

MAE HAT HYDROPOWER PROJECT
WIANG HAENG DISTRICT CHIANG MAI PROVINCE

CONTRACT C1
CIVIL WORKS AND TRANSMISSION LINE

VOLUME 3
BID FORMS, SCHEDULES OF QUANTITIES



P AND C MANAGEMENT CO., LTD.

MARCH 2016

MAE HAT HYDROPOWER PROJECT

CONTRACT C1

CIVIL WORKS AND TRANSMISSION LINE

VOLUME 3 : BID FORMS, SCHEDULE OF QUANTITIES

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SECTION 1 - BID FORMS

1.01 PROPOSAL LETTER

TO:

CONSTRUCTION BID COMMITTEE
MAE HAT HYDROPOWER PROJECT
YAN TA KHAO DISTRICT TRANG PROVINCE
CONTRACT C1

CONSTRUCTION OF CIVIL WORKS

DEPARTMENT OF ALTERNATIVE ENERGY DEVELOPMENT AND EFFICIENCY
Kasatsuk Bridge, Rama 1 Road
Bangkok 10330, Thailand

Gentlemen:

The undersigned having carefully examined in their entirety the Bid Documents for Contract C1 Construction of MAE HAT Hydropower Project does hereby bid and offer to furnish all labour, materials and equipment, and to perform all works necessary or incidental to the construction of the Work, and to perform all other obligations and assume all liabilities imposed upon the Contractor by the Contract, in strict conformity to the Drawings, Specifications, Conditions of Contract, Addenda and all other Contract Documents, and further agrees to accept in full payment therefor the amount resulting from the actual quantities of contract items performed at the prices shown as set out in the Schedule of Quantities, Rates, and Prices and as determined in accordance with the Conditions of Contract and other Contract Documents.

By this letter the undersigned declares that the Total Bid Price, obtained by applying the bid prices to the estimated quantities as indicated in the Schedule of Quantities, Rates and Prices is:

in words(B)

in figures(B)

The undersigned also agrees to abide and to be bound by all the conditions and procedures of processing the Bids, selecting the successful Bidder and awarding the Contract as contained in the Instruction to Bidders and other Bid Documents.

A Bid Security issued by is attached herewith as required in the Instruction to Bidders. The undersigned agrees that in the case he is awarded the Contract, and should he fail to execute the Contract within 30 days after receiving the notification of Acceptance of Bid or such extended time as may be approved by the Department in writing, the said Bid Security and the moneys payable thereon shall be forfeited to the Department as liquidated damages.

Signature
in the capacity of
duly authorized to sign Bid for and on behalf of
.....

Date

Address :
.....
.....

Witness :		
Address :		
		
		
Occupation :		
		

Corporate Seal

1.02 BID SCHEDULE

SUMMARY OF INFORMATION TO BE SUBMITTED WITH BID

INSTRUCTIONS TO BIDDER'S CLAUSE 2.04 (Volume 1)	SUBMISSION REQUIRED	SCHEDULE SAMPLE
(a)	Construction schedule	See Sample I
(b)	Water control plan	
(c)	Access and haul roads proposals	
(d)	Method statement for orderly excavation	
(e)	Construction plant and equipment to be used in the Construction	
(f)	Construction camp layout	See Sample II
(g)	Contractor's organization chart and details of technical staff	
(h)	Record of completed works and works currently engaged	See Sample III
(i)	Estimates of monetary requirements for Thai fiscal year (October 1 to March 31/April 1 to September 30) in six monthly periods up to the date of completion	
(j)	Proposed subcontracts and qualification	See Sample IV
(k)	Sub-contractor declaration	
(l)	Plan of supply of cement, reinforce steel, materials for dam embankment	

1.03 BID SECURITY FORM

Date

..... (name of Bank)
situated at
....., hereinafter called the Bank,
hereby agrees to make a Bid Guarantee to the Department of Energy Development and
Promotion, hereinafter called the Department, on the following terms:

1. That the Bid of (Bidder), Bidder, is made in agreement with the invitation from the Department to bid for the construction of Contract C1 Construction of Civil Works and Transmission Line for MAE HAT Hydropower Project in accordance with the conditions set forth by the Conditions of Contract, Specifications, Drawings and other Bid Documents for this work.

In submitting the Bid, the Bidder agrees to furnish a Bid Guarantee through the Bank amounting to Baht (written in words)
..... (฿)

2. The Bank hereby agrees to be a Guarantor for the Bid Guarantee for the sum of the above amount in the name of the Department.
3. When the Bidder has submitted the Bid as stated under 1 above, but does not abide by the conditions of the Bid or any stipulation of the Invitation to Bid, the Bank agrees to pay the sum of Baht..... (written in words).....
..... (฿) to the Department.
4. This Bid Security becomes effective from(date)
to (date) The period of guarantee shall in no case be less than one hundred and fifty (150) days and shall commence from the date of opening the Bid as set forth in the Invitation to Bid.

In witness whereof, the authorized representative of the Bank has hereunto signed and sealed this Guarantee.

GUARANTOR

WITNESS

.....
()

.....
()

Title
.....

Title
.....

Office
.....

.....
()

Title
.....

Office
.....

1.04 SCHEDULE OF QUANTITIES, RATES AND PRICES

MAE HAT HYDROPOWER PROJECT
MAE HAT WEIR
YAN TA KHAO DISTRICT TRANG PROVINCE
CONTRACT C1

CONSTRUCTION OF CIVIL WORKS AND TRANSMISSION LINE

NOTES

- (1) The Schedule shall be read in conjunction with the Instruction to Bidders, Conditions of Contract, Specifications and Drawings.
- (2) The quantities given in the Schedule are estimated and provisional and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and value at the rates and lump sum quoted in the Schedule where applicable and otherwise at such rates and lump sum as the Department may fix within the terms of the Contract.
- (3) The rates and lump sum in the Schedule shall, except insofar as it is otherwise provided under the Contract, include all plant, labour, materials, erection, maintenance, supervision, office work, insurance, profit, together with all general risks, liabilities and obligations set out or implied in the Contract.
- (4) A rate or lump sum shall be entered against each Item in the Schedule, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or lump sum shall be deemed to be covered by the Contract Price.
- (5) The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the Schedule, and where no Items are provided shall be deemed to be distributed amongst the rates and lump sum for the related Items of work.
- (6) General directions and descriptions of work and materials are not necessarily repeated in the Schedule. Reference to the relevant Clauses of the Conditions of Contract, Specifications and Drawings shall be made when entering prices against each Item in the Schedule.
- (7) The Sections of the Schedule are numbered in accordance with the corresponding Sections of the Specification. The Items in each Section of the Schedule shall be read in conjunction with the measurement and payment Clauses in the relevant Section of the Specification.
- (8) If there is a discrepancy between the rate and the Total Price entered for any Item in the Schedule, the rate will be taken as correct.

SECTION 2 – SAMPLES OF SUBMITTED INFORMATION

**MAE HAT HYDROPOWER PROJECT
CONTRACT C1
CONSTRUCTION OF CIVIL WORKS**

GROUP SCHEDULE OF BID AMOUNT

GROUP No.	GROUP TITLE	TOTAL AMOUNT (BAHT)
1	GENERAL	
2	WEIR IMPROVEMENT AND INTAKE STRUCTURE	
3	HEADRACE AND O&M ROAD 1	
4	O&M ROAD AND ACCESS ROAD	
5	SURGE TANK	
6	PENSTOCK	
7	POWERHOUSE	
8	TAILRACE	
	BID AMOUNT GROUP 1 TO 8	
	TOTAL OF BID AMOUNT GROUP 1 TO 8	
	VAT 7 %	
	GRAND TOTAL	

TOTAL BID AMOUNT Written in words:-

BAHT.....

SIGNATURE

IN THE CAPACITY OF.....

DULY AUTHORIZED TO SIGN BID FOR AND ON BEHALF OF

DATE.....

CORPORATE SEAL.....

**SCHEDULE OF QUANTITIES, RATES AND PRICES-SUMMARY OF BID AMOUNT FOR
GROUP 1 : GENERAL**

SECTION NO.	SECTION TITLE	SUB-TOTAL AMOUNT BAHT
1	GENERAL	
TOTAL OF BID AMOUNT GROUP 1		

SCHEDULE OF QUANTITIES, RATES AND PRICES

GROUP 1 : GENERAL

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE BAHT	AMOUNT BAHT
S1.15(3)	Section 1 : General Requirement				
	Field offices and permanent housing				
	i) Field office for Employer&Engineer according standard plan	LS	1		
	- Solar Rooftop 10 kW	LS	1		
	ii) Yard Area	LS	1		
	iii) Temporary Fence	m.	365		
	iv) งานระบบไฟฟ้าสาธารณะสำหรับชุมชนรอบโรงไฟฟ้า				
	- ติดตั้งหม้อแปลง 50 kVA 3 เฟส พร้อมชุดฟิวส์และอุปกรณ์ประกอบ รวมติดตั้ง	set	1		
	- ติดตั้งหม้อแปลง 30 kVA 1 เฟส พร้อมชุดฟิวส์และอุปกรณ์ประกอบ รวมติดตั้ง	set	1		
	- ตู้ควบคุมไฟฟ้าแสงสว่างอัตโนมัติ พร้อมอุปกรณ์ประกอบ และติดตั้ง	set	3		
	- โคมไฟฟ้าถนน LED ขนาด 50W พร้อมติดตั้งคาร์ทริกฟิวส์กันฝน, กิ่งโคมชุบกัลวาไนซ์	set	251		
	ขาจับกิ่งโคมแบบปรับได้ชุบกัลวาไนซ์ สายไฟฟ้าต่อเข้าโคม และอุปกรณ์ประกอบครบชุด				
	พร้อมติดตั้ง				
	- เสาไฟฟ้า ก.อ.ร. 8 เมตร พร้อมอุปกรณ์ประกอบครบชุด พร้อมติดตั้ง	set	40		
	- สาย THW-A 70 sq.mm. พร้อมอุปกรณ์ประกอบครบชุด พร้อมติดตั้ง	m.	14,700		
	- แรค พร้อมลูกถ้วย 4 ชุด และอุปกรณ์ประกอบครบชุด พร้อมติดตั้ง	set	62		
	- แรค พร้อมลูกถ้วย 2 ชุด และอุปกรณ์ประกอบครบชุด พร้อมติดตั้ง	set	328		
	v) งานระบบประปาสาธารณะสำหรับชุมชนรอบโรงไฟฟ้า	m.	3,380		
	vi) Elevated Tank	LS	1		
	- Water Filter System	LS	1		
	vii) Entrance Gate with Name Board	set	2		
	viii) Garage	LS	1		
	ix) Guard House	LS	1		
	x) Easy Pass	LS	1		
	xi) Wiremess Fence	m.	11		
	xii) Permanent Fence	m.	245		
	Sub - total Section 1				
GRAND TOTAL OF GROUP 1					

**SCHEDULE OF QUANTITIES, RATES AND PRICES-SUMMARY OF BID AMOUNT FOR
GROUP 2 : WEIR IMPROVEMENT AND INTAKE STRUCTURE**

SECTION NO.	SECTION TITLE	SUB-TOTAL AMOUNT BAHT
2	WATER CONTROL AND DEWATERING	
3	SURFACE EXCAVATION	
4	FILL AND BACKFILL	
7	PROTECTION AND SUPPORT EXCAVATION	
9	CONCRTE WORKS	
12	PERMANENT EQUIPMENT AND MISCELLANEOUS METAL WORKS	
TOTAL OF BID AMOUNT GROUP 2		

SCHEDULE OF QUANTITIES, RATES AND PRICES

GROUP 2 : WEIR IMPROVEMENT AND INTAKE STRUCTURE

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE BAHT	AMOUNT BAHT
S2.06(1) S2.06(4)	Section 2 : Water Control and Dewatering Diversion and control of River during construction Dewatering of surface construction	LS LS	1 1		
	Sub - total Section 2				
S3.09(2) S3.09(3) S3.09(4) S3.09(5) S3.09(6) S3.09(9)	Section 3 : Surface Excavation Clearing and Grubbing Stripping Common Excavation Rock Excavation i) Weathered rock ii) Sound rock Drilling hole for drainage Demolish Existing Structure i) Remove exiting weir surface ii) Headwall	sq.m cu.m cu.m cu.m cu.m cu.m m cu.m cu.m	128.00 35.00 737.00 211.00 105.00 113.00 4.00 142.00		
	Sub - total Section 3				
S4.07(1)	Section 4 : Fill and Backfill Compacted backfill and fill	cu.m	526		
	Sub - total Section 4				
S7.04(8)	Section 7 : Protection and Support Excavation Anchor bar dia. 12 mm, L = 0.50 m	set	101		
	Sub - total Section 7				
S9.10(3) S9.10(6) S9.10(8) S9.10(9) S9.10(11)	Section 9 : Concrete Works Reinforcing bars Structure concrete i) Concrete fc' = 210 ksc. ii) Non-Shrink Mortar grout Miscellaneous concrete i) Lean concrete ii) Concrete filled fc' = 140 ksc. Waterstops i) PVC waterstop type A Joint fillers and sealer i) Sealing compound	kg. cu.m cum cum cum m. sq.m	25,724 177 0.1 11 18 9 56		
	Sub - total Section 9				
S12.12(8) S12.12(9)	Section 12 : Permanent Equipment and Miscellaneous Works Supply and installation vertical gates i) Sand Sluice gate size 1.50 x 1.50 m w/predestal lift 6.5 tons ii) Vertical gate dia. 1.20 m with predestal lift 1.75 tons Miscellaneous metal works	set set	1 1		

SCHEDULE OF QUANTITIES, RATES AND PRICES

GROUP 2 : WEIR IMPROVEMENT AND INTAKE STRUCTURE

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
	i) Supply and installation Steel structure	kg.	1,777		
	ii) Supply and installation handrail	m.	40		
	Sub - total Section 12				
GRAND TOTAL OF GROUP 2					

**SCHEDULE OF QUANTITIES, RATES AND PRICES-SUMMARY OF BID AMOUNT FOR
GROUP 3 : HEADRACE AND O&M ROAD 1**

SECTION NO.	SECTION TITLE	SUB-TOTAL AMOUNT BAHT
3 4 7 9 12 13	SURFACE EXCAVATION FILL AND BACKFILL PROTECTION AND SUPPORT EXCAVATION CONCRTE WORKS PERMANENT EQUIPMENT AND MISCELLANEOUS METAL WORKS STEEL LINERS AND STEEL CONDUIT PIPES	
TOTAL OF BID AMOUNT GROUP 3		

SCHEDULE OF QUANTITIES, RATES AND PRICES
GROUP 3 : HEADRACE AND O&M ROAD 1

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE BAHT	AMOUNT BAHT
	Section 3 : Surface Excavation				
S3.09(2)	Clearing and Grubbing	sq.m	2,081		
S3.09(3)	Stripping	cu.m	624		
S3.09(4)	Common Excavation	cu.m	34,093		
S3.09(9)	Demolished Existing Structure				
	i) Remove Existing Headrace	cu.m.	2,246		
	<i>Drain Culvert STA.0+413.534, STA.0+515.748, STA.0+651.663, STA.0+948.448, STA.1+320.961, STA.1+508.437, STA.1+903.095, STA.1+944.718</i>				
S3.09(2)	Clearing and Grubbing	sq.m	1,748		
S3.09(3)	Stripping	cu.m	525		
S3.09(4)	Common Excavation	cu.m	2,603		
S3.09(5)	Rock Excavation				
	i) Weathered rock	cu.m	264		
	Sub - total Section 3				
	Section 4 : Fill and Backfill				
S4.07(1)	Compacted backfill and fill	cu.m	23,162		
S4.07(3)	Compacted coarse sand	cu.m	830		
	<i>Drain Culvert STA.0+413.534, STA.0+515.748, STA.0+651.663, STA.0+948.448, STA.1+320.961, STA.1+508.437, STA.1+903.095, STA.1+944.718</i>				
S4.07(1)	Compacted backfill and fill	cu.m	2,148		
	Sub - total Section 4				
	Section 7 : Protection and Support Excavation				
	<i>Drain Culvert STA.0+413.534, STA.0+515.748, STA.0+651.663, STA.0+948.448, STA.1+320.961, STA.1+508.437, STA.1+903.095, STA.1+944.718</i>				
S7.04(1)	Riprap	cu.m	111		
S7.04(1)	Mattress 6.00x2.00x0.30 m.	cu.m	88		
	Sub - total Section 7				
	Section 9 : Concrete Works				
S9.10(3)	Reinforcing bars	kg.	332,270		
S9.10(6)	Structure concrete				
	i) Concrete fc' = 280 ksc.	cu.m	1,258		
	ii) Concrete fc' = 210 ksc.	cu.m	5,220		
S9.10(8)	Miscellaneous concrete				
	i) Lean concrete	cu.m	349		
S9.10(11)	Joint fillers and sealer				
	i) Elastic filler	sq.m	53		
	ii) Joint sealer	m	728		
	iii) Plastic Sheet	sq.m	874		
	<i>Drain Culvert STA.0+413.534, STA.0+515.748, STA.0+651.663, STA.0+948.448, STA.1+320.961, STA.1+508.437, STA.1+903.095, STA.1+944.718</i>				
S9.10(3)	Reinforcing bars	kg.	23,574		
S9.10(6)	Structure concrete				
	ii) Concrete fc' = 210 ksc.	cu.m	210		
S9.10(8)	Miscellaneous concrete				
	i) Lean concrete	cu.m	28		

SCHEDULE OF QUANTITIES, RATES AND PRICES
GROUP 3 : HEADRACE AND O&M ROAD 1

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
S9.10(9)	Waterstops				
	i) PVC waterstop type A	m.	91		
S9.10(11)	Joint fillers and sealer				
	i) Elastic filler	sq.m	24		
	ii) Joint sealer	m	72		
	Sub - total Section 9				
S12.12(9)	Section 12 : Permanent Equipment and Miscellaneous Works Miscellaneous metal works - Ring girder	kg.	13,684		
	Sub - total Section 12				
S13.14(2)	Section 13 : Steel Liners and Steel Conduit Pipes Steel Liners and steel conduit pipes i) Steel liners dia.1.20 m. 11.10 mm. Thk.	m.	2,203		
	Sub - total Section 13				
GRAND TOTAL OF GROUP 3					

**SCHEDULE OF QUANTITIES, RATES AND PRICES-SUMMARY OF BID AMOUNT FOR
GROUP 4 : O&M ROAD AND ACCESS ROAD**

SECTION NO.	SECTION TITLE	SUB-TOTAL AMOUNT BAHT
3 4 6 9	SURFACE EXCAVATION FILL AND BACKFILL ROAD CONSTRUCTION CONCRETE WORKS	
TOTAL OF BID AMOUNT GROUP 4		

SCHEDULE OF QUANTITIES, RATES AND PRICES
GROUP 4 : O&M ROAD AND ACCESS ROAD

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE BAHT	AMOUNT BAHT
	Section 3 : Surface Excavation				
	<i>Access Road</i>				
S3.09(4)	Common Excavation	cu.m	1,308		
	<i>O&M Road 2</i>				
S3.09(4)	Common Excavation	cu.m	7,160		
	<i>O&M Road 3</i>				
S3.09(4)	Common Excavation	cu.m	138		
	Sub - total Section 3				
	Section 4 : Fill and Backfill				
	<i>Access Road</i>				
S4.07(1)	Compacted backfill and fill	cu.m	12,040		
S4.07(3)	Compacted coarse sand	cu.m	701		
	<i>O&M Road 2</i>				
S4.07(1)	Compacted backfill and fill	cu.m	2,486		
S4.07(3)	Compacted coarse sand	cu.m	1,952		
	<i>O&M Road 3</i>				
S4.07(1)	Compacted backfill and fill	cu.m	53		
S4.07(3)	Compacted coarse sand	cu.m	86		
	Sub - total Section 4				
	Section 6 : Fill and Backfill				
	<i>Access Road</i>				
S6.13(4)	Compacted Laterite	cu.m	26,336		
	<i>O&M Road 2</i>				
S6.13(4)	Compacted Laterite	cu.m	2,421		
	<i>O&M Road 3</i>				
S6.13(4)	Compacted Laterite	cu.m	68		
	Sub - total Section 6				
	Section 9 : Concrete Works				
	<i>Access Road</i>				
S9.10(3)	Reinforcing bars	kg.	21,718		
S9.10(6)	Structure concrete				
	i) Concrete fc' = 280 ksc.	cu.m	903		
S9.10(11)	Joint for access roads				
	i) Mastic Joint Sealer	m	574		
	ii) Plastic sheet	sq.m	689		
	iii) Elastic filler	sq.m	11		
	<i>O&M Road 2</i>				
S9.10(3)	Reinforcing bars	kg.	61,218		
S9.10(6)	Structure concrete				
	i) Concrete fc' = 280 ksc.	cu.m	2,543		
S9.10(11)	Joint for access roads				
	i) Mastic Joint Sealer	m	1,470		
	ii) Plastic sheet	sq.m	1,764		
	iii) Elastic filler	sq.m	26		
	<i>O&M Road 3</i>				
S9.10(3)	Reinforcing bars	kg.	2,770		
S9.10(6)	Structure concrete				
	i) Concrete fc' = 280 ksc.	cu.m	111		

S9.10(11)	Joint for access roads				
	i) Mastic Joint Sealer	m	67		
	ii) Plastic sheet	sq.m	80		
	iii) Elastic filler	sq.m	1		
	Sub - total Section 9				
GRAND TOTAL OF GROUP 4					

**SCHEDULE OF QUANTITIES, RATES AND PRICES-SUMMARY OF BID AMOUNT FOR
GROUP 5 : SURGE TANK**

SECTION NO.	SECTION TITLE	SUB-TOTAL AMOUNT BAHT
3	SURFACE EXCAVATION	
4	FILL AND BACKFILL	
7	PROTECTION AND SUPPORT EXCAVATION	
9	CONCRTE TE WORKS	
12	PERMANENT EQUIPMENT AND MISCELLANEOUS METAL WORKS	
13	STEEL LINERS AND STEEL CONDUIT PIPES	
14	MISCELLANEOUS WORKS	
TOTAL OF BID AMOUNT GROUP 5		

SCHEDULE OF QUANTITIES, RATES AND PRICES
GROUP 5 : SURGE TANK

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE BAHT	AMOUNT BAHT
S3.09(2)	Section 3 : Surface Excavation Clearing and Grubbing	sq.m	58		
S3.09(3)	Stripping	cu.m	18		
S3.09(4)	Common Excavation	cu.m	2,871		
S3.09(9)	Demolish Existing Structure i) Existing Forebay	cu.m	11		
	Sub - total Section 3				
S4.07(1)	Section 4 : Fill and Backfill Compacted backfill and fill	cu.m	2,323		
	Sub - total Section 4				
S7.04(1)	Section 7 : Protection and Support Excavation Riprap	cu.m	26		
S7.04(4)	6.00x2.00x0.30 Mattress	sq.m.	22		
	Sub - total Section 7				
S9.10(3)	Section 9 : Concrete Works Reinforcing bars	kg.	21,138		
S9.10(6)	Structure concrete i) Concrete fc' = 210 ksc.	cu.m	447		
S9.10(8)	Miscellaneous concrete i) Lean concrete	cu.m	5		
	ii) Plain Concrete With 0.30 (min.) Dump Rock	cu.m	145		
S9.10(11)	Joint fillers and sealer i) Mastic Joint Sealer	m	30		
	ii) Plastic sheet	sq.m	20		
	Sub - total Section 9				
S12.12(9)	Section 12 : Permanent Equipment and Miscellaneous Works Miscellaneous metal works i) Ring Girder Stiffener & Side Column	kg.	20,456		
	ii) Surge Tank Cover Plate	kg.	2,612		
	iii) Steel Tank 18 mm. THK.	kg.	40,716		
	iv) Ladder Rungs	kg.	1,388		
	v) Cover Plate for Penstock Valve Chamber	kg.	318		
	vi) Cover Plate for Sediment Valve Chamber	kg.	77		
	vii) Gate Valve Ø 1.10 m.(Emergency valve chamber)	set	1		
	viii) Gate Valve Ø 0.30 m.(Sediment valve chamber)	set	1		
	Sub - total Section 12				
S13.14(2)	Section 13 : Steel Liners and Steel Conduit Pipes Steel Liners and steel conduit pipes i) Steel liners dia.1.20 m. 11.1 mm. THK.	m.	3.5		
	ii) Steel liners dia.1.10 m. 11.1 mm. THK.	m.	8.0		
	iii) Steel Pipe dia.0.30 m.	m.	387		

SCHEDULE OF QUANTITIES, RATES AND PRICES
GROUP 5 : SURGE TANK

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
	Sub - total Section 13				
S14.06(5)	Section 14 : Miscellaneous Works PVC pipe and component dia. 100 mm.	m.	9		
	Sub - total Section 14				
GRAND TOTAL OF GROUP 5					

**SCHEDULE OF QUANTITIES, RATES AND PRICES-SUMMARY OF BID AMOUNT FOR
GROUP 6 : PENSTOCK**

SECTION NO.	SECTION TITLE	SUB-TOTAL AMOUNT BAHT
3	SURFACE EXCAVATION	
4	FILL AND BACKFILL	
9	CONCRTEE WORKS	
12	PERMANENT EQUIPMENT AND MISCELLANEOUS METAL WORKS	
13	STEEL LINERS AND STEEL CONDUIT PIPES	
TOTAL OF BID AMOUNT GROUP 6		

SCHEDULE OF QUANTITIES, RATES AND PRICES
GROUP 6 : PENSTOCK

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE BAHT	AMOUNT BAHT
	Section 3 : Surface Excavation				
S3.09(2)	Clearing and Grubbing	sq.m	3,763		
S3.09(3)	Stripping	cu.m	1,129		
S3.09(4)	Common Excavation	cu.m	5,244		
S3.09(5)	Rock Excavation				
	i) Weathered rock	cu.m	1,048		
	ii) Sound rock	cu.m	699		
S3.09(9)	Demolish Existing Structure				
	i) Existing Thrust Block	cu.m	199		
	ii) Remove Existing Penstock	cu.m	416		
	Sub - total Section 3				
	Section 4 : Fill and Backfill				
S4.07(1)	Compacted backfill and fill	cu.m	1,783		
	Sub - total Section 4				
	Section 9 : Concrete Works				
S9.10(3)	Reinforcing bars	kg.	60,149		
S9.10(6)	Structure concrete				
	i) Concrete fc' = 210 ksc.	cu.m	2,576		
S9.10(8)	Miscellaneous concrete				
	i) Lean concrete	cu.m	59.0		
	ii) Plain Concrete With 0.30 (min.) Dump Rock	cu.m	61		
	Sub - total Section 9				
	Section 12 : Permanent Equipment and Miscellaneous Works				
S12.12(9)	Miscellaneous metal works				
	i) Ring Girder	kg.	30,408		
	ii) Wye (Ring and Beam)	kg.	5,993		
	Sub - total Section 12				
	Section 13 : Steel Liners and Steel Conduit Pipes				
S13.14(2)	Steel Liners and steel conduit pipes				
	i) Steel liners dia.1.10 m.	m.	404		
	ii) Steel liners dia.0.55 m.	m.	30		
	Sub - total Section 13				
GRAND TOTAL OF GROUP 6					

**SCHEDULE OF QUANTITIES, RATES AND PRICES-SUMMARY OF BID AMOUNT FOR
GROUP 7 : POWERHOUSE**

SECTION NO.	SECTION TITLE	SUB-TOTAL AMOUNT BAHT
3	SURFACE EXCAVATION	
4	FILL AND BACKFILL	
5	DRAINAGE	
7	PROTECTION AND SUPPORT EXCAVATION	
9	CONCRTE WORKS	
11	BUILDING CONSTRUCTION	
12	PERMANENT EQUIPMENT AND MISCELLANEOUS METAL WORKS	
15	ILLUMINATION EQUIPMENT	
16	22 KV TRANSMISSION LINE AND LOW TENSION CABLE	
TOTAL OF BID AMOUNT GROUP 7		

SCHEDULE OF QUANTITIES, RATES AND PRICES
GROUP 7 : POWERHOUSE

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE BAHT	AMOUNT BAHT
	Section 3 : Surface Excavation				
S3.09(2)	Clearing and Grubbing	sq.m	377		
S3.09(3)	Stripping	cu.m	113		
S3.09(4)	Common Excavation	cu.m	3,581		
S3.09(5)	Rock Excavation				
	i) Weathered rock	cu.m	1,534		
S3.09(9)	Demolish Existing Structure				
	i) Existing Power House	cu.m	308		
	ii) Existing Retaining Wall	cu.m	128		
	iii) Existing Drain	cu.m	84		
	Sub - total Section 3				
	Section 4 : Fill and Backfill				
S4.07(1)	Compacted backfill and fill	cu.m	5,245		
	Sub - total Section 4				
	Section 5 : Drainage				
S5.10(6)	Drain pipes				
	i) Furnishing and installing RC. Ø 0.60 m.	m.	50		
	ii) MH for Ø 0.60 Drain Culvert	unit	4		
	iii) Gutter drain	m.	226		
	Sub - total Section 5				
	Section 7 : Protection and Support Excavation				
S7.04(1)	Mattress - 6.00x2.00x0.30 m	cu.m	63		
S7.04(1)	Riprap	cu.m	44		
S7.04(1)	Geotextile	sq.m.	274		
S7.04(1)	Dump Rock	sq.m.	136		
S7.04(6)	Sodding	sq.m.	48		
	Sub - total Section 7				
	Section 9 : Concrete Works				
S9.10(3)	Reinforcing bars	kg.	102,869		
S9.10(6)	Structure concrete				
	i) Concrete fc' = 280 ksc.	cu.m	64		
	ii) Concrete fc' = 210 ksc.	cu.m	672		
	iii) Plain Concrete	cu.m	42		
	ix) Plain Concrete with 0.30 (min) Dump Rock	cu.m	64		
S9.10(8)	Miscellaneous concrete				
	i) Lean concrete	cu.m	12		
S9.10(9)	Waterstops				
	i) PVC waterstop type A	m.	66		
	Sub - total Section 9				
	Section 11 : Building Construction				
	Metal Sheet Sprayed with Polyurethane Foam 1" thk.	sq.m.	631		
	Roof Structure	kg.	20,226		
S11.14(2)	Brick walls				
	i) Cement plastering brick walls	sq m	1,946		

SCHEDULE OF QUANTITIES, RATES AND PRICES
GROUP 7 : POWERHOUSE

S11.14(4)	Doors and windows				
	i) D3-Hardwood 0.90x2.25 m	set	1		
	ii) D4-Hardwood 0.90x2.00 m	set	5		
	iii) D5-PVC door 0.80 x 2.00 m	set	2		
	iv) D6-Aliminium door 2.50 x 2.50 m	set	1		
	v) W1-Opening window 3.40 x 1.50 m	set	2		
	vi) W2-Opening window 1.70 x 1.50 m	set	8		
	vii) W3-Opening window 3.40 x 0.50 m	set	1		
	viii) W4 Fixed glass window 3.40 x 1.50 m	set	3		
	ix) W5 Fixed glass window 1.20 x 0.50 m	set	8		
	x) W6 Sliding window 1.70 x 1.00 m	set	1		
	xi) W6 Sliding window 3.35 x 1.50 m	set	5		
Amount Carried Forward					

SCHEDULE OF QUANTITIES, RATES AND PRICES
GROUP 7 : POWERHOUSE

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE BAHT	AMOUNT BAHT
Amount Brought Forward					
S11.14(5)	Furnishing and Installing Steel Rolling Shutter Doors				
	i) D1-Steel roller shutter door size 5.50x5.85 m.	set	1		
	ii) D1-Steel roller shutter door size 3.50x3.20 m.	set	1		
S11.14(7)	Floor finishes				
	i) Floor 1-Coarse finished	sq m	84		
	ii) Floor 2-Coated with Epoxy Resin	sq m	407		
	iii) Floor 12"x12" CERAMIC FLOOR TILES	sq m	9		
S11.14(8)	Wall finished				
	ii) 8"x8" CERAMIC WALL TILES	sq m	22		
S11.14(8)	Ceiling works				
	Gypsum board with T-bar stud 0.60 x 0.60 m, 9.0 mm thk.	sq m	141		
S11.14(11)	Signboard	LS	1		
S11.14(14)	Water supply and sanitary services	LS	1		
S11.14(15)	Seepage tank	LS	1		
S11.14(17)	Lightning protection system	LS	1		
	Sub - total Section 11				
S12.12(9)	Section 12 : Permanent Equipment and Miscellaneous Works				
	Miscellaneous metal works				
	i) Galvanize steel Handrail	m.	127		
	ii) Cable trench type A	m.	35		
	iii) Outdoor Cable trench	m.	7		
	iv) Steel Stair	kg.	400		
	Sub - total Section 12				
S15.05(1)	Section 15 : Illumination Equipment				
	Indoor illumination equipment	L.S.	1		
S15.05(2)	Outdoor illumination equipment and main low power cable				
	i) Main low power cable in powerhouse	L.S.	1		
S15.05(3)	Air- condition				
	i) Air condition 36,000 BTU	set	2		
	ii) Air condition 24,000 BTU	set	1		
S15.05(4)	Ventilator 12"	set	7		
S15.05(5)	Miscellaneous equipments	L.S.	1		
	Sub - total Section 15				
16.10(2)	Section 16 : 22 kV Transmission Line and Low Tension Cable				
	Furnishing and Installing of 22 kV Transmission Line	km.	8.086		
16.10(3)	Main Power Cable Low Voltage ๓ AC. Distribution-Load Schedule of Panel Board	L.S.	1		
16.10(5)	Load Schedule of Panel Board ๓ Power House	L.S.	1		
16.10(6)	Electric Device ๓ Switchyard	L.S.	1		
	Sub - total Section 16				
GRAND TOTAL OF GROUP 7					

SCHEDULE OF QUANTITIES, RATES AND PRICES
GROUP 7 : POWERHOUSE

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
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**SCHEDULE OF QUANTITIES, RATES AND PRICES-SUMMARY OF BID AMOUNT FOR
GROUP 8 : TAILRACE**

SECTION NO.	SECTION TITLE	SUB-TOTAL AMOUNT BAHT
9	CONCRTE TE WORKS	
12	PERMANENT EQUIPMENT AND MISCELLANEOUS METAL WORKS	
TOTAL OF BID AMOUNT GROUP 8		

SCHEDULE OF QUANTITIES, RATES AND PRICES
GROUP 8 : TAILRACE

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE BATH	AMOUNT BATH
	Section 9 : Concrete Works				
S9.10(3)	Reinforcing bars	kg.	35,619		
S9.10(6)	Structure concrete				
	ii) Concrete fc' = 210 ksc.	cu.m	250		
S9.10(8)	Miscellaneous concrete				
	i) Lean concrete	cu.m	13		
S9.10(9)	Waterstops				
	i) PVC waterstop type A	m.	14		
S9.10(11)	Joint fillers and sealer				
	i) Elastic filler	sq.m	4		
	Sub - total Section 9				
	Section 12 : Permanent Equipment and Miscellaneous Works				
S12.12(8)	Supply and installation gate and hoist				
	Vertical gate size 1.50 x 1.50 m with 6500 Kg. Vertical Scew-Lift	set	2		
S12.12(9)	Miscellaneous metal works				
	Ladder Rungs	kg.	20		
	Sub - total Section 12				
GRAND TOTAL OF GROUP 8					