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Title
FLUME TOW RECOVERY

Sponsors
UNITED NATIONS DEVELOPMENT ORGANISATION

Project No.
NA/RAF/96/613

Contract No.
98/058

Our Reference
FTR-05 (REVISED)
18.1.2001

Project Location
REA VIPINGO PLANTATIONS
VIPINGO ESTATE
KENYA

REPORT CONTAINS

1. DESCRIPTION OF THE FLUME TOW RECOVERY SYSTEM
2. PRODUCTION CAPACITY AND YIELD
3. TYPE OF WASTE COLLECTED
4. DISTRIBUTION OF FIBRE ON SISAL LEAVES
5. METHODS USED IN DRYING
6. CHARACTERISTICS OF THE FLUME TOW BEFORE AND AFTER
CARDING
7. ECONOMIC ELAVATION (PRODUCTION COSTS)
8. CONCLUSIONS
9. FLUME TOW SYSTEM FLOW DIAGRAM
10. PLAN & ELAVATION 1:50
11. SIDE ELAVATION 1:25
12. DISCHARGE END ELAVATION 1:25 & PULP DISPOSAL 1.10
13. DETAILS OF EXPENSES (11 PAGES)

1) Description of the flume to recovery system.

a) General Description

During sisal decortication about 10 per cent of the fibre in the leaves are lost during decortication and enter the waste effluent. Much of this can be recovered by lifting the solids out of the flume. Surplus liquids and Water and must be removed by means of a double roller squeezer. The fibre is then tumbled and tossed inside a long, slowly revolving tilted cylindrical cage so that the leaf tissue falls through the grating leaving the fibre free to be collected at the lower end for spreading on to wire trays to dry. We now pass the dried flume tow through a carding machine which greatly improves the its appearance.

The fibre is baled using the conventional sisal baling press.

b) Factors affecting the manufacture of the flume tow recovery system

The manufacture of the system requires that we attain the proper balance between the production problem and type of equipment to be built.

Capabilities of the equipment and the human element involved. The ultimate aim is to arrive at lowest cost per unit of material processed.

The production problem factors that enter into this consideration are the volume of production to be attained (in terms of the rate of production), the type of material being handled and the layout of the plant and buildings.

The design of the plant had to be adapted in the already existing corona layout and building facilities. However in this the most favourable situation exists some comprise owing to factors of

- **Adaptability**

The load carrying and movement characteristics of the plant equipment fit the material-handling problem.

- **Flexibility**

The equipment must have the flexibility to handle the varying amounts of sisal waste produced from the corona.

- **Power**

This is worked out to handle the mass of the equipment and load of the material.

- Speed

Speeds are worked out with uniformity of the corona.

- Automation

To allow improved flume tow to be processed with minimal handling and supervision.

- Maintaince

Maintaince will be minimal due to the simplicity of the design.

c) The equipment functions as follows:

- **Conveyors.**

- This is entirely locally fabricated and has the function of lifting the sisal waste material from the corona small drum to the flume tow squeezer.

- **Double roller squeezer.**

Consists of two rollers these are spring tensioned and will allow uneven amounts, or clumps of sisal waste to be squeezed. The spring tension is adjustable to allow the operator to either increase or reduce the pressure exerted on the sisal waste material to ensure complete and even removal of excess water from the sisal waste material.

- **Rotary Screen.**

The rotary screen acts as a material cleaner that removes leaf tissue and short fibre from the tow. Keeping the tow in the screen longer can enhance cleaning but slower the output. This is done by manually adjusting the screen into a horizontal position. Tilting the screen into an acute angle reduces the cleaning capability but increases the speed and output of the screen.

2) Production capacity and yield of dry flume tow

a) Production per hour

a) Results show our production of flume ranges from 28 kilograms to 47 kilograms per hour. Attaining a constant production output is effected by too many factors outside of the function of the flume tow recovery plant. But the most prominent are:

- Low waste output from the corona.

While most estates have waste outputs of around 15 to 20 % we have only a waste output of 10 to 12 %.

- Vipingo sisal leaf is generally shorter in length than up country sisal estates. This is due to soils and fertilisation factors.
- **b) 200 bundles output tests**

Flume tow Recovery Plant tests – Line fibre and Flume tow Recovered

INPUT	OUTPUT
-------	--------

<u>Test No.</u>	<u>Field No.</u>	<u>Block No.</u>	<u>Bundles</u>	<u>Average Length of Leaves Cms.</u>	<u>Cycle Cut No.</u>	<u>Leaves Weight Kgs.</u>	<u>Line Fibre Weight Kgs.</u>	<u>Flume Tow Weight Kgs.</u>	<u>Line Fibre %</u>	<u>Flume Tow %</u>
Test 1	M9	912	200	100	8 th Cut	1762	108.36	13	6.15	0.74
Test 2	N15	931	200	80	5 TH Cut	1642	99.34	16	6.05	1
Test 3	O7	973	200	70	3 rd Cut	1548	53	18	3.42	1.16
Test 4	Q17	981	200	50	1 st Cut	1180	27	18	2.29	2

Remarks

Shorter younger leaf produces higher losses hence more flume tow

c) 1330 bundles (One 13.6 ton trailer load) Output tests

Flume tow Recovery Plant tests – Line fibre and Flume tow Recovered

INPUT	OUTPUT
-------	--------

<u>Test No.</u>	<u>Field No.</u>	<u>Block No.</u>	<u>Bundles</u>	<u>Average Length of Leaves Cms.</u>	<u>Cycle Cut No.</u>	<u>Leaves Weight Kgs.</u>	<u>Line Fibre Weight Kgs.</u>	<u>Flume Tow Weight Kgs.</u>	<u>Line Fibre %</u>	<u>Flume Tow %</u>
Test 5	P22	902	1275	100	7 TH Cut	11475	695.2	45.9	6.05	0.40
Test 6	O22	901	1275	100	7 TH Cut	11538.7	669.2	52	5.8	0.45

All 100 cm. leaves show an out put of between 0.4 to 0.45% flume tow produced- This will give an output range of 459kg to 520 kg per shift in flume tow production. This is very dependent upon leaf source, age length and condition of the corona decortication process.

d) Full Shift Production runs

Final output of carded Flume Tow

1 shift is an average of 13330 bundles of sisal leaves

Date	Flume tow recovered in KGs.	Total Shift Hours :min	Flume Tow Kgs/Hour	Date	Flume tow recovered in Kgs.	Total Shift Hours :min	Flume Tow Kgs/Hour
28/8/00	365	11.25	31.98	21/9/00	395	12.05	32.69
29/8/00	504	11.00	45.81	23/9/0	400	13.05	30.58
30/8/00	460	13.50	33.26	24/9/00	400	14.15	28.07
31/8/00	540	14.40	42.65	25/9/00	436	11.25	38.21
1/9/00	411	11.20	36.27	26/9/00	512	12.15	41.79
2/9/00	436	12.15	35.59	27/9/00	505	12.00	42.08
4/9/00	455	11.30	39.56	28/9/00	506	12.05	41.88
5/9/00	450	11.07	40.50	29/9/00	509	11.30	44.26
6/9/00	474	11.05	42.77	30/9/00	514	11.35	44.38
7/9/00	420	12.00	35.00	2/10/00	505	11.45	42.97
8/9/00	449	13.25	33.48	3/10/00	506	10.40	47.46
9/9/00	480	13.45	34.90	4/10/00	507	11.05	45.75
11/9/00	484	12.05	40.06	5/10/00	501	11.45	43.75
12/9/00	442	11.00	40.18	6/10/00	504	12.30	40.32
13/9/00	420	10.50	38.78	7/20/00	509	11.55	42.73
14/9/00	465	11.15	41.33	9/10/00	501	11.20	44.21
15/9/00	402	11.30	34.95	11/10/0	511	11.10	45.78
16/9/00	463	11.30	40.26	12/10/0	500	11.30	43.47
18/9/00	400	11.25	35.05				
20/9/00	428	11.08	38.45				

3). Type of waste collected from the corona.

A synthesis report done on sisal waste at Vipingo Sisal Waste.

Moisture at 95% and Crude fibre at 25%

TEST	METHOD	RESULT	Analysed Average	
			COAST HERBAGE	GOOD GRASS HAY
Moisture	dried at 100 D. Centigrade	95.9%		
Protein	Cal. As Nx. 6.25 on dry basis	5.6%		15
Ether Extracts	On dry basis	2.9%		2.6
Crude Fibre	On dry basis	25.4%		20.9
Ash	On dry basis	11.4%		10.8
iron	As Fe (PPM)	324*		
Copper	As Cu (PPM)	112*		
Zinc	As Zn (PPM)	61*		
Sodium	As Na (PPM)	2152*		
Potassium	As K (PPM)	4450*	4200	
Calcium	As Ca (PPM)	32904*	1500	12000
Magnesium	As Mg (PPM)	5833*	470	
Phosphorus	As P (PPM)	1246*	10000	8000

Fresh sisal waste is effluent is distinctly acid (pH 4.8 to 5.2).

4) Distribution of fibre along sisal leaf 100cm. Long from a 5-year-old plant previously cut four times.

<i>Section</i>	<i>Length Section In cm.</i>	<i>No. of fibres in section</i>
	0-10	953
<i>Butt end</i>	10-20	808
	20-40	753
	40-50	720
<i>mid section</i>	50-60	539
	60-70	432
	70-80	352
<i>Tip end</i>	80-90	261
	90-100	147

All the sisal waste is recovered from the small drum of the corona. The small drum has the function of decorticating the "butt" of the sisal leaf. The small drum decorticates approx. 41 cm of leaf where substantially a higher portion of the fibre on a leaf is situated.

5) Methods used in Drying.

All sisal (which applies to flume tow) produced in Kenya is dried sufficiently well to satisfy market requirements, and there is no definite standards laid down with regard to moisture content. It is common experience that fibre is amenable to handle, and is easier to bale, if the atmosphere is damp than when the weather is very dry.

The normal range moisture content for dried sisal fibre is between 10 to 12 %.

And once fibre has been dried out to this level it will not again regain as much moisture with the raise of in humidity.

All flume tow recovered is first thinned out (for ventilation) and sun dried in an open area. It is important that the tow is turned (for ventilation) from time to time to avoid fermentation and turn into a dingy brown colour. This may result in the tow detracting from its value.

6) Characteristics of the flume tow before and after carding

Flume tow removed from the soon after it leaves the recovery plant usually has a good colour. However after a period of a day's drying changes into a dirty brown colour this is due to fermentation of the acid remaining on the flume tow. The flume tow also becomes stiff and congealed after drying.

The carding machine is basically a sisal-brushing machine but instead of the metal beater bars it is fitted with pin sharp spikes fixed to the periphery of a horizontal cylinder. The cylinder is $\frac{1}{2}$ meter in diameter and length $1 \frac{1}{2}$ meter. There are 6 rows of spikes each 1 inch high and the drum revolves at 100 rpm or 5 meters per second. The flume tow is combed gently freeing knots and softening the texture of the fibre.

Carding not only improve texture the appearance is also is greatly enhanced turning into a softer brown colour. During carding any dried tissue adhering to the fibres is removed.

b) Carding is essential in attaining any reasonable grades 1 to 4

Methods of grading flume tow.

	STANDARD	POINTS
1	Fibre containing a negligible proportion of thin barky runners and virtually free of any adhering pulp.	80
2	Fibres containing a higher proportion of thin barky runners and a very small proportion of adhering pulp.	60
3	Fibre containing strong barky runners and a small proportion of adhering pulp.	40
4 (uncarded)	Fibre containing strong barky runners and a high proportion of adhering pulp.	20

c) Carding losses

This is established by actual test of 5% of each consignment on the teaser card.

<i>Values up to 10%</i>	<i>50 points</i>
<i>10.1 to 11%</i>	<i>45 points</i>
<i>11.1 to 12%</i>	<i>40 points</i>
<i>12.1 to 13%</i>	<i>35 points</i>
<i>13.1 to 14%</i>	<i>30 points</i>

The total number of points (X + Y) places the produced flume tow into one of the following grade categories:

<i>Grade A</i>	<i>120 points and over</i>
<i>Grade B</i>	<i>105 to 120</i>
<i>Grade C</i>	<i>90 to 105</i>

In April 1970, Grades D and UG were eliminated, as the qualities for these were unsuitable for spinning. Sisal Growers were encouraged to improve upon the quality of their flume tow to reach one of the higher categories and command better prices.

7) Economic elevation

Flume tow recovery Production costs

Average Costs 1st approach

Drying and handling labour	Kshs. 5.50
Flume tow recovery Plant Labour	Kshs. 1.30
Carding machine labour	Kshs. 1.55
Baling machine labour	Kshs. 0.25
Electrical Costs	Kshs. 5.10
Baling Materials Costs	Kshs .0.45
Total costs per Kg flume tow	Kshs. 14.15

Average Costs 2nd approach reduction of staff in the carding

Drying and handling labour	Kshs. 5.50
Flume tow recovery Plant Labour	Kshs. 1.30
Carding machine labour	Kshs. 1.00
Baling machine labour	Kshs. 0.25
Electrical Costs	Kshs. 5.10
Baling Materials Costs	Kshs .0.45
Total costs per Kg flume tow	Kshs. 13.60

Average Costs 3rd approach reduction of staff in the Flume tow plant and drying and handling labour.

Drying and handling labour	Kshs. 5.05	39.30%
Flume tow recovery Plant Labour	Kshs. 1.00	7.78%
Carding machine labour	Kshs. 1.00	7.78%
Baling machine labour	Kshs. 0.25	1.96%
Electrical Costs	Kshs. 5.10	39.68%
Baling Materials Costs	Kshs .0.45	3.50 %
Total costs per Kg flume tow	Kshs.12.85	100%

Drying and handling labour cost and Electricity measure to approx. 80% of the costs of production.

Our lowest production cost achieved is Kshs 12.85 per kilogram running the flume tow recovery plant. This is unacceptable high and does not allow for production as the current market price is \$200 per ton or approx. Kshs 14/= per kilogram.

Manufacturing and Assembling costs

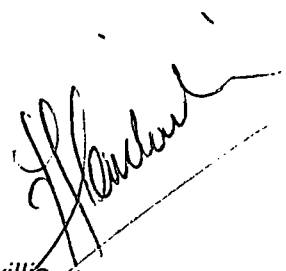
We have seen how the operating costs exceed the attached is the workshop job sheet showing all the materials used from January 1999 to December 2000. The total costs inclusive of labour and tax is Kshs. 1,948,359. Attached are details of this expenditure.

8) Conclusions & Recommendations

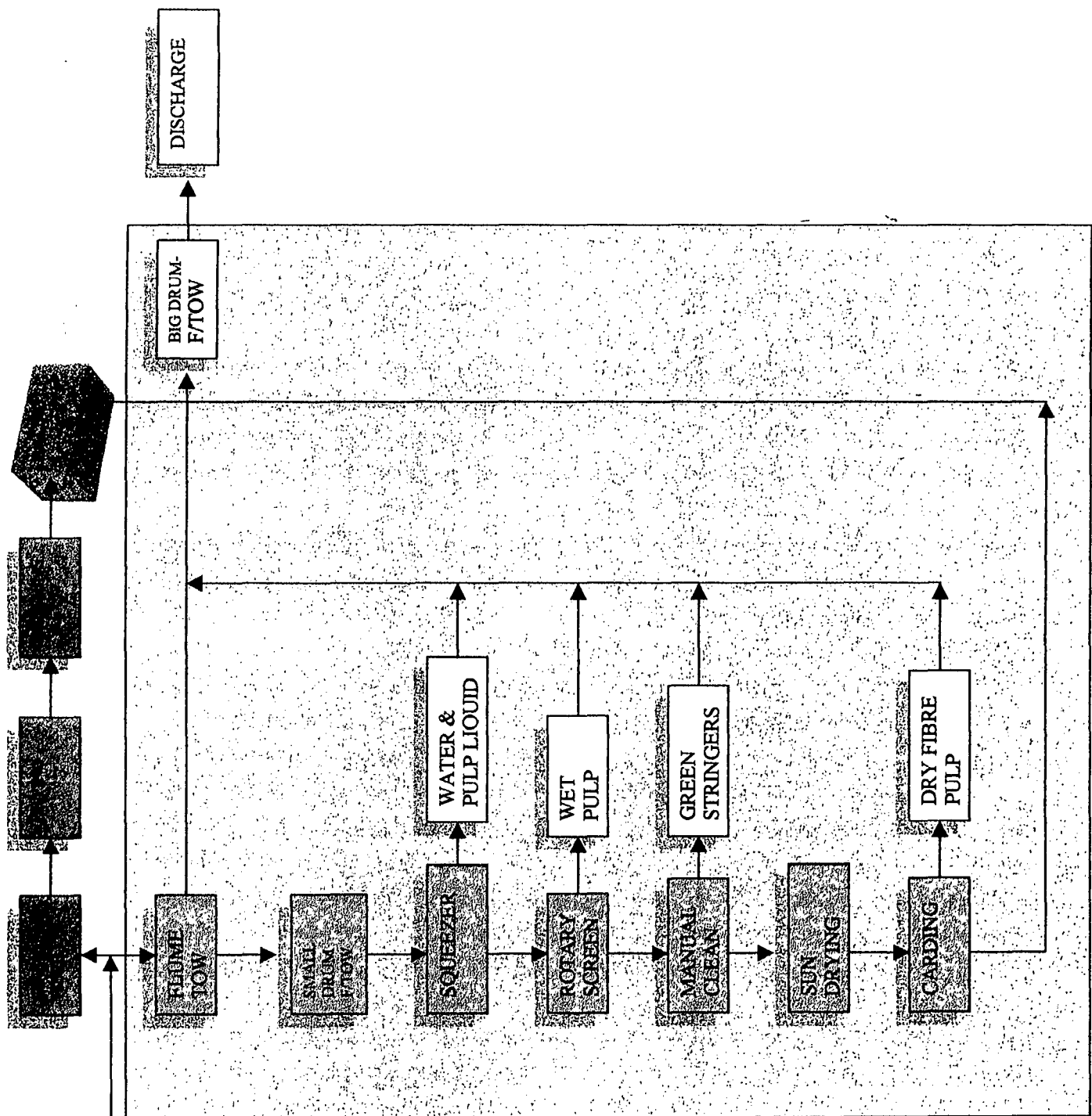
Even though the manufacture of the flume tow recovery plant is successful mechanically and produces the expected output. It is not however viable economically as it now. If we had use for the green matter or flesh of the sisal this would perhaps be more viable then just collecting the flume tow.

For many years chemists have sought to make use of the waste material from sisal leaves.






- Hecogenin- a substance that is recognised as a valuable for the partial synthesis of the drug cortisone.
- Extraction of waxes from sisal waste.
- Dried sisal waste for the manufacture of sodium pectate.
- Production of methane gas.



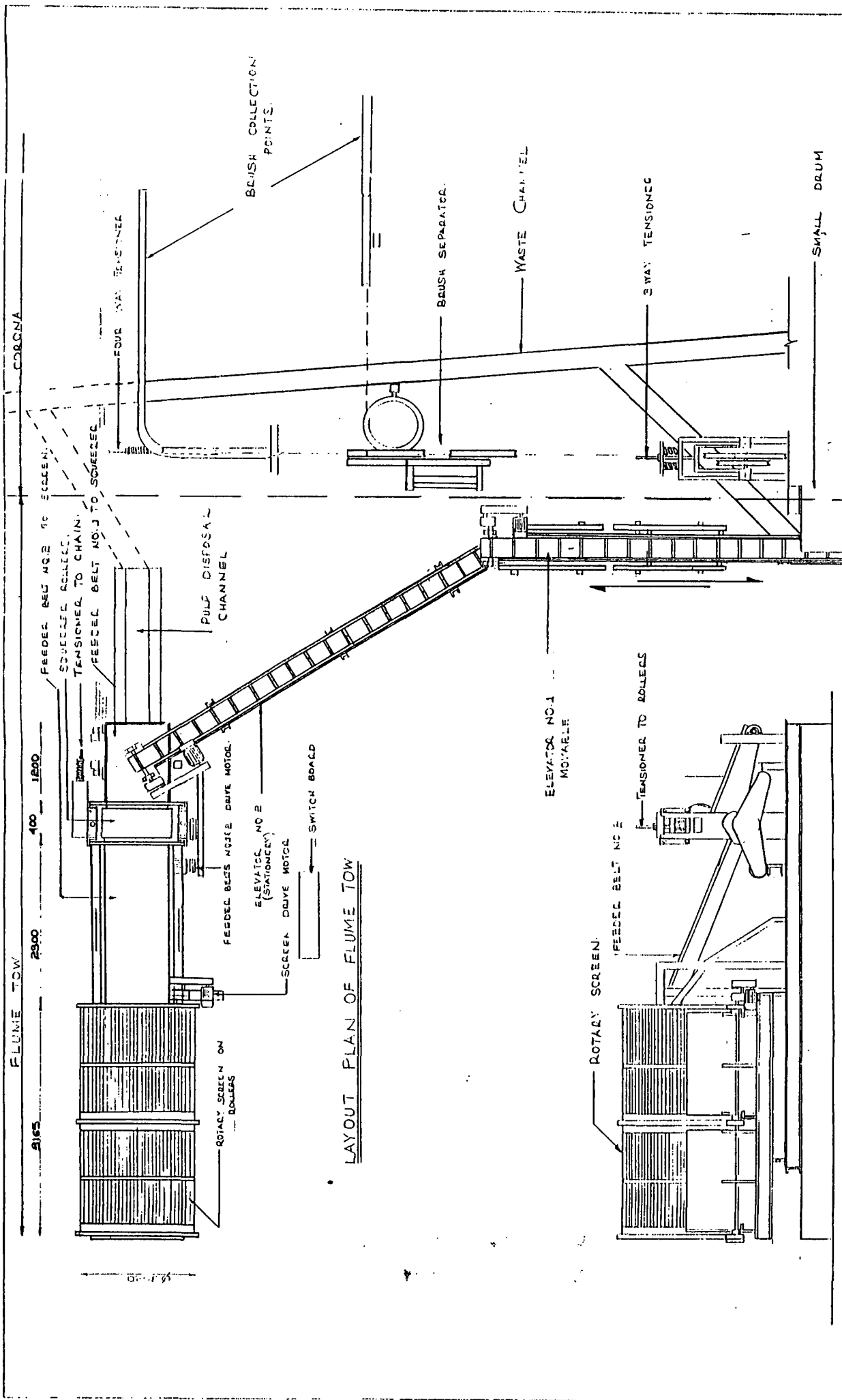
D. Cardovillis
Vipingo Estate
18 January, 2001



FLUME TOW RECOVERY SYSTEM FLOW DIAGRAM

- KEY**
-  **FLUME TOW RECOVERY EQUIPMENT**
 -  **WASTE LIQUID, PULP & STRINGERS**
 -  **LINE FIBRE**
 -  **BALING**
 -  **DECORTICATION**

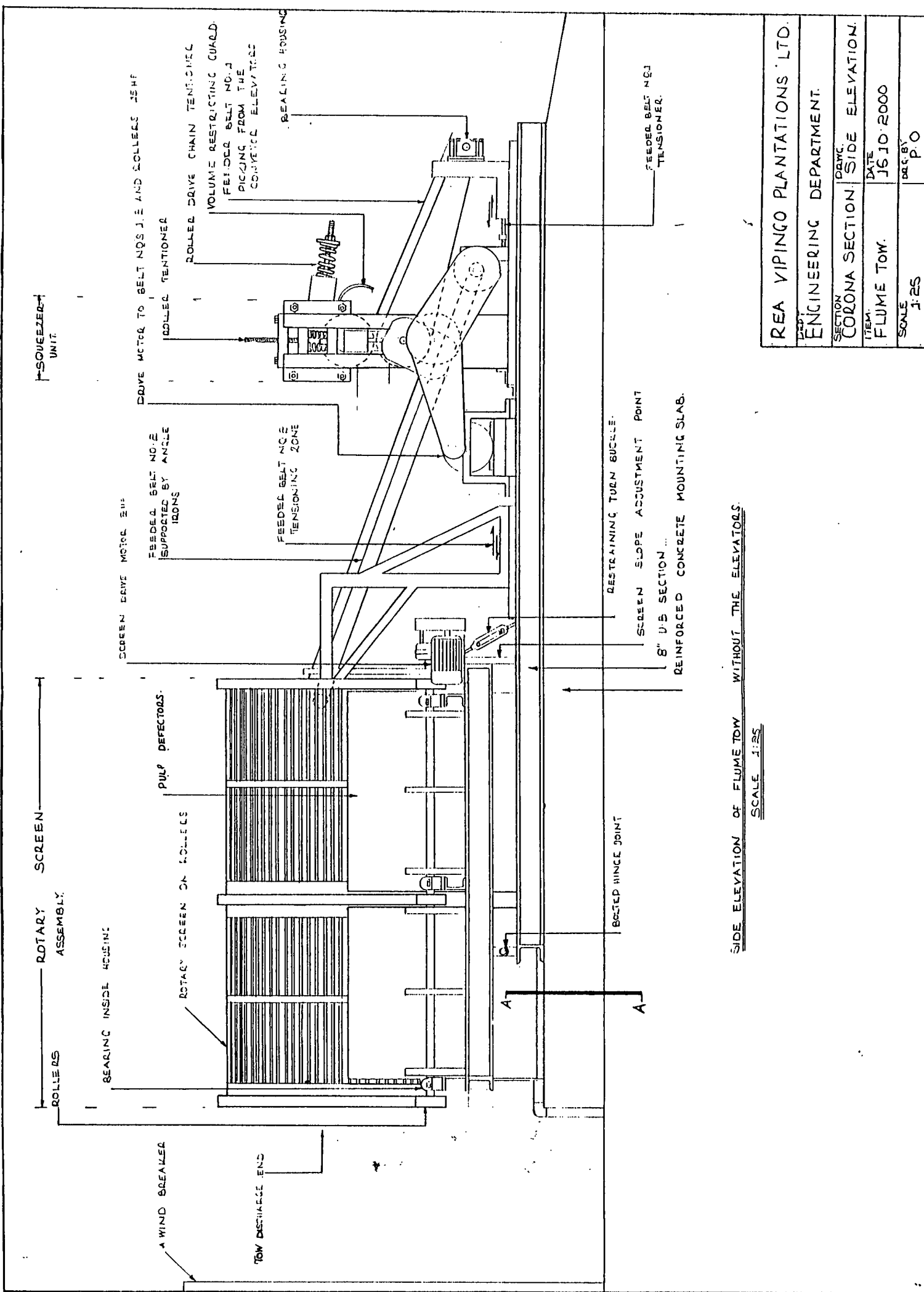
**REA Vipingo Plantations
Vipingo Estate
27/10/200**



LAYOUT PLAN OF FLUME TOW

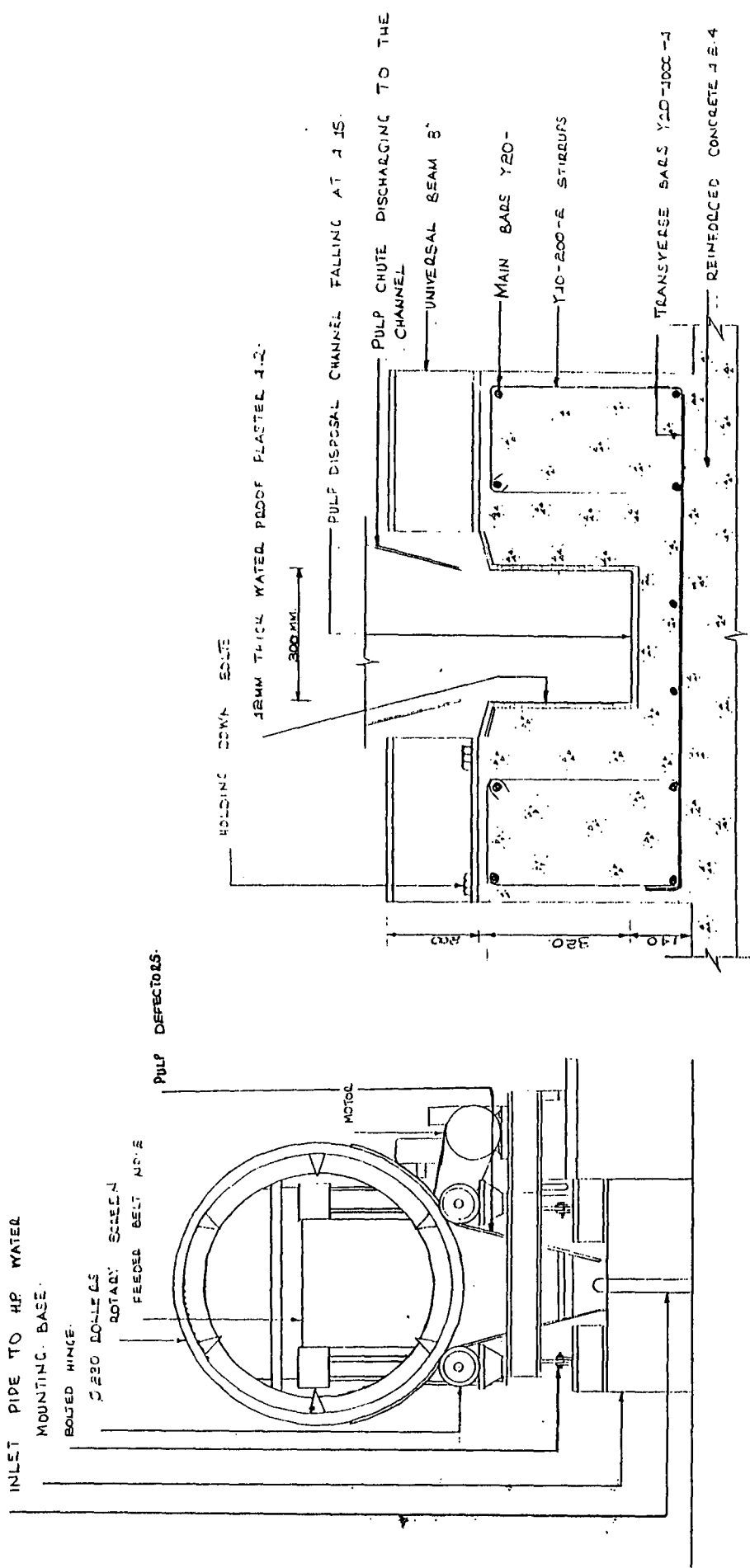
FLUME TOW ELEVATION WITHOUT ELEVATORS

REA YIPINGO PLANTATIONS LTD.	
DEPT. ENGINEERING DEPARTMENT.	
SECTION	PLAN & ELEVATION
DATE	16.10.2000
ITEM	FLUME TOW
SCALE	1:50
DWG. BY	P. O.



REA YIPINGO PLANTATIONS LTD.	
DEPT. ENGINEERING DEPARTMENT.	
SECTION CORONA SECTION	DRAWG. SIDE ELEVATION.
ITEM: FLUME TOW.	DATE: 15.10.2000
SCALE: 1:25	DRAWN BY: P.O

SIDE ELEVATION OF FLUME TOW WITHOUT THE ELEVATORS.
SCALE 1:25



DISCHARGE END ELEVATION.
SCALE 1:25

DETAIL TO SECTION A-A.
SCALE 1:10

REA YIPINGO PLANTATIONS LTD	
DEPT.	ENGINEERING DEPARTMENT
SECTION	CORONA SECTION
DRWG	END & DETAIL
ITEM	FLUME TOW
DATE	15.10.2000
SCALE	1:25, 1:10
DRG BY:	P.O.

FLUME TOW COSTING TO 30TH SEPTEMBER 1999											
DATE	SR NO.	JOB		QTY	UNIT	ITEM	UNIT COST	COST			
		NO	NO								
04-Jan-99	22281	156		2.00	LTR	KEROSINE	18.70	37.40			
07-Jan-99	22293	156		1.00	LTR	KEROSINE	18.70	18.70			
07-Oct-98	22318	156		2.00		M/S ELECTRODES	90.00	180.00			
08-Oct-98	23007	156		57.50		FLEX CABLE	4.50	258.75			
08-Oct-98	23007	156		2.00		INSULATIONG TAPE	39.90	79.80			
08-Oct-98	23007	156		4.00		SCOTCH TAPE	1,075.00	4,300.00			
23-Nov-98	23080	156		60.00		ARMOURED CABLE 7 CORES	400.00	24,000.00			
07-Oct-98	23432	156		2.00		KEROSINE	18.62	37.24			
13-Oct-98	23443	156		2.00		KEROSINE	18.62	37.24			
02-Nov-98	23490	156		1.50		KEROSINE	18.62	27.93			
18-Sep-98	23568	156		1.00		M/S WELDING RODS	18.98	18.98			
18-Sep-98	23568	156		1.00		M/S ELECTRODES	46.65	46.65			
18-Sep-98	23574	156		3.00		BOLTS & NUTS	11.63	34.90			
08-Apr-98	23650	156		1.00		M/S ELECTRODES	18.98	18.98			
08-Apr-98	23650	156		2.00		M/S ELECTRODES	46.65	93.29			
24-Sep-98	23668	156		1.00		CEMENT	287.34	287.34			
24-Sep-98	23669	156		1.50		M/S ELECTRODES	46.65	69.97			
25-Sep-98	23673	156		1.00		CEMENT	287.34	287.34			
25-Sep-98	23680	156		2.00		M/S WELDING RONDOS	46.65	93.29			
25-Sep-98	23680	156		2.00		FLAT BAR	573.00	1,146.00			
25-Sep-98	23680	156		50.00		ROUND BAR IRON	350.04	17,501.98			
25-Sep-98	23682	156		1.00		CEMENT	287.34	287.34			
25-Sep-98	23709	156		10.00		M/S ROUND BARS	350.04	3,500.39			
29-Sep-98	23731	156		1.50		M/S ELECTRODES	46.65	69.97			
29-Sep-98	23731	156		8.00		M/S ROUND BARS	350.04	2,800.31			
01-Oct-98	23747	156		7.00		M/S ROUND BARS	350.04	2,450.28			
01-Oct-98	23756	156		2.00		M/S ELECTRODES	90.00	180.00			
01-Oct-98	23756	156		8.00		ROUND BARS	350.04	2,800.32			
02-Oct-98	23761	156		2.00		H-IRONS	6,050.00	12,100.00			
02-Oct-98	23761	156		1.00		HOT FORMED CHANNEL	6,500.00	6,500.00			
03-Oct-98	23772	156		12.00		M/S ROUND BARS	350.04	4,200.48			
05-Oct-98	23786	156		10.00		FLAT BAR	6,820.00	68,200.00			
05-Oct-98	23786	156		2.00		U-IRON	6,900.00	13,800.00			
05-Oct-98	23793	156		10.00		M/S ELECTRODES	90.00	900.00			
08-Oct-98	23798	156		10.00		M/S ELECTRODES	90.00	900.00			
08-Oct-98	23798	156		5.00		ROUND BARS M/S	350.04	1,750.20			
08-Oct-98	24105	156		4.00		M/S SHAFTING	22,535.00	90,140.00			
07-Oct-98	24112	156		1.00		FLAT BAR	1,698.00	1,698.00			
08-Oct-98	24120	156		1.00		RAST OFF SPRAY	220.24	220.24			
08-Oct-98	24126	156		10.00		M/S ELECTRODES	90.00	900.00			
08-Oct-98	24130	156		5.00		M/S ELECTRODES	85.00	425.00			
08-Oct-98	24130	156		7.00		M/S ELECTRODES	90.00	630.00			
08-Oct-98	24132	156		6.00		FLAT BAR M/S	537.00	3,222.00			
09-Oct-98	24139	156		3.00		EMERY CLOTH	11.99	35.97			
12-Oct-98	24155	156		2.00		M/S ELECTRODES	85.00	170.00			
12-Oct-98	24156	156		10.00		ROUND BAR	78.71	787.10			
12-Oct-98	24156	156		10.00		M/S PLATES	2,285.00	22,850.00			
02-Nov-98	24288	156		0.50		WIRE NAILS	60.08	30.04			
02-Nov-98	24268	156		0.50		WIRE NAILS	48.15	24.08			
02-Nov-98	24269	156		2.00		CEMENT	292.58	585.18			
02-Nov-98	24269	156		175.00		STONE CHIPS	34.00	5,950.00			
03-Nov-98	24281	156		1.00		CEMENT	292.58	292.58			
04-Nov-98	24285	156		5.00		CEMENT	292.58	1,462.90			
08-Nov-98	24306	156		5.00		WIRE NAILS	48.15	240.75			
08-Nov-98	24306	156		1.00		WIRE NAILS	48.05	48.05			
09-Nov-98	24306	156		120.00		PINE WOOD	17.24	2,068.80			
21-Oct-98	24403	156		15.00		CAST IRON ELECTRODES	69.06	1,035.90			
21-Oct-98	24405	156		1.00		M/S ELECTRODES	85.00	85.00			
21-Oct-98	24405	156		1.00		M/S ELECTRODES	90.00	90.00			
21-Oct-98	24416	156		4.00		HTS BOLTS	21.20	84.80			
21-Oct-98	24416	156		4.00		M/S NUTS	7.50	30.00			
22-Oct-98	24419	156		2.00		EMERY CLOTH	4.91	9.82			
22-Oct-98	24419	156		3.00		EMERY CLOTH	11.99	35.97			
22-Oct-98	24421	156		1.00		M/S ELECTRODES	85.00	85.00			
23-Oct-98	24421	156		1.00		M/S ELECTRODES	90.00	90.00			
23-Oct-98	24421	156		8.00		HOT FORMED CHANNEL	5,560.00	44,480.00			
24-Oct-98	24422	156		4.00		HTS BOLTS	21.20	84.80			
28-Oct-98	24422	156		4.00		M/S NUTS	7.50	30.00			
28-Oct-98	24422	156		0.01		FLAT WASHERS	0.93	0.01			
28-Oct-98	24430	156		4.00		NUTS	7.50	30.00			
27-Oct-98	24430	156		4.00		FLAT WASHERS	0.93	3.72			
08-Aug-98	24430	156		4.00		HTS BOLTS	61.81	247.24			
08-Oct-98	24434	156		1.00		M/S ELECTRODES	85.00	85.00			
08-Oct-98	24434	156		1.00		M/S ELECTRODES	90.00	90.00			
13-Aug-99	24438	156		1.00		M/S ELECTRODES	90.00	90.00			
13-Aug-99	24437	156		2.00		HTS NUTS	19.25	38.50			
14-Aug-99	24437	156		2.00		HTS BOLTS	44.40	88.80			
15-Aug-99	24437	156		2.00		FLAT WASHERS	3.50	7.00			
17-Aug-99	24450	156		2.00		M/S ELECTRODES	90.00	180.00			
02-Nov-98	24487	156		3.00		RUBBER SEAL	440.00	1,320.00			
02-Nov-98	24487	156		4.00		RUBBER SEAL	458.87	1,834.88			
05-Nov-98	24510	156		3.00		TWO WAY 10 SPROCKETS	25,352.00	76,056.00			
02-Dec-99	25024	156		3.00		CEMENT 1 X 50KG.	292.58	877.77			

FLUME TOW COSTING TO 30TH SEPTEMBER 1999							
DATE	SR NO.	JOB NO	QTY	UNIT	ITEM	UNIT COST	COST
04-Dec-99	25037	158	5.00		CEMENT 1 X 50KG.	292.59	1,462.95
04-Dec-99	25044	158	1.00		CEMENT 1 X 50KG.	292.59	292.59
05-Dec-99	25048	158	2.00		CEMENT 1 X 50KG.	292.59	585.18
05-Dec-99	25050	158	1.00		CEMENT 1 X 50KG.	292.59	292.59
08-Dec-99	25069	158	1.00		TURPENTINE	36.88	36.88
10-Dec-99	25070	158	6.50		BLACK GLOSS	266.65	1,733.23
22-Dec-99	25117	158	1.00		CEMENT 1 X 50KG.	292.59	292.59
23-Dec-99	25122	158	2.00		CEMENT 1 X 50KG.	292.59	585.18
23-Dec-99	25123	158	0.50		WIRE NAILS 1 1/2"	60.08	30.04
28-Dec-99	25138	158	15.00		PINE WOOD 12 X 1 X 1"	22.41	336.15
28-Dec-99	25138	158	0.50		WIRE NAILS 2"	48.06	24.03
18-Dec-99	25660	158	1.00		M/S WELDING RODS 3.25MM	90.67	90.67
18-Dec-99	25660	158	2.00		M/S WELDING RODS 4.00MM	90.00	180.00
22-Dec-99	25678	158	1.00		M/S ELECTRODES 3.25MM	90.67	90.67
22-Dec-99	25678	158	2.00		M/S ELECTRODES 4.00MM	90.00	180.00
02-Jan-99	25724	158	4.00	PCS	CAST IRON ELECTRODES	67.00	268.00
06-Jan-99	25739	158	40.00	PCS	CAST IRON ELECTRODES	67.00	2,680.00
11-Jan-99	25758	158	1.00	KG	M/S ELECTRODES	90.67	90.67
11-Jan-99	25765	158	2.00	KG	M/S ELECTRODES	90.00	180.00
08-Mar-99	26757	158	13.00	PCS	HTS SPRING WASHERS	5.40	70.20
08-Mar-99	26757	158	24.00	PCS	HTS BOLTS BSW	22.91	549.84
09-Mar-99	26761	158	1.50	KGS	M/S WELDING RODS	90.00	135.00
10-Mar-99	26766	158	1.00	PCS	EMMERY CLOTH	(11.08)	(11.08)
10-Mar-99	26768	158	1.00	PCS	EMMERY CLOTH	9.00	9.00
10-Mar-99	26771	158	8.00	PCS	HTS SPRING WASHERS	3.50	28.00
10-Mar-99	26771	158	5.00	PCS	HTS BOLTS BSW	95.47	477.35
27-Mar-99	27078	158	3.00	LTR	KEROSENE	18.70	56.10
30-Mar-99	27081	158	3.00	LTR	KEROSENE	18.70	56.10
26-Mar-99	27368	158	0.50	KGS	WIRE NAILS	48.00	24.00
26-Mar-99	27374	158	34.00	FT.	PINE WOOD	17.84	599.76
27-Mar-99	27378	158	2.00	BAG	CEMENT	284.82	569.64
19-Mar-99	28013	158	23.00	PCS	HTS SPRING WASHERS	5.40	124.20
19-Mar-99	28013	158	22.00	PCS	HTS BOLTS BSW	14.94	328.68
30-Mar-99	28068	158	0.50	KGS	M/S WELDING RODS	81.45	40.73
27-Mar-99	28373	158	45.00	MTR	OVERHEAD COPPER CABLE	100.00	4,500.00
27-Mar-99	28373	158	1.00	TIN	ZEBRA RUST OFF	220.03	220.03
27-Mar-99	28373	158	3.00	PCS	H.S.S HARK S.BLADE	45.05	135.15
27-Mar-99	28374	158	2.00	PCS	INSULATION TAPE	34.34	68.68
27-Mar-99	28374	158	1.00	PCS	TAPE WATER PROOF	900.00	900.00
21-Aug-99	23961	158	2.00		KEROBINE	19.34	38.68
11-Apr-99	28113	158	1.00	PCS	EMMERY CLOTH	9.00	9.00
11-Apr-99	28113	158	3.00	PCS	EMMERY CLOTH	10.80	32.40
13-Apr-99	28125	158	12.00	PCS	HTS SPRING WASHERS	3.12	37.44
13-Apr-99	28125	158	12.00	PCS	MS BOLTS	10.88	128.16
13-Apr-99	28127	158	10.00	PCS	MS BOLTS	20.18	201.80
13-Apr-99	28131	158	8.00	PCS	NUTS	3.57	21.42
13-Apr-99	28131	158	8.00	PCS	MS BOLTS	10.88	84.08
14-Apr-99	28136	158	12.00	PCS	NUTS	3.57	42.84
14-Apr-99	28136	158	24.00	PCS	FLAT WASHER	0.35	8.40
14-Apr-99	28138	158	1.00	PCS	MS BOLTS	3.50	3.50
14-Apr-99	28137	158	12.00	PCS	HTS SPRING WASHERS	5.40	64.80
16-Apr-99	28155	158	8.00	PCS	GREASE NIPPLE STD	24.11	144.68
17-Apr-99	28161	158	8.00	PCS	HTS NUTS	5.50	44.00
17-Apr-99	28161	158	8.00	PCS	HTS BOLTS BSW	11.65	93.20
17-Apr-99	28161	158	0.25	KGS	FELT GASKET MATERIAL	1,800.00	450.00
17-Apr-99	28169	158	8.00	PCS	CONNECTING LINKS	127.00	1,016.00
21-Apr-99	28184	158	1.00	PCS	TROLLER BEARING	2,337.14	2,337.14
22-Apr-99	28193	158	1.00	KGS	M/S WELDING RODS	93.46	93.46
22-Apr-99	28200	158	1.00	PCS	GREASE NIPPLE	25.00	25.00
24-Apr-99	28217	158	4.00	PCS	HTS NUTS	2.06	8.24
24-Apr-99	28217	158	4.00	PCS	HTS BOLTS BSW	5.22	20.88
27-Apr-99	28226	158	24.00	PCS	HTS NUTS	5.50	132.00
27-Apr-99	28226	158	24.00	PCS	HTS SPRING WASHERS	3.12	74.88
27-Apr-99	28226	158	24.00	PCS	HTS BOLTS BSW	11.65	279.60
27-Apr-99	28228	158	3.00	KGS	M/S WELDING RODS	90.00	270.00
27-Apr-99	28230	158	20.00	PCS	NUTS	0.88	17.60
27-Apr-99	28230	158	0.16	KGS	M/S BOLTS	5.62	0.90
27-Apr-99	28230	158	0.07	KGS	GASKET MT PAPER	714.29	50.00
28-Apr-99	28235	158	1.00	PCS	G.I. PIPES CLASS B	960.00	960.00
28-Apr-99	28237	158	8.00	PCS	MS NUTS	6.10	48.80
28-Apr-99	28237	158	8.00	PCS	MS FLAT WASHERS	0.98	7.84
28-Apr-99	28237	158	4.00	PCS	MS BOLTS	40.82	163.28
29-Apr-99	28238	158	1.00	KGS	M/S WELDING RODS	93.46	93.46
29-Apr-99	28238	158	2.00	KGS	M/S WELDING RODS	90.00	180.00
30-Apr-99	28247	158	12.00	PCS	MS NUTS	5.50	66.00
30-Apr-99	28247	158	6.00	PCS	MS FLAT WASHERS	3.50	21.00
30-Apr-99	28247	158	6.00	PCS	MS BOLTS	38.33	230.00
30-Apr-99	28248	158	6.00	PCS	M/S PLATE	1,350.00	8,100.00
21-Apr-99	29001	158	0.50	KGS	WIRE NAILS	48.00	24.00
21-Apr-99	29001	158	66.00	FT.	PINE WOOD	17.24	1,137.84
22-Apr-99	29013	158	0.50	KGS	WIRE NAILS	60.01	30.01
22-Apr-99	29013	158	0.50	KGS	WIRE NAILS	48.01	24.01
24-Apr-99	29028	158	0.50	KGS	WIRE NAILS	60.01	30.01

FLUME TOW COSTING TO 30TH SEPTEMBER 1999							
DATE	SR NO.	JOB NO	QTY	UNIT	ITEM	UNIT COST	COST
24-Apr-99	29028	158	0.50	KGS	WIRE NAILS	48.01	24.01
24-Apr-99	29032	158	2.00	BAG	CEMENT	284.82	569.64
26-Apr-99	29035	158	4.00	BAG	CEMENT	284.82	1,139.28
27-Apr-99	29042	158	5.00	BAG	CEMENT	284.82	1,424.10
27-Apr-99	29048	158	0.50	KGS	WIRE NAILS	48.01	24.01
27-Apr-99	29048	158	0.50	KGS	WIRE NAILS	48.00	24.00
28-Apr-99	29050	158	4.00	BAG	CEMENT	284.82	1,139.28
29-Apr-99	29060	158	40.00	PCS	NUTS	0.88	35.20
29-Apr-99	29060	158	40.00	KGS	FLAT WASHERS	0.23	9.20
29-Apr-99	29060	158	0.35	KGS	M/S BOLTS	5.82	1.97
28-Apr-99	29548	158	3.00	LTR	KEROSENE	19.30	57.90
28-Apr-99	29552	158	5.00	LTR	SHELL TALPA	77.74	388.70
03-May-99	28257	158	1.00	TINS	ZEBRA RUST OFF	220.01	220.01
04-May-99	28262	158	2.00	KGS	M/S WELDING RODS	90.00	180.00
06-May-99	28275	158	6.00	PCS	HTS SPRING WASHERS	3.11	18.66
06-May-99	28275	158	6.00	PCS	HTS BOLTS UNC	10.07	60.42
06-May-99	28279	158	9.00	PCS	HTS SPRING WASHERS	3.11	27.99
06-May-99	28279	158	4.00	PCS	HTS BOLTS UNC	4.77	19.08
06-May-99	28279	158	5.00	PCS	HTS BOLTS UNC	4.00	20.00
07-May-99	28295	158	30.00	PCS	FLAT WASHERS	0.26	7.80
07-May-99	28295	158	0.20	KGS	M/S BOLTS	5.61	1.12
08-May-99	28438	158	1.00	PCS	HTS BOLTS BSW	7.97	7.97
08-May-99	28438	158	1.00	PCS	HTS SPRING WASHERS	3.11	3.11
08-May-99	28438	158	1.00	PCS	HTS BOLTS BSW	11.85	11.85
11-Jun-99	28529	158	1.00	PCS	CABLE GLAND C/W SHROUN	148.87	148.87
11-Jun-99	28529	158	1.00	PCS	DISTRIBUTION BOARD BALL	25,000.00	25,000.00
12-Jun-99	28536	158	4.00	PCS	HTS NUTS	2.32	9.28
12-Jun-99	28538	158	4.00	PCS	HTS BOLTS BSW	12.99	51.96
12-Jun-99	28538	158	4.00	PCS	FLAT WASHER	3.50	14.00
04-May-99	29077	158	1.00	BAG	CEMENT	290.18	290.18
05-May-99	29092	158	1.00	BAG	CEMENT	290.18	290.18
06-May-99	29098	158	1.00	BAG	CEMENT	290.18	290.18
18-Jun-99	29785	158	2.00	KGS	SHELL RETINAX GREASE	116.77	233.54
08-May-99	29802	158	6.00	PCS	HTS BOLTS BSW	11.85	69.90
08-May-99	29802	158	3.00	PCS	HTS BOLTS UNC	13.05	39.15
08-May-99	29802	158	9.00	PCS	SPRING WASHERS	1.95	17.55
11-May-99	29815	158	1.00	PCS	EMMERY CLOTH	8.91	8.91
11-May-99	29815	158	1.00	PCS	EMMERY CLOTH	9.00	9.00
12-May-99	29819	158	1.00	PCS	SOUNDER U-LEVER RUMBER	1,750.00	1,750.00
13-May-99	29825	158	4.00	PCS	HTS BOLTS UNC	6.45	25.80
13-May-99	29825	158	25.00	PCS	FLAT WASHERS	0.26	6.50
13-May-99	29825	158	0.40	KGS	M/S BOLTS	5.61	2.24
13-May-99	29826	158	4.00	PCS	HTS NUTS UNC	4.26	17.04
19-May-99	29857	158	1.00	KGS	M/S WELDING RODS	78.25	78.25
19-May-99	29857	158	2.00	KGS	M/S WELDING RODS	90.00	180.00
25-May-99	29892	158	20.00	PCS	FLAT WASHERS	0.26	5.20
25-May-99	29892	158	0.14	KGS	M/S BOLTS	5.61	0.79
28-May-99	29901	158	1.00	KGS	M/S WELDING RODS	78.25	78.25
28-May-99	29901	158	1.50	KGS	M/S WELDING RODS	90.00	135.00
28-May-99	29903	158	1.00	PCS	STAINLESS FLAT BAR	1,099.00	1,099.00
07-Jun-99	29934	158	10.00	PCS	STEEL WLDING RDS KST	33.80	338.00
12-Jun-99	29983	158	1.00	KGS	M/S WELDING RODS	78.25	78.25
12-Jun-99	29983	158	2.00	KGS	M/S WELDING RODS	90.00	180.00
15-Jun-99	29973	158	1.00	PCS	ENDLESS BELT	44,185.00	44,185.00
17-Jun-99	29986	158	4.00	PCS	HTS BOLTS BSW	18.00	72.00
17-Jun-99	29986	158	12.00	PCS	HTS NUTS	19.25	231.00
17-Jun-99	29986	158	12.00	PCS	HTS BOLTS BSW	38.58	462.96
17-Jun-99	29987	158	4.00	PCS	HTS BOLTS BSW	18.00	72.00
17-Jun-99	29987	158	12.00	PCS	HTS NUTS	19.25	231.00
17-Jun-99	29987	158	8.00	PCS	H.T.S.METRIC NUTS	25.00	200.00
17-Jun-99	29988	158	8.00	PCS	HTS SPRING WASHERS	5.40	43.20
18-Jun-99	29993	158	8.00	PCS	HTS SPRING WASHERS	11.45	91.60
23-Jun-99	30014	158	40.00	PCS	CHAMPERING CAMPHOR RO	36.63	1,465.20
24-Jun-99	28563	158D	2.00	PCS	CABLE GLAND C/W SHROUN	148.67	297.34
24-Jun-99	30019	158D	1.00	KGS	M/S WELDING RODS	90.00	90.00
24-Jun-99	30019	158D	20.00	PCS	CHAMPERING CAMPHOR RO	36.63	732.60
25-Jun-99	30024	158D	8.00	PCS	H.T.S.METRIC BOLTS.	25.00	200.00
25-Jun-99	30024	158D	16.00	PCS	H.T.S.METRIC NUTS	5.50	88.00
25-Jun-99	30024	158D	8.00	PCS	MS FLAT WASHERS	0.80	6.40
03-Jul-99	30056	158E	4.00	PCS	HTS NUTS BSW	6.24	24.96
03-Jul-99	30056	158E	4.00	PCS	HTS SPRING WASHERS	5.40	21.60
03-Jul-99	30056	158E	4.00	PCS	HTS BOLTS BSW	14.08	56.32
07-Jul-99	30069	158E	4.00	PCS	HTS NUTS BSW	6.24	24.96
07-Jul-99	30069	158E	4.00	PCS	HTS BOLTS BSW	18.00	72.00
08-Jul-99	30077	158E	1.00	KGS	M/S WELDING RODS	78.25	78.25
08-Jul-99	30077	158E	2.00	KGS	M/S WELDING RODS	90.00	180.00
28-Jul-99	30624	158E	4.00	PCS	HTS NUTS	18.25	77.00
28-Jul-99	30624	158E	4.00	PCS	SPRING WASHERS	9.90	39.60
28-Jul-99	30624	158E	4.00	PCS	HTS STEEL BOLTS	250.00	1,000.00
17-Jul-99	31940	158E	1.50	LTR	KEROSENE	20.48	30.72
18-Jul-99	31945	158E	1.00	LTR	KEROSENE	20.48	20.48
20-Jul-99	31955	158E	7.00	PCS	HTS BOLTS BSW	24.54	171.78
20-Jul-99	31955	158E	6.00	PCS	MS FLAT WASHERS	3.50	21.00
13-Aug-99	32086	158F	1.00	KGS	M/S WELDING RODS	88.35	88.35

FLUME TOW COSTING TO 30TH SEPTEMBER 1999							
DATE	SR NO.	JOB NO	QTY	UNIT	ITEM	UNIT COST	COST
28-Aug-99	32173	156F	1.00	KGS	M/S WELDING RODS	88.35	88.35
13-Aug-99	32088	156F	2.00	KGS	M/S WELDING RODS	90.00	180.00
14-Aug-99	32100	156F	2.00	KGS	M/S WELDING RODS	90.00	180.00
19-Aug-99	32139	156F	2.00	KGS	M/S WELDING RODS	90.00	180.00
26-Aug-99	32173	156F	2.00	KGS	M/S WELDING RODS	90.00	180.00
27-Aug-99	32185	156F	2.00	KGS	M/S WELDING RODS	90.00	180.00
18-Aug-99	32132	156F	40.00	PCS	CAMPHOR ROD	37.89	1,515.60
26-Aug-99	32173	156F	2.00	PCS	GALV. ROOFING SCREWS	3.27	6.54
17-Sep-99	25468	156G	4.00	PCS	T/ROLLER BEARING	2,337.14	9,348.56
21-Sep-99	25478	156G	6.00	PCS	T.ROLLER BEARING	1,305.00	7,830.00
02-Sep-99	32914	156G	40.00	MTR	ARMOURED CABLE	300.00	12,000.00
02-Sep-99	32914	156G	2.00	PCS	CABLE GLAND C/W SHROUN	125.00	250.00
02-Sep-99	32914	156G	1.00	PCS	BROOK MOTOR SN X220054	45,000.00	45,000.00
03-Sep-99	32918	156G	(2.00)	PCS	CABLE GLAND C/W SHROUN	125.00	(250.00)
13-Sep-99	32931	156G	8.00	PKT	WIRING CLIPS	80.00	480.00
13-Sep-99	32934	156G	2.00	PCS	INDUCTION MOTOR	28,671.00	57,342.00
15-Sep-99	32943	156G	5.00	PCS	INSULATORS	2,750.00	13,750.00
15-Sep-99	32943	156G	1.00	PCS	INSULATORS	19,840.00	19,840.00
15-Sep-99	32943	156G	3.00	PCS	INSULATORS	5,821.00	16,863.00
15-Sep-99	32944	156G	10.00	PKT	WIRING CLIPS	80.00	800.00
15-Sep-99	32946	156G	1.00	PCS	INSULATORS	5,621.00	5,621.00
16-Sep-99	32947	156G	20.00	PCS	NUTS	1.34	26.80
16-Sep-99	32947	156G	20.00	PCS	BOLT	3.27	65.40
16-Sep-99	32948	156G	20.00	PCS	HTS FLAT WASHERS	1.17	23.40
16-Sep-99	32948	156G	20.00	PCS	HTS SPRING WASHERS	1.49	29.80
16-Sep-99	32948	156G	10.00	PCS	POP RIVETS	1.12	11.20
18-Sep-99	32952	156G	2.00	PCS	HTS SPRING WASHERS	3.01	6.02
18-Sep-99	32952	156G	2.00	PCS	HTS NUTS UNC	0.46	0.92
18-Sep-99	32952	156G	2.00	PCS	HTS BOLTS UNC	13.05	26.10
20-Sep-99	32954	156G	2.00	PCS	CABLE GLAND C/W SHROUN	125.00	250.00
21-Sep-99	32956	156G	30.00	0	ARMOURED CABLE	150.00	4,500.00
21-Sep-99	32956	156G	3.00	PCS	MCB CIRCCUT BREAKER	2,262.50	6,787.50
21-Sep-99	32956	156G	4.00	PCS	INDUCTION MOTOR	28,671.75	114,687.00
21-Sep-99	32957	156G	1.00	PCS	MCB CIRCCUT BREAKER	1,850.00	1,850.00
21-Sep-99	32957	156G	1.00	PCS	MCB CIRCCUT BREAKER	1,850.00	1,850.00
21-Sep-99	32958	156G	2.00	PCS	HTS BOLTS	-	-
21-Sep-99	32958	156G	2.00	PCS	FLAT WASHERS	0.16	0.32
14-Sep-99	33526	156G	4.00	PCS	HTS NUTS	1.84	7.36
14-Sep-99	33526	156G	8.00	PCS	HTS FLAT WASHERS	1.73	13.84
14-Sep-99	33526	156G	4.00	PCS	HTS BOLTS BSW	4.12	16.48
16-Sep-99	33925	156G	3.00	LTR	KEROSENE	21.42	64.26
16-Sep-99	33925	156G	4.00	LTR	RED OXIDE PRIMER	317.99	1,271.96
16-Sep-99	33925	156G	4.00	LTR	SUPER GLOSS BLACK	311.63	1,246.52
16-Sep-99	33926	156G	4.00	PCS	EMMERY CLOTH	10.94	43.76
17-Sep-99	33931	156G	19.00	FT.	CAMPHOR	73.76	1,401.44
18-Sep-99	33935	156G	2.00	LTR	KEROSENE	21.42	42.84
18-Sep-99	33935	156G	3.00	PCS	EMMERY CLOTH	10.94	32.82
18-Sep-99	33940	156G	2.00	BAG	CEMENT	366.07	732.14
19-Sep-99	33941	156G	16.00	PCS	BRASS SCREWS	-	-
19-Sep-99	33942	156G	5.00	PCS	HTS NUTS	18.40	92.00
19-Sep-99	33942	156G	5.00	PCS	HTS BOLTS BSW	3.27	16.35
20-Sep-99	33945	156G	2.00	LTR	KEROSENE	21.42	42.84
20-Sep-99	33945	156G	4.00	LTR	SUPER GLOSS STEEL	310.14	1,240.56
22-Sep-99	33982	156G	2.00	LTR	KEROSENE	21.42	42.84
22-Sep-99	33986	156G	1.00	BAG	CEMENT	366.07	366.07
23-Sep-99	33978	156G	2.00	LTR	KEROSENE	21.42	42.84
24-Sep-99	33982	156G	2.00	LTR	KEROSENE	21.42	42.84
24-Sep-99	33983	156G	60.00	PCS	SISAL POLES	10.00	600.00
25-Sep-99	33985	156G	32.00	FT3	STONE CHIPS	50.00	1,600.00
02-Sep-99	34008	156G	1.00	KGS	M/S WELDING RODS	88.35	88.35
02-Sep-99	34008	156G	2.00	KGS	M/S WELDING RODS	84.09	168.18
02-Sep-99	34013	156G	1.50	KGS	M/S WELDING RODS	84.09	126.14
04-Sep-99	34031	156G	7.00	PCS	GREASE NIPPLE STD	17.21	120.47
04-Sep-99	34032	156G	48.00	PCS	NUTS	3.57	171.36
04-Sep-99	34032	156G	48.00	PCS	MS BOLTS	9.65	463.20
04-Sep-99	34036	156G	0.07	KGS	GASKET MT PAPER	-	-
04-Sep-99	34038	156G	1.00	PCS	FENNER G/BOX	24,500.00	24,500.00
04-Sep-99	34038	156G	2.00	PCS	FENNER G/BOX	35,600.00	71,200.00
08-Sep-99	34044	156G	2.00	KGS	M/S WELDING RODS	84.09	168.18
08-Sep-99	34047	156G	1.00	KGS	M/S WELDING RODS	88.35	88.35
08-Sep-99	34047	156G	2.00	KGS	M/S WELDING RODS	84.09	168.18
08-Sep-99	34063	156G	30.00	KGS	HOLLOW CONCAST BRONZE	350.00	10,500.00
10-Sep-99	34077	156G	16.00	PCS	HTS SPRING WASHERS	3.01	48.16
10-Sep-99	34077	156G	6.00	PCS	M/S BOLTS	2.64	15.84
13-Sep-99	34087	156G	1.00	KGS	M/S WELDING RODS	88.35	88.35
13-Sep-99	34087	156G	2.00	KGS	M/S WELDING RODS	84.09	168.18
13-Sep-99	34090	156G	16.00	PCS	HTS NUTS	-	-
13-Sep-99	34090	156G	16.00	PCS	HTS BOLTS BSW	11.65	186.40
14-Sep-99	34098	156G	1.00	0	PLATES	1,065.75	1,065.75
14-Sep-99	34099	156G	3.00	PCS	HTS SPRING WASHERS	3.01	9.03
14-Sep-99	34099	156G	3.00	PCS	MS BOLTS	20.16	60.48
14-Sep-99	34100	156G	1.00	PCS	TAPPER LOCK BUSHES	3,500.00	3,500.00
14-Sep-99	34100	156G	1.00	PCS	TAPPER LOCK BUSHES	3,500.00	3,500.00

FLUME TOW COSTING TO 30TH SEPTEMBER 1999							
DATE	SR NO.	JOB NO	QTY	UNIT	ITEM	UNIT COST	COST
14-Sep-99	34104	156G	8.00	PCS	GRAB SCREWS	36.00	288.00
14-Sep-99	34104	156G	2.00	PCS	GRAB SCREWS	60.00	120.00
14-Sep-99	34108	156G	5.00	PCS	GAS WELDING RODS	0.92	4.60
14-Sep-99	34108	156G	5.00	PCS	GAS WELDING RODS	0.92	4.60
15-Sep-99	34107	156G	2.00	KGS	M/S WELDING RODS	88.35	176.70
15-Sep-99	34107	156G	1.00	KGS	M/S WELDING RODS	84.09	84.09
15-Sep-99	34108	156G	5.00	PCS	VEE BELT	1,890.00	9,450.00
16-Sep-99	34111	156G	4.00	PCS	HTS SPRING WASHERS	1.80	7.20
16-Sep-99	34112	156G	4.00	PCS	HTS NUTS	1.84	7.36
16-Sep-99	34112	156G	4.00	PCS	HTS BOLTS BSW	3.27	13.08
16-Sep-99	34118	156G	2.00	KGS	M/S WELDING RODS	84.09	168.18
17-Sep-99	34118	156G	8.00	PCS	HTS SPRING WASHERS	5.40	43.20
17-Sep-99	34118	156G	8.00	PCS	HTS BOLTS BSW	18.18	145.28
17-Sep-99	34118	156G	8.00	PCS	MS NUTS	6.10	48.80
17-Sep-99	34119	156G	8.00	PCS	HTS NUTS	1.84	14.72
17-Sep-99	34119	156G	8.00	PCS	HTS BOLTS BSW	3.27	26.16
17-Sep-99	34119	156G	16.00	PCS	FLAT WASHER	0.65	10.40
17-Sep-99	34120	156G	2.00	KGS	M/S WELDING RODS	84.09	168.18
17-Sep-99	34122	156G	6.00	PCS	HTS NUTS	1.84	11.04
17-Sep-99	34122	156G	6.00	PCS	HTS BOLTS BSW	3.27	19.62
17-Sep-99	34122	156G	2.00	PCS	VEE BELT	180.00	360.00
17-Sep-99	34123	156G	1.00	KGS	M/S WELDING RODS	88.35	88.35
17-Sep-99	34123	156G	2.00	KGS	M/S WELDING RODS	84.09	168.18
17-Sep-99	34124	156G	6.00	PCS	HTS NUTS	1.57	9.42
17-Sep-99	34124	156G	6.00	PCS	HTS BOLTS	2.08	12.36
17-Sep-99	34124	156G	2.00	PCS	FAN BELT	2,513.38	5,026.72
17-Sep-99	34125	156G	6.00	PCS	FLAT WASHERS	0.16	0.96
18-Sep-99	34129	156G	1.00	KGS	M/S WELDING RODS	88.35	88.35
18-Sep-99	34129	156G	2.00	KGS	M/S WELDING RODS	84.09	168.18
18-Sep-99	34130	156G	16.00	PCS	HTS NUTS	19.25	308.00
18-Sep-99	34130	156G	8.00	PCS	HTS BOLTS BSW	38.58	308.64
18-Sep-99	34130	156G	8.00	PCS	MS BOLTS	55.60	444.80
18-Sep-99	34131	156G	16.00	PCS	SPRING WASHERS	9.90	158.40
20-Sep-99	34141	156G	2.00	KGS	M/S WELDING RODS	84.09	168.18
21-Sep-99	34146	156G	8.00	PCS	HTS FLAT WASHERS	1.73	13.84
21-Sep-99	34146	156G	8.00	PCS	HTS SPRING WASHERS	1.80	14.40
21-Sep-99	34146	156G	8.00	PCS	HTS BOLTS BSW	3.27	26.16
21-Sep-99	34147	156G	8.00	PCS	MS NUTS	0.09	0.72
21-Sep-99	34148	156G	3.00	PCS	HTS BOLTS BSW	47.20	141.60
21-Sep-99	34148	156G	4.00	PCS	MS FLAT WASHERS	-	-
21-Sep-99	34149	156G	2.00	PCS	HTS SPRING WASHERS	5.40	10.80
21-Sep-99	34149	156G	1.00	PCS	HTS BOLTS BSW	18.18	18.18
21-Sep-99	34149	156G	1.00	PCS	HTS BOLTS BSW	14.08	14.08
21-Sep-99	34151	156G	14.00	PCS	FLAT WASHERS	0.16	2.24
21-Sep-99	34151	156G	14.00	KGS	M/S BOLTS	-	-
21-Sep-99	34151	156G	16.00	PCS	POP RIVETS	1.80	28.80
22-Sep-99	34152	156G	2.00	PCS	HTS NUTS	19.25	38.50
22-Sep-99	34152	156G	2.00	PCS	HTS NUTS BSW	57.60	115.20
22-Sep-99	34152	156G	2.00	PCS	HTS BOLTS BSW	127.20	254.40
22-Sep-99	34153	156G	2.00	PCS	HTS NUTS BSW	57.60	115.20
22-Sep-99	34153	156G	4.00	PCS	HTS SPRING WASHERS	-	-
22-Sep-99	34153	156G	1.00	PCS	HTS BOLTS BSW	127.20	127.20
22-Sep-99	34157	156G	24.00	MTR	OPEN END BELT	2,193.00	52,632.00
22-Sep-99	34158	156G	77.00	PCS	FLAT WASHERS	0.16	12.32
22-Sep-99	34158	156G	250.00	PCS	GALVANIZED ROOFING SCRE	3.20	800.00
22-Sep-99	34159	156G	1.00	KGS	M/S WELDING RODS	88.35	88.35
22-Sep-99	34159	156G	2.00	KGS	M/S WELDING RODS	84.09	168.18
22-Sep-99	34160	156G	5.00	PCS	STEEL WELDING RODS	28.55	142.75
22-Sep-99	34161	156G	180.00	PCS	MS FLAT WASHERS	0.04	8.40
22-Sep-99	34161	156G	12.50	MTR	SIEGLING EXTEMULTUS CON	755.00	9,437.50
22-Sep-99	34163	156G	10.00	KGS	M/S BOLTS	-	-
22-Sep-99	34163	156G	10.00	PCS	NUTS	3.57	35.70
22-Sep-99	34163	156G	10.00	PCS	MS BOLTS	9.65	96.50
22-Sep-99	34164	156G	10.00	PCS	NUTS	0.86	8.60
23-Sep-99	34165	156G	1.00	PCS	MS BOLTS	70.00	70.00
23-Sep-99	34169	156G	1.00	PKT	BELT LACING	455.62	455.62
23-Sep-99	34170	156G	2.00	PCS	HTS NUTS	32.40	64.80
23-Sep-99	34170	156G	2.00	PCS	HTS SPRING WASHERS	55.00	110.00
23-Sep-99	34170	156G	2.00	PCS	HTS BOLTS BSW	44.53	89.06
23-Sep-99	34171	156G	2.00	PCS	HTS NUTS BSW	57.60	115.20
23-Sep-99	34171	156G	2.00	PCS	HTS SPRING WASHERS	55.00	110.00
23-Sep-99	34171	156G	2.00	PCS	HTS BOLTS BSW	127.20	254.40

FLUME TOW COSTING TO 30TH SEPTEMBER 1999							
DATE	SR NO.	JOB NO	QTY	UNIT	ITEM	UNIT COST	COST
24-Sep-99	34175	156G	1.00	PCS	VEE BELT	440.00	440.00
24-Sep-99	34179	156G	2.00	KGS	M/S WELDING RODS	84.09	168.18
24-Sep-99	34179	156G	1.00	PCS	BRAZING RODS	38.92	38.92
24-Sep-99	34182	156G	4.00	PCS	HTS BOLTS BSW	3.27	13.08
24-Sep-99	34182	156G	4.00	0	MS NUTS	0.09	0.36
24-Sep-99	34182	156G	8.00	PCS	MS BOLTS	130.00	1,040.00
24-Sep-99	34183	156G	8.00	PCS	SPRING WASHERS	9.90	79.20
24-Sep-99	34183	156G	24.00	PCS	POP RIVETS	1.80	43.20
24-Sep-99	34185	156G	8.00	PCS	MS NUTS	78.00	624.00
25-Sep-99	34186	156G	2.00	PCS	EMMERY CLOTH	8.94	17.88
25-Sep-99	34186	156G	2.00	PCS	EMMERY CLOTH	10.47	20.94
25-Sep-99	34186	156G	3.00	PCS	EMMERY CLOTH	10.94	32.82
25-Sep-99	34190	156G	8.00	PCS	HTS NUTS	1.57	12.56
25-Sep-99	34190	156G	8.00	PCS	HTS BOLTS	2.08	16.64
25-Sep-99	34191	156G	1.00	KGS	M/S WELDING RODS	88.35	88.35
27-Sep-99	34196	156G	1.00	KGS	M/S WELDING RODS	88.35	88.35
27-Sep-99	34196	156G	2.00	KGS	M/S WELDING RODS	84.09	168.18
28-Sep-99	34202	156G	1.00	PCS	TAPER LOCK BUSHES	1,750.00	1,750.00
28-Sep-99	34202	156G	1.00	PCS	TAPPER LOCK BUSHES	1,750.00	1,750.00
28-Sep-99	34203	156G	1.00	0	PLATES	1,085.75	1,085.75
28-Sep-99	34203	156G	1.00	PCS	TAPPER LOCK BUSHES	560.00	560.00
28-Sep-99	34203	156G	1.00	PCS	TAPPER LOCK BUSHES	560.00	560.00
29-Sep-99	34212	156G	4.00	PCS	T-HINGES	10.15	40.60
29-Sep-99	34212	156G	1.00	PCS	PAD BOLTS STD	43.80	43.80
29-Sep-99	34212	156G	2.00	PCS	TOWER BOLTS STD	160.00	320.00
29-Sep-99	34213	156G	1.00	PCS	FLAT BARS	119.68	119.68
30-Sep-99	34215	156G	0.50	KGS	M/S WELDING RODS	75.69	37.85
30-Sep-99	34215	156G	1.00	KGS	M/S WELDING RODS	88.35	88.35
30-Sep-99	34215	156G	2.00	KGS	M/S WELDING RODS	84.09	168.18
							1,089,261.77
07-Oct-99	32990	219G	1.00	PCS	TRI-CIRCLE BOCK	132.01	132.01
01-Oct-99	34228	219G	2.00	KGS	M/S WELDING RODS	84.09	168.18
01-Oct-99	34229	219G	8.00	PCS	HTS SPRING WASHERS	5.40	43.20
01-Oct-99	34229	219G	8.00	PCS	MS NUTS	6.09	48.72
01-Oct-99	34229	219G	8.00	PCS	MS BOLTS	18.38	131.04
01-Oct-99	34231	219G	1.00	KGS	M/S WELDING RODS	88.35	88.35
01-Oct-99	34231	219G	2.00	KGS	M/S WELDING RODS	84.09	168.18
04-Oct-99	34235	219G	2.00	BAG	WOOD CHARCOAL	150.00	300.00
09-Oct-99	34271	219G	4.00	PCS	NUTS	3.57	14.28
09-Oct-99	34271	219G	4.00	PCS	MS BOLTS	10.72	42.88
18-Oct-99	35206	219G	4.00	PCS	HTS NUTS	1.63	6.52
18-Oct-99	35206	219G	2.00	PCS	HTS BOLTS	130.00	260.00
18-Oct-99	35206	219G	2.00	PCS	HTS BOLTS BSW	8.64	17.28
18-Oct-99	35207	219G	2.00	PCS	HTS NUTS BSW	7.04	14.08
18-Oct-99	35209	219G	4.00	PCS	HTS NUTS	1.83	7.32
18-Oct-99	35209	219G	4.00	PCS	HTS SPRING WASHERS	1.80	7.20
18-Oct-99	35209	219G	4.00	PCS	HTS BOLTS BSW	15.00	60.00
18-Oct-99	35210	219G	8.00	PCS	NUTS	0.86	6.88
18-Oct-99	35210	219G	8.00	KGS	M/S BOLTS	130.00	1,040.00
18-Oct-99	35211	219G	8.00	PCS	NUTS	0.86	6.88
18-Oct-99	35211	219G	0.05	KGS	M/S BOLTS	129.35	6.47
25-Oct-99	35252	219G	1.00	KGS	M/S WELDING RODS	88.35	88.35
28-Oct-99	35252	219G	2.00	KGS	M/S WELDING RODS	84.09	168.18
27-Oct-99	35261	219G	4.00	PCS	HTS NUTS BSW	7.04	28.16
27-Oct-99	35261	219G	2.00	PCS	HTS BOLTS BSW	18.18	36.36
27-Oct-99	35261	219G	2.00	PCS	HTS BOLTS BSW	21.40	42.80
28-Oct-99	35271	219G	0.50	LTR	SHELL TALPA	77.74	38.87
					219G Total		2,972.16
					Grand Total		
FLUME TOW COSTS NOVEMBER 1999							
08-Nov-99	35331	219G	4.00	PCS	HTS NUTS	1.58	6.24
08-Nov-99	35331	219G	4.00	PCS	HTS FLAT WASHERS	1.17	4.68
08-Nov-99	35331	219G	4.00	PCS	HTS BOLTS	130.00	520.00
08-Nov-99	35334	219G	4.00	PCS	HTS NUTS	19.25	77.00
08-Nov-99	35334	219G	2.00	PCS	H.T.S. BOLTS-UNF	133.80	267.60
08-Nov-99	35334	219G	2.00	PCS	H.T.S. BOLTS BSW	162.00	324.00
08-Nov-99	35335	219G	1.00	PCS	HTS BOLTS BSW	39.83	39.83
08-Nov-99	35340	219G	1.00	KGS	M/S WELDING RODS	75.88	75.88
08-Nov-99	35340	219G	1.00	KGS	M/S WELDING RODS	85.60	85.60
22-Nov-99	35429	219G	1.00	KGS	M/S WELDING RODS	75.88	75.88
17-Nov-99	35397	219G	18.00	PCS	FLAT WASHERS	0.18	2.88
17-Nov-99	35397	219G	18.00	KGS	M/S BOLTS	30.00	480.00
08-Nov-99	35806	219G	4.00	PCS	HTS BOLTS BSW	21.90	87.60
08-Nov-99	35806	219G	4.00	PCS	MS FLAT WASHERS	20.00	80.00
10-Nov-99	35812	219G	39.00	PCS	HTS NUTS	2.08	81.12
10-Nov-99	35812	219G	10.00	PCS	HTS BOLTS BSW	4.13	41.30
10-Nov-99	35812	219G	10.00	PCS	HTS BOLTS BSW	5.22	52.20
11-Nov-99	35815	219G	2.50	KGS	M/S WELDING RODS	84.09	210.23
11-Nov-99	35818	219G	2.00	PCS	M/S FLAT BARS	86.00	172.00
11-Nov-99	35822	219G	8.00	PCS	GREASE NIPPLE STD	19.06	152.48
23-Nov-99	35878	219G	10.00	PCS	FLAT WASHERS	0.18	1.80
							2,837.92

FLUME TOW COSTING TO 30TH SEPTEMBER 1999							
DATE	SR NO.	JOB NO	QTY	UNIT	ITEM	UNIT COST	COST
FLUME TOW COSTS DECEMBER 1999							
		DECEM	1999.00		ENGINEERING JOBS		
DATE	SR NO.	JOB NO	QTY	UNIT	ITEM	UNIT COST	COST
08-Dec-99	35918	219G	8.00	PCS	HTS NUTS	2.08	16.64
08-Dec-99	35918	219G	3.00	PCS	HTS BOLTS BSW	15.00	45.00
09-Dec-99	35934	219G	1.00	PCS	DOUBLE BALL BEARING	1,400.00	1,400.00
17-Dec-99	35957	219G	8.00	PCS	MS NUTS	85.00	680.00
17-Dec-99	35957	219G	4.00	PCS	MS BOLTS	130.00	520.00
17-Dec-99	35957	219G	4.00	PCS	MS BOLTS	130.00	520.00
17-Dec-99	35958	219G	8.00	PCS	MS FLAT WASHERS	20.00	160.00
22-Dec-99	35970	219G	4.00	PCS	MS BOLTS	130.00	520.00
23-Dec-99	35972	219G	1.00	KGS	M/S WELDING RODS	85.60	85.60
23-Dec-99	35972	219G	1.50	KGS	M/S WELDING RODS	93.89	140.84
							4,088.08
FLUME TOW COSTS JANUARY 2000							
28-Jan-00	36061	219G	2.00	PCS	ADAPTER SLEEVE BEARING	666.25	1,332.50
		219G Total					1,332.50
FLUME TOW COSTS FEBRUARY 2000							
28-Feb-00	37859	219G	2.00	PCS	VEE BELT	452.00	904.00
28-Feb-00	37859	219G	2.00	PCS	VEE BELT	452.00	904.00
		219G Total					1,808.00
FLUME TOW COSTS MARCH 2000							
01-Mar-00	37877	219G	1.00	PKT	BELT LACING	471.55	471.55
01-Mar-00	37878	219G	2.00	PKT	BELT LACING	471.55	943.10
08-Mar-00	38805	219G	2.00	PCS	VEE BELT	452.00	904.00
08-Mar-00	38805	219G	2.00	PCS	VEE BELT	452.00	904.00
09-Mar-00	38807	219G	2.00	KGS	M/S WELDING RODS	85.60	171.20
11-Mar-00	38814	219G	4.00	PCS	HTS NUTS	19.25	77.00
11-Mar-00	38814	219G	4.00	PCS	SPRING WASHERS	9.90	39.60
11-Mar-00	38814	219G	4.00	PCS	HTS BOLTS BSW	44.85	179.40
15-Mar-00	38826	219G	2.00	PCS	VEE BELT	479.20	958.40
		219G Total					4,648.26
FLUME TOW COSTS APRIL 2000							
08-Apr-00	38896	219G	1.00	PCS	BRASS GATE VALVE-CHINA	99.00	99.00
10-Apr-00	39408	219G	200.00	PCS	FLAT WASHERS	0.21	42.00
10-Apr-00	39408	219G	200.00	PCS	GALV. ROOFING SCREWS	3.28	656.00
14-Apr-00	39425	219G	4.00	PCS	BOLTS	4.07	16.28
		219G Total					813.28
FLUME TOW COSTS MAY 2000							
05-May-00	39488	219G	0.50	KG	M/S WELDING RODS	85.31	42.66
05-May-00	39488	219G	1.50	KG	M/S WELDING RODS	85.60	128.40
18-May-00	40043	219G	5.00	PCS	STNLESS S.T.W RODS	20.24	101.20
18-May-00	40043	219G	10.00	PCS	STNLESS S.T.W RODS	48.43	484.30
19-May-00	40048	219G	15.00	PCS	STNLESS S.T.W RODS	20.24	303.60
27-May-00	40072	219G	1.50	KG	M/S WELDING RODS	91.63	137.45
27-May-00	40073	219G	20.00	PCS	NUTS	0.86	17.20
		219G Total					1,194.80
FLUME TOW COSTS JUNE 2000							
24-Jun-00	40174	219G	(1.00)	PCS	MOTOR S/N. WDC3418	-	-
		219G Total					-
FLUME TOW COSTS JULY 2000							
18-Jul-00	41731	219G	1.50	KGS	M/S WELDING RODS	85.60	128.40
22-Jul-00	41740	219G	20.00	PCS	BOLTS	4.00	80.00
22-Jul-00	41740	219G	1.00	LTR	KEROSENE	27.31	27.31
24-Jul-00	41743	219G	1.50	KGS	M/S WELDING RODS	85.60	128.40
26-Jul-00	41751	219G	15.00	PCS	BOLTS	4.00	60.00
28-Jul-00	41762	219G	2.00	KGS	M/S WELDING RODS	85.60	171.20
		219G Total					696.31
FLUME TOW COSTS AUGUST 2000							
04-Aug-00	36317	219G	7.00	FT.	HARD WOOD (MRIH)	30.16	211.12
04-Aug-00	36317	219G	0.30	KGS	WIRE NAILS	50.75	15.23
08-Aug-00	36332	219G	1.00	BAG	CEMENT-ORDINARY	336.14	336.14
09-Aug-00	36340	219G	1.00	BAG	CEMENT-ORDINARY	336.14	336.14
10-Aug-00	36344	219G	51.00	FT.	HARD WOOD	20.00	1,020.00
10-Aug-00	36344	219G	0.50	KGS	WIRE NAILS	32.84	16.42
10-Aug-00	36344	219G	0.50	KGS	WIRE NAILS	50.75	25.38
10-Aug-00	36347	219G	1.00	BAG	CEMENT-ORDINARY	336.14	336.14
14-Aug-00	36371	219G	0.50	KGS	WIRE NAILS	50.75	25.38
15-Aug-00	36374	219G	50.00	PCS	M/S WOOD SCREWS	0.53	26.50
15-Aug-00	36378	219G	40.00	FT.	HARD WOOD	20.00	800.00
15-Aug-00	36379	219G	24.00	PCS	M/S WOOD SCREWS	0.53	12.72
16-Aug-00	36384	219G	50.00	FT.	HARD WOOD	20.00	1,000.00
16-Aug-00	36384	219G	25.00	PCS	M/S WOOD SCREWS	0.53	13.25
17-Aug-00	36391	219G	0.50	KGS	WIRE NAILS	50.75	25.38
17-Aug-00	36391	219G	30.00	PCS	M/S WOOD SCREWS	0.40	12.00
17-Aug-00	36393	219G	51.00	FT.	HARD WOOD	20.00	1,020.00
18-Aug-00	36397	219G	30.00	PCS	M/S WOOD SCREWS	0.40	12.00
18-Aug-00	36400	219G	40.00	FT.	HARD WOOD	20.00	800.00
23-Aug-00	41693	219G	1.00	PCS	STAR DEALTA STARTER	28,500.00	28,500.00
23-Aug-00	41693	219G	2.00	PCS	CABLE GLAND	150.00	300.00
23-Aug-00	41694	219G	4.00	PCS	WOOD SCREWS	78.00	312.00

FLUME TOW COSTING TO 30TH SEPTEMBER 1999							
DATE	SR NO.	JOB NO	QTY	UNIT	ITEM	UNIT COST	COST
03-Aug-00	41774	219G	4.00	PCS	HOSE CLIP	14.01	56.04
04-Aug-00	41780	219G	1.00	KGS	M/S WELDING RODS	86.13	86.13
04-Aug-00	41780	219G	1.00	KGS	M/S WELDING RODS	83.12	83.12
04-Aug-00	41781	219G	2.00	PCS	HOSE CLIP	17.83	35.66
05-Aug-00	41783	219G	2.00	PCS	HOSE CLIPS	22.35	44.70
07-Aug-00	41860	219G	2.00	KGS	M/S WELDING RODS	86.13	172.26
10-Aug-00	41875	219G	2.00	KGS	M/S WELDING RODS	86.13	172.26
11-Aug-00	41978	219G	2.00	KGS	M/S WELDING RODS	86.13	172.26
19-Aug-00	42319	219G	1.50	KGS	M/S WELDING RODS	83.12	124.68
19-Aug-00	42319	219G	1.00	KGS	M/S WELDING RODS	88.49	88.49
21-Aug-00	42330	219G	18.00	PCS	BOLTS	4.00	72.00
15-Aug-00	42403	219G	2.00	PCS	BEARING	5,650.00	11,300.00
19-Aug-00	42416	219G	4.00	PCS	M/S BOLTS	1.25	5.00
19-Aug-00	42416	219G	6.00	PCS	M/S BOLTS	2.63	15.78
19-Aug-00	42416	219G	10.00	PCS	FLAT WASHERS	0.28	2.80
19-Aug-00	42416	219G	10.00	PCS	NUTS	0.87	8.70
23-Aug-00	42436	219G	6.00	PCS	MS BOLTS	8.93	53.58
23-Aug-00	42436	219G	12.00	PCS	FLAT WASHER	0.48	5.76
24-Aug-00	42438	219G	2.00	PCS	MS BOLTS	18.12	36.24
24-Aug-00	42438	219G	2.00	PCS	MS NUTS	3.77	7.54
24-Aug-00	42438	219G	2.00	PCS	MS FLAT WASHERS	0.76	1.52
24-Aug-00	42443	219G	1.00	PCS	BOLTS-HTS UNC	5.50	5.50
24-Aug-00	42443	219G	2.00	PCS	NUTS-HTS UNC	3.76	7.52
24-Aug-00	42443	219G	4.00	PCS	FLAT WASHER	0.48	1.92
25-Aug-00	42445	219G	6.00	PCS	BOLTS	4.81	28.86
25-Aug-00	42445	219G	6.00	PCS	MS NUTS	1.57	9.42
25-Aug-00	42445	219G	1.00	PCS	MS BOLTS	8.93	8.93
25-Aug-00	42445	219G	1.00	PCS	NUTS	3.57	3.57
19-Aug-00	42611	219G	10.00	FT.	HARD WOOD	200.00	2,000.00
21-Aug-00	42613	219G	0.47	KGS	U NAILS	33.00	15.35
21-Aug-00	42617	219G	0.50	KGS	WIRE NAILS	50.75	25.38
21-Aug-00	42617	219G	0.25	KGS	WIRE NAILS	50.41	12.60
21-Aug-00	42617	219G	10.00	FT.	HARD WOOD	200.00	2,000.00
22-Aug-00	42625	219G	11.00	FT.	HARD WOOD	200.00	2,200.00
22-Aug-00	42625	219G	0.50	KGS	U NAILS	90.00	45.00
22-Aug-00	42630	219G	100.00	FT.	CHICKEN WIRE	27.31	2,731.00
22-Aug-00	42630	219G	0.50	KGS	WIRE NAILS	50.41	25.21
23-Aug-00	42635	219G	17.00	FT.	HARD WOOD	20.00	340.00
23-Aug-00	42635	219G	0.50	KGS	WIRE NAILS	50.41	25.21
24-Aug-00	42642	219G	8.00	FT.	HARD WOOD	20.00	160.00
24-Aug-00	42642	219G	0.50	KGS	WIRE NAILS	50.41	25.21
24-Aug-00	42645	219G	10.00	FT.	CHICKEN WIRE	27.31	273.10
24-Aug-00	42647	219G	14.00	FT.	SOFT WOOD	25.00	350.00
24-Aug-00	42647	219G	0.50	KGS	WIRE NAILS	54.15	27.08
24-Aug-00	42650	219G	14.00	FT.	SOFT WOOD	25.00	350.00
25-Aug-00	42653	219G	0.50	KGS	WIRE NAILS	50.41	25.21
25-Aug-00	42660	219G	19.00	FT.	SOFT WOOD	23.00	437.00
25-Aug-00	42660	219G	8.00	FT.	SOFT WOOD	25.00	200.00
25-Aug-00	42660	219G	0.50	KGS	WIRE NAILS	32.84	16.42
26-Aug-00	42666	219G	8.00	FT.	SOFT WOOD	25.00	200.00
		219G Total					69,249.76
FLUME TOW COSTS SEPTEMBER 2000							
11-Sep-00	42952	219G	0.25	KGS	WIRE NAILS	50.75	12.69
11-Sep-00	42952	219G	0.28	KGS	WIRE NAILS	61.73	12.93
21-Sep-00	42998	219G	15.00	FT.	HARD WOOD	20.00	300.00
21-Sep-00	42998	219G	0.50	KGS	WIRE NAILS	50.75	25.38
21-Sep-00	42998	219G	0.30	KGS	WIRE NAILS	51.73	15.52
28-Sep-00	43171	219G	1.00	PKT	BELT LACING	450.00	450.00
		219G Total					816.61
FLUME TOW COSTS OCTOBER 2000							
02-Oct-00	43445	CR002	10.00		BOLTS	2.95	29.50
02-Oct-00	43445	CR002	10.00		WOOD SCREWS	1.51	15.10
02-Oct-00	43445	CR002	30.00		M/S WOOD SCREWS	0.91	27.30
09-Oct-00	43198	CR002	2.00		BRONZE BRG BUSHES	484.43	968.86
09-Oct-00	43198	CR002	2.00		BRONZE BRG BUSHES	776.50	1,553.00
13-Oct-00	42797	CR002	3.00		EMMERY CLOTH	9.00	27.00
13-Oct-00	42797	CR002	2.00		INSULATION TAPE	38.00	76.00
11-Oct-00	43802	CR002	10.00		STNLESS S.T.W RODS	42.63	426.32
11-Oct-00	43802	CR002	1.00		M/S WELDING RODS	81.97	81.97
11-Oct-00	43802	CR002	1.00		M/S WELDING RODS	73.47	73.47
11-Oct-00	43807	CR002	10.00		BOLTS-HTS-BSW	10.11	101.08
11-Oct-00	43807	CR002	20.00		NUTS-HTS	3.38	67.60
11-Oct-00	43807	CR002	10.00		BOLTS	4.23	42.27
11-Oct-00	43807	CR002	10.00		MS NUTS	1.71	17.12
11-Oct-00	43807	CR002	17.00		BOLTS	3.34	56.78
14-Oct-00	43814	CR002	10.00		SHELL DENTAX	83.64	836.40
14-Oct-00	43814	CR002	10.00		CAST IRON KSN 100	65.94	659.36
14-Oct-00	43814	CR002	10.00		STNLESS S.T.W RODS	42.63	426.32
14-Oct-00	43814	CR002	10.00		STEEL WELDING RODS	65.48	654.78
15-Oct-00	43494	CR002	2.00		KEROSENE	27.61	55.21
15-Oct-00	43495	CR002	0.25		WIRE NAILS	53.21	13.30
15-Oct-00	43495	CR002	0.50		WIRE NAILS	51.95	25.98

FLUME TOW COSTING TO 30TH SEPTEMBER 1999										
DATE	SR NO.	JOB		QTY	UNIT	ITEM	UNIT COST	COST		
		NO								
15-Oct-00	43495	CR002		0.50		WIRE NAILS	52.43	26.22		
15-Oct-00	43818	CR002		12.00		SHELL RETINAX GREASE	203.34	2,440.08		
03-Oct-00	43180	CR002		12.00		BOLTS-HEX-HTS UNF	130.00	1,560.00		
03-Oct-00	43180	CR002		24.00		NUTS-HTS UNF	8.99	215.76		
03-Oct-00	43180	CR002		10.00		BOLTS	3.34	33.40		
03-Oct-00	43180	CR002		6.00		BOLTS	4.23	25.38		
03-Oct-00	43181	CR002		10.00		MS FLAT WASHERS	0.76	7.60		
03-Oct-00	43181	CR002		10.00		FLAT WASHER	0.32	3.20		
03-Oct-00	43181	CR002		1.00		BELT LACING	450.00	450.00		
03-Oct-00	43188	CR002		2.00		BOLTS-HTS-BSW	25.74	51.48		
03-Oct-00	43188	CR002		4.00		NUTS-HTS-BSW	8.71	34.84		
03-Oct-00	43188	CR002		1.00		BOLTS-HTS-BSW	26.19	26.19		
18-Oct-00	43583	CR002		1.00		UNIONS-GALVANISED	45.00	45.00		
18-Oct-00	43594	CR002		2.00		M/S WELDING RODS	81.97	163.94		
18-Oct-00	43594	CR002		1.00		M/S WELDING RODS	73.47	73.47		
18-Oct-00	43595	CR002		1.00		WELD MESH	1,650.00	1,650.00		
18-Oct-00	43832	CR002		2.00		VEE BELT	309.60	619.20		
23-Oct-00	44115	CR002		1.00		WIRE BRUSH 5 RAWS	44.73	44.73		
23-Oct-00	44115	CR002		1.00		KEROSENE	27.61	27.61		
23-Oct-00	44115	CR002		1.00		PAINT BRUSH	125.00	125.00		
23-Oct-00	44115	CR002		1.00		PAINT BRUSH	165.00	165.00		
26-Oct-00	43845	CR002		4.00		BRONZE BRG BUSHES	484.43	1,937.72		

FLUME TOW COSTING TO 30TH SEPTEMBER 1999							
DATE	SR NO.	JOB NO	QTY	UNIT	ITEM	UNIT COST	COST
							16,960.61
FLUME TOW COSTS NOVEMBER 2000							
09-Nov-00	43888	CR002	2.00		MS BOLTS	9.87	19.34
09-Nov-00	43888	CR002	2.00		FLAT WASHER	0.45	0.90
09-Nov-00	43888	CR002	15.00		STNLESS S.T.W RODS	42.83	639.48
09-Nov-00	44300	CR002	0.60		BLACK GRAPHITE PACKI	755.78	453.48
08-Nov-00	43881	CR002	1.00		UNIONS-GALVANISED	54.81	54.81
08-Nov-00	43881	CR002	1.00		HEX NIPPLES (3/4)	16.27	16.27
08-Nov-00	43881	CR002	1.00		BENDS M/F 45 deg.	51.75	51.75
08-Nov-00	43881	CR002	1.00		REDUCING SOCKET (3/4)	19.80	19.80
08-Nov-00	43884	CR002	1.00		GRINDING DISK	186.43	186.43
10-Nov-00	43894	CR002	2.00		M/S WELDING RODS	84.56	169.12
10-Nov-00	43898	CR002	2.00		MS BOLTS	19.72	39.44
10-Nov-00	43898	CR002	2.00		NUTS	3.57	7.14
10-Nov-00	43898	CR002	4.00		FLAT WASHER	0.45	1.81
11-Nov-00	43900	CR002	4.00		CONNECTING LINKS	142.82	571.28
11-Nov-00	43900	CR002	4.00		CONNECTING LINKS CRA	297.15	1,188.60
13-Nov-00	44039	CR002	6.00		COPPER BRAZING RODS	78.54	471.22
13-Nov-00	44704	CR002	3.00		EVEREADY BATTERIES	21.50	64.50
14-Nov-00	44705	CR002	20.00		GALV. ROOFING SCREWS	2.80	56.00
14-Nov-00	44705	CR002	20.00		FLAT WASHERS	0.28	5.58
14-Nov-00	44705	CR002	2.00		EMMERY CLOTH	9.01	18.03
14-Nov-00	44708	CR002	20.00		NUTS	0.87	17.40
14-Nov-00	44708	CR002	30.00		GALV. ROOFING SCREWS	2.80	84.00
14-Nov-00	44708	CR002	40.00		NUTS	0.87	34.80
14-Nov-00	44708	CR002	40.00		FLAT WASHERS	0.28	11.16
15-Nov-00	44041	CR002	2.00		EMMERY CLOTH	9.00	18.00
15-Nov-00	44041	CR002	1.00		INSULATION TAPE	38.00	38.00
17-Nov-00	44723	CR002	4.00		BOLTS-HTS-BSW	9.84	39.37
17-Nov-00	44723	CR002	2.00		BOLTS-HTS-BSW	11.65	23.30
17-Nov-00	44723	CR002	2.00		NUTS-HTS UNC	4.43	8.86
23-Nov-00	44739	CR002	2.00		SINGLE ROLLER BEARIN	3,500.00	7,000.00
23-Nov-00	44739	CR002	2.00		BEARING	3,588.00	7,138.00
23-Nov-00	44739	CR002	8.00		FLAT BAR (2 1/2 X 3	495.00	3,960.00
27-Nov-00	44600	CR002	0.60		PACKING	755.76	453.48
27-Nov-00	44751	CR002	2.00		BOLTS	3.34	6.68
27-Nov-00	44751	CR002	2.00		FLAT WASHER	0.32	0.64
27-Nov-00	44753	CR002	2.00		MS BOLTS	10.42	20.84
27-Nov-00	44753	CR002	0.10		BOLTS	155.00	15.50
28-Nov-00	45008	CR002	2.00		THREAT SEAL TAPE	9.01	18.02
28-Nov-00	45008	CR002	1.00		PLUG-GALVANISED IRON	9.29	9.29
							22,830.67
FLUME TOW COSTS DECEMBER 2000							
05-Dec-00	44780	CR002	4.00		EMERY CLOTH	10.80	43.20
05-Dec-00	44780	CR002	1.00		GRINDING DISK	186.43	186.43
05-Dec-00	45045	CR002	5.00		SHELL DENTAX	83.66	418.29
04-Dec-00	44690	CR002	5.00		BITU PRIME	105.00	525.00
04-Dec-00	44690	CR002	2.00		KEROSENE	27.61	55.21
04-Dec-00	44776	CR002	10.00		SHELL DENTAX	83.66	836.57
07-Dec-00	44780	CR002	14.00		BOLTS	4.23	59.18
11-Dec-00	44800	CR002	5.00		BOLTS	4.95	24.75
11-Dec-00	44800	CR002	3.00		EVEREADY BATTERIES	21.49	64.48
13-Dec-00	45404	CR002	2.00		M/S WELDING RODS	78.41	156.82
14-Dec-00	45405	CR002	2.50		M/S WELDING RODS	78.41	196.02
14-Dec-00	45407	CR002	12.00		NUTS-HTS UNF	19.20	230.40
14-Dec-00	45407	CR002	8.00		BOLTS	3.34	26.73
14-Dec-00	45411	CR002	12.00		NUTS-HTS UNF	19.20	230.40
15-Dec-00	45414	CR002	0.72		M/S WELDING RODS	78.41	56.45
18-Dec-00	45416	CR002	3.00		BRONZE BRG BUSHES	889.24	2,667.73
18-Dec-00	45416	CR002	3.00		BRONZE BRG BUSHES	579.99	1,739.97
18-Dec-00	45416	CR002	1.00		BELT LACING	450.00	450.00
18-Dec-00	45416	CR002	8.00		BOLTS-HTS UNF	155.00	1,240.00
18-Dec-00	45416	CR002	16.00		NUTS-HTS UNF	3.30	52.80
18-Dec-00	45417	CR002	12.00		SHELL RETINAX GREASE	203.40	2,440.79
18-Dec-00	45417	CR002	10.00		SHELL DENTAX	83.66	836.57
18-Dec-00	45418	CR002	2.00		CONNECTING LINKS	142.82	285.64
18-Dec-00	45418	CR002	1.00		CONNECTING LINKS CRA	297.15	297.15
18-Dec-00	45420	CR002	24.00		NUTS-HTS UNF	19.20	460.80
18-Dec-00	45422	CR002	12.00		BOLTS-HTS-BSW	18.00	216.00
18-Dec-00	45422	CR002	12.00		NUTS-HTS	105.00	1,260.00
18-Dec-00	45422	CR002	12.00		FLAT WASHER	0.45	5.42
21-Dec-00	45435	CR002	2.00		BRONZE BRG BUSHES	579.99	1,159.98
23-Dec-00	45272	CR002	5.00		BITU PRIME	96.43	482.14
23-Dec-00	45272	CR002	2.00		KEROSENE	31.90	63.80
23-Dec-00	45445	CR002	5.00		BRONZE BRG BUSHES	889.24	4,446.21
23-Dec-00	45445	CR002	8.00		BRONZE BRG BUSHES	579.99	3,479.93
30-Dec-00	45541	CR002	5.00		SHELL DENTAX	83.66	418.29
							26,113.13
							1,233,622.03

FLUME TOW COSTING TO 30TH SEPTEMBER 1999								
DATE	SR NO.	JOB NO	QTY	UNIT	ITEM	UNIT COST	COST	
		LABOUR						
							WAGES	SVISOR
	b/f						9,015.69	ARTISANS
Oct-98						59,300.00	41,832.00	17,468.00
Nov-98						25,468.80	8,000.80	17,468.00
Dec-98						28,089.40	10,621.40	17,468.00
Jan-99						35,755.70	18,287.70	17,468.00
Feb-99						23,546.20	8,078.20	17,468.00
Mar-99						43,954.60	26,488.60	17,468.00
Apr-99						54,645.50	37,177.50	17,468.00
May-99						59,753.20	42,285.20	17,468.00
Jun-99						44,572.80	27,104.80	17,468.00
Jul-99						31,814.20	14,146.20	17,468.00
Aug-99						38,870.70	21,402.70	17,468.00
Sep-99						105,315.00	87,847.00	17,468.00
Oct-99						23,555.00	27,521.00	17,468.00
Nov-99						5,684.00	15,230.00	17,468.00
Dec-99						25,634.00	12,003.00	17,468.00
Jan-00						19,874.00	13,524.00	17,468.00
Feb-00						15,842.00	17,801.00	18,320.00
Mar-00						12,783.00	1,532.00	18,320.00
Apr-00						12,045.00	6,540.00	18,320.00
May-00						9,687.00	7,805.00	18,320.00
Jun-00						7,854.00	4,583.00	18,320.00
Jul-00						5,869.00	2,587.00	18,320.00
Aug-00						3,567.00	9,845.00	18,320.00
Sep-00						9,278.00	7,821.00	18,320.00
Oct-00						3,564.00	5,582.00	18,320.00
					TOTAL LABOUR	714,737.79	473,604.10	444,388.00
					TOTAL EXPENDITURE		1,948,359.82	