Table VII Testing of Services

Service	Testing	Testing Pressure Kpa Gauge
Cold water and flushing water 1. Underground & distribution Pipe 2. Hot water 3. Pump drainage 4. Cleansing	Hydrostatic test as Item 8.2.1 G	100 Kpa or 1.5 Working pressure (whichever is higher)
Pump up-feed Cold and flush water up-feed		1400 kPa or 1.5 times working pressure (Whichever is higher)
Soil, waste and rain water 1. Above ground 2. Underground	Smoke test Water test	As item 8.2.1 H requirement 1.5m Static head at highest point

G. Hydrostatic Test

All hydrostatic tests shall be tested for a period of not less than 6 hours to a pressure as table VII. The Contractor must record all test figures together with schedules of pipe lengths and should note that testing shall be witnessed by the Architect. A pressure drop of 3% or less after 6 hours will be acceptable.

H. Smoke Test

The Contract shall provide smoke testing as below:-

a) Fully charge water seals of all sanitary appliances.
b) Insert test plugs in open ends of pipework being tested.
c) Test with smoke at a pressure equal to 38mm water gauge.
d) Maintain the test pressure for three minutes.

8.3 SITE TESTS DURING CONSTRUCTION

All water pipework shall be hydraulically pressure tested to the pressure as described in Clause 8.2 for a period not less than six hours. A pressure drop after 6 hours of 3% or less will be acceptable.

The pressure tests shall be carried out on site in convenient sections during the construction of the works, before any insulation has been applied. Before the tests are carried out the Contractor shall necessary blank flanges etc.

8.4 PRELIMINARY COMMISSIONING CHECKS

A. The Contractor shall ensure that all equipment included under this is thoroughly cleaned, lubricated and checked for serviceability immediately before setting to work. Particular attention is drawn to the removal of building debris from the pipework systems.

B. Special attention is drawn to the need for thoroughly flushing out all pipework systems to ensure that all foreign matter is removed.

C. All automatic controls and safety devices shall be inspected and checked for service ability before the working fluid or electricity is applied to the system.

8.5 TESTING OF ELECTRICAL SYSTEMS

In addition to any electrical tests demanded elsewhere in this Specification, the following tests for electrical systems shall be carried out. The method of carrying out all tests shall be submitted for approval.

A. Verification of Polarity

To ensure that all fuses and single-pole control devices are connected in the 'live' conductor only, and what wiring has been correctly connected to the socket outlet terminals.

B. Test of Earth Continuity Conductors

To be tested with alternating current in accordance with I.E.E. and E.M.S.D. Regulations, latest Edition.

C. Insulation Resistance Tests

The insulation resistance of all L.V. equipment shall be tested in accordance with the I.E.E. Regulations, latest Edition. Motor shall be tested at the works, and tested for insulation resistance on site.

D. Motor Control Panels

Motor control panels shall be tested the Works and all details of test shall be certified and submitted for record. On site testing shall include (but not by way of limitation) the following:-

a) Mechanical Tests including checking of all mechanical and electrical connections, interlocks, etc.
b) Testing of over current, and earth fault protection, and all other protection devices.
c) Functional checks of all control and starter circuits.
d) Any other tests as recommended by manufacturers.

8.6 COMMISSIONING

When the various installations have been completed (but before the "Date of Completion") and the preliminary commissioning checks carried out, the Contractor shall set to work, regulate and calibrate the entire installation. Special attention shall be paid to the following items:-

A. That all valves, switches, controls etc. are regulated and capable of proper operation and in the case of valves that they are capable of tight shut off.
B. That all apparatus is silent in accordance with the requirements of this Specification.
C. That all services are tested in accordance with the details in the relevant clauses of this Specification.
D. The Contractor shall operate pumps pressure reducing sets, etc. to ensure that all control systems are functioning correctly and are properly set, sequenced or interlocked.

8.7 FINAL ACCEPTANCE TESTS

Following commissioning of the entire installation, the Contractor shall carry out final acceptance tests (before the "Date of Completion") in accordance with a programme to be agreed with the Architect.

Should the results of the acceptance tests show that plant, systems and/or equipment fail to perform to the efficiencies or other performance figures as given in this Specification or as accepted in the Contractor's Tender, the Contractor shall adjust, modify and if necessary replace the equipment without further payment in order that the required performance is obtained. Should it be necessary for the Contractor to attend to items of plant as above described, he will be responsible as to cost for any damage or deterioration to the building or other services consequent on such attendance.

TEST OF WATER PUMPS

The developed head of each pump shall be listed and checked against the performance curve to demonstrate that the design flow rate is being achieved.

8.8 REJECTION OF PLANT

Any item of plant or component which fails to comply with the requirements of this Specification in any respect whatsoever at any stage of manufacture, test, erection or on completion at site may be rejected by the Architect either in whole or in part as they consider necessary. After adjustment or modification if so directed by Architect, the Contractor shall submit the items for further inspection and/or tests. Plant or components with defects of such a nature that the requirements of this Specification cannot be fulfilled by adjustment or modification shall be replaced by Contractor at his own expense and to the satisfaction of the Architect.

8.9 PERFORMANCE TESTS

After the works have been accepted, the Contractor may be required to carry out or assist in carrying out additional performance tests. Such tests if required will be specified at the appropriate time.

Any such tests would be carried out at the rates offered and agreed at the time of Tender and shall not be included in the Tender sum for testing and commissioning.

SECTION 9

MATERIAL SCHEDULE

SECTION 9 : MATERIAL SCHEDULE

Materials offered by Contractor must be chosen from the specified manufacturer(s). Other materials not listed hereunder shall be submitted for approval by the Contractor. If the country of origin of the offered equipment/material is different from the specification it shall be submitted with the tender and subject to the Architect's approval.

Item	Description	Size(mm)	Conforming to BS or others	Acceptable Make		Offered
				Manufacturer	Origin	
1.0	Ductile iron pipe & fittings with internal cement lining	80 & over	BS EN 545, Class K9/K12	Stanton Tubemakers Pont-A-Mousson Kurimoto Kubota Thyseen KCIP	U.K. Australia France Japan Japan Germany Korea	Key - PRC Toga - PRC
2.0	2.1 Plastic covered copper pipe for potable water system	15 to 67	BS EN 1057: 1996 Table 3	Yorkshire Imperial Wednesbury Kembla	U.K. U.K. Australia	Wednesbury - UK
	2.2 Light gauge copper pipe for potable water and cleaning water system	15 to 159	Ditto	Yorkshire Imperial Wednesbury Kembla	U.K. U.K. Australia	
	2.3 Copper pipe fitting	15 to 54	BS864: Part2 or EN1254	Yorkshire Imperial Wednesbury Kembla Conex Triflow Kuterlite IBP	U.K. U.K. Australia U.K. U.K. U.K. Europe	Triflow - UK Eagle - PRC
	2.4 Copper pipe fitting	67-108		Kembla Yorkshire Imperial Wednesbury Conex Triflow Kuterlite Emlex IBP	Australia U.K. U.K. U.K. U.K. U.K. U.K. Europe	Triflow - UK Eagle - PRC
3.0	3.1 Plastic covered copper pipe with air gap insulation for hot water pipe	15 to 54	BS EN1057 : 1996 Table 3, Plastic to BS3412	Yorkshire Imperial Wednesbury Kembla	U.K. U.K. Australia	Wednesbury - UK
	3.2 Copper with capillary pipe fitting	15 to 54	BS864: Part 2 or EN1254	Yorkshire Imperial Wednesbury Kembla Conex Triflow Kuterlite Emlex IBP	U.K. U.K. Australia U.K. U.K. U.K. U.K. Europe	Triflow - UK Eagle - PRC
4.0	Unplasticized poly vinyl chloride (UPVC) pipe and fittings for flushing water system (white colour)	15 to 65	BS3505 Class E & BS4346 Part I & II	Iplex Asahi RKS Vindex Aron	Australia/ New Zealand Japan Australia Australia Japan	Vinidex - PRC Anchor - PRC

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Item	Description	Size(mm)	Conforming to BS or others	Acceptable Make		Offered
				Manufacturer	Origin	
5.0	5.1 Bronze Globe valve for potable water services (screwed ends)	15 to 50	BS5154	Kitz	Japan	Kitz - Japan
				Toyo	Japan	Showa - Japan
				Peglers	U.K.	Peglers - UK
				Conex	U.K.	
				Hattersley	U.K.	
				Snow	Australia	
	5.2 Cast iron Globe valve for potable water services (flanged ends)	65 & over	BS5152	Kitz	Japan	Showa - Japan
				Toyo	Japan	CNB - Taiwan
				CNB	Denmark	
				AVK	U.K.	
				Hettersley	U.K.	
				NBC	Japan	
				Showa	Japan	
6.0	6.1 Bronze Gate valve of potable water services	15 to 50	BS5154:1974	Kitz	Japan	Peglers - UK
				Toyo	Japan	TYT - Taiwan
				Conex	U.K.	Eagle - PRC
				Peglers	U.K.	
				Hettersley	U.K.	
				Nibco	U.S.A.	
				Snow	Australia	
	6.2 Cast iron flanged Gate valve of potable water services	65 & over	BS5163	Kitz	Japan	CNB - Taiwan
				Toyo	Japan	Showa - Japan
				CNB	Denmark	
				AVK	U.K.	
				Hettersley	U.K.	
				NBC	Japan	
				Showa	Japan	
7.0	Bronze Stop valve of loose jumper type for potable water services	20 to 40	BS1010:	Peglers	U.K.	TYT - Taiwan
				VIR	Italy	Victory - PRC
				Snow	Australia	
				Hattersley	U.K.	
8.0	8.1 Cast iron ball float valve & copper ball float	65 & over	BS1212: Part 1/Part 2	Glenfield	U.K.	KKK - Japan
				Peter Smith	U.K.	Peglers - UK
				M.E. Mack	Australia	
				Empire	U.S.A.	
				Crane	U.K.	
				Belfa	U.K.	
	8.2 Bronze ball float valve & copper ball float	25 to 50	BS1212: Part 1	M.E. Mack	Australia	
				K.K.K.	Japan	KKK - Japan
				Peglers	U.K.	Peglers - UK
				Crane	U.K.	
				AMK	Japan	
9.0	9.1 Cast iron silent check valve with bronze trim flanged ends (silent type) for potable water services	65 & over		Empire	U.S.A.	Mity - Japan
				APCO	U.S.A.	YH - HK
				TRW Mission	U.S.A.	
				Valmatic	U.S.A.	
				Mity	Japan	
	9.2 Bronze swing check valve with bronze trim (swing type) for potable water services	32 to 50		Conex	U.K.	Showa - Japan
				Kitz	Japan	TYT - Taiwan
				Snow	Australia	Kitz - Japan
				Nibco	U.S.A.	
				Toyo	Japan	
				Peglers	U.K.	

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Item	Description	Size(mm)	Conforming to BS or others	Acceptable Make Manufacturer	Acceptable Make Origin	Offered
10.0	10.1 Cast iron Y-type strainer with 304 stainless steel screen for potable water services	65 & over		Showa Toyo Kitz Hattersley Yamato CNB Yoshitake NBC	Japan Japan Japan U.K. Japan Denmark Japan Japan	Showa - Japan CNB - Taiwan
	10.2 Bronze Y-type strainer with 304 stainless steel screen for potable water services	20 to 50		Toyo Kitz Yoshitake Hattersley	Japan Japan Japan U.K.	Showa - Japan Kitz - Japan TYT - Taiwan
11.0	Flexible connector of double barrel Chloroprene & nylon type cord body with hard steel wire rings & zinc coated mild steel flange for potable water services	32 & over		O.R.K. Tozen Tofle Mason PROCO AFA-Flex Metraflex Perflex Rm-Holz Shin-Nihon Thermosel	Japan Japan Japan U.S.A. U.S.A. Signapore U.S.A. U.S.A. U.S.A. Japan U.K.	Proco - USA Perflex - USA Tozen - PRC
12.0	Unplasticized polyvinyl chloride or ABS stop valve for flushing water services/sewage system.	20 to 40	BS1010	Asahi S-Lon ARON George Fischer Praler	Japan Japan Japan Europe Australia/ Canada	VP - Taiwan SH - Taiwan Anchor - PRC
13.0	13.1 Cast iron ball float valve with zinc free bronze or stainless steel 316 working parts with neoprene coated copper floats & S.S. lever arm for flushing water services	50 & over	BS1212 Part 1 series	M.E. Mack Glenfield Peter Smith Empire Belfa Crane	Australia U.K. U.K. U.S.A. U.K. U.K.	Peglers - UK YH - HK
	13.2 Zinc free bronze, stainless steel 316 or gunmetal ball float valve & working parts with neoprene coated copper float & S.S. lever arm for flushing water services	32 to 40	BS1212	M.E. Macck Peglers Crane AMK	Australia U.K. U.K. Japan	Peglers - UK KKK - Japan
14.0	Cast iron gate valve with zinc free bronze or S.S. 316 trim for flushing water services.	65 & over	BS5163	Toyo Kitz Hettersley CNB AVK Showa NBC	Japan Japan U.K. Demark U.K. Japan Japan	Showa - Japan CNB - Taiwan
15.0	15.1 Cast iron silent check/swing type non return valve with Type 316 stainless steel or zinc free bronze trim to all materials of (silent type) for flushing water system.	65 & over	BS5153	Empire APCO Valmatic Mity TRW Mission	U.S.A. U.S.A. U.S.A. Japan U.S.A.	Mity - Japan YH - HK
	15.2 Bronze swing check valve with stainless steel 316 or zinc bronze trim to all materials (swing type) for flushing water system.	20 to 50	BS5153	Kitz Toyo Nibco Peglers Snow Conex	Japan Japan U.S.A. U.K. Australia U.K.	Showa - Japan Peglers - UK Kitz - Japan

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Item	Description	Size(mm)	Conforming to BS or others	Acceptable Make		Offered
				Manufacturer	Origin	
16.0	Cast iron "Y" type strainer with 316 stainless steel trim for flushing water services.	65 & over		Showa Yamato Hattersley Kitz CNB Toyo NBC Yoshitake	Japan Japan U.K. Japan Denmark Japan Japan Japan	Showa - Japan CNB - Taiwan
17.0	Flexible / settlement joint	32 & over		TAI-FLEX Or equivalent	Japan	Tai-flex - Japan Klamflex - S.Africa
18.0	Gunmetal Puddle flange tank connector for potable water.			Local with flanges to BS4504, PN16	H.K.	YH - HK Welson - HK
19.0	Cast Iron coated with a compound to resist corrosion. Puddle flange for flushing water.			Local with flanges to BS4504, PN16	H.K.	YH - HK Welson - HK
20.0	Bronze for potable water & 316 s/s diaphragm for flushing water services pressure gauge	15 x 80	BS1780:1985	Takada Nisshin Ashcroft Yamamoto Keiki KK	Japan Japan U.K. Japan Japan	KK - Japan
21.0	Bronze/cast iron body with stainless steel trimmed (min. working pressure 10 bar) Auto air relief valve for potable water indirect supply system.	32 & over		APCO Empire	U.S.A. U.S.A.	Giacomini - Italy
22.0	Zinc free bronze/cast iron body with type 316 stainless steel or zinc free bronze trimmed suitable for sea water duty (min. working pressure 10 bar) Auto air relief valve for flush water supply system.			APCO Empire	U.S.A. U.S.A.	Giacomini - Italy

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Item	Description	Size(mm)	Conforming to BS or others	Acceptable Make		Offered
				Manufacturer	Origin	
23.0	23.1 Cast iron spigot & socket pipes for Storm, soil & waste water, anti-syphon & ventilating pipes.	80 to 150	BS416	Diamond Triple Ring Five Ring CWF	China China China China	G.Y - PRC Diamond - PRC
	Pipe-fittings for Storm, soil & waste water, anti-syphon & ventilating pipes.			Diamond CWF Sun Luen Triple Ring Five Ring	China China China China China	
	23.2 Cast (spun) iron spigot & socket pipe for Storm, soil & waste water, anti-syphone & ventilating pipes.	225 & over	BS1211 Class B or BS4622 Class 1	Diamond Triple Ring Five Ring CWF	China China China China	G.Y - PRC Diamond - PRC
	Pipe-fittings for Storm, soil & waste water, anti-syphon & ventilating pipes.			Diamond CWF Sun Luen Triple Ring Five Ring	China China China China China	G.Y - PRC Diamond - PRC
	23.2 Epoxy coated cast iron socketless pipes and fittings for all aboveground storm, soil, wasted, anti-syphone & ventilating pipes	40 & over (up to 300mm dia.)	BS EN877	SMU SML KEY Mark	Germany U.K. PRC PRC	Mark - PRC
24.0	UPVC pipe for drainage system.	32 to 50 65 to 100	BS5255 BS4514 (or AS1415 type SWV)	Aron Asahi Iplex RKS Vinidex	Japan Japan Australia/New Zealand Australia Australia	Anchor - PRC RKS - PRC
25.0	C.I. resealing trap for floor drain and shower drain.	50 & above			China/Local	G.Y - PRC WLF - PRC
26.0	Cast iron manhole & frames for Storm, soil & waste water manhole covers.	All size	BS497	Diamond CWF Sun Luen	China China China	G.Y - PRC WLF - PRC
27.0	Power & control cables			AEI BICC Delta Crompton P.G. IDH/Irish Alcatel	U.K. U.K. U.K. U.K. Ireland/Ireland Europe	AEI - UK Delta - UK PG - UK
28.0	Galvanized mild Steel, conduits & fittings.	20 & over	BS4568 Class 3	Nippon Maruichi Matsuhita ZS	Japan Japan Japan PRC (Class 4)	ZS - PRC Maruichi - Japan
29.0	Flexible conduit			Burn Tubes Adaptflex Flexicon	U.K. U.K. U.K.	Burn - UK Flexicon - UK
30.0	Cast iron box			Taily GEC HN HN-WM Appleby	Local U.K. China China U.K.	Taily - PRC HN - PRC
31.0	Emergency stop			Auspicious Breter Mibuta Denki Izumi Telemecanique Omron	Taiwan Italy Japan Japan Europe Japan	Auspicious - Taiwa M.D - Japan Izumi - Japan

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Item	Description	Size(mm)	Conforming to BS or others	Acceptable Make		Offered
				Manufacturer	Origin	
32.0	Metal trunking & accessories			Shun Cheong	Local	HN - PRC
				Lik Hung	Local	WEW - PRC
				WEW	Local	BEC - PRC
				BEC	Local	
33.0	Cable tray			Shun Cheong	Local	BEC - PRC
				Lik Hung	Local	WEW - PRC
				WEW	Local	HN - PRC
				BEC	Local	
34.0	Contactors			HEG	Germany	Mit. - Japan
				ABB	Europe	Tele. - France
				MG	France	MG - France
				Telemecanique	France	
				Mitsubishi	Japan	
				Siemens	Germany	
35.0	Control relays			Izumi	Japan	Izumi - Japan
				Omron	Japan	M.D - Japan
				Siemens	Germany	Fuji - Japan
				Finder	Italy	
36.0	Spring Isolators			Mason	U.S.A.	NSV - Korea
				Tozen	Japan	Tozen - PRC
				Mitsubishi	Japan	
				Vibration Eliminator	U.S.A.	
				Kinetics	U.S.A.	
				Vibration Mounting Co	U.S.A.	
37.0	Ammeter/Voltmeter			GEC	U.K.	Celsa - Spain
				Celsa	Spain	
				Crampton	U.K.	
38.0	Indication lamps/Selector Switch			Auspicious	Taiwan	Auspicious - Taiwa
				Mibuka Denki	Japan	M.D - Japan
				Izumi	Japan	Izumi - Japan
				Salzer	Germany	
				ASEA	Sweden	
				Breter	Italy	
				Kraus & Nainen	New Zealand	
39.0	Timer Switch (24 hr)			AVE	Spain	AVE - Spain
				National	Japan	National - Japan
				Horstmann	UK	M.D - Japan
				Siemans	Germany	
				Legrand	France	
40.0	Electrode type level switch			National	Japan	M.D - Japan
				Izumi	Japan	Omron - Japan
				Omron	Japan	National - Japan

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Item	Description	Size(mm)	Conforming to BS or others	Acceptable Make		Offered
				Manufacturer	Origin	
41.0	Mercury float switch for potable & flushing water system			Flygt S.J.Electro Godwin Vogel Warner Key	Sweden U.S.A. U.K. Austria U.K. Italy	Flygt - Sweden S.J - USA Mac 3 - Italy
42.0	Fuse			GEC Bill Lawson Bussmann Siba MEM	U.K. U.K. U.K. U.K. U.K. U.K.	GEC - UK Bill - UK MEM - UK
43.0	MCB/MCCB			ABB Mitsubishi Terasaki F&G MG Square D Hager AEG Federal Legrand MEM Bill Unelec	Europe/Singapore Japan Japan Europe France USA/UK France Germany U.K. France U.K./Malaysia U.K. France	Mit. - Japan Terasaki - Japan M.G - Europe
44.0	Paint for Cold Application			ICI Duro Camel Shell	U.K. U.K. U.K. U.K.	Camel - PRC ICI - PRC
45.0	Plumbing Pumps			Armstrong FEP KSB Vogel Loewe Speck SPP DP Thompson Kelly & Lewis APEX	U.K. Australia Germany Austria Germany Germany UK Greece Australia PRC	D.P - Greece DP - Holland Grundfos - PRC
46.0	Fire Collars/Stop	32 & over	A.S.1530 Part 4 & BS476 Part 20 1987	Vinidex Quelfire Mann Mcguwan	Australia U.K. U.K.	Ruby - PRC
47.0	Pneumatic Pressure Tank			Otto Charlatte Reflex	Germany France Germany	CIMM - Italy
48.0	Plumbing Pump motors			Siemens Brook Hansen ABB Leroysomer APEX WEG	Germany U.K. Europe France PRC PRC	Mfr's option

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Item	Description	Size(mm)	Conforming to BS or others	Acceptable Make		Offered
				Manufacturer	Origin	
49.0	Fuse switch			Technoelectric	Italy	Mit. - Japan
				GEC	U.K.	Bill - UK
				Bill	U.K.	M.D - Japan
				Mem	U.K.	
				Simplex	U.K.	
				Federal	U.K.	
				Holec	Holland	
				ABB	Europe	
50.0	Settlement Joint	BS4504 PN16		Tai-Flex	Japan	Tai-flex - Japan
				Jady	Japan	Klamflex - S.Africa

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SECTION 10

EQUIPMENT SCHEDULE

SECTION 10 : EQUIPMENT SCHEDULE

1. Fresh Water Booster Pumps Sets : **(Package unit c/w pressure tank, control unit & all accessories, fitting, etc.)**

DESCRIPTION	SPECIFIED	OFFERED
PUMP (FR-BP-1 & 2)		
Make		DRAKOS-POLEMIS
Model		SV 32-130
Type	Vertical Multi-stage Centrifugal	VERTICAL MULTS-STAGE
Flow Rate (L/S)	3	3 L/S
* Total Head (M)	56	56 M
Min. Rated Working Pressure		10 BAR
Working Temperature		0-100
Net Positive Suction Head (NPSH)		TBA
Pump rpm	1450 (Max.)	1450 R.P.M.
Pump Output Power		4 KW
Type of Drive	Direct	DIRECT
Pump Efficiency	Not less than 60%	60 %
Pump Suction Connection Size		74 MM
Pump Discharge Connection Size		74 MM
Pump Casing Material	Stainless Steel (Grade 316)	STAINLESS STEEL 316
Pump Impeller Material	Stainless Steel (Grade 316)	STAINLESS STEEL 316
Pump Shaft Material	Stainless Steel (Grade 316)	STAINLESS STEEL 316
Pump seal	Mechanical	MECHANICAL SEAL
Mounting		FLOOR
Operating Weight (kg)		TBA

Note: * exact Pressure Head to be checked by Contractor to match the actual requirement

WAH CHEONG JOINT VENTURE(01) HSIN CHONG

SECTION 10 : EQUIPMENT SCHEDULE (cont'd)

1. Fresh Water Booster Pumps Sets (cont'd) : **(Package unit c/w pressure tank, control unit & all accessories, fitting, etc.)**

DESCRIPTION	SPECIFIED	OFFERED
PUMP MOTOR		
Make		WESTERN-ELECTRIC
Model		2DF-112M-4
Type	TEFC	TEFC-IE2
Motor Speed	1450 (Max.)	1450 R.P.M.
Motor Power		4 KW
Motor Efficiency (at full load)		86.6
Motor F.L. Current (amps)		8.7
Power Factor	At or above 0.85 (at design condition)	0.85 W/ CAPACITOR
Make of Starter		
Type of Starter	According to Supply Rules	
Type of Bearing		
Cooling Method		FAN COOLED
Electrical Characteristics	380V/3Ø/50Hz	380/3/50
Operating Weight		TBA

WAH CHEONG JOINT VENTURE(O) HSIN CHONG

SECTION 10 : EQUIPMENT SCHEDULE (cont'd)

1. Fresh Water Booster Pumps Sets (cont'd) : **(Package unit c/w pressure tank, control unit & all accessories, fitting, etc.)**

DESCRIPTION	SPECIFIED	OFFERED
PRESSURE TANK		
Manufacturer		CIMM
Capacity (Litres)	750	750 L
Size		2046H x 750MM
Pressure Switch and Control Set Manufacturer		
Internal Coating for Vessel	Polypropylene anti-corrosion lining	EPOXY COATING
Tank Material	Mild steel with externally treated in hammer finish synthetic enamel	MILD STEEL W/ EPOXY COATING
Mounting	Noise reducing resilient mountings	FLOOR MOUNT
Working Pressure	10 Bar	10 BAR
Diaphragm Material	Rubber	NON-TOXIC-BUTYL
Inter-connecting Pipework	Cooper	COOPER
Pump Cut-in Pressure (M)	50	50 M
Pump Cut-off Pressure (M)	56	56 M

WAH CHEONG JOINT VENTURE(01) HSIN CHONG

SECTION 10 : EQUIPMENT SCHEDULE (cont'd)

2. Cleansing Water Booster Pumps Sets : (Package unit c/w pressure tank, control unit & all accessories, fitting, etc.)

DESCRIPTION	SPECIFIED	OFFERED
PUMP (CL-BP-1 & 2)		
Make		**DRAKOS-POLEMIS**
Model		**MS-E40 V8**
Type	Vertical Multi-stage Centrifugal	**VERTICAL MULTI-STAGE**
Flow Rate (L/S)	2	**2 L/S**
* Total Head (M)	53	**53 M**
Min. Rated Working Pressure		30 BAR
Working Temperature		0-100
Net Positive Suction Head (NPSH)		**TBA**
Pump rpm	1450 (Max.)	**1450 R.P.M.**
Pump Output Power		**5.5 KW**
Type of Drive	Direct	**DIRECT**
Pump Efficiency	Not less than 65%	**65 %**
Pump Suction Connection Size		**50 MM**
Pump Discharge Connection Size		**40 MM**
Pump Casing Material	Cast iron	**CAST IRON**
Pump Impeller Material	Bronze	**BRONZE**
Pump Shaft Material	Stainless Steel (Grade 316)	**STAINLESS STEEL 316**
Pump seal	Mechanical	**MECHANICAL SEAL**
Mounting		**FLOOR**
Operating Weight (kg)		**TBA**

Note: * exact Pressure Head to be checked by Contractor to match the actual requirement

CHEUNG JOINT VENTURE(O) WAH CHONG - NISH

SECTION 10 : EQUIPMENT SCHEDULE (cont'd)

2. Cleansing Water Booster Pumps Sets (cont'd) : **(Package unit c/w pressure tank, control unit & all accessories, fitting, etc.)**

DESCRIPTION	SPECIFIED	OFFERED
PUMP MOTOR		
Make		WESTERN ELECTRIC
Model		2DF-132S-4
Type	TEFC	TEFC-IE2
Motor Speed	1450 (Max.)	1450 R.P.M.
Motor Power		5.5 KW
Motor Efficiency (at full load)		87.7
Motor F.L. Current (amps)		11
Power Factor	At or above 0.85 (at design condition)	0.85 W/ CAPACITOR
Make of Starter		
Type of Starter	According to Supply Rules	
Type of Bearing		
Cooling Method		FAN COOLED
Electrical Characteristics	380V/3Ø/50Hz	380/3/50
Operating Weight		TBA

CHEONG JOINT VENTURE(01) HSIN CHONG · WAH

SECTION 10 : EQUIPMENT SCHEDULE (cont'd)

2. Cleansing Water Booster Pumps Sets (cont'd) : **(Package unit c/w pressure tank, control unit & all accessories, fitting, etc.)**

DESCRIPTION	SPECIFIED	OFFERED
PRESSURE TANK		
Manufacturer		CIMM
Capacity (Litres)	750	750 L
Size		2845H x 750MM
Pressure Switch and Control Set Manufacturer		
Internal Coating for Vessel	Polypropylene anti-corrosion lining	EPOXY COATING
Tank Material	Mild steel with externally treated in hammer finish synthetic enamel	MILD STEEL W/ CPOXY COATING
Mounting	Noise reducing resilient mountings	FLOOR MOUNT
Working Pressure	10 Bar	10 BAR
Diaphragm Material	Rubber	NON-TOXIC-BUTYL
Inter-connecting Pipework	Cooper	COOPER
Pump Cut-in Pressure (M)	50	50 M
Pump Cut-off Pressure (M)	56	56 M

WAH CHEONG JOINT VENTURE(01) WAH CHONG · NISH

SECTION 10 ; EQUIPMENT SCHEDULE (cont'd)

3. Flushing Water Booster Pumps Sets : **(Package unit c/w pressure tank, control unit & all accessories, fitting, etc.)**

DESCRIPTION	SPECIFIED	OFFERED
PUMP (FL-BP-1 & 2)		
Make		DRAKOS-POLEMIS
Model		MS-E40 V7
Type	Vertical Multi-stage Centrifugal	VERTICAL MULTI-STEGE
Flow Rate (L/S)	2.5	2.5 L/S
* Total Head (M)	50	50 M
Min. Rated Working Pressure		30 BAR
Working Temperature		0-100
Net Positive Suction Head (NPSH)		TBA
Pump rpm	1450 (Max.)	1450 R.P.M.
Pump Output Power		5.5 KW
Type of Drive	Direct	DIRECT
Pump Efficiency	Not less than 65%	65 %
Pump Suction Connection Size		50 MM
Pump Discharge Connection Size		40 MM
Pump Casing Material	Stainless Steel (Grade 316)	CAST STAINLESS STEEL 316
Pump Impeller Material	Stainless Steel (Grade 316)	CAST STAINLESS STEEL 316
Pump Shaft Material	Stainless Steel (Grade 316)	STAINLESS STEEL 316
Pump seal	Packing Type Seal	MECHANICAL SEAL
Mounting		FLOOR
Operating Weight (kg)		TBA

Note: * exact Pressure Head to be checked by Contractor to match the actual requirement

WAH CHEONG JOINT VENTURE(JV) SHUN CHONG

SECTION 10 : EQUIPMENT SCHEDULE (cont'd)

3. Flushing Water Booster Pumps Sets (cont'd) : (Package unit c/w pressure tank, control unit & all accessories, fitting, etc.)

DESCRIPTION	SPECIFIED	OFFERED
PUMP MOTOR		
Make		
Model		
Type	TEFC	
Motor Speed	1450 (Max.)	
Motor Power		
Motor Efficiency (at full load)		
Motor F.L. Current (amps)		
Power Factor	At or above 0.85 (at design condition)	
Make of Starter		
Type of Starter	According to Supply Rules	
Type of Bearing		
Cooling Method		
Electrical Characteristics	380V/3Ø/50Hz	
Operating Weight		

SECTION 10 : EQUIPMENT SCHEDULE (cont'd)

3. Flushing Water Booster Pumps Sets (cont'd) : (Package unit c/w pressure tank, control unit & all accessories, fitting, etc.)

DESCRIPTION	SPECIFIED	OFFERED
PRESSURE TANK		
Manufacturer		
Capacity (Litres)	750	
Size		
Pressure Switch and Control Set Manufacturer		
Internal Coating for Vessel	Polypropylene anti-corrosion lining (suitable for salt water)	
Tank Material	Mild steel with externally treated in hammer finish synthetic enamel	
Mounting	Noise reducing resilent mountings	
Working Pressure	10 Bar	
Diaphragm Material	Rubber	
Inter-connecting Pipework	Cooper	
Pump Cut-in Pressure (M)	47	
Pump Cut-off Pressure (M)	53	

4. Sump Pump

DESCRIPTION	SPECIFIED	OFFERED
PUMP (SP-1 & 2)		
Make		EBARA
Model		DW 150
Type	Submersible	SUBMERSIBLE
Flow Rate (L/S)	1.5	1.5 L/S
* Total Head (M)	12	12 M
Pump rpm	2900 (Max.)	2900 R.P.M.
Pump Output Power		1.1 KW
Type of Drive	Direct	DIRECT
Pump Efficiency	Not less than 60%	60 %
Voltage/Phase/Hz	380 / 3 / 50	380/3/50
Make of Motor		FACTORY
Make & Type of Starter		
Pump Casing Material	Stainless Steel (Grade 316)	STAINLESS STEEL 316
Pump Impeller Material	Stainless Steel (Grade 316)	STAINLESS STEEL 316
Pump Shaft Material	Stainless Steel (Grade 316)	STAINLESS STEEL 316
Shaft Sleeve	Stainless Steel (Grade 316)	STAINLESS STEEL 316
Wear Rings	Stainless Steel (Grade 316)	STAINLESS STEEL 316
Type of Shaft Seal	Double Mechanical Seals	DOUBLE MECHANICAL SEALS
Mounting		FLOOR
Operating Weight (kg)		TBA

Note: * exact Pressure Head to be checked by Contractor to match the actual requirement

CHEONG JOINT VENTURE(JV) NISH CHONG · WAH

SECTION 11

DRAWING SCHEDULE

Section 11
Drawing Schedule

Plumbing Installation

Drawing No.	Revision	Drawing Title
P1143-01	-	General Notes, Legend, Abbreviation and Site Plan, Pump Schedule and Typical Connection Details
P1143-02	-	Vertical Plumbing Line Diagram for Fresh and Flushing Water System
P1143-03	-	Plumbing Layout for Ground Floor
P1143-04	-	Plumbing Layout for 1 st Floor
P1143-05	-	Plumbing Layout for 2 nd Floor
P1143-06	-	Plumbing Layout 3 rd Floor
P1143-07	-	Plumbing Layout 4 th Floor
P1143-08	-	Plumbing Layout Plan for Roof Floor

Drainage Installation

Drawing No.	Revision	Drawing Title
D1139-01	-	General Notes, Legend, Abbreviation and Site Plan for Drainage System
D1139-02	-	Schematic Diagram for Drainage System
D1139-03	-	G/F Drainage Layout Plan
D1139-04	-	1/F Drainage Layout Plan
D1139-05	-	2/F Drainage Layout Plan
D1139-06	-	3/F Drainage Layout Plan
D1139-07	-	4/F Drainage Layout Plan
D1139-08	-	R/F Drainage Layout Plan
D1139-09	-	Drainage Details (1 of 2)
D1139-10	-	Drainage Details (2 of 2)

SCHEDULE A

SCHEDULE OF DELIVERY

SCHEDULE A – SCHEDULE OF DELIVERY

	EQUIPMENT OR MATERIAL	WEEKS TO ARRIVE SITE AFTER AWARD OF CONTRACT
1.	Pneumatic Tanks	12
2.	Fresh water pumps	12
3.	Flushing water pumps	12
4.	Cleaning water pump	12
5.	18KW & 6 KW instantaneous electric water heater	2
6.	Fibreglass water tank	3
7.	Cast iron pipes & fittings	2
8.	Epoxy coated cast iron pipes & fittings	2
9.	Reinforced concrete pipe	2
10.	Galvanized iron pipes & fittings	2
11.	Copper pipes & fittings	2
12.	Unplasticized PVC pipes & fittings	2
13.	Ductile iron pipes & fittings	3
14.	Valves and accessories	2
15.	Switchfuse / fuseswitch	2
16.	M.C.C.B. / M.C.B	2
17.	Electrical cables	2
18.	G.I. conduits & accessories	2
19.	G.I. trunking & accessories	2

WAH CHEONG JOINT VENTURE(JV) NISHI CHONG

SCHEDULE B

SCHEDULE OF RATES

Note :

The Tenderers shall submit the breakdown of the Pricing Schedule C in this Schedule, and completed Unit Rates together with their tenders for consideration. Future variation shall follow the unit rates quoted.

Tender without such Schedule may lead to disqualification of the Tender.

A. WATER SUPPLY SYSTEM & EQUIPMENT

	DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
1)	Fresh Water Supply System				
	i) Copper pipe to B. S. EN 1057 Table X (Complete with all necessary hangers and supports)				
	m Ø pipe		m		
	m Ø pipe		m		
	m Ø pipe		m		
	m Ø pipe		m		
	m Ø pipe		m		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		

A. WATER SUPPLY SYSTEM & EQUIPMENT (Cont'd)

		DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
2)	ii)	Copper pipe to B. S. EN 1057 : Table 3 with seamless plastic (Complete with all necessary supports)				
		mm Ø pipe		m		
		mm Ø pipe		m		
		mm Ø pipe		m		
		mm Ø bend		No.		
		mm Ø bend		No.		
		mm Ø bend		No.		
		mm Ø tee		No.		
		mm Ø tee		No.		
		mm Ø tee		No.		
		mm Ø gate valve		No.		
		mm Ø gate valve		No.		
		mm Ø gate valve		No.		
		mm Ø gate valve		No.		
		mm Ø gate valve		No.		
		mm Ø loose jumper stop cock		No.		
		mm Ø loose jumper stop cock		No.		
		mm Ø loose jumper stop cock		No.		
		mm Ø loose jumper stop cock		No.		
		mm Ø loose jumper stop cock		No.		
		mm Ø Strainer valve		No.		
		mm Ø Strainer valve		No.		
		mm Ø Strainer valve		No.		
		mm Ø Strainer valve		No.		
		mm Ø Strainer valve		No.		
		mm Ø Globe valve		No.		
		mm Ø Globe valve		No.		
		mm Ø Globe valve		No.		
		mm Ø Globe valve		No.		
		mm Ø Globe valve		No.		
		mm Ø Pressure reducing valve		No.		
		mm Ø Pressure reducing valve		No.		
		mm Ø Pressure reducing valve		No.		
		mm Ø Pressure reducing valve		No.		
		mm Ø Pressure reducing valve		No.		

A. WATER SUPPLY SYSTEM & EQUIPMENT (Cont'd)

		DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
	iii)	Fresh water booster pumps complete with pneumatic tank, pump motors, controls and all accessories, etc.	(2 Sets of pumps plus 3 sets of pneumatic tank)			
			"			
			"			
		Pressure gauge for pump		No.		
		Pressure Switch		No.		
		Pressure gauge		No.		
		Vibration eliminator		No.		
2)	iv)	Piping , puddle flanges & control accessories for RC fresh water tank		Set		

A. WATER SUPPLY SYSTEM & EQUIPMENT (Cont'd)

	DESCRIPTION		QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
3)	Cleansing Water Supply System					
	i)	Water Tanks c/w Necessary Accessories 1125 litres water tank (fibre-glass) for cleansing water system		No.		
	ii)	Cleansing water booster pumps complete with pneumatic tank, pump motors, controls and all accessories, etc.	(2 Sets of pumps plus 1 set of pneumatic tank)			
		Pressure switch		No.		
		Pressure gauge		No.		
		Vibration eliminator		No.		
	iii)	Piping , puddle flange & control accessories for cleansing water tank		Set		

A. WATER SUPPLY SYSTEM & EQUIPMENT (Cont'd)

	DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
4)	Hot Water Piping				
	i) Copper pipe to B. S. EN 1057 Table 3 (Complete with all necessary hanger & support)				
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø gate valve		No.		
	mm Ø gate valve		No.		
	mm Ø gate valve		No.		
	mm Ø gate valve		No.		
	mm Ø globe valve		No.		
	mm Ø globe valve		No.		
	mm Ø globe valve		No.		
	mm Ø globe valve		No.		
	mm ø spring return type check valve		No.		
	mm ø spring return type check valve		No.		
	mm Ø swing type check valve mm bore		No.		
	mm Ø swing type check valve mm bore		No.		

A. WATER SUPPLY SYSTEM & EQUIPMENT (Cont'd)

	DESCRIPTION		QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
4)	Hot Water Piping (cont'd)					
	ii)	Plastic covered with air gap insulated copper pipe to B. S. EN 1057 Table 3 (Complete with all necessary hanger & support)				
		mm Ø pipe		m		
		mm Ø pipe		m		
		mm Ø pipe		m		
		mm Ø bend		No.		
		mm Ø bend		No.		
		mm Ø bend		No.		
		mm Ø tee		No.		
		mm Ø tee		No.		
		mm Ø tee		No.		
	iii)	18KW instantaneous electric water heater		No.		
	iv)	6kW instantaneous electric water heater		No.		

A. WATER SUPPLY SYSTEM & EQUIPMENT (Cont'd)

	DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
5)	Flushing Water Supply System				
	i) UPVC pipes to B. S. 3505, Class E (Complete with all necessary hanger and support)				
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø PVC gate valve		No.		
	mm Ø PVC gate valve		No.		
	mm Ø PVC gate valve		No.		
	mm Ø automatic air relief valve		No.		
	ii) Flushing water booster pumps complete with pneumatic tank, pump motors, controls and all accessories, etc.	(2 Sets of pumps plus 2 sets of pneumatic tank)			
	Pressure switch		No.		
	Pressure gauge		No.		
	Vibration eliminator		No.		
	iii) Piping, puddle flanges & control accessories for RC fresh water tank		Set		
6)	Other items not indicated above but required for complete installation of system as specified.				

Sub-total : _____

(To be carried forward to Pricing Schedule C)

A. WATER SUPPLY SYSTEM & EQUIPMENT (Cont'd)

	DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
6)	Settlement Joint				
	i) ±100 Settlement joint to B.S. 4504 PN16 (Complete with all necessary flange adaptor)				
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	i) ±200 Settlement joint to B.S. 4504 PN16 (Complete with all necessary flange adaptor)				
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	i) ±300 Settlement joint to B.S. 4504 PN16 (Complete with all necessary flange adaptor)				
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		

Sub-total : _____

(To be carried forward to Pricing Schedule C)

B. STORM WATER DRAINAGE SYSTEM

	DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
1)	Cast iron pipe to B. S. 437 (Complete with hangers, supports and all necessary accessories)				
	mm ∅ pipe		m		
	mm ∅ pipe		m		
	mm ∅ pipe		m		
	mm ∅ pipe		m		
	mm ∅ bend		No.		
	mm ∅ bend		No.		
	mm ∅ bend		No.		
	mm ∅ bend		No.		
	mm ∅ tee		No.		
	mm ∅ tee		No.		
	mm ∅ tee		No.		
	mm ∅ tee		No.		
2)	Cast iron pipe to B. S. 4622 (Complete with hangers, supports and all necessary accessories)				
	mm ∅ pipe		m		
	mm ∅ pipe		m		
	mm ∅ pipe		m		
	mm ∅ pipe		m		
	mm ∅ bend		No.		
	mm ∅ bend		No.		
	mm ∅ bend		No.		
	mm ∅ bend		No.		
	mm ∅ tee		No.		
	mm ∅ tee		No.		
	mm ∅ tee		No.		
	mm ∅ tee		No.		

B. STORM WATER DRAINAGE SYSTEM (Cont'd)

	DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
3)	Epoxy coated cast iron pipes & fittings to conform BS EN 877 (Complete with hangers, supports and all necessary accessories)				
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
4)	Reinforced concrete pipe to B.S.5911:Part 100 class M (Complete with supports and all necessary accessories)				
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		

B. STORM WATER DRAINAGE SYSTEM (Cont'd)

	DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
5)	UPVC pipe to B.S. 4576/5255/4514 (Complete with hangers, supports and all necessary accessories)				
	mm ∅ pipe		m		
	mm ∅ pipe		m		
	mm ∅ pipe		m		
	mm ∅ pipe		m		
	mm ∅ bend		No.		
	mm ∅ bend		No.		
	mm ∅ bend		No.		
	mm ∅ bend		No.		
	mm ∅ tee		No.		
	mm ∅ tee		No.		
	mm ∅ tee		No.		
	mm ∅ tee		No.		
6)	Roof drain/floor drain for rain water:- Cast iron rain water outlet with CI grating on roof				
	mm∅		No.		
	mm∅		No.		
	mm∅		No.		
	Cast iron rain water outlet on other than roof areas with CP brass grating				
	mm∅		No.		
	mm∅		No.		
	mm∅		No.		
7)	Other items not indicated above but required for complete installation of system as specified				

Sub-Total : _____

(To be carried forward to Pricing Schedule C)

C. SOIL, WASTE & VENT SYSTEM

	DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
1)	UPVC soil, waste and vent pipe to B. S. 4576/5255/4514 (Complete with hangers, supports and all necessary accessories)				
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø expansion adaptor		No.		
	WC pan connector		No.		
	Vent terminal (vent cowl)		No.		
2)	GI pipe to B. S. 1387 heavy duty (Complete with hangers, supports and all necessary accessories)				
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		

C. SOIL, WASTE & VENT SYSEM (Cont'd)

	DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
3)	C.I. pipe to B. S. 437 (Complete with hangers, supports and all necessary accessories)				
	mm ∅ pipe		m		
	mm ∅ pipe		m		
	mm ∅ pipe		m		
	mm ∅ pipe		m		
	mm ∅ bend		No.		
	mm ∅ bend		No.		
	mm ∅ bend		No.		
	mm ∅ bend		No.		
	mm ∅ tee		No.		
	mm ∅ tee		No.		
	mm ∅ tee		No.		
	mm ∅ tee		No.		
4)	Cast iron pipe to B. S. 4622 (Complete with hangers, supports and all necessary accessories)				
	mm ∅ pipe		m		
	mm ∅ pipe		m		
	mm ∅ pipe		m		
	mm ∅ bend		No.		
	mm ∅ bend		No.		
	mm ∅ bend		No.		
	mm ∅ tee		No.		
	mm ∅ tee		No.		
	mm ∅ tee		No.		
5)	Epoxy coated cast iron pipes & fittings to conform BS EN 877 (Complete with hangers, supports and all necessary accessories)				
	mm ∅ pipe		m		
	mm ∅ pipe		m		
	mm ∅ pipe		m		
	mm ∅ bend		No.		
	mm ∅ bend		No.		
	mm ∅ bend		No.		
	mm ∅ tee		No.		
	mm ∅ tee		No.		

C. SOIL, WASTE & VENT SYSTEM (Cont'd)

	DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
6)	Vitrified clay sewer drain pipe to B.S. 65 or B.S. 1634				
	mm Ø pipe		m		
	mm Ø pipe		m		
	mm Ø bend		No.		
	mm Ø bend		No.		
	mm Ø tee		No.		
	mm Ø tee		No.		
7)	Sump pump complete with motor, control and accessories				
			Set		
			Set		
			Set		
			Set		
	Pressure gauge for pump		No.		
	Vibration eliminator (piping)		No.		
	Gate valve (cast iron)				
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	Spring return type check valve (cast Iron)				
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	Spring return type check valve (unplasticized PVC)				
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		

C. SOIL, WASTE & VENT SYSTEM (Cont'd)

	DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
7)	Strainer (cast iron)				
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	Strainer (UPVC)				
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
8)	Floor drain :-				
	Cast iron floor drain with cast iron grating				
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	Brass floor drain with CP brass grating				
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
9)	Cast iron anti-siphon traps for floor drain				
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
10)	UPVC Anti-siphon Bottle traps				
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		

C. SOIL WASTE & VENT SYSTEM (Cont'd)

	DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
11)	UPVC Anti-siphon U-traps				
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
12)	Cast iron disconnecting trap c/w cleaning eye for soil & waste drainage				
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
	mmØ		No.		
13)	Other items not indicated above but required for complete installation of system as specified				

Sub-Total : _____

(To be carried forward to Pricing Schedule C)

SOIL WASTE & VENT SYSTEM (Cont'd)

	DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
6)	Settlement Joint				
	i) ±100 Settlement joint to B.S. 4504 PN16 (Complete with all necessary flange adaptor)				
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	i) ±200 Settlement joint to B.S. 4504 PN16 (Complete with all necessary flange adaptor)				
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	i) ±300 Settlement joint to B.S. 4504 PN16 (Complete with all necessary flange adaptor)				
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		
	mm Ø pipe		No.		

Sub-total : _____

(To be carried forward to Pricing Schedule C)

D. ELECTRICAL POWER SUPPLY & CONTROL SYSTEM

DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
Amp. T.P. & N. fuseswitch		No.		
Amp. T.P. & N. fuseswitch		No.		
Amp. T.P. & N. fuseswitch		No.		
Amp. T.P. & N. fuseswitch		No.		
Amp. T.P. & N. fuseswitch		No.		
Amp. T.P. & N. fuseswitch		No.		
Amp. T.P. & N. fuseswitch		No.		
Amp. cartridge fuse		No.		
Amp. cartridge fuse		No.		
Amp. cartridge fuse		No.		
Amp. cartridge fuse		No.		
Amp. cartridge fuse		No.		
Amp. cartridge fuse		No.		
Amp. cartridge fuse		No.		
Amp. cartridge fuse		No.		
Amp. T.P. & N. M.C.B. board		No.		
Amp. T.P. & N. M.C.B. board		No.		
Amp. T.P. & N. M.C.B.		No.		
Amp. T.P. & N. M.C.B.		No.		
Amp. T.P. & N. M.C.B.		No.		
Amp. T.P. & N. M.C.B.		No.		
Amp. T.P. & N. M.C.B.		No.		
mm^2 I/C PVC copper		m		
mm^2 I/C PVC copper		m		
mm^2 I/C PVC copper		m		
mm^2 I/C PVC copper		m		
mm^2 I/C PVC copper cable		m		
mm^2 I/C PVC copper cable		m		
mm^2 I/C PVC copper cable		m		
mm^2 I/C PVC copper cable		m		
mm^2 I/C PVC copper cable		m		

D. ELECTRICAL POWER SUPPLY & CONTROL SYSTEM (Cont'd)

DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
Gland & shroud for mm² cable		No.		
- Ditto - but for mm²		No.		
- Ditto - but for mm²		No.		
- Ditto - but for mm²		No.		
mm² dia. G.I. surface conduit conduct & accessories		No.		
- Ditto - but mm		No.		
- Ditto - but mm		No.		
- Ditto - but mm		No.		
mm dia. water proof flexible conduit & accessories		No.		
- Ditto - but mm		No.		
- Ditto - but mm		No.		
mm x mm copper tape		No.		
Direct-on-line starter for				
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
Star-delta starter for				
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		

D. ELECTRICAL POWER SUPPLY & CONTROL SYSTEM (Cont'd)

DESCRIPTION	QUANTITY	UNIT	UNIT RATE (HK$)	PRICE (HK$)
Auto-transformer starter for				
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
kW (H.P.) motor		No.		
High water level alarm unit		No.		
Low water level alarm unit		No.		
Mercury type float switch		No.		
Current transformer		No.		
Ammeter		No.		
Voltmeter		No.		
Selector switch		No.		
Indicating lamp		No.		
Other items not indicated above but required for complete installation of system as specified.				

Sub-Total : _____

(To be carried forward to Pricing Schedule C)