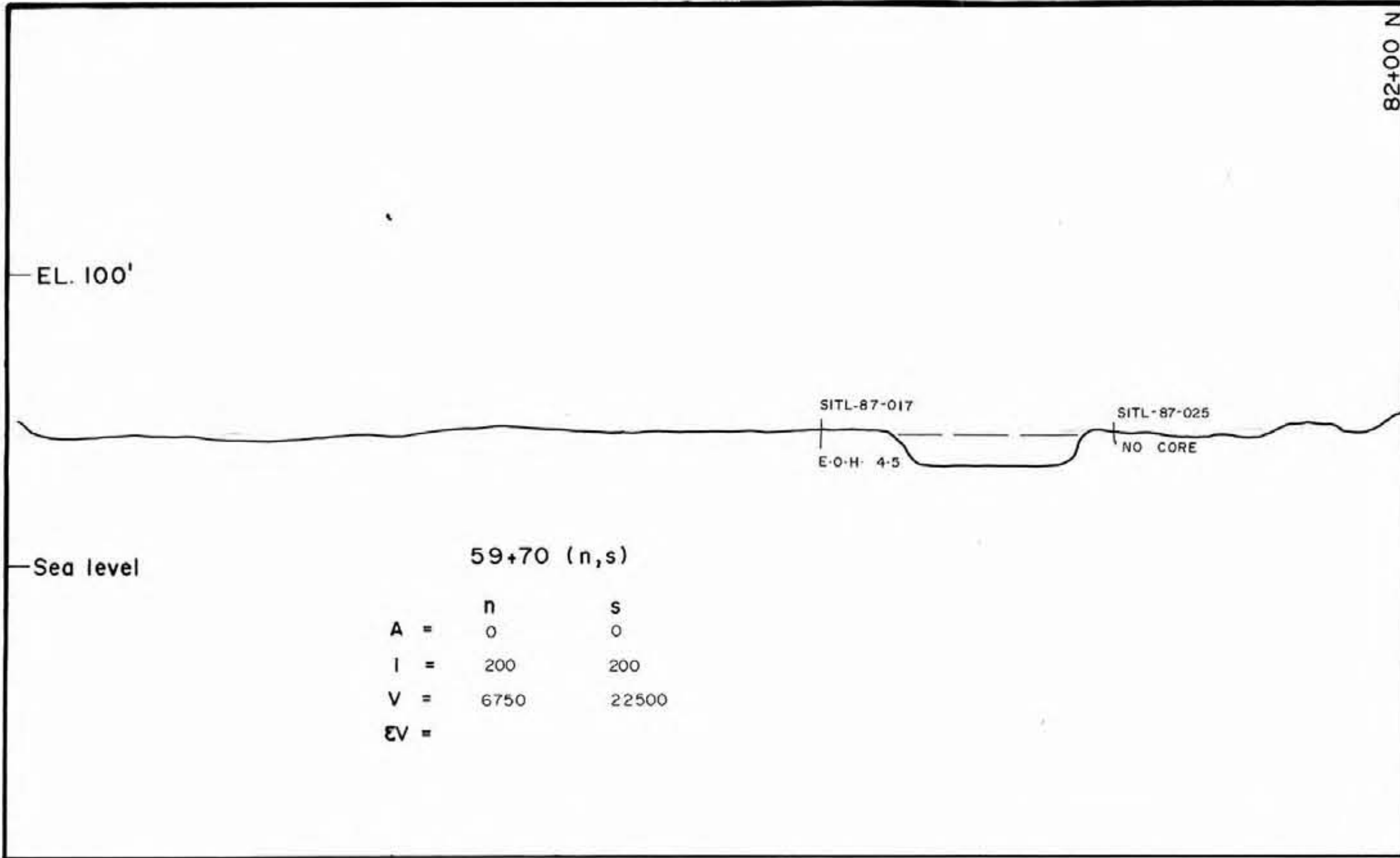


LEGEND

7920/42.1 = Offset (lat.)/elevation in feet

- A = Area of cross section (sq. ft.)
- I = Interval between sections (feet)
- V = Volume of section (cu. ft.)
- EV = Sum of volume of sections

<b>SURF INLET MINES LTD.</b>	
VANCOUVER	CANADA
<b>TAILINGS CROSS SECTIONS 55+70 &amp; 57+70</b>	
PROJECT: SURF INLET	
ENG.: TVW ENGINEERING LTD.	
FIGURE N <sup>o</sup> . 9	

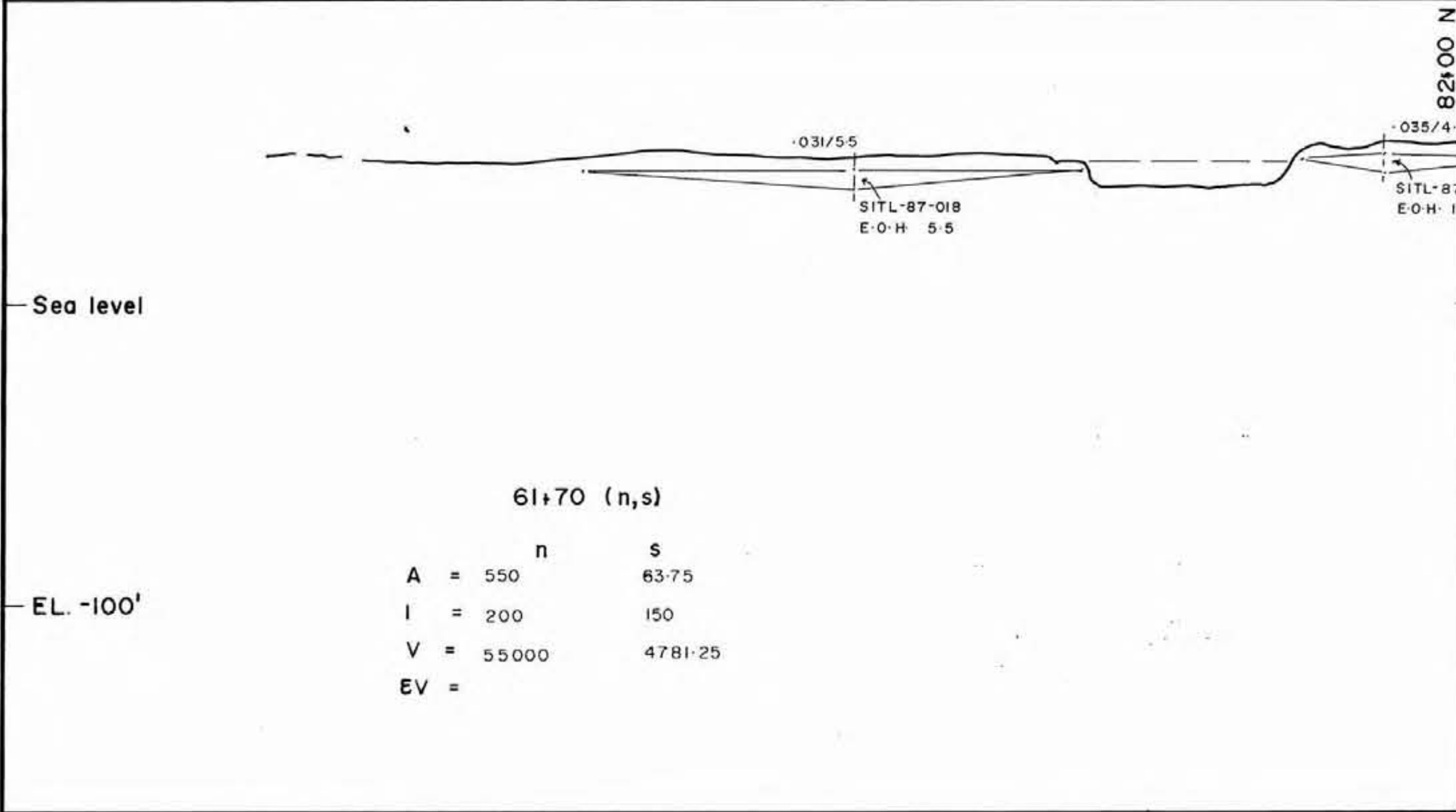


59+70 (n,s)

	n	s
A =	0	0
I =	200	200
V =	6750	22500
EV =		

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ASSESSMENT REPORT

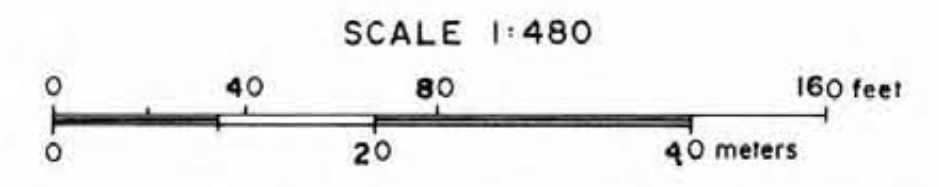
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61+70 (n,s)

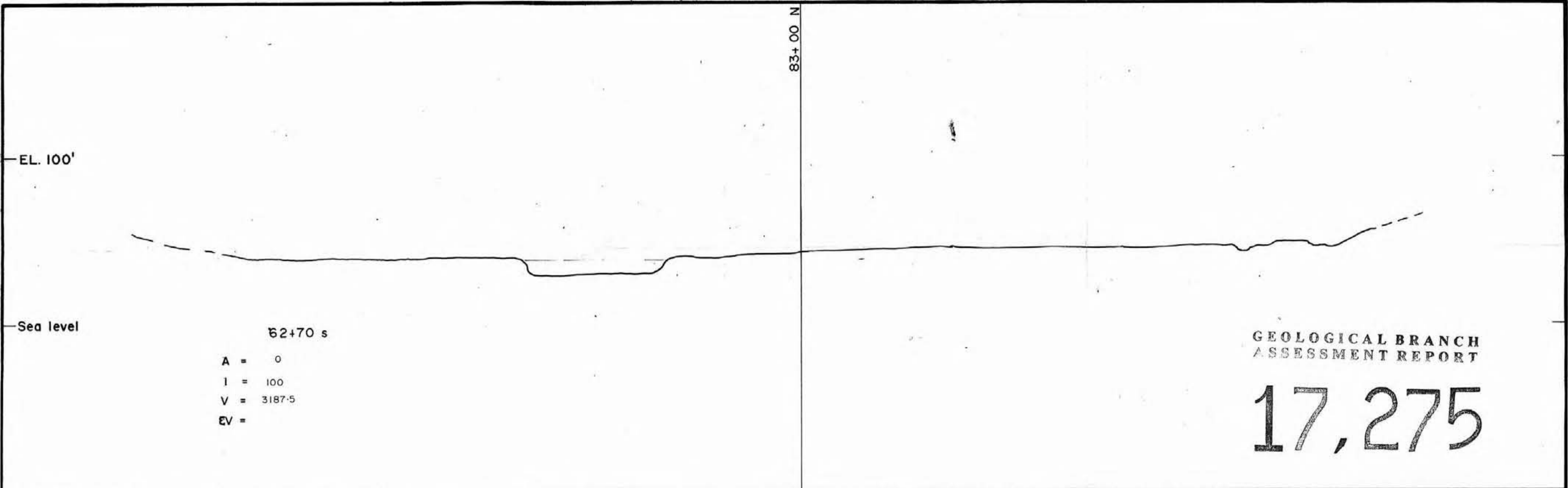
	n	s
A =	550	63.75
I =	200	150
V =	55000	4781.25
EV =		

- LEGEND
- 7920/42.1 = Offset (lat.) / elevation in feet
- A = Area of cross section (sq. ft.)
  - I = Interval between sections (feet)
  - V = Volume of section (cu. ft.)
  - EV = Sum of volume of sections



<b>SURF INLET MINES LTD.</b>	
VANCOUVER	CANADA
<b>TAILINGS</b>	
<b>CROSS SECTIONS 59+70 &amp; 61+70</b>	
PROJECT: SURF INLET	
ENG.: TVW ENGINEERING LTD.	
FIGURE N <sup>o</sup> . 10	

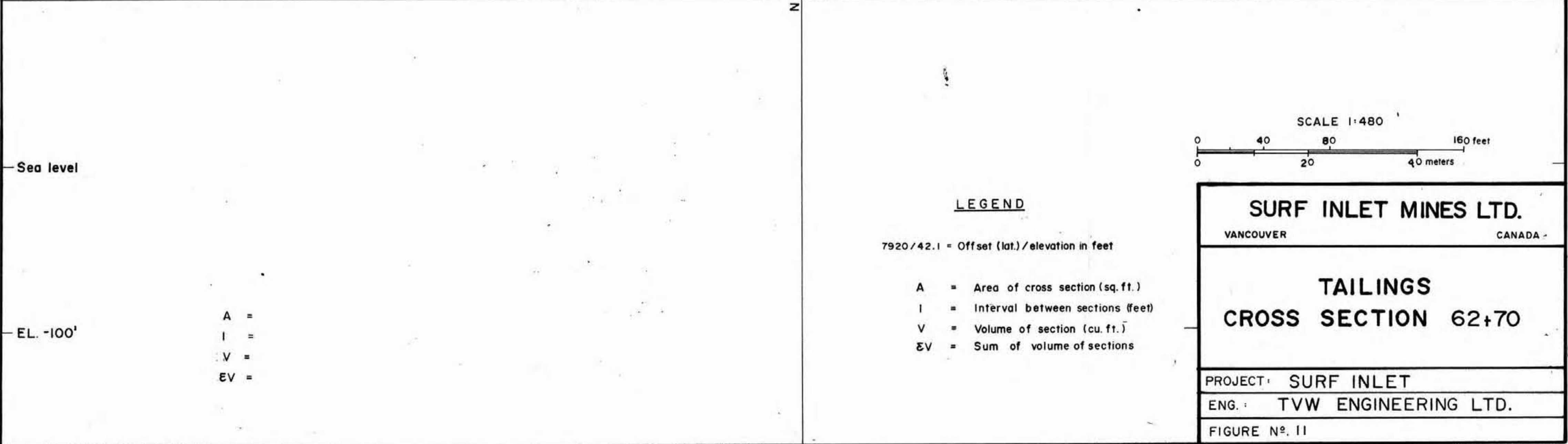




62+70 s  
 A = 0  
 I = 100  
 V = 3187.5  
 EV =

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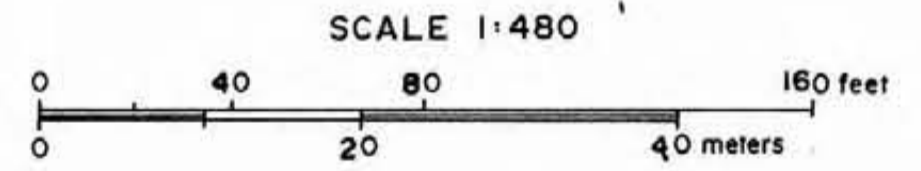


A =  
 I =  
 V =  
 EV =

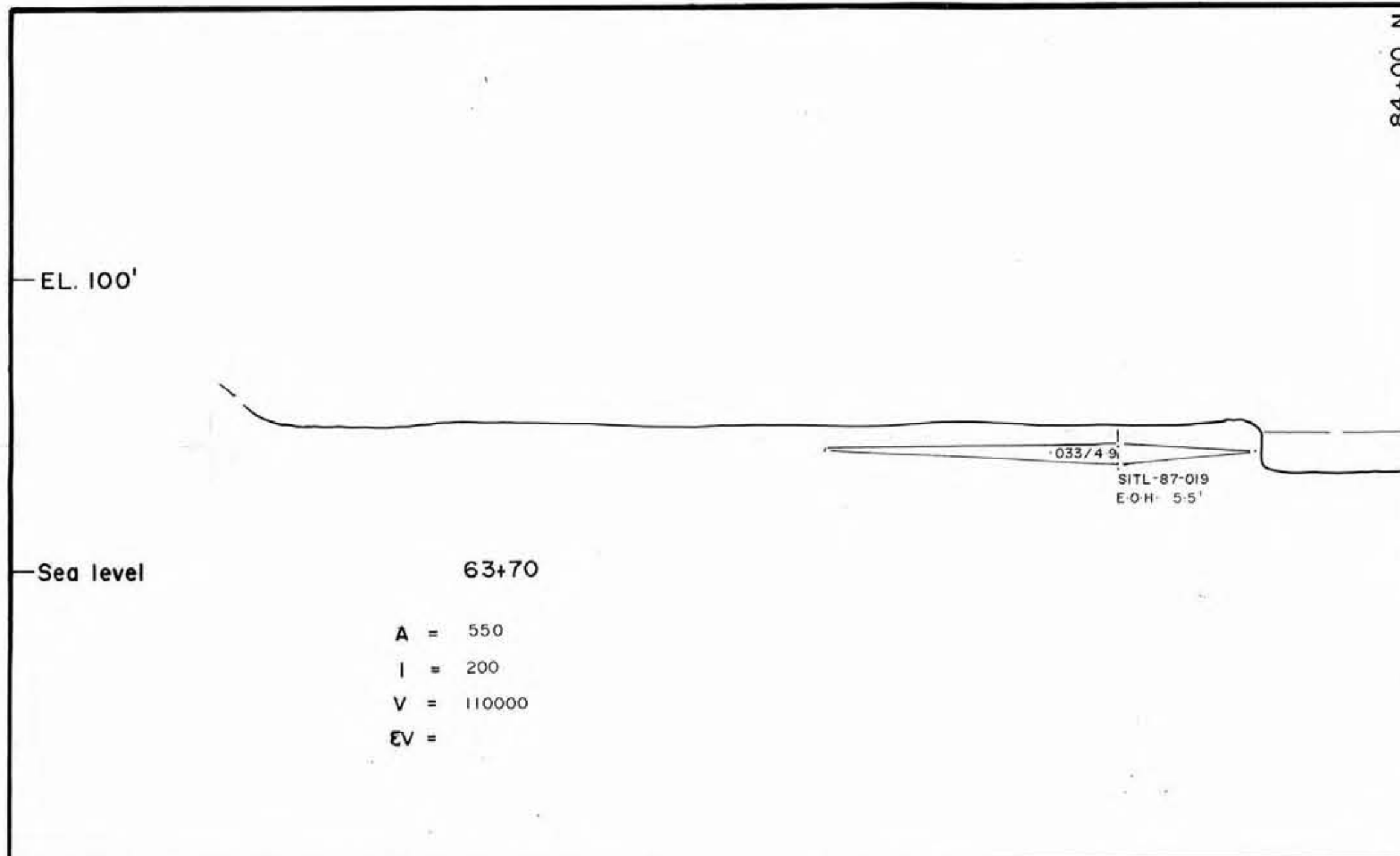
LEGEND

7920/42.1 = Offset (lat.) / elevation in feet

- A = Area of cross section (sq. ft.)
- I = Interval between sections (feet)
- V = Volume of section (cu. ft.)
- EV = Sum of volume of sections

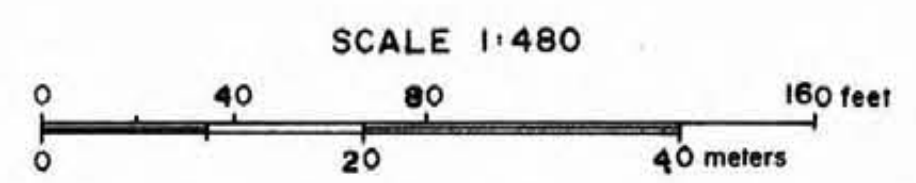
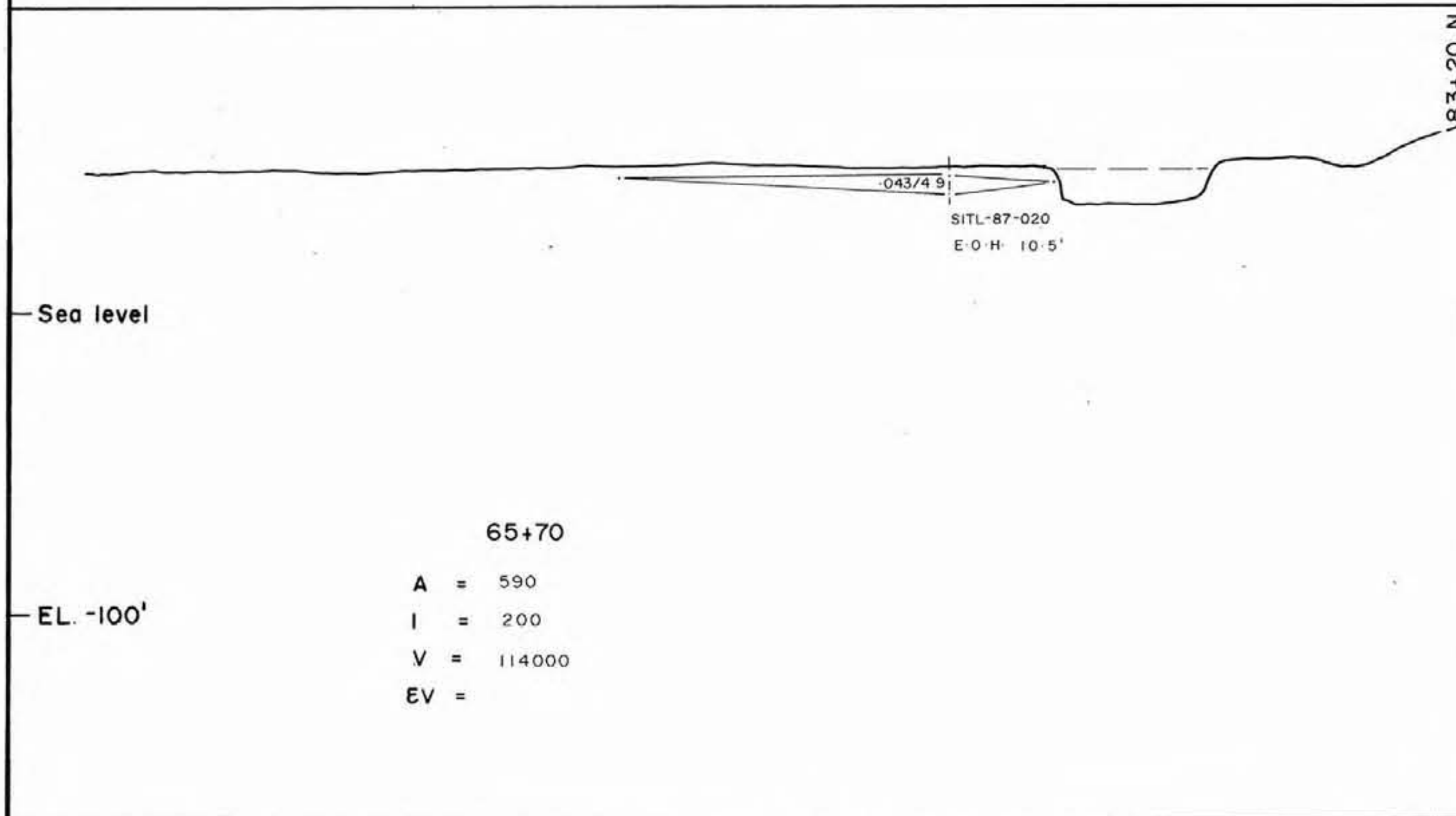


<b>SURF INLET MINES LTD.</b>	
VANCOUVER	CANADA
<b>TAILINGS CROSS SECTION 62+70</b>	
PROJECT: SURF INLET	
ENG.: TVW ENGINEERING LTD.	
FIGURE No. 11	



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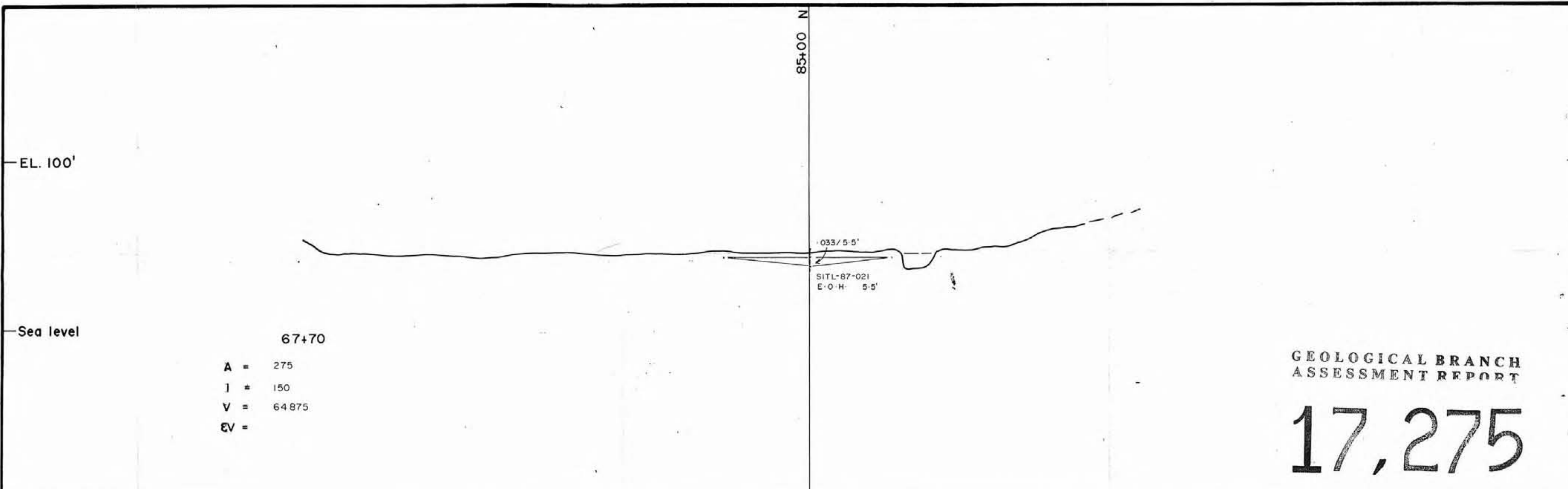


LEGEND

7920/42.1 = Offset (lat.) / elevation in feet

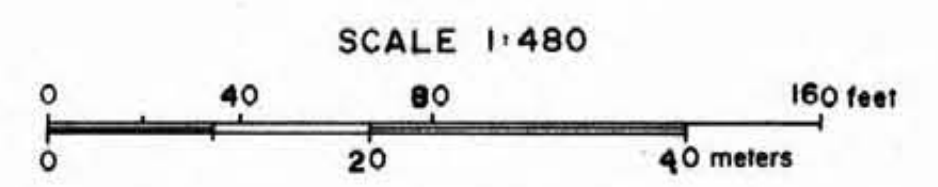
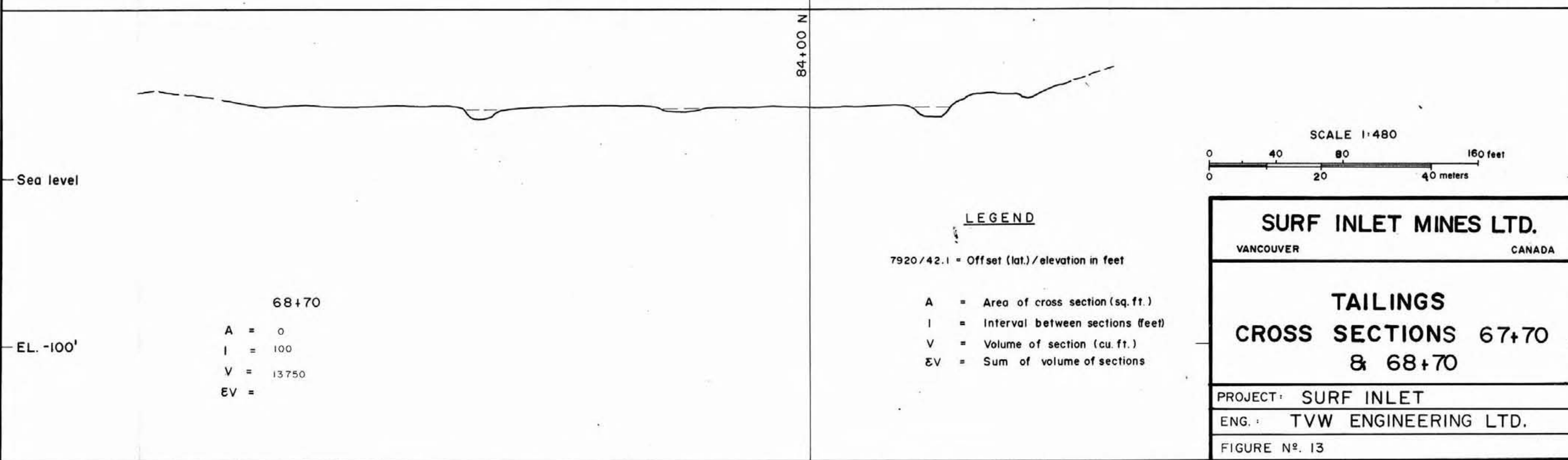
- A = Area of cross section (sq. ft.)
- I = Interval between sections (feet)
- V = Volume of section (cu. ft.)
- EV = Sum of volume of sections

<b>SURF INLET MINES LTD.</b>	
VANCOUVER	CANADA
<b>TAILINGS</b>	
<b>CROSS SECTIONS 63+70</b>	
<b>&amp; 65+70</b>	
PROJECT: SURF INLET	
ENG.: TVW ENGINEERING LTD.	
FIGURE N <sup>o</sup> . 12	



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LEGEND

7920/42.1 = Offset (lat.)/elevation in feet

- A = Area of cross section (sq. ft.)
- I = Interval between sections (feet)
- V = Volume of section (cu. ft.)
- EV = Sum of volume of sections

<b>SURF INLET MINES LTD.</b>	
VANCOUVER	CANADA
<b>TAILINGS</b>	
<b>CROSS SECTIONS 67+70</b>	
<b>&amp; 68+70</b>	
PROJECT: SURF INLET	
ENG.: TVW ENGINEERING LTD.	
FIGURE N <sup>o</sup> . 13	