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**UNION ELECTRIQUE DU VANUATU
LIMITED**

REPUBLIC OF VANUATU

**CONTRACT
FOR THE MANAGEMENT AND OPERATION
OF THE WATER SUPPLY SERVICE
IN PORT VILA**

DOCUMENT 2 OF 3

**TRANSITORY PROVISIONS
AND APPENDICES**

**UNION ELECTRIQUE DU VANUATU
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REPUBLIC OF VANUATU

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TRANSITORY PROVISIONS

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TRANSITORY PROVISIONS

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ARTICLE 1. - VEHICLES, MACHINERY, AND FURNISHINGS

Furnishings and vehicles, property of the present water service of the Department of Public Works, shall not be purchased by the OPERATOR.

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ARTICLE 2 - STATUS OF GOVERNMENT PERSONNEL.

From the implementation of this Contract, the OPERATOR undertakes to employ all of the personnel previously assigned to the Water Service of the Department of Public Works at the month of December 1992, ie., thirteen persons.

Within a period of one month, the OPERATOR will advise the GRANTOR of the salaries of the personnel employed by the Water service as well as the conditions of employment.

During the first three months of employment with the OPERATOR the personnel will receive a salary at least equal to that previously received as an employee of the water supply section of the Department of Public Works.

After this period of three months has elapsed the personnel will be able to choose one of the following options:

- Accept permanent employment with the OPERATOR.
The personnel will be employed under conditions comparable to other UNELCO staff with respect to career opportunities, conditions of pay, social benefits, at no less than the previous salary.

The personnel shall retain seniority acquired through length of service for the calculation of any severance allowance.
- Decline permanent employment with the OPERATOR and be reinstated to employment within the public service. In this case, the Government of VANUATU will undertake retraining of the personnel.

The OPERATOR will contribute a lump sum of 100,000 Vatu per person to be retrained by the Government of VANUATU. This offer will be limited to one third of the personnel involved.

The OPERATOR will provide training for the personnel remaining at UNELCO VANUATU.

UNELCO shall pay the sum of 2,000,000 Vatu to the GOVERNMENT for the resettlement of casual employees.

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ARTICLE 3 - WATER CONNECTIONS

This article concerns water connections not equipped with a water meter at the start of the Contract. If, during the term between two billings, the meter is installed by the OPERATOR before the end of the last month of the quarter in consideration, the consumption taken as a basis for the application of the base rate defined in the Schedule of Conditions is the value measured and extrapolated over the quarter. In the other case, a lump sum is applied depending on the size of the connection which includes the subscription fee.

QUARTERLY LUMP SUM APPLICABLE TO WATER CONNECTIONS NOT FITTED WITH A WATER METER.

SIZE OF THE METER	Lump Sum (Vatu)
15 mm or 3 m ³	1,900
20 mm or 5 m ³	4,000
25 mm or 7 m ³	6,500
30 mm or 10 m ³	7,200
40 mm or 20 m ³	21,000
Over and Above	30,000

The cost of installing the meter is fixed at two percent of the lump sum of the water connection for lengths not exceeding ten meters and for the corresponding meter diameter as defined in the Schedule of Conditions.

A subscriber whose connection is not fitted with a meter may not oppose the installation of a meter by the OPERATOR.

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**ARTICLE 4. - SECURITY DEPOSIT PAID BEFORE COMMENCEMENT OF THIS
CONTRAT**

Security deposits paid to the GOVERNMENT prior to the commencement of the Contract remain to the credit of the subscribers concerned in the books of the OPERATOR.

The amount of the security deposit shall be transfered from the GOVERNMENT to the OPERATOR by deducting the amont from the revenue from the sale of water for the period preceding the commencement of the Contract and which the OPERATOR shall collect on behalf of the GOVERNMENT.

If the revenue for the billing period concerned is superior to the amount of the security deposits, the difference shall be paid to the GOVERNMENT.

If the revenue for the billing period is less than the amount of the security deposits, the full amount of the revenue shall be transfered to a specific account in the books of the OPERATOR.

This amount shall be credited to the subscribers concerned in an equitable manner.

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ARTICLE 5. - AGREEMENTS CONCLUDED WITH THIRD PARTIES

From the date of commencement of the Contract, the OPERATOR shall assume responsibility for all obligations of the GOVERNMENT to third parties for the management and operation of the water supply. The GOVERNMENT shall advise the OPERATOR of these obligations within a period of one month from the commencement of the Contract.

The previous subscribers shall Contract a new subscription policy.

W. J. B.

ARTICLE 6. - TRANSITORY PERIOD TO RETURN THE NETWORK TO A NORMAL STATE OF OPERATION

Considering the state of the network, the penalties provided for in this Contract shall only be applicable after a transitory period of ten months to allow the OPERATOR to return the network to a normal state of operation.

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**CONTRACT
FOR THE MANAGEMENT AND OPERATION
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IN PORT VILA**

APPENDICES

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**CONTRACT
FOR THE MANAGEMENT AND OPERATION
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**APPENDIX
PROGRAMME OF WORKS**

1993 - 2002

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**CONTRACT
FOR THE MANAGEMENT AND OPERATION
OF THE WATER SUPPLY SERVICE
IN PORT VILA**

PROGRAMME OF WORKS

1. PRESENTATION

In accordance with Article 5 of the Contract, the OPERATOR undertakes to carry out programmes of works on the water supply network, over the full duration of this Contract.

The amount of investments to be made over the 40 year period of the Contract is estimated at 800 Million Vatu.

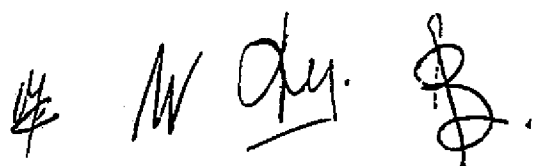
Each programme of works is established for a period of ten years. There will be four such programmes of works over the duration of the Contract. Each programme of works is established by the OPERATOR and submitted to the GOVERNMENT for approval.

The technical content of the ten year programme of works is updated each year and remains at the initial amount programmed.

The first programme is submitted for information only and its technical content shall be confirmed or modified by the OPERATOR once it has established the water supply master plan.

This programme concerns all or part of the following fields :

- 1). Repairs to the level controls to the reservoirs and the automatic control of pumps.
- 2). Meters
- 3). Replacement and upgrading of pumps at the pump station
- 4). Upgrading of supply and pressure mains
- 5). Extensions of reservoirs
- 6). Renewal and upgrading of the existing network as at the date of commencement of the Contract.
- 7). Extension to the distribution network

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2 - PLANNED OPERATIONS

The programme of works for the first ten years of the Contract concerns in particular :

1). FACIO and PERCHOIR high lift pumps

The existing pumps will be replaced and upgraded in order to transit a greater flow

2). Emergency diesel generator at the pump station

In order to increase the reliability of the service, a second diesel generator will be installed.

3). Supply main to PERCHOIR

In order to improve the supply to the PERCHOIR reservoir and at the same time delete the tribunal pumping station, a new supply main will be constructed.

For this purpose the PERCHOIR reservoir will be connected to the 400 mm main supplying water from the pumping station to the QUAI reservoir.

If the detailed studies reveal that it would be preferable to construct a new rising main from the pump station to the PERCHOIR reservoir this solution will be adopted.

4). MALAPOA Reservoir

A 1200 m³ reservoir will be constructed to supply the sector of MALAPOA

This investment includes the construction of the supply main to this reservoir and the various connections.

The construction of this reservoir will allow to defer the extension to the FACIO reservoir.

5). Level Controls

Repairs to the level control of reservoirs and the automatic control of pumps.

In order to control the levels in the reservoirs and the automatic start up and stopping of pumps , the automatic control system shall be repaired.

6) Renewal and Upgrading of the existing network

At the start of the Contract the network comprises approximately 63.5 kilometers of galvanised pipework and 8.4 kilometers of PVC pipes.

M. Oly. B.

The present day cost for the construction of this distribution network is estimated at

Galvanised Pipes 420 million Vatu
 PVC Pipes 55 million Vatu
 TOTAL 475 Million Vatu

The programme of works shall include, for the first ten years, the renewal of approximately 30% of this pipework, ie. 142 million Vatu

7). Extensions

The cost of extensions is estimated at 45 million Vatu

The contents of this programme and details of the renewals and upgrading shall be confirmed and detailed after the master plan has been established.

3. - ESTIMATION OF COSTS AND TIME FOR COMPLETION

The programme of works has been fixed at 300,000,000 Vatu and it's implementation should be as follows :

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
Automatic Controls	5										5
Water Meters	5	5									10
Pumps and Generators	25	5		8							38
Supply Mains and Rising Mains		20									20
Reservoirs			40								40
Renewal and Upgrading of the Distribution Network	5	5	20	12	25	10	15	20	10	20	142
Extensions to the Distribution Network		5		10	5	10	5		10		45
TOTAL	40	40	60	30	30	20	20	20	20	20	300

The exact timing for the works shall be determined in common accord with the GOVERNMENT and updated each year.

W. Ay. B.

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**APPENDIX
PROFIT AND LOSS STATEMENT**

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PROFIT AND LOSS STATEMENT

	1	2	3	4	5	6	7	8	9	10
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
NUMBER OF SUBSCRIBERS	3200	3177	3556	3759	3986	4219	4469	4736	5021	5311
CONSUMPTION M3/d	5073	5205	5338	5478	5625	5779	5941	6112	6292	6481
TOTAL CONSUMPTION THOUSAND M3/year	1853	1900	1948	1999	2053	2109	2168	2231	2296	2364
WATER EFFICIENCY	58	60	65	68	70	71	72	73	74	75
PRODUCTION (M3/d)	8754	8675	8212	8056	8015	8139	8251	8372	8502	8640
LOSS (thousand M3/ann)	3155	3156	2998	2940	2933	2971	3012	3056	3103	3154
INVESTMENTS										
IN FIXED INVESTMENT (KVATU)	11.621	12.621	11.521	3.521	3.521	3.521	3.521	3.521	3.521	3.521
IN FIXED ASSETS	40.000	80.000	140.000	170.000	200.000	220.000	245.000	260.000	290.000	300.000
IN ASSETS	28.000	56.000	98.000	119.000	140.000	154.000	171.500	182.000	201.000	210.000
STATEMENT										
PROCEEDS FROM OPERATION	KVATU	KVATU	KVATU	KVATU	KVATU	KVATU	KVATU	KVATU	KVATU	KVATU
sales subscriptions	11.592	12.035	12.504	13.001	13.530	14.092	14.589	15.125	15.701	16.320
car sales M3	97.371	99.529	101.782	104.135	122.584	125.545	129.545	131.897	135.107	152.777
connections	3.723	5.582	6.084	6.526	6.981	7.482	8.022	8.504	9.011	9.509
works	0	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
deduction for consumptions < 20 M3	-582	-738	-798	-863	-933	-757	-819	-885	-957	-1.028
NET TURN OVER	112.004	117.519	120.572	123.789	143.162	147.362	151.538	155.940	160.582	177.070
PROCEEDS	0	0	0	0	0	0	0	0	0	0
TOTAL PROCEEDS FROM OPERATIONS	112.004	117.519	120.572	123.789	143.162	147.362	151.538	155.940	160.582	177.070
OPERATING CHARGES	KVATU	KVATU	KVATU	KVATU	KVATU	KVATU	KVATU	KVATU	KVATU	KVATU
total charges from 3rd parties	38.119	36.589	34.293	33.533	32.921	33.229	33.579	34.164	34.586	35.355
value of inventory	16.556	13.033	12.190	12.619	13.125	13.706	14.333	15.009	15.737	16.590
net purchases and external charges	13.500	13.500	13.600	13.500	13.600	13.600	13.600	13.600	13.600	14.100
tax, levies and similar charges	4.359	4.463	4.571	4.685	5.445	5.385	5.733	5.989	6.052	6.750
internal charges	32.638	32.638	32.638	32.638	32.638	32.638	32.638	32.638	32.638	33.117
heavy depreciation	13.671	13.598	13.713	4.829	4.924	4.945	4.966	4.988	5.011	5.050
asset transfer depreciation	1.000	2.051	3.484	4.595	5.556	6.286	7.206	7.879	9.063	9.577
work and stock	875	875	875	875	875	875	875	875	875	875
total fund (water connections)	1.853	1.900	1.948	1.999	2.053	2.109	2.168	2.231	2.296	2.364
TOTAL OPERATING CHARGES	122.571	118.846	117.513	109.394	111.136	112.974	115.199	117.272	119.958	124.355
PROFITS	-10.667	-1.336	3.059	14.395	32.026	34.388	36.339	38.668	40.625	52.715
FINANCIAL PROCEEDS	0	0	0	0	0	0	0	0	0	0
FINANCIAL CHARGES	0	4.500	9.000	15.800	19.200	22.600	24.900	29.500	31.800	34.100
FINANCIAL CHARGES BALANCE	0	-4.500	-9.000	-15.800	-19.200	-22.600	-24.900	-29.500	-31.800	-34.100

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APPENDIX

**INSTALLATIONS TAKEN OVER
BY THE OPERATOR
AT THE COMMENCEMENT
OF THE CONTRACT**

M. A. B.

**INSTALLATIONS TAKEN OVER BY THE OPERATOR
AT THE START OF THE CONTRACT**

The water supply network put at the disposal of the operator at the start of the contract includes the following facilities :

1) TAGABE PUMPING STATION

The pumping station is situated on government owned land, in the proximity of the TAGABE river, the land is approximately 100 m x 30 m (3.000 m²).

The pumping station is fed by five sources.

- A spring with a basin immediately adjacent to the old pumping station.
- Four cased bores of 760 mm dia.

The depth of these bores varies between 15 m and 26 m.

Static water level varies between + 4 m and + 11 m.

Each bore is equipped with a SULZER submersible pump model K87/1 with a duty point of 125 m³/h at 13.5 m head and a power of 8.5 KW.

The submersible pumps discharge into a contact / chlorination tank of 650 m³, the tank is circular and of metallic construction.

The old rectangular contact / chlorination tank is in very poor condition.

The floor level of the tank is at 13.7 m and the overflow is at 17.45 m.

Chlorination is achieved with chlorine gas. Chlorination equipment is of the vacuum / suction type.

Water is then pumped to :

- FACIO reservoir by 4 high lift pumps.
The 4 pumps are SULZER HZ S 126/3 with a duty point of 120 m³/h, at 76,4 m head and a power of 37 KW.
- PERCHOIR reservoir by 3 high lift pumps.
The pumps are SULZER HZ S 126/5 with a duty point of 120 m³/h, at 114,2 m head and a power of 75 KW.

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The high lift pumps, switch boards, a workshop, office, chlorination equipment and sanitary facilities are housed in a masonry building.

Another building houses a generator.

The generator is driven by a POYAUD Diesel with a power of 207 H.P. at 1 500 r.p.m. (170 KW).

2) TRIBUNAL PUMPING STATION

The pumping station allows to feed the PERCHOIR reservoir by pumping from the TRIBUNAL reservoir.

The pumping station is equipped with two Ajax E 65-26 pumps with a duty point of 100 m³/h at 70 m head.

The power of each pump is 37 KW.

3) PUMPING MAINS

The pumping main between the TAGABE pumping station and the FACIO reservoir is in ductile iron of diameter 400 mm. It's length is 825 m.

The pumping main between the TAGABE pumping station and the PERCHOIR reservoir is in galvanised steel of 200 mm diameter. It's length is 3113 m.

The pumping main between the TRIBUNAL pumping station and the PERCHOIR reservoir is in galvanised steel of 100 mm diameter. It's length is 600 m.

4) GRAVITY FEED MAINS

The QUAI reservoir is fed from the FACIO reservoir by a ductile iron gravity main of 400 mm diameter. It's length is 8270 m.

A gravity feed in galvanised steel of 150 mm diameter branches from this main to feed the PERCHOIR reservoir. It's length is 450 m.

5) RESERVOIRS

The network includes 6 cylindrical steel reservoirs situated on fenced land approximately 50 m x 45 m (2250 m²) for FACIO and 35 x 20 m (700 m²) for the others.

Volumes and floor levels are set out in the table below

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RESERVOIR	VOLUME	FLOOR LEVEL
FACIO	1 x 1500 m3 1 x 2000 m3	83.64 m
PERCHOIR	2 x 600 m3	98.13 m
TRIBUNAL	1 x 1500 m3	45.10 m
QUAI	1 x 1500 m3	74.81 m

Supply from the QUAI reservoir is limited to ships.

6) DISTRIBUTION NETWORK

The distribution network consist of galvanised steel pipes of 3/4" to 8" diameter and of P.V.C. of 25 mm to 150 mm diameter.

The total length of the distribution network is 71865 m of which 63475 m is galvanised steel, (i.e. 88 %) and 8390 m P.V.C. (i.e. 12 %).

7) METERS

The pump swithboards are equipped with displays of total flow recorders.

The reservoirs are equipped with meters and rate of flow recorders with graphic display.

House connection are equipped with KENT water meters.

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EQUIPMENT DATA SHEET

SUBMERSIBLE BORE-HOLE PUMPS

Number	4
Type	Submersible
Diameter	190 mm ø Column pipe 7"5/8
Make Model	SULZER Type K 87/1 Motor U 81.2120
Flow	125 m ³ /h
Head	13.5 m
Power	8,55 kw
Electricity Supply	380 v / 50 HZ / 3 Phase

H. W. Key. S.

EQUIPMENT DATA SHEET

FACIO HIGH LIFT PUMPS

Number	4
Type	Centrifugal
Make Model	SULZER HZ S 126/3 cells Motor TENECEM MJPP 200 Mr4
Flow	120 m ³ /h
Head	76.4 m
Power	37 kw - 1450 r.p.m.
Electricity Supply	380 v / 50 HZ / 3 Phase

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EQUIPMENT DATA SHEET

PERCHOIR HIGH LIFT PUMPS

Number	3
Type	Centrifugal
Make Model	SULZER HZ S 126,5 cells Motor TENACEM MJPP 2509r4
Flow	120 m ³ /h
Head	114.2 m
Power	75 kw - 1450 r.p.m.
Electricity Supply	380 v / 50 HZ / 3 Phase

GENERATOR

Number	1
Type	6 PZ1
Power	207 H.P. at 1 500 r.p.m.
Make	POYAUD
Output	170 KVA
Alternator	AUBRY - SIMONIN
Condition	Good general state

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EQUIPMENT DATA SHEET

TRIBUNAL HIGH LIFT PUMPS

Number	2
Type	Centrifugal
Make Model	Ajax E 65-26
Flow	100 m ³ /h
Head	70 m
Power	37 kw - 2900 r.p.m.
Electricity Supply	380 v / 50 HZ / 3 Phase

H. W. Ays. B.

EQUIPMENT DATA SHEET

EXISTING CONTACT
CHLORINATION TANK

Number	1
Type	Rectangular, prefabricated metal panels approx. 1 m x 1 m
Volume	440 m ³
Contact time	24 - 30 minutes
General Condition	Bad condition, numerous leaks

W. J. - B.

EQUIPMENT DATA SHEET

CONTACT CHLORINATION TANK
UNDER CONSTRUCTION

Number	1
Type	Prefabricated metallic, circular
Volume	650 m3.
Contact time	24 - 30 minutes
General Condition	New, under construction in may 1992

W. J. B.

EQUIPMENT DATA SHEET

FACIO PUMPING MAIN

Type	Ductile iron
diameter	400 mm
Length	825 m
Pressure head	83 m
General Condition	Good general condition

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EQUIPMENT DATA SHEET

RESERVOIRS

SITE	TYPE	CAPACITY	CONDITION
FACIO	STEEL STEEL	1 x 1500 m3 1 x 2000 m3	Good condition Good condition, constructed 1990
PERCHOIR	STEEL	2 x 600 m3	Good condition for one a few leaks for the other average condition
TRIBUNAL	STEEL	1 x 1500 m3	Average condition, a few leaks to repair
QUAI	STEEL	1 x 1500 m3	Good condition
TOTAL CAPACITY ...		7 700 m3	

W. G. B.

EQUIPMENT DATA SHEET

GRAVITY MAINS

SECTION	Facio - Quai	Branch to TRIBUNAL on the ϕ 400 main
TYPE	Ductile Iron	Steel
DIAMETER	400 mm	150 mm
LENGTH	8270 m	450 m
GENERAL CONDITION	Good condition	Good condition

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EQUIPMENT DATA SHEET

PERCHOIR PUMPING MAIN

Type	Galvanised steel
diameter	200 mm
Length	3113 m
Pressure head	98.1 m
General Condition	Good general condition

H. W. Aug. B.

EQUIPEMENT DATA SHEET

TRIBUNAL PUMPING MAIN

Type	Galvanised steel
diameter	100 mm
Length	600 m
Pressure head	70 m
General Condition	Good general condition

N. G. S.

EQUIPMENT DATA SHEET

DISTRIBUTION NETWORK

TYPE	DIAMETER (inches)	LENGTH m
GALVANISED STEEL	3/4"	1340
	1"	2280
	1 1/2"	1600
	1 1/2"	5980
	2"	9310
	2 1/2"	1135
	3"	23290
	4"	10440
	6"	5650
	8"	2450
TOTAL		63475

P.V.C.	1"	550
	2"	160
	3"	2020
	4"	1290
	6"	4370
TOTAL		8390

GRAND TOTAL	71865 ml
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W. A. B.

EQUIPMENT DATA SHEET

METERS

LOCATION	TYPE	NUMBER
Main supply meter	Total flow meter display on switchboard. SCHLUMBERGER	2
Flow from pumping station	Electromagnetic flowmeter SCHLUMBERGER	1
Reservoirs	Horizontal drum meter	4
House connection meters in stock	ø 20 mm (5 m ³ /h) KENT ø 25 mm (7 m ³ /h) KENT ø 50 mm (50 m ³ /h) KENT	612 11 14
Waste water meters	Instantaneous flow recorders	10
House connection meters installed	Mainly KENT of various diameters	3000
Pressure reducing valves		9

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EQUIPMENT DATA SHEET

BUILDINGS

SITE	TYPE	SUPERFICIE
TAGASE pumping Station	Steel structure encased in concrete	330 m ²
TRIBUNAL pumping Station	Masonry	15 m ²

M. W. Key. B.