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THE DETAILED DESIGN SINUDY ONI THE WATER TRANSBASIN SCHEMES FOR CHONE, PORTOWIEJO RIVER BASINS

> FINAL REPORT WOLLUME IX COST ESTIMATE

> > IMAROHI (1998/\*

INIÉRONI:KOĘII:COI, ILMOI IIOKyo, Japan

## JAPAN INTERNATIONAL COOPERATION AGENCY

CENTRO DE REHABILITACION DE MANABI (CRM) THE REPUBLIC OF ECUADOR

## THE DETAILED DESIGN STUDY ON THE WATER TRANSBASIN SCHEMES FOR CHONE - PORTOVIEJO RIVER BASINS

## FINAL REPORT VOLUME IX COST ESTIMATE



**MARCH 1995** 

NIPPON KOEI CO., LTD. Tokyo, Japan

ESTIMATE OF PROJECT COST Price Level : August 1994 Currency Exchange Rate : US\$1 = S/. 2,250 = Yen 100

## FINAL REPORT

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## COST ESTIMATE

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## ABBREVIATION

## Ecuadorian Institutions

CEDEGE	: Committee for Guayas River Basin Development
CETUR	: Ecuadorian Corporation for Tourism
CLIRSEN	: Integrated Center for Remote Sensing Survey
CONADE	: National Development Council
CPC	: Chamber of Shrimp Producer
CRM	: Manabi Rehabilitation Center
DIGMER	: Directorate General of Merchant Marine
DINAC	: National Directorate of Valuation and Cadastre
DINAF	: National Directorate of Forestry
DITURIS	: Directorate of Tourism
ЕМАРАМ	: Municipal Enterprise of Potable Water and Sewerage of Manta
ESPOL	: Polytechnic Littoral College
GOE	: Government of Ecuador
IEOS	: Ecuadorian Institute of Sanitary Works
IERAC	: Ecuadorian Institute for Agrarian Reform
IGM	: Geographic Military Institute
INAMHI	: National Institute of Meteorology and Hydrology
INEC	: National Institute of Statistics and Census
INECEL	: Ecuadorian Institute for Electrification
INEFAN	: Ecuadorian Institute of Forestry and Natural Areas
INEN	: Ecuadorian Institute of Standards
INERHI	: Ecuadorian Institute of Water Resources
INIAP	: Institute of Agricultural Investigations
INOCAR	: Military Oceanographic Institute
JRH	: Jipijapa and Pajan Board of Water Resources
MAG	: Ministry of Agriculture and Livestock
MICIP	: Ministry of Industry, Commerce, Integration and Fishery
мор	: Ministry of Public Works and Communications
PFI	: Institutional Reinforcement Planning Unit of CRM

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# PHIMA: Integrated Water Resources Development Plan of ManabiPMRC: Management Program of Coastal Resources

## International or Foreign Institutions

101	American Concrete Institute	
ACI	; Anerican Concrete Institute	
ASCE	: American Society of Civil Engineers	
ASTM	: American Society for Testing and Materials	6 <sup>1</sup> 4
CAF	: Corporación Andina de Fomento	7.1
CEPIS	: Panamerican Center for Sanitary Engineering and the Environmer	nt
CIDIAT	: Interamerican Center for Integrated Development of Water and La	and
FAO	: Food and Agriculture Organization of the United Nations	5 (z 3).
IDB/BID	: Interamerican Development Bank	:
IEC	: International Electrotechnical Commission	
JEC	: Japanese Electrotechnical Committee	8 . <sup>1</sup>
JICA	: Japan International Cooperation Agency	· · · 3
JIS	: Japanese Industrial Standards	
OAS/OEA	: Organization of American States	· ' :
OECF	: Overseas Economic Cooperation Fund of Japan	te de
SCS	: Soil Conservation Service of USDA	:
UNDP	: United Nations Development Program	
USA	: United States of America	
USAID	: United States Agency for International Development	
USDA	: United States Department of Agriculture	- 1.)
WHO	: World Health Organization of the United Nations	1211
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#### **Technical Terms**

A.C.	: Alternating Current
ACSR	: Aluminum Cable Steel Reinforced
BOD	: Biochemical Oxygen Demand
COD	: Chemical Oxygen Demand

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D.C.	: Direct Current
DO	: Dissolved Oxygen
EC/CE	: Electrical Conductivity
EIA	: Environmental Impact Assessment
ЕММР	: Environmental Management and Monitoring Plan
FEM	: Finite Element Method
F.M.	: Finess Modulus
F/S	: Feasibility Study
FWL	: Flood Water Level
GPS	: Global Positioning System
H	: Horizontal
HWL	: High Water Level
IEE	: Initial Environmental Examination
IPM	: Integrated Pest Management
LACAT	: Program for Warm Tropical Lakes
LWL	: Low Water Level
MOL	: Minimum Operating Level
NATM	: New Austrian Tunneling Method
PLC	: Power Line Carrier
RWL	: Reservoir Water Level
SPT	: Standard Penetration Test
ST	: Station
T-N	: Total Nitrogen
T-P	: Total Phosphorus
TRMS	: Transbasin and Reservoir Management System
TSS	: Total Suspended Solid
V	: Vertical
ZEM	: Special Zone for Management

Economic Terms and Others

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CIF

Cost Insurance and Freight

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EIRR	: Economic Internal Rate of Return	
FC	: Foreign Currency	
FIRR	: Financial Internal Rate of Return	
FOB	Free on Board states and states	,
GDP	: Gross Domestic Product	2
GRP	: Gross Regional Product	Ξ.
IVA	: Sales Tax or Value Added Tax	
LC	: Local Currency	
NGO/ONG	: Non Governmental Organization	

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## ABBREVIATION OF MEASURES

Length			Energy		
mm	=	millimetre	Kcal	=	Kilocalorie
cm	=	centimetre	KW, Kw	=	kilowatt
m	=	metre	MW, Mw	~	megawatt
km	=	kilometre	KWh, Kwh	=	kilowatt-hour
masl	z	metre above sea level	GWh, Gwh	=	gigawatt-hour
EL.	=	elevation	V	=	volt
			KV	=	kilovolt
Area			КУА	=	kilovolt ampere
ha	=	hectare	MVA	=	megavolt ampere
m²	=	square metre	Hz	=	Hertz
km²	=	square kilometre			
			Others		
Volume			%	5	percent
l, lit	=	litre	•	=	degree
Kl, Klit	=	kilolitre	•	=	minute
l/s .	=	litre per second	1)	Ξ	second
m <sup>3</sup>	=	cubic metre	<b>'</b> C	=	degree Celsius
m³/s, cms	=	cubic metre per second	MD, md	=	man-day
m³/min	=	cubic metre per minute	mil.	=	million
m³/hr	=	cubic metre per hour	NO. Nos	=	number
MCM, mcm	=	million cubic metre	pers,	=	person
m³/ð, cmd	=	cubic metre per day	Umho	=	micromho
			ppt	=	parts per thousand
Weight			ppm	=	parts per million
mg	=	milligram	ррб	=	parts per billion
mg/l	=	milligram per litre	1/h/đ	=	litre per person per day
meq/l	=	milli-equivalent per litre	g/c/d	=	gram per capita per day
8	=	gram	LS	=	···· 1 ··· ·
kg	=	kilogram	MPN	=	most probable numbers
t, ton	=	ton	O&M	Ξ	Operation and Maintenance
t∕y	=	ton per year	p.a.	=	per annum
MT	=	metric ton	rpm	=	revolutions per minutes
Time					
sec	=	second			
min	=	minute			
hr, HR	=	hour			
đ	=	day			
уг	=	year			
Money					
s/.	Ħ	Ecuadorian Sucres			
¥	=	Japanese Yen			
US\$	=	U.S. Dollars			

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#### 1. GENERAL

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This report presents the construction cost for the implementation of the Water Transbasin Project for Chone-Portoviejo River Basin. The Project is divided into three international tender packages.

The construction cost of the project is estimated on the basis of the detailed design and the proposed construction plan and schedule. In order to attain an accurate cost estimate, an unit price estimate method is mainly applied for each work. Furthermore, the estimate procedures and the breakdown are applied taking into account of a recent tender system and a financial source.

The unit prices are estimated and analyzed on the basis of local conditions, the proposed construction method, accurate unit rated of labor, material cost and equipment cost, and the cost data referring to the recent tender prices on the similar project.

#### 2. BASIC CONDITIONS

The basic conditions and assumptions applied for the cost estimate are presented below:

The unit prices and rates are based on the current prices for labor, material and equipment as of August 1994.

- The estimated cost is composed of a foreign currency portion expressed in US Dollar and a local currency portion of Ecuadorian Sucre. The total amount is converted into Ecuadorian Sucre and US Dollar as an equivalent price.

The exchange rate is employed in consideration of the prevailing exchange rate in August 1994. The exchange rate used in this cost estimate is as follows:

US 1.0 = Yen 100 = S/2,250 (1 Yen = S/.22.5)

- The work quantities are calculated from the detailed design drawings and the technical specifications of the tender documents. The work quantities are shown in APPENDIX.

 The construction works will be carried out by contractors selected through an international competitive bidding in accordance with a guideline of the financial source.

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#### 3. CONSTITUTION OF CONSTRUCTION COST

The construction cost consist of a direct cost and an indirect cost. The direct construction cost is estimated based on the work items and quantities derived from the detailed design. This cost includes the labor cost, material cost, equipment cost and contractor's indirect cost such as overhead and profit. The direct construction cost is estimated in the breakdown of cost estimate as shown in APPENDIX.

#### (1) Direct Construction Cost as he by an eye again the above set of a construction of the set of th

- Package 1: Civil Works for Daule-Peripa ~ La Esperanza Transbasin

General items, Daule-Peripa-La Esperanza diversion tunnel, Conguillo work adit, El Guasmo work adit, Membrillo work adit, Conguillo access road, El Guasmo access road and Membrillo outlet access road.

- Package 2: Civil Works for La Esperanza-Poza Honda Transbasin and Poza Honda-Mancha Grande Transbasin.

> General items, Severino pumping station, Severino penstock, Severino head tank, Severino substation, Severino open channel, La Esperanza-Poza Honda diversion tunnel, Poza Honda-Mancha Grande diversion tunnel, La Seca work adit, Los Cuyuyes work adit, Poza Honda work adit, Severino access road, Caña Dulce access road, La Seca access road, Los Cuyuyes access road, Poza Honda inlet access road and Daule-Peripa 138 kV switchgear yard.

(2)

- Package 3:

Electrical and Mechanical Works for Daule-Peripa ~ La Esperanza, La Esperanza ~ Poza Honda and Poza Honda ~ Mancha Grande Transbasins.

Section 1: Severino pumping station, Severino penstock, Severino substation and Daule-Peripa~Severino transmission line.

Section 2: Conguillo inlet

Section 3: Poza Honda inlet

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#### (2) Indirect Cost

Indirect cost is comprised of as follows:

- Land acquisition and compensation
- Administration expenses
- Engineering services
- Physical contingency
- Price escalation

#### 4. DIRECT CONSTRUCTION COST

#### 4.1 Civil Works

#### 4.1.1 General Items

The cost for general items include the cost for temporary buildings, water supply system, power supply system, telecommunication system, construction road and maintenance, laboratory equipment, exploratory borings, monument and memorial, camps for CRM and Supervision, office furnitures for CRM, first aid facilities, and vehicles for CRM and Supervision.

The cost for general items is estimated at lump sum and provisional sum costs based on the Specifications and the proposed construction plan. The breakdown of general items is shown in APPENDIX.

#### 4.1.2 Cost Component of Direct Construction Cost

The direct construction cost of civil works is estimated by adopting unit prices and lump sum, based on labor cost and the cost of materials, construction equipment and plants. The contractor's indirect cost consisting of overhead expenses and profit is included in the unit price of each work item. The main components of the cost are described as follows:

(1) Labor Cost

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All the labors required for the construction are assumed to be local labors. However, some foreign technicians such as foreman, mechanics and specialist are considered for the special works. The direct daily wages in 8-hour shift of labor applied to the cost estimate are based on the wages obtained in Guayaquil and Portoviejo. The labor cost is shown in Table 4.1.

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#### (2) Material Cost

Most of the construction materials are to be supplied by contractors mainly from local market. Major local materials employed in the cost estimated are cement, fuel, gasoline, reinforcement bar, asphalt bitumen, structural steel, explosives, timber, plywood, concrete aggregate, and so on. The local material prices are assumed to be purchased price at site including inland transportation expenses from the market. The local material prices are divided into foreign and local portions, and the local material prices include the IVA (Sales tax). 衝

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While, imported material costs for H shape steel rib, consumable goods of drilling, grouting and concrete works, etc. are estimated referring to the prevailing prices in Japan. The cost is estimated on the basis of CIF price at Guayaquil, including freight and insurance premium. The CIF price is estimated in foreign currency. The cost of handling charge at port and inland transportation expenses from Guayaquil to the site are included in the material price and estimated in tocal currency. The imported materials are exempted from import duties and IVA (Sales tax). The material cost is shown in Table 4.2.

#### (3) Equipment Cost

The construction equipment and plant will be provided by a contractor. The prices of equipment are prevailing prices in Japan on August 1994. The equipment cost is estimated based on the CIF price at Guayaquil. The import duties and taxes for equipment is excluded in this cost estimate according to the re-export conditions after the completion of the project. The equipment cost is divided into foreign and local portion. The foreign currency portion includes mainly depreciation cost, spare parts and consumable cost, while the local portion includes the cost of mechanic labour cost for the repair and maintenance and administration expenses. The equipment cost is listed in Table 4.3.

#### (4) Contractor's Indirect Cost

Contractor's indirect cost is to be overhead expenses and profit for the contractor. The overhead expenses comprise general administrative expenses and field expenses. The general administrative expenses are salaries and allowances for the contractor's personnel, legal welfare expenses, international travelling and communication expenses, depreciation, insurance and so on. The field expenses and allowances are the cost of the contractor's personnel, camp operation, labour control expenses, inland travelling expenses, security, insurance and bond, stationery and communication expenses and so on. The overhead expenses and profit are distributed to the price or lump sum of each work item. These expenses are estimated at 25% of direct unit cost comprising labor cost, material cost and equipment cost.

(5) Direct Construction Cost

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The unit price for various work items in the bill of quantity are estimated in accordance with the above conditions. The unit price for civil works are as shown in APPENDIX.

#### 4.2 Electrical and Mechanical Works

The prices for main pumps, valves, motors, transformers, switchgears, 13.8 kV distribution lines, 138 kV transmission lines, trashracks, gates, discharge penstocks, etc. in the Package 3 are estimated on the basis of the recent international contract prices of similar equipment units. The cost of imported equipment and materials is estimated at CIF price at Guayaquil in foreign currency portion. The import duties and taxes are not included in the cost estimate. The cost for supply and delivery of imported items, ocean freight and insurance are included in the foreign currency portion. The cost for unloading and other charges at port and inland transportation expenses are estimated in the local currency portion. The installation costs are portionally shared by the foreign and local portions.

#### 5. INDIRECT COST

#### 5.1 Land Acquisition and Compensation

All required land acquisition and compensation shall be carried out by the CRM along the project implementation schedule. Those costs include the costs required for the acquisition of construction areas, transmission line routes, road alignment and the temporary land area, as shown in Table 5.1.

#### 5.2 Administration Expenses

The administration expenses of CRM for project implementation are estimated to be 2% of the direct construction cost and allocated to the local currency portion.

#### 5.3 Engineering Services

The cost for engineering services is estimated based on the assumed man-month of foreign and local consultants to be employed during the implementation of the project. The assumed man-month is to be 323 M/M for foreign and 405 M/M for local.

#### 5.4 Contingencies

Contingencies are provided to cope with unforeseen physical condition (physical contingency) and inflation (price contingency). The physical contingency is taken to be 10% of a sum of the Package 1 and Package 2 construction costs, land acquisition and compensation. The rate of 5% for administration expenses and engineering services is applied. As for the Package 3 work, 3% is to be applied for the physical contingency. The price contingency is estimated applying annual inflation rate of 3% for foreign currency portion. For local currency portion, the actual annual inflation rate in recent years is more than 40% and it is almost impossible to predict future inflation rate of Ecuadorian Sucre. Therefore, the price contingency for the local currency portion is estimated by converting the local currency portion into US Dollars and applying the same inflation rate of 3% per annum in terms of US Dollars.

6. CONSTRUCTION COST

The construction cost is summarized in Table 6.1.

The Breakdown of construction cost is shown in Table 6.2 to Table 6.3. The Priced Bill of Quantities (Detailed Construction Cost) is shown in APPENDIX A (Package 1), APPENDIX B (Package 2) and APPENDIX C (Package 3).

## 7. ANNUAL DISBURSEMENT SCHEDULE

The annual disbursement is estimated according to the construction schedule and summarized as follows. The disbursement schedule of the construction cost is tabulated in Table 7.1.

			(1,000 US\$)
	Foreign Currency	Local Currency	Total
1996	0.00	144.02	144.02
1997	27,435.56	14,474.41	41,909.97
1998	35,586.76	15,298.65	50,885.41
1999	30,268.42	14,127.30	44,395.72
2000	39,663.03	12,468.09	52,131.12
2001	10,592.30	4,752.40	15,344.70
Total	143,546.07	61,264.87	204,810.94

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Description	Unit	Foreign Currency		Local
		J.Yen	Equiv.US\$	Currency
Foreman, foreign	M.D.	30,000	300	-
Technician, foreign	M.D.	20,000	200	-
Foreman, tunnel	M.D.	-	•	24,700
Foreman	M.D.	-	-	20,600
Mechanic	M.D.	· • .	-	25,700
Electrician	M.D.	-	-	25,700
Operator, heavy	M.D.	-	-	25,600
Operator, light	M.D.	-	-	20,500
Assistant operator	M.D.	· ·	•	17,900
Plant operator	M.D.	• •	. · · •	22,900
Driver, dump truck	M.D.	•	-	18,100
Driver, ordinary	M.D.	•	-	17,600
Rigger	M.D.	-	-	19,000
Carpenter	M.D.	-	-	19,000
Formworker	M.D.		-	19,000
Concrete worker	M.D.	• •	-	19,000
Driller	M.D.	•	-	17,300
Tunnel, worker	<b>M</b> .D.	<b>.</b>	-	20,200
Pipe fitter	<b>M.D.</b>	-	-	19,000
Brick worker	M.D.	-	-	13,000
Mason	M.D.	•	•	19,000
Plumber	<b>M.D.</b>	•	-	19,000
Painter	M.D.	• .	-	19,000
Welder	M.D.	-	•	19,000
Plasterer	M.D.	-	-	19,000
Powderman	M.D.	-	-	17,300
Reinforcing worker	M.D.	•	-	19,000
Boring worker	M.D.	•	-	20,200
Grout worker	M.D.	• •	-	20,200
Pavement worker	M.D.	-	-	19,000
Skilled worker	<b>M.D.</b>		-	20,900
Semi skilled worker	M.D.	-		19,000
Common labor	M.D.		-	17,300

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## Table 4.1 Labor Cost (Basic Wage Rate)

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Description	Unit		n Currency	Local	Currency	
		J.Yen	Equiv.US\$	Total	LC	Tax
Gasoline	litre	. <b>6</b>	0.06	582	581	1
Light oil	litre	4	0.04	354	353	. 1
Lubricant	litre	44	0.44	4,650	4,150	500
Grease	kg	58 .	0.58	6,045	5,396	650
Portland cement	ton	4,969	49.69	82,560	65,360	17,200
Bitumen 80/100	kg	1	0.01	147	131	16
Bitumen MC30	litre	1	0.01	147	131	16
Emulsion, K170	litre	· 1	0,01	147	131	16
Reinforcement, deformed	ton	24,556	245.56	408,000	323,000	85,000
Annealed iron wire	kg	58	0.58	960	760	200
Channel steel	ton	35,533	355.33	590,400	467,400	123,000
Angle steel	ton	35,533	355.33	590,400	467,400	123,000
Nail	kg	58	0.58	960	760	200
Dynamite, open	kg	0	0.00	9,153	8,343	810
Dynamite, tunnel	kg	0	0.00	9,153	8,343	810
ANFO	kg	0	0.00	2,034	1,854	180
Detonator, delay, open	No	0	0.00	4,407	4,017	390
Detonator, relay, tunnel	No	0	0.00	4,238	3,863	375
Lead wire	m	0	0.00	904	824	80
Fimber, square	m3	1,244	12.44	130,200	116,200	14,000
Timber, plant	m3	2,089	20.89	218,550	195,050	23,500
Timber, log	m3	1,067	10.67	111,600	99,600	12,000
Plywood	m3	23,333	233.33	661,500	556,500	105,000
(Poza Honda~Mancha Grande)	111.0	20,000	200100			,
Gravel, cobble	m3	610	6,10	7,846	5,884	1,962
Subbase	m3	851	8,51	10,940	8,205	2,735
Base	m3	904	9.04	11,620	8,715	2,905
Concrete aggregate	ton	734	7.34	9,439	7,079	2,360
Boulder, riprap, mason	m3	930	9.30	11,960	8,970	2,990
Sand	ton	745	7.45	9,576	7,182	2,394
Hot asphalt	ton	416	4.16	42,136	37,454	4,682
(Pumping station, open channel)	10ft	410	4,10	42,150	57,454	4,002
Gravel, cobble	m3	797	7.97	10,246	7,684	2,562
Subbase	m3	1,038	10.38	13,340	10,005	3,335
Base	m3	1,090	10.90	13,340	10,515	3,505
Concrete aggregate	ton	872	8.72	14,020	8,412	2,804
Boulder, riprap, mason	m3	3,117	0.72 11.17	14,360	10,770	2,804 3,590
Sand		786	7.86	14,300	7,576	2,525
Hot asphalt	ton ton	440	4.40	44,591	39,636	4,955
(La Esperanza~Poza Honda)	()II	440	4.40	44,371	57,030	ч,700
Gravel, cobble	m3	704	7.04	9,046	6,784	2,262
Subbase	m3	944	9.44	12,140	9,105	3,035
Base	m3	997	9.97	12,820	9,615	3,205
Concrete aggregate	ton	803	8.03	10,327	7,745	2,582
Boulder, riprap, mason	m3	1,024	10,24	13,160	9,870	3,290
Sand	ton	797	7.97	10,251	7,688	2,563
Hot asphalt	ton	428	4.28	43,364	38,546	4,818

Table 4.2 Construction Material Cost

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Description	Unit		Currency Equiv.US\$	Local Total	Currency LC	(S/.) Tax
(D. 1. D		- 7.1ML	1.4u11,000	1 1/101	<u>NV</u>	1 (1.)
(Daule-Peripa~La Esperanza)			<u> </u>	12 646	N 404	2 122
Gravel, cobble	m3	984	9.84	12,646	9,484	-3,162
Subbase	m3	1,224	12.24	15,740	11,805	3,935
Base	m3	1,277	12.77	16,420	12,315	4,105
Concrete aggregate	ton	1,011	10.11	12,994	9,745	3,249
Boulder, riprap, mason	m3 🗄	1,304	13.04	16,760	12,570	4,190
Sand	ton	903	9.03	11,614	8,710	2,904
Hot asphalt	ton	465	4.65	47,045	41,818	5,227
Lead wire	m	. 7	0.07	8	8	0
H-shape steel	ton	42,800	428.00	48,150	48,150	Ő
Channel steel	ton	58,850	588.50	66,206	66,206	. Ŭ
Steel plate	ton	53,500	535.00	60,188	60,188	. Ŭ
			434.42	48,872	48,872	: 0
Bit, 65 mm	No	43,442	521.09		40,072	0
Bit, 75 mm	No	52,109	521.09	58,623	58,984	
Rod, 38 mm, 3 m	No	52,430		58,984		0
Shank, for 38 nm	No	39,590	395.90	44,539	44,539	
Sleeve, for 38 mm	No	10,593	105.93	11,917	11,917	0
Bit, 32 mm	No	7,062	70.62	7,945	7,945	0
Bit, 36 mm	No	7,383	73.83	8,306	8,306	0
Bit, 38 mm	No	7,651	76.51	8,607	8,607	0
Bit, 48 nm	No	11,342	113.42	12,760	12,760	0
Taper rod, 2 m	No	9,737	97.37	10,954	10,954	. 0
Taper rod, 1.5 m	No	8,731	87.31	9,822	9,822	.0
Insert bit, 36 mm, 1.7 m	No	14,017	140.17	15,769	15,769	0
Air entrain agent	kg	257	2.57	289	289	0
Water reduced agent	kg	342	3.42	385	385	0
Agent, quick set	kġ	214	2.14	241	241	<u>;</u> 0
Agent, air bubble	kg	535	5,35	602	602	0
Metal form, 200*1500	No	2,782	27.82	3,130	3,130	0
Bolt and nut	No	27	0.27	30	30	Ō
Clamp	No	300	3.00	338	338	- Õ
Стір	No	37	0.37	42	42	Ŏ
Anchor bolt, 22 mm, 0.4 m	No	171	1.71	192	192	ŏ
Metal form, 200*1500	No	2,782	27.82	3,130	3,130	ŏ
Cone	No	19	0.19	21	21	. ŏ
Separator, 8-10 mm	m	71	0.71	80	80	0
Form oil	litre	321	3.21	361	361	Ő
Metal form, 150*1500	No	2,087	20.87	2,348	2,348	- Ŭ
Metal form, 100*1500	No	1,980	19.80	2,228	2,348	0
Hunch form, 200*1500	No	3,906	39.06	2,220 4,394	2,220 4,394	. 0
Pipe support		3,210	32.10	3,611	3,611	0
Portal frame	m No	4,173	41.73	4,695		0
	No				4,695	0
Boring rod, 40 mm, 1.5 m		12,412	124.12	13,964	13,964	
Boring rod, 40 mm, 3.0 m	No	17,762	177.62	19,982	19,982	0
Tube core barrel, 45 mm	No	15,943	159.43	17,936	17,936	0
Cross bit, 45 mm	No	11,021	110.21	12,399	12,399	0
Taper rod, 25 mm, 2 m	No.	15,622	156.22	17,575	17,575	0
Gas pipe, 40 mm	m	396	3.96	446	446	0
Gas pipe, 50 mm	m	546	5.46	614	614	0
Gas pipe, 65 mm	m	760	7.60	855	855	0
Scaffolding pipe	m	278	2.78	313	313	0

## Table 4.2 Construction Material Cost (Cont'd)

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Metal crown, 46 mmNo3,69236.924,1544,154Metal crown, 56 mmNo4,02340.234,5264,526Metal crown, 66 mmNo4,28042.804,8154,815Core tube, single, 46 mmNo15,943159.4317,93617,936Core tube, single, 56 mmNo19,153191.5321,54721,547Core tube, single, 66 mmNo22,363223.6325,15825,158Air bubble agentkg5355.35602602PVC pipe, 40 mmm2352.35264264	
Metal crown, 56 mmNo4,02340.234,5264,526Metal crown, 66 mmNo4,28042.804,8154,815Core tube, single, 46 mmNo15,943159.4317,93617,936Core tube, single, 56 mmNo19,153191.5321,54721,547Core tube, single, 66 mmNo22,363223.6325,15825,158Air bubble agentkg5355.35602602PVC pipe, 40 mmm2352.35264264	
Metal crown, 66 mmNo4,28042.804,8154,815Core tube, single, 46 mmNo15,943159.4317,93617,936Core tube, single, 56 mmNo19,153191.5321,54721,547Core tube, single, 66 mmNo22,363223.6325,15825,158Air bubble agentkg5355.35602602PVC pipe, 40 mmm2352.35264264	
Core tube, single, 46 mmNo15,943159,4317,93617,936Core tube, single, 56 mmNo19,153191.5321,54721,547Core tube, single, 66 mmNo22,363223.6325,15825,158Air bubble agentkg5355.35602602PVC pipe, 40 mmm2352.35264264	0 0 0 0
Core tube, single, 56 nmNo19,153191.5321,54721,547Core tube, single, 66 nmNo22,363223.6325,15825,158Air bubble agentkg5355.35602602PVC pipe, 40 nmm2352.35264264	
Core tube, single, 66 numNo22,363223.6325,15825,158Air bubble agentkg5355.35602602PVC pipe, 40 numm2352.35264264	0
Core tube, single, 66 numNo22,36323.6325,15825,158Air bubble agentkg5355.35602602PVC pipe, 40 numm2352.35264264	0
Air bubble agentkg5355.35602602PVC pipe, 40 nunm2352.35264264	
PVC pipe, 40 num m 235 2.35 264 264	
	0
Galvanized pipe, 150 nm m 3,724 37.24 4,190 4,190	0
Galvanized pipe, 100 mm m 2,119 21.19 2,384 2,384	<b></b>
Gabion, 0.4*1.2 m, 3.2 nm m 2,033 20.33 2,287 2,287	÷ <sup>1</sup> <b>0</b> . • •
Waterstop, 150 mm, 6 mm m 1,059 10.59 1,191 1,191	0
Waterstop, 200 mm, 6 mm m 1,338 13.38 1,505 1,505	
Waterstop, 300 mm, 9 nm m 2,611 26.11 2,937 2,937	0
Joint filler, 10 mm m2 899 8.99 1,011 1,011	0
Joint filler, 20 mm m2 1,798 17.98 2,023 2,023	0
PVC pipe, 25 mm m 161 1.61 181 181	Ŏ
PVC pipe, 50 nm m 321 3.21 361 361	0
PVC pipe, 75 nm m 631 6.31 710 710	Ŏ
PVC pipe, 100 mm m 931 9.31 1,047 1,047	ŏ
Cooling pipe, 25 mm m 407 4.07 458 458	ŏ
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	0
	<b>0</b>
	0
	0
Guardrail, 3.2 mm m 5,564 55.64 6,260 6,260	
Cast iron pipe, 300 mm m 5,757 57.57 6,477 6,477	0
Cast iron pipe, 75 mm m 899 8.99 1,011 1,011	0
Cast iron pipe, 100 mm m 1,241 12.41 1,396 1,396	0
Cast iron pipe, 150 mm m 2,151 21.51 2,420 2,420	. ref. a. <b>0</b>
Cast iron pipe, 200 mm m 3,274 32.74 3,683 3,683	12 A 14 0 A
PVC pipe, 150 mm m 1,787 17.87 2,010 2,010	0
PVC pipe, 200 mm m 2,686 26.86 3,022 3,022	0
Adhesive agent kg 556 5.56 626 626	0
Gas pipe, 20 mm m 268 2.68 302 302 Gas pipe, 40 mm m 306 3.06 446 446	0, 5 × 0, 5 × 0, 5 × 0
Gas pipe, 40 mm         m         396         3.96         446         446           Gas pipe, 85 mm         m         760         7.60         855         855	1. s. e. e. <b>0</b> . s
	0
Galvanized pipe, 100 mmm $2,119$ $21.19$ $2,384$ $2,384$ Galvanized pipe, 150 mmm $3,724$ $37.24$ $4,190$ $4,190$	ŏ
Ventilation pipe, 500 mmm $3,724$ $37.24$ $4,150$ $4,150$ Ventilation pipe, 500 mmm $1,391$ $13.91$ $1,565$ $1,565$	ŏ
Ventilation pipe, 600 mm m 1,605 16.05 1,806 1,806	ŏ
Wire mesh, 3.2 mm, 50*50 m2 337 3.37 379 379	ŏ
Wire mesh, 3.2 nm, 100*100 m2 166 1.66 187 187	Ŏ
SN dry mortar kg 64 0.64 72 72	i di Öraa
Topac capsle, 25*500 No No 621 6.21 66 699 699 699	0
Wire net, fence m2 642 6.42 722 722	0

Table 4.2 Construction Material Cost (Cont'd)

Description	HP-KW	Unit	Foreig	gn Currency	Local
	: 	·	J.Yen	Equiv.US\$	Currency
Bulldozer, 21 t	207	н	4,510	45,10	21,440
Bulldozer, 11 t	100	Н	2,050	20.05	9,745
Bulldozer w/ripper, 32 t	318	Н	7,400	74.00	36,550
Backhoe, 0.6 m3	126	H	2,890	28,90	13,736
Backhoe, 0.2 m3	51	Н	1,479	14,79	6,735
Tractor shovel, 2.2 m3	205	Н	3,578	35,78	17,010
Tractor shovel, 1.2 m3	93	Н	1,985	19,85	9,037
Dump truck, 11 t	335	Н	1,616	16.16	6,816
Dump truck, 8 t	244	Н	1,210	12.10	5,507
Truck crane, 20 t	232	Н	3,804	38.04	15,102
Truck crane, 30 t	274	H	5,705	57.05	22,654
Crawler drill, 7 m3/min, 30 kg		Н	1,482	14.82	6,074
Crawler drill, 10 m3/min, 150 kg		Н	2,007	20.07	8,223
Jack hammer, 20 kg	:	D	1,000	10.00	2,063
Leg hammer, 30 kg		D	1,308	13.08	2,699
Pick hammer, 7 kg		D	181	1.81	373
Motor grader, 3.7 m	151	Н	2,644	26.44	12,040
Macadam rollere, 10-12 t	69	Н	1,882	18.82	7,471
Tire roller, 8-20 t	96	Н	1,647	16.47	6,538
Tamping self, 20 t	213	н	9,825	98.25	43,684
Vibrat roller, hand 0.5 t	6	Н	475	4.75	1,758
Vibrat roller, 0.8-1.1 t	8	н	602	6.02	2,226
Vibrat roller, 3-5 t	29	Н	1,368	13.68	6,081
Vibrat roller, 8-10 t	132	н	3,916	39.16	17,412
Rammer, 60-100 kg	4	Đ	846	8.46	2,738
Compactor, 90 kg	5	D	744	7.44	2,410
Concrete plant, 0.75 m3*2	85	Ĥ	12,070	120.70	49,455
Agitat, truck, 3.0-3.2 m3	220	H	1,517	15.17	6,906
Conc.pump, 40-45 m3/hr	140	H	4,923	49.23	22,414
Asphalt sprayer, 200 lit	3.5	D	712	7.12	1,923
Air compressor, 10.5-11 m3	106	D	11,379	113.79	45,183
Air compressor, 14.3 m3/min	145	D	13,143	131.43	52,186
Air compressor, 17 m3/min	157	Ď	13,343	133.43	52,979
Water pump, 80 mm, 20 m	4.2	D	548	5,48	2,756
Water pump, 100 mm, 20 m	7.5	D	974	9.74	4,896
Water pump, 150 mm, 20 m	13	Đ	1,316	13.16	6,615
Water pump, 200 mm, 20 m	18.8	Ď	1,961	19.61	9,857
Diesel generator, 150 KAV	188	D	5,549	55.49	19,712
Diesel generator, 200 KAV	259	Ď	7,264	72.64	25,805
Diesel generator, 250 KAV	319	Ď	9,352	93.52	33,223
Diesel generator, 300 KAV	401	D	10,806	108.06	38,391
Concrete bucket, 1.0 m3		Ď	2,115	21.15	7,822
Concrete vibrator, 45 mm	0.88	Ď	493	4.93	1,331
Concrete vibrator, 60 mm	1.09	Đ	656	6.56	1,772
Form vibrator, 0.2 kw	0.20	Ď	184	1.84	497
Conc.spray gun, 6 m3/hr	30	Ĥ	1,674	16.74	6,426
Sprinkler, 5.5-6.5 kl*	180	Ĥ	1,062	10.62	4,833

Table 4.3 Equipment Cost

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Description		HP-K\	<b>V</b>	Unit	Forei	ign Currency	Local
•	·.				J.Yen	Equiv.US\$	Currency
Tractor shovel, 0.4 m3		<sup>,</sup> 40		Н	1,488	14.88	5,711
Deposit bucket, 3 m3				D	1,506	15.06	4,875
Boring mashine, 5.5 kw	•	5.8		Ð	4,778	47.78	18,873
Grout pump, 200, 11 kw		11.2	:	D	4,657	46.57	19,083
Grout mixer, 200*2,2.2 kw	the second	2.3	5 A.	D	1,948	19,48	7,980
Leg hammer, 30 kg				D	1,308	13.08	2,699
Leg hammer, 40 kg	1.11	·		D	1,475	14.75	3,044
Pick hammer, 7.5 kg	· · ·			D	181	1.81	373
Much loader, nail, 0.35 m3			·	H	4,887	48.87	20,618
Train loader, 200 t/hr		•		D	9,810	<b>98.10</b> - 5 - 5	42,525
Muck car, 6 m3				D	3,388	33.88	14,685
Muck car, 4.5 m3	el conta		4	D	2,747	27.47	11,907
Muck car, 3 m3				D	2,405	24.05	10,423
Battery locomotive, 8 t, 15 kw	1.2			Н	5,666	56.66	32,585
Battery locomotive, 6 t, 12 kw				H	4,625	46.25	26,600
Rail, 100 m, 30 kg/m	1			D	181	1.81	489
Rail, 100 m, 22 kg/m				D	125	1.25	338
Guide shell, 30 kg, 2 m				D	2,572	25.72	5,307
Vent fan, 100 m3/min	,	2.2	;	D	259	2.59	879
Winch, 150 kw			÷.,	D	52,442	524.42	280,385
Winch, 100 kw			1	Ð	36,904	369.04	197,308
Vent fan, 300 m3/min, 30 kw	;	30		D	3,378	33.78	11,434
Spray, 5-10 m3/hr, dry		7.5		Н	4,977	49.77	20,392
Concrete placer, 4.5 m3		11		Н	5,413	54.13	20,022
Concrete placer, 6 m3	1. N	22		Н	5,461	54,61	20,199
Agitator car, 3 m3		11		H	2,989	29.89	11,057
Agitator car, 4 m3		22		Н	3,751	37.51	13,875
Dust collector, 150 m3/min	÷	11	5	Ή	5,366	53,66	19,846
Stopper drill, 2.7 m3/min				Ð	1,660	16.60	3,426
Huck loader, incline, 0.2 m3	1			Н	4,735	47.35	19,974
Tunnel machine, 110 kw			۰.	H	30,233	302.33	97,896
	<u>.</u>			••• • • • •	· · · ·	n Than Alban an Alban	

Table 4.3 Equipment Cost (Cont'd)

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Description		Aquired	Amount
<i>DESCI IPUID</i>		Area (ha)	( \$/.)
A.Land acquisition			
1.Package 1			
Civil works for Daule Peripa-			
La Esperanza Transbasin			
ba Esperanza Iransuasin			
1.General(Preparatory works)	Office,camp,plant,storage, motor pool,etc.	1.4	
2.Conguillo inlet	Construction area	0.4	
	Temp.area, storage, etc.	0.3	
3.Diversion tunnel	Spoil area(Conguillo)	2.4	
	Spoil area(El Guasmo)	1.4	
	Spoil area(Membrillo)	1.6	
4.Membrillo outlet	Construction area	0.4	
	Temp.area,storage,etc.	0.7	
5.Conguillo work adit	Temp.area,portal	0.3	
6.81 Guasmo work adit	Construction area, portal	0.3	
	Temp.area, storage, etc.	0.3	
7.Membrillo work adit	Construction area, portal	0.3	
8.Conguillo access road	Road reserve	75.0	-
9. Guasmo access road	Road reserve	4.0	
10.Membrillo outlet access road	Road reserve	3.0 9.2	
11.0thers (10%)		3.4	
Total(Package 1)		101.0	126,250,00
2.Package 2			
Civil works for La Esperanza-Poza			
Honda Transbasin and Poza Honda-			
Mancha Grande Transbasin			
1.General(Preparatory works)	Office,camp,plant,storage, motor pool,etc.	3.2	
2.Severino pumping station,	Construction area	3.2	
2. Severing humping station;		1.2	
penstock, head tank, sub- station	Temp.area,storage,etc.		
penstock, head tank, sub-	Construction area	20.1	
penstock,head tank,sub- station	Construction area Temp.area,storage,etc.	20.1 0.5	
penstock,head tank,sub- station 3.Severino open channel	Construction area Temp.area,storage,etc. Spoil area(Severino site)	20.1 0.5 13.1	
penstock,head tank,sub- station	Construction area Temp.area,storage,etc. Spoil area(Severino site) Construction area	20.1 0.5 13.1 0.3	
penstock,head tank,sub- station 3.Severino open channel 4.Cana Bulce inlet	Construction area Temp.area,storage,etc. Spoil area(Severino site) Construction area Temp.area,storage,etc.	20.1 0.5 13.1 0.3 0.2	
penstock,head tank,sub- station 3.Severino open channel 4.Cana Dulce inlet 5.Diversion tunnel,Esperanza-	Construction area Temp.area,storage,etc. Spoil area(Severino site) Construction area Temp.area,storage,etc. Spoil area(Cana Dulce)	20.1 0.5 13.1 0.3 0.2 2.0	
penstock,head tank,sub- station 3.Severino open channel 4.Cana Bulce inlet	Construction area Temp.area,storage,etc. Spoil area(Severino site) Construction area Temp.area,storage,etc. Spoil area(Cana Dulce) Spoil area(La Seca)	20.1 0.5 13.1 0.3 0.2 2.0 1.6	
penstock,head tank,sub- station 3.Severino open channel 4.Cana Dulce inlet 5.Diversion tunnel,Esperanza-	Construction area Temp.area,storage,etc. Spoil area(Severino site) Construction area Temp.area,storage,etc. Spoil area(Cana Dulce)	20.1 0.5 13.1 0.3 0.2 2.0	

## Table 5.1 Land Acquisition and Compensation

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	· · · · · · · · · · · · · · · · · · ·		
Description		Aquired Area (ha)	Amount (S/.)
7.Poza Honda inlet	Construction area	0.3	
ritota nonda intee	Temp.area, storage, etc.	0.3	
8.Diversion tunnel,Poza Honda-	Spoil area(Poza Honda)	1.5	
Mancha Grande	Spoil area(Mancha Grande)	2.3	
9.Mancha Grande outlet	Construction area	0.9	
	Temp.area,storage,etc.	0.2	
10.La Seca work adit	Construction area, portal	0.2	e de la composición d
	Temp.area,storage,etc.	0.4 0.2	
11.Los Cuyuyes work adit	Construction area, portal	0.2	
	Temp.area, storage, etc.	0.3	
12. Poza Konda work adit	Construction area, portal	19.0	na interación de
13.Severino access road	Road reserve	8.0	
14.Cana Dulce access road	Road reserve Road reserve	10.0	
15 La Seca access road	Road reserve	26.0	
16.Los Cuyuyes access road	Road reserve	10.0	
17.Poza Honda access road 18.Others (101)	RVAU TESCIVE	12.8	
Total(Package 2)		140.4	175,500,000
3.Package 3			1999 - 1999 -
Electrical and mechanical works	Area is included in the above.	. :	
Power transmission line	T/L route, access road, etc.	66.0	82,500,000
Total(Package 3)			82,500,000
Total A			384,250,000
B.Compensation(Housing)	57nos.x 3,000,000 S/.		171,000,000
ni de la contraction de la con		4	- 11
Total (A and B)			555,250,000
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Table 5.1 Land Acquisition and Compensation

t	he Transbasin I	Tojeci		
Description	Poreign Currency (1000 US\$)	Local Currency (1000 S/.)	Total (1000 S/.)	Total (Equivalent 1000 US\$)
1.Package 1 Civil Korks for Daule Peripa- La Esperanza Transbasin	29,035.57	31,956,625	97,286,658	43,238.51
2.Package 2 Civil Works for La Esperanza- Poza Honda Transbasin and Poza honda-Mancha Grande Transbasin	52,299.84	61,809,803	179,484,443	79,770.86
3.Package 3 Electrical and Mechanical Works for Daule Peripa-La Esperanza,La Esperanza-Poza Honda and Poza Honda -Mancha Grande Transbasins	25,045.55	5,941,627	62,294,115	27,686.27
Total(1 to 3)	106,380.96	99,7C8,055	339,065,215	150,695.65
4. Land aquisition and compensation	0.00	555,250	555,250	246.78
5. Administration expenses	0.00	6,781,304	6,781,304	3,013.91
6. Engineering services	10,012.00	3,429,000	25,956,000	11,536.00
Total(1 to 6)	116,392.96	110,473,609	372,357,769	165,492.34
7. Physical contingency	9,385.51	10,120,932	31,238,330	13,883.70
Total(1 to 7)	125,778.47	120,594,541	403,596,099	179,376.04

#### Table 6.1 Summary of Construction Cost of the Transbasin Project

8. Price escalation

#### Grand total

Price escalation Total 22,537.56 x 1000(US\$) FC LC

Contribution : 2.5% of direct

construction cost, LC including contingency, 104 7,667.30 x 1000

17,767.60 x 1000

25,434.90

151,213.37

8,476,631 x 1000 9,324,294 x 1000

0

120,594,541

57,228,525

460,824,624

25,434.90

204,810.94

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Description	Foreign Currency	Local Currency		
	(1000 US\$)	(1000 US\$)	(1000 US\$)	
1.Package 1 Civil Works for Daule Peripa- La Esperanza Transbasin	29,035.57	14,202.94	43,238.51	
2.Package 2 Civil Korks for La Esperanza- Poza Honda Transbasin and Poza honda-Mancha Grande Transbasin	52,299.84	27,471.02	79,770.86	
3.Package 3 Electrical and Mechanical Works for Daule Peripa-La Esperanza,La Esperanza-Poza Honda and Poza Honda -Mancha Grande Transbasins	25,045.55	2,640.72	27,686.27	
Total(1 to 3)	106,380.96	44,314.69	150,695.65	
4. Land aquisition and compensation	0.00	246.78	246.78	
5. Administration expenses	0.00	3,013.91	3,013.91	
6. Engineering services	10,012.00	1,524.00	11,536.00	
Total(1 to 6)	116,392.96	49,099.38	165,492.34	
7. Physical contingency	9,385.51	4,498.19	13,883.70	
Total(1 to 7)	125,778.47	53,597.57	179,376.04	
8. Price escalation	17,767.60	7,667.30	25,434.90	
Grand total	143,546.07	61,264.87	204,810.94	

Table 6.1 Sussary of Construction Cost of the Transbasin Project

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Description	Foreiga Currency	Local Currency	Total	Total (Equivalent
	(1000 US\$)	(1000 S/.)	(1000 S/.)	1000 US\$)
l.Package 1				
Civil Works for Daule Peripa-				
La Esperanza Transbasin				
1.General Items	1,681.13	2,570,932	6,353,475	2,823.77
2.Daule Peripa-La Esperanza	18,638.17	17,110,829	59,046,712	26,242.98
Diversion Tunnel	· · ·			
3.Conguillo Kork Adit	306.39	477,057	1,166,435	518.42
4.El Guaspo Work Adit	503.84	805,154	1,938,794	861.69
5.Membrillo Work Adit	225.50	353,478	860,853	382.60
6.Conguillo Access Road	7,250.67	9,959,821	26,273,829	11,677.26
7.El Guasmo Access Road	262.33	450,839	1,041,082	462.70
8.Membrillo Outlet Access Road	167.54	228,515	605,480	269.10
Total(Package 1)	29,035.57	31,956,625	97,286,658	43,238.51
2.Package 2				
Civil Works for La Esperanza-				
Poza Konda Transbasin and				
Poza honda-Mancha Grande Transbasin				
1.General Items	6,077.56	7,712,217	21,386,727	9,505.21
2.Severino Pumping Station	5,027.65	8,529,714	19,841,927	8,818.63
3.Severino Penstock	212.00	328,297	805,297	357.91
4. Severino Head Tank	398.80	622,487	1,519,787	675.40
5.Severino Substation	106.20	170,943	409,893	182.13
6.Severino Open Channel	4,900.38	6,297,659	17,323,514	7,699.34
7.La Esperanza-Poza Honda Diversion Tunnel	22,571.53	21,131,014	71,918,957	31,963.0
8.Poza Honda-Mancha Grande Diversion Tunnel	7,441.46	7,241,169	23,984,454	10,659.70
9.La Seca Work Adit	691.08	1,118,446	2,673,376	1,188.1
10.Los Cuyuyes Kork Adit	228.41	357,001	870,924	387.0
11.Poza Honda Work Adit	277.50	442,121	1,066,496	474.0
12. Severino Access Road	1,603.46	2,412,555	6,020,340	2,675.7
13.Cana Dulce Access Road	355.80	599,137	1,399,687	622.0
14.La Seca Access road	311.39	632,418	1,333,046	592.4
15.Los Cuyuyes Access Road	1,951.65		8,386,886	3,727.5
16.Poza Honda Inlet Access Road	135.06	202,152	506,037	224.9
17.Daule Peripa 138 kV	9.91	16,800	39,098	17.38
	52,299.84	61,809,803	179,484,443	79,770.80

#### Table 6.2 Detailed Construction Cost (1)

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Description	Poreign	Local	Total	Total
	Currency (1000 US\$)	Currency (1000 S/.)	(1000 S/.)	(Equivalent 1000 US\$)
3.Package 3 Electrical and Mechanical Works for Daule Peripa-La Esperanza,La Esperanza-Poza Honda and Poza Honda -Mancha Grande Transbasins				
Section-1,Severino pumping station	22,321.58	5,718,551	55,942,106	24,863.16
Section-2,Conguillo Inlet	1,672.27	150,864	3,913,472	1,739.32
Section-3,Poza honda Inlet	691.93	65,668	1,622,623	721.17
Others,maintenance tools,shop inspection,instruction to staff,etc	359.72	6,544	815,914	362.63
Subtotal (Package 3)	25,045.55	5,941,627	62,294,115	27,686.27
Total(1 to 3)	106,380.96	99,708,055	339,065,215	150,695.65
4. Land aquisition and compensation	0.00	555,250	555,250	246.78
5. Administration expenses	0.00	6,781,304	6,781,304	3,013.91
6. Engineering services	10,012.00	3,429,000	25,956,000	11,536.00
Total(1 to 6)	116,392.96	110,473,609	372,357,769	165,492.34
7. Physical contingency	9,385.51	10,120,932	31,238,330	13,883.70
Total(1 to 7)	125,778.47	120,594,541	403,596,099	179,376.04
8. Price escalation	25,434.90	0	57,228,525	25,434.90
Grand total	151,213.37	120,594,541	460,824,624	204,810.94
Price escalation Total 22,537.56 x 1000(US\$) FC LC	17,767.60 7,667.30			
Contribution : 2.5% of direct	· · · · ·	8,476,631	x 1000	
construction cost,LC including contingency,10%		9,324,294	x 1000	

#### Table 6.2 Detailed Construction Cost (1)

Table 8.3	Detailed construc	tion Cost (2)	US\$1=100Yen =2250S/.	
Description	Poreign Currency (US\$)	Local Currency (S/.)	Total (S/.)	
	(008)	、、、、、 · · · · · · · · · · · · · · · · ·		
1.Package 1				
Civil Works for Daule Peripa-				
La Esperanza Transbasin				
1. General Items	1,681,130.00	2,570,932,000	6,353,474,500	
2. Daule Peripa-La Esperanza Diversion Lunnel				
2.1 Care of river and control and removal of water	21,338.00	33,293,280	81,303,780	
2.2 Earthwork	9,905,582.12	9,200,852,338	31,488,412,108	
2.3 Drilling and grouting	143,486.98	168,065,168	490,910,873	
2.4 Concrete work	7,822,801.00	7,088,569,385	24,689,871,63	
2.5 Miscellaneous metal work	29,729.18	8,792,555	75,683,210	
2.6 Convergency seasurement	344,823.00	504,906,150	1,280,757,90	
2.7 Building work	11,834.78	54,631,425	81,259,68	
2.8 Electrical work	16,853.98	8,554,979	46,476,43	
2.9 Miscellaneous	341,716.25	43,163,490	812,025,05	
· Sub total (2)	18,638,165.29	17,110,828,770	59,046,700,673	
3. Conguillo Kork Adit				
3.1 Earthwork	207,577.47	374,979,892	842,029,20	
3.2 Concrete work	98,813.37	102,076,837	324,406,92	
Sub total (3)	306,390.84	477,056,729	1,166,436,11	
4. El Guasmo Nork Adit				
4.1 Earthwork	354,997.69	660,354,050	1,459,098,85	
4.2 Concrete work	148,846.16	144,799,798	479,703,65	
Sub total (4)	503,843.85	805,153,848	1,938,802,51	
5. Membrillo Work Adit				
5.1 Earthwork	134,693.12	257,573,805	560,633,32	
5.2 Concrete work	90,811.01	95,904,660	300,229,43	
Sub total (5)	225,504.13	353,478,465	860,862,75	
6. Conguillo Access Road				
<ul><li>6.1 Earthwork</li><li>6.2 Excavation and filling for structures</li></ul>	5,574,452.80 70,006.44	6,586,774,040 92,639,049	19,129,292,84 250,153,53	

Structures

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	Table 6.3	Detailed construct	ion COSE (2)	(2) US\$1=100Yen =2250S/.	
	Description	Foreign Currency	Local Currency	Total	
		(US\$)	(\$/.)	(\$/.)	
 6.3	Culverts and drainage works	672,090.86	1,990,798,484	3,503,002,91	
	Concrete work	371,203.22	619,510,440	1,454,717,68	
	Pavezent	526,997.70	655,560,870	1,841,305,69	
	Miscellaneous	35,917.02	14,537,900	95,351,19	
	Sub total (6)	7,250,668.04	9,959,820,783	26,273,823,87	
7. 8	l Guasmo Access Road			n de la servici de la Colorada	
<b>7</b> 1	Pauthuaut	151,714.50	202,612,200	543,969,82	
	Earthwork	3,206.82	4,873,531	12,088,87	
7.Z	Excavation and filling for structures				
7.3	Culverts and drainage works	60,347.03	167,826,436	303,607,25	
7.4	Concrete work	22,080.18	44,799,869	94,480,27	
1.5	Pavement	24,163.20	30,079,197	84,446,39	
7.6	Miscellaneous	823.08	647,889	2,499,81	
÷	Sub total (7)	262,334.81	450,839,122	1,041,092,44	
8. X	embrillo Outlet Access Road				
8.1	Earthwork	64,720.21	59,351,510	204,971,98	
8.2	Excavation and filling for structures	18,393.18	20,713,436	62,098,09	
8.3	Culverts and drainage works	7,364.36	19,654,667	36,224,47	
8.4	-	62,257.94	118,192,050	258,272,41	
	Pavenent	5,102.20	6,413,183	17,893,13	
8.6		9,699.57	4,190,312	26,014,34	
	Sub total (8)	167,537.46	228,515,158	605,474,44	
	Total (Package 1)	29,035,574.42	31,956,624,875	97,286,667,32	
.Paci	kage 2				
	il works for La Esperanza-	· •			
	a Honda Transbasin and Poza				
Hone	da-Nancha Grande Transbasin	·		• •	
1. General Items		6,077,560.00	7,712,217,000	21,386,727,0	
2.	Severino Pumping station				
2.1	Care of river and control and removal of water	19,683.00	48,207,150	92,493,9	
2.2	and readval of water Earthwork	1,491,352.84	1,527,019,860	4,882,563,7	
	Concrete work	2,805,179.07	4,882,922,820	11,194,575,7	
	Road work	4,311.22	35,834,151	45,534,3	
	Miscellaneous metal work	36,766.85	18,694,450	101,419,8	

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		Detailed construction Cost (2)		=22508/.
	Description	Foreign Currency	Local Currency	Total
		(US\$)	(\$/.)	(\$/.)
	Electrical work	241,481.47	90,208,719	633,542,02
2.8	Niscellaneous	107,448.75	24,175,940	265,935,62
	Sub total (2)	5,027,651.06	8,529,714,460	19,841,929,34
3. S	everino Penstock	· .		·
3.1	Earthwork	39,812.34	43,235,758	132,813,52
3.2	Concrete work	172,180.53	285,033,442	672,439,63
	Niscellaneous metal work	8.74	27,265	46,93
	Sub total (3)	212,001.61	328,296,465	805,300,08
4. S	everino Head Tank	· · · ·		
4.1	Care of river and control	4,374.00	10,712,700	20,554,20
	and resoval of water			
4.2	Earthwork	79,546.49	94,572,363	273,551,96
4.3	Concrete work	301,284.58	501,134,847	1,179,025,15
4.4	Drainage	1,534.60	8,776,930	12,229,78
4.5	Road work	1,800.68	2,309,274	6,360,80
4.6	Niscellaneous metal work	10,256.63	4,980,774	28,058,19
	Sub total (4)	398,796.98	622,486,888	1,519,780,09
<b>5.</b> S	everino Substation			
5.1	Earthwork	41,052.78	52,338,272	144,707,02
5.2	Concrete work	55,894.13	109,686,232	235,448,02
5.3	Road work	247.80	317,790	875,34
5.4	Miscellaneous metal work	9,006.10	8,600,930	28,864,65
	Sub total (5)	106,200.81	170,943,224	409,895,04
6. S	everino Open Channel			
6.1	Care of river and control and removal of water	22,266.00	47,348,100	97,446,60
6 2	Earthwork	2,083,476.82	2,285,921,944	6,973,744,78
	Concrete work	2,481,963.64	3,686,480,165	9,270,898,35
	Drainage	158,377.20	160,286,456	516,635,15
	Road work	64,552.30	80,698,360	225,941,03
	Niscellaneous metal work	89,743.43	36,924,386	238,847,10
	Sub total (6)	4,900,379.39	6,297,659,411	17,323,513,03

7. La Esperanza-Poza Honda Diversion Tunnel

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Table 6.3 Detailed construction Cost (2) US\$1=100Yen

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	14010 010	=22508/.		
	Description	Poreign Currency	Local Currency	Total
· .	· .	(US\$)	(\$/.)	(\$/.)
7.1	Care of river and control and removal of water	6,494.00	12,711,500	27,323,000
7.2	Earthwork	12,086,932.14	11,705,124,056	38,900,721,371
	Brilling and grouting	188,691.80	227,431,320	651,987,870
7.4	Concrete work	9,815,228.40	8,494,227,495	30, 578, 491, 395
7.5		474,182.00	691,519,900	1,758,429,400
	Sub total (7)	22;571,528.34	21,131,014,271	71,916,953,035
8. P	oza Honda-Kancha Grande	· · · ·		
	iversion Tunnel			
8.1	Care of river and control	5,434.00	11,712,100	23,938,600
	and repoval of water			
8.2	Earthwork	3,770,842.87	3,721,581,443	12,205,977,901
	Drilling and grouting	60,124.46	77,961,524	213,241,559
8.4	Concrete work	3,313,331.18	3,115,630,942	10,570,626,097
	Niscellaneous setal work	18,409.90	5,905,587	47,327,842
8.6	Convergency measurement	157,762.00	228,242,900	583,207,400
	Building work	12,072.49	51,385,696	78,548,799
8.8	Electrical work	14,542.79	7,970,175	40,691,453
8.9	Riscellaneous	88,945.75	20,778,760	220,906,698
	Sub total (8)	7,441,465.44	7,241,169,107	23,984,466,347
9. L	a Seca Work Adit		н 1	n Na kata na h
	n strat	507 011 00	040 795 003	9 000 501 691
9.1	Earthwork	507,011.83	948,725,203	2,089,501,821
9,2	Concrete work	184,064.28	169,720,801	583,865,431
	Sub total (9)	691,076.11	1,118,446,004	2,673,367,252
10.1	os Cuyuyes Nork Adit	· · ·		
10.1	Earthwork	137,881.37	262,732,949	572,966,032
	Concrete work	90,531.02	94,268,471	297,963,266
10.2	CONCRETE NOTA	50,001,02	54,200,471	20110001000
	Seb total (10)	228,412.39	357,001,420	870,929,298
11.8	oza Honda Work Adit			•
11 1	Earthwork	167,692.01	329,357,399	706,664,422
	Concrete work	109,807.65	112,763,305	359,830,518
11.4	S CONCLUCE AULK	1001001-03	116,100,000	04910001010
	Sub total (11)	277,499.65	442,120,704	1,066,494,939
12.8	Severino Access Road		e y set a di	
10.4	l Baadhaash	1 000 000 00	1 914 900 000	3 696 619 996
12.1	l Earthwork	1,026,998.30	1,214,765,060	3,525,512,235

Description	Foreign	Local	Total
÷	Currency	Currency	
	(US\$)	(\$/.)	(\$/.)
12.2 Excavation and filling for structures	12,700.22	20,486,957	49,062,452
12.3 Cuiverts and drainage works	262,016.17	772,194,025	1,361,730,408
12.4 Concrete work	113,090.83	180,966,147	435,420,515
12.5 Pavement	179,662.90	220,805,050	625,046,573
12.6 Miscellaneovs	8,988.72	3,336,788	23,561,408
Sub total (12)	1,603,457.14	2,412,555,027	6,020,333,592
13.Cana Dulce Access Road			
13.1 Earthwork	217,474.90	299,212,180	788,530,705
13.2 Excavation and filling for structures	4,265.39	6,755,514	16,352,642
13.3 Culverts and drainage works	70,054.62	189,630,660	347,253,55
13.4 Concrete work	27,979.08	59,968,140	122,921,07
13.5 Pavement	34,572.40	42,544,170	120,332,07
13.6 Niscellaneous	1,458.58	1,026,359	4,308,16
Sub total (13)	355,804.97	599,137,023	1,399,698,20
14.La Seca Access Road		· · ·	·
14.1 Earthwork	150,300.40	256,371,380	594,547,280
14.2 Excavation and filling for structures	1,994.80	3,149,848	7,638,148
14.3 Culverts and drainage works	95,573.03	284,094,396	499,133,714
14.4 Concrete work	12,919.87	27,617,828	56,687,53
14.5 Pavement	48,731.90	60,156,570	169,803,34
14.6 Niscellaneous	1,872.90	1,027,785	5,241,81
Sub total (14)	311,392.90	632,417,807	1,333,051,832
	0111002100	0001111007	
15.Los Cuyuyes Access Road			
15.1 Earthwork	871,706.11	1,232,129,650	3,193,468,398
15.2 Excavation and filling for structures	25,801.06	34,608,973	92,661,35
15.3 Culverts and drainage works	625,595.81	2,101,449,761	3,509,040,33
15.4 Concrete work	137,890.46	281,993,024	592,246,55
15.5 Pavement	274,002.50	337,591,120	954,096,74
15.6 Niscellaneous	16,652.00	7,900,191	45,367,19
Sub total (15)	1,951,647.94	3,995,672,719	8,386,880,58
16.Poza Honda Access Road			

		tion Cost (2)	US\$1=100Yen =2250S/.
Description	foreign	Local	Total
· · · · · ·	Currency	Currency	
	(US\$)	(\$/.)	(\$/.)
6.2 Excavation and filling for structures	0.00	́с	0
6.3 Culverts and drainage works	25,148.19 0.00	72,716,373	129,299,801 C
6.4 Concrete work 6.5 Pavement	12,682.08	15,641,289	44,175,969
6.6 Miscellaneous	481.52	216,676	1,300,096
Sub total (18)	135,058.46	202,151,682	506,033,217
7.Daule Peripa 138 kV			
7.1 Earthwork	1,559.43	2,118,546	5,627,264
7.2 Concrete work	7,320.94	13,768,392	
7.3 Miscellaneous	1,027.81	912,497	3,225,070
Sub total (17)	9,908.18	16,799,435	39,092,840
Total (Package 2)	52,299,841.38	61,809,802,647	179,484,445,752
ectrical and mechanical works or Daule Peripa-La Esperanza,			
ackage 3 lectrical and mechanical works or Daule Peripa-La Esperanza, .a Esperanza-Poza Honda and Yoza Honda-Mancha Grande Transbasins 1 Section-1 Severing pumping stal			
lectrical and mechanical works or Daule Peripa-La Esperanza, .a Esperanza-Poza Honda and Poza Honda-Mancha Grande Transbasios 1 Section-1,Severino pumping stat	Lion		
Hectrical and mechanical works or Daule Peripa-La Esperanza, .a Esperanza-Poza Honda and Yoza Henda-Mancha Grande Transbasins 1 Section-1,Severino pumping stat 1.Main pumps and valves	ion 4,799,903.00	414,622,500	
<ul> <li>Hectrical and mechanical works</li> <li>or Daule Peripa-La Esperanza,</li> <li>a Esperanza-Poza Honda and</li> <li>Honda-Mancha Grande Transbasins</li> <li>1 Section-1, Severino pumping stat</li> <li>1. Main pumps and valves</li> <li>2. Electric motors</li> </ul>	tion 4,799,903.00 2,645,692.00	561,112,500	6,513,919,50
lectrical and mechanical works or Daule Peripa-La Esperanza, a Esperanza-Poza Honda and oza Honda-Mancha Grande Transbasins 1 Section-1, Severino pumping stat 1. Main pumps and valves 2. Electric motors 3. Transformers	4,799,903.00 2,645,692.00 616,146.00	561,112,500 130,500,000	6,513,919,50 1,516,828,50
<ul> <li>Hectrical and mechanical works</li> <li>for Daule Peripa-La Esperanza,</li> <li>a Esperanza-Poza Honda and</li> <li>Honda Hancha Grande Transbasins</li> <li>1 Section-1, Severino pumping stat</li> <li>1. Main pumps and valves</li> <li>2. Electric motors</li> <li>3. Transformers</li> <li>4. Static condencers</li> <li>5. Switchgear and control</li> </ul>	tion 4,799,903.00 2,645,692.00	561,112,500	6,513,919,50
<ul> <li>Hectrical and mechanical works</li> <li>for Daule Peripa-La Esperanza,</li> <li>a Esperanza-Poza Honda and</li> <li>Honda Hancha Grande Transbasins</li> <li>1 Section-1, Severino pumping stat</li> <li>1. Main pumps and valves</li> <li>2. Electric motors</li> <li>3. Transformers</li> <li>4. Static condencers</li> <li>5. Switchgear and control equipment</li> </ul>	4,799,903.00 2,645,692.00 616,146.00 320,375.00 3,701,108.00	561,112,500 130,500,000 68,062,500 765,000,000	6,513,919,500 1,516,828,500 788,906,250 9,092,493,000
<ul> <li>Iectrical and mechanical works</li> <li>or Daule Peripa-La Esperanza,</li> <li>a Esperanza-Poza Honda and</li> <li>boza Henda-Mancha Grande Transbasins</li> <li>1 Section-1, Severino pumping stat</li> <li>1. Main pumps and valves</li> <li>2. Electric motors</li> <li>3. Transformers</li> <li>4. Static condencers</li> <li>5. Switcbgear and control equipment</li> <li>6. Ancillary equipment</li> </ul>	4,799,903.00 2,645,692.00 616,146.00 320,375.00 3,701,108.00 1,393,039.00	561,112,500 130,500,000 68,062,500 765,000,000 160,553,250	6,513,919,500 1,516,828,500 788,906,250 9,092,493,000 3,294,891,000
<ul> <li>Iectrical and mechanical works or Daule Peripa-La Esperanza,</li> <li>a Esperanza-Poza Honda and boza Honda-Mancha Grande Transbasins</li> <li>1 Section-1, Severino pumping stat</li> <li>1. Main pumps and valves</li> <li>2. Electric motors</li> <li>3. Transformers</li> <li>4. Static condencers</li> <li>5. Switchgear and control equipment</li> <li>6. Ancillary equipment</li> <li>7. Miscellaneous materials</li> <li>8.13.8 W Distribution lines and</li> </ul>	4,799,903.00 2,645,692.00 616,146.00 320,375.00 3,701,108.00	561,112,500 130,500,000 68,062,500 765,000,000	6,513,919,500 1,516,828,500 788,906,250 9,092,493,000
<ul> <li>Hectrical and mechanical works</li> <li>for Daule Peripa-La Esperanza,</li> <li>a Esperanza-Poza Honda and</li> <li>Honda-Mancha Grande Transbasins</li> <li>1 Section-1, Severino pumping stat</li> <li>1. Main pumps and valves</li> <li>2. Electric motors</li> <li>3. Transformers</li> <li>4. Static condencers</li> <li>5. Switchgear and control equipment</li> <li>6. Ancillary equipment</li> <li>7. Miscellaneous materials</li> <li>8.13.8 W Distribution lines and receiving facilities</li> </ul>	4,799,903.00 2,645,692.00 616,146.00 320,375.00 3,701,108.00 1,393,039.00 796,278.00 182,802.00	561,112,500 130,500,000 68,062,500 765,000,000 160,553,250 169,166,250 38,434,500	6,513,919,500 1,516,828,500 788,906,250 9,092,493,000 3,294,891,000 1,960,791,750 449,739,000
<ul> <li>lectrical and mechanical works</li> <li>or Daule Peripa-La Esperanza,</li> <li>a Esperanza-Poza Honda and</li> <li>oza Honda-Mancha Grande Transbasins</li> <li>1 Section-1, Severino pumping stat</li> <li>1.Main pumps and valves</li> <li>2.Electric motors</li> <li>3.Transformers</li> <li>4.Static condencers</li> <li>5.Switchgear and control equipment</li> <li>6.Ancillary equipment</li> <li>7.Miscellaneous materials</li> <li>8.13.8kV Distribution lines and receiving facilities</li> <li>9.138kV Transmission lines</li> </ul>	4,799,903.00 2,645,692.00 616,146.00 320,375.00 3,701,108.00 1,393,039.00 796,278.00 182,802.00 2,534,991.00	561,112,500 130,500,000 68,062,500 765,000,000 160,553,250 169,166,250 38,434,500 2,874,337,935	6,513,919,500 1,516,828,500 788,906,250 9,092,493,000 3,294,891,000 1,960,791,750 449,739,000 8,578,057,68
<ul> <li>lectrical and mechanical works</li> <li>br Daule Peripa-La Esperanza,</li> <li>a Esperanza-Poza Honda and</li> <li>bra Henda-Mancha Grande Transbasins</li> <li>l Section-1, Severino pumping stat</li> <li>1. Main pumps and valves</li> <li>2. Electric motors</li> <li>3. Transformers</li> <li>4. Static condencers</li> <li>5. Switchgear and control equipment</li> <li>6. Ancillary equipment</li> <li>7. Miscellaneous materials</li> <li>8. 13.8kV Distribution lines and receiving facilities</li> <li>9. 138kV Transmissiona lines</li> <li>19. Power line carrier equipment</li> </ul>	4,799,903.00 2,645,692.00 616,146.00 320,375.00 3,701,108.00 1,393,039.00 796,278.00 182,802.00 2,534,991.00 597,228.00	561,112,500 130,500,000 68,062,500 765,000,000 160,553,250 169,166,250 38,434,500 2,874,337,935 125,685,000	6,513,919,500 1,516,828,500 788,906,250 9,092,493,000 3,294,891,000 1,960,791,750 449,739,000 8,578,057,68 1,469,443,000
ectrical and mechanical works r Daule Peripa-La Esperanza, Esperanza-Poza Honda and za Honda-Nancha Grande Transbasins Section-1, Severino pumping stat 1. Main pumps and valves 2. Electric motors 3. Transformers 4. Static condencers 5. Switchgear and control equipment 6. Ancillary equipment 7. Miscellaneous materials 8.13.8 V Distribution lines and receiving facilities 9.138 V Transmission lines 10. Power line carrier equipment 11. Intake trashrack and rake	4,799,903.00 2,645,692.00 616,146.00 320,375.00 3,701,108.00 1,393,039.00 796,278.00 182,802.00 2,534,991.00 597,228.00 953,250.00	561,112,500 130,500,000 68,062,500 765,000,000 160,553,250 169,166,250 38,434,500 2,874,337,935 125,685,000 82,591,875	6,513,919,500 1,516,828,500 788,906,250 9,092,493,000 3,294,891,000 1,960,791,750 449,739,000 8,578,057,68 1,469,443,000 2,227,404,37
<ul> <li>lectrical and mechanical works or Daule Peripa-La Esperanza, a Esperanza-Poza Honda and oza Honda-Mancha Grande Transbasins</li> <li>1 Section-1, Severino pumping stat</li> <li>1. Main pumps and valves</li> <li>2. Electric motors</li> <li>3. Transformers</li> <li>4. Static condencers</li> <li>5. Switchgear and control equipment</li> <li>6. Ancillary equipment</li> <li>7. Miscellaneous materials</li> <li>8.13.8kV Distribution lines and receiving facilities</li> <li>9.138kV Transmission lines</li> <li>10. Power line carrier equipment</li> </ul>	4,799,903.00 2,645,692.00 616,146.00 320,375.00 3,701,108.00 1,393,039.00 796,278.00 182,802.00 2,534,991.00 597,228.00	561,112,500 130,500,000 68,062,500 765,000,000 160,553,250 169,166,250 38,434,500 2,874,337,935 125,685,000	6,513,919,500 1,516,828,500 788,906,250 9,092,493,000 3,294,891,000 1,960,791,750 449,739,000 8,578,057,68 1,469,443,000 2,227,404,37 3,127,702,500
<ul> <li>Hectrical and mechanical works</li> <li>or Daule Peripa-La Esperanza,</li> <li>a Esperanza-Poza Honda and</li> <li>boza Henda-Mancha Grande Transbasins</li> <li>1 Section-1, Severino pumping stat</li> <li>1. Main pumps and valves</li> <li>2. Electric motors</li> <li>3. Transformers</li> <li>4. Static condencers</li> <li>5. Switchgear and control equipment</li> <li>6. Ancillary equipment</li> <li>7. Miscellaneous materials</li> <li>8.13.8kV Distribution lines and receiving facilities</li> <li>9.138kV Transmission lines</li> <li>10. Power line carrier equipment</li> <li>11. Intake trashrack and rake</li> <li>12. Intake gates and gantry crane</li> </ul>	4,799,903.00 2,645,692.00 616,146.00 320,375.00 3,701,108.00 1,393,039.00 796,278.00 182,802.00 2,534,991.00 597,228.00 953,250.00 1,338,425.00	561,112,500 130,500,000 68,062,500 765,000,000 160,553,250 169,166,250 38,434,500 2,874,337,935 125,685,000 82,591,875 116,246,250	6,513,919,500 1,516,828,500 788,906,250 9,092,493,000 3,294,891,000 1,960,791,750 449,739,000 8,578,067,68 1,469,443,000 2,227,404,37 3,127,702,500 5,707,517,10
<ul> <li>lectrical and mechanical works or Daule Peripa-La Esperanza, a Esperanza-Poza Honda and oza Honda-Mancha Grande Transbasins</li> <li>l Section-1, Severino pumping stat</li> <li>1. Main pumps and valves</li> <li>2. Electric motors</li> <li>3. Transformers</li> <li>4. Static condencers</li> <li>5. Switchgear and control equipment</li> <li>6. Ancillary equipment</li> <li>7. Miscellaneous materials</li> <li>8.13.8 NV Distribution lines and receiving facilities</li> <li>9.138 NV Transmission lines</li> <li>10. Power line carrier equipment</li> <li>11. Intake trashrack and rake</li> <li>12. Intake gates and gantry crane</li> <li>13. Discharge penstocks</li> </ul>	4,799,903.00 2,645,692.00 616,146.00 320,375.00 3,701,108.00 1,393,039.00 796,278.00 182,802.00 2,534,991.00 597,228.00 953,250.00 1,338,425.00 2,442,346.00	561,112,500 130,500,000 68,062,509 765,000,000 160,553,250 169,166,250 38,434,500 2,874,337,935 125,685,000 82,591,875 116,246,250 212,238,600	6,513,919,500 1,516,828,500 788,906,250 9,092,493,000 3,294,891,000 1,960,791,750 449,739,000 8,578,067,68 1,469,443,000 2,227,404,37 3,127,702,500 5,707,517,10

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Table 6.3	Detailed construc	tion Cost (2)	US\$1=100Yen =2250S/.
Description	Poreign	Local	Total
	Currency (US\$)	Currency (S/.)	(\$/.)
3.3 Section-3,Poza Honda inlet			· · · · · · · · · · · · · · · · · · ·
Outlet facilities	691,976.00	65,667,750	1,622,613,75
3.4 Others			
1.Mandatory maintenance tools	126,222.00	6,543,750	
2.Employer's shop inspection	72,000.00	0	162,000,00
3. Instruction to project staff	83,500.00	0 0	187,875,00
4.Recommended maintenance tools and spare parts	78,000.00	U	175,500,00
Total(3.4)	359,722.00	6,543,750	815,918,25
Total(Package 3)	25,045,547.00	5,941,627,223	62,294,107,97
Total(1 to 3)	105,380,962.80	99,708,054,745	339,065,221,04
<ol> <li>Land acquisition and compensation</li> </ol>	0.00	555,250,000	555,250,00
5. Administration expenses	0.00	6,781,304,000	6,781,304,00
6. Engineering services	10,012,000.00	3,429,000,000	25,956,000,00
Total(1 to 6)	116,392,962.80	110,473,608,745	372,357,775,04
7. Physical contingency	9,385,507.99	10,120,931,769	31,238,324,74
Total(1 to 7)	125,778,470.79	120,594,540,514	403,596,099,79
8. Price escalation	25,434,900.00	0	57,228,525,00
Grand total	151,213,370.79	120,594.540,514	460,824,624,79
Renarks:			
Physical for item 1,2 and 4,(10%)	8,133,541.58	9,432,167,752	27,732,636,30
Physical for item 3, Package 3, (31)	751,366.41		1,868,823,24
Physical for item 5 and 6,(5%)	500,600.00	510,515,200	1,636,865,20
Total	9,385,507.99	10,120,931,769	31,238,324,74
Total	319831901.33	101100-991-109	01,200,081,1

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Price escalation for Package 3 Upto consencement During construction: NIL Price escalation US\$

Contribution : 2.5% of sum of direct construction cost,LC

including contingency 10%

7,667,300.00 17,767,600.00 (US\$) 8,476,631,000 8,476,631,000 0

0

9,324,294,000

9,324,294,000

-				·			0		-						
			·				Table 7.1 Di	Disbarscecat Schedule	Acdule		·		12	00111,000 US\$.1,000 S/.	.000 5/.
i	Deseription	Total F.C. (USS)	L.C.(S/.)	1296 ?.C.(US\$)	L.C.(S/.)	1997 P.C.(USS)	L.C.(S/.)	7.C.(US\$)	L.C.(S/.)	1929 7.C.(US\$)	L.C. (5/ . )	2000 7.C.(US\$)	L.C.(S/)	2001 7.C.(US\$)	L.C. (5/.)
- <b>:</b>	Davle Perips-La Esperanta Transbasin (Package 1)	23,035.57	31,356,625	0,0	Ċ	7,037.02	8, <b>078, 3</b> 75	5,122.81	6,361,382	8,232.38	9.117.277	6, 651. 35	6,764,039	1,971.41	1,635,552
	ta Experanza-Poza Nonda. Poza Honda-Mancha Grande Transbasin (Pochage 2)	52,239.84	61,809,803	0.00	0	13,765.26	16,674,714	14,665,78	17.521.224	11.632.97	13.537.624	5,818.24	10.281.262	J.357.49	3,794,979
ei .	3. Electrical and occhanical 25,045.55 Norks (Package 3)	25,045.55	5,941,627	0.00	<b>a</b>	0.00	<b>o</b>	4,962.41	1,188,325	2,151.44	222,811	15,572.11	2,228,110	2,356.59	2,302,381
	Total(1 to 3)	106,380.96	99,708,055	0.00	0	20,802.28	24,753,089	24, 751, 00	25,070,931	22,039.73	22,877,712	31,042.40	114,672,61	7,685.49	1,732.312
÷	Land Acquisition and Compensation	00.0	555,250	0.00	229,775	0.0	277,625	0.0	0	0.0	Ð	0.0	Ģ	G. BO	ø
<u>ۍ</u>	. Administration Expenses	0.0	6.781.304	0.00	¢	0.00	1,431,164	0.0	1.615.214	0.00	1,452,045	0.00	1.782.376	0.0	500,505
ė.	Engineering Services	10,012,00	3,429,000	0.00	0	2, 112, 39	723,675	2, 384. 72	816,741	2,143.82	121.121	2,631.52	301,267	734.95	253,083
	Total(1 to 6)	116,332,96	609 624 011	0.00	529 112	22,915,27	27, 185, 553	27 135.77	27,502,846	24,243.61	25.063.391	33,673,92	21.357.054	8.424.44	8,486,500
, ,	Phisical Contingency	9,385.51	10,120,932	0.00	27,763	2,185.88	2.610.813	2,246.97	2,545,509	2,166.36	2,331,458	2,145.77	1,905,555	640.53	649,804
	Total(1 to 7)	125.778.47	120,594,541	0.00	305,289	25,101.15	20,796,366	29,382.69	20.048.335	26,409.97	27,445,479	35,819,69	23,862,609	9,064.97	9,136,204
**	. Price Escalation	25, 131, 90	Ð	8,23	ð	3,565,99	0	8,147.88	Ð	5, 787.75	0	5,705.83	0	2,219,15	C
	Grand Total	76.612,181	120,594,541	87 S	305, 388	23,667,14	29, 796, 366	37,530.57	30, 248, 395	32,197.73	27,445,479	41.525.52	23,862,609	11,284.12	9,136,204
•		****	****												
:	ension contingency Package 1.2 and 4.105 Package 3.35 Admini.2/5.55 Total	8,133.54 751.37 500.60 9,385.51	9,432,168 178,249 510,515 10,120,932	00.0 00.0 00.0	27,763 0 27,763	2,080.23 0.00 105.65 2,185.88	2,503,071 0 107,742 2,610,813	1,078.86 148.87 119.24 2,246.97	2,388,261 35,650 121,598 2,545,509	1,994.54 64.63 107.19 2,166.36	2,265,490 6,684 109,314 2,381,483	1,547.03 467.16 131.58 2,145.77	1,704.530 66.843 134.182 1.905.555	532.88 70.71 36.34 640.53	543,053 52,072 37,679 649,804
	***** 31, Price aid 1394			0.0611	0.0611	0.0930	0.0930	0.1258	0.1258	0.1595	0.1595	0,1943	0.1913	1022.0	0.2301
<b>.</b>	. Price Rscalation To convert to USS LC(S(.) affected dur to devaluation.	25,434.90	o	\$.2		3,565.99		8,147.38	•	5,787.76		5, 705.83		2,219,15	
	#FRecalation, item 1,2,4,5,6 #FRecalation, item 3,1998year fotal #######	14, 6: 6, 87 3, 150, 73 17, 767, 60	7,352,00 122,252 7,667.30	0.0	8.23 1.00	2, 234, 41	1,231.58	3,053.34	1,611,61 332.20	3.858.45 0.00	0.0 0.0	3,843.34 0.00	1,862.43 0.00	1,527.33 0.00	691.72 0.00
*	##Disbursement(US\$)	143,546.07	61,254.37	0.00	144.02	27,435.56	14,474,41	35,585.76	15,298.65	30,268.42	14,127.30	14,127.30 39,663.03	12,458.09	10,532.30	4,752.40

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## APPENDIX A

## DETAILED CONSTRUCTION COST CIVIL WORKS FOR DAULE-PERIPA ~ LA ESPERANZA TRANSBASIN

SURMARY OF BILL OF QUANTITIES

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Description of Works	Foreign Currency(US\$) Amount	Local Currency(S/.) Amount	Equivalent Price(S/.) Amount
l General Items	1.681.130.00	2,570,932,000	6,353,474,500
2. Daule Peripa-La Esperanza Diversion Tunnel	18,638,165.29	17.110.828.770	59,046,700,577
3. Conguillo Work Adit	306,390.84	477,056,729	1,166,436,119
4. El Guasmo Nork Adit	503,843,85	805.153,848	1,938,802,511
5. Reabrillo Nork Adit	225,504.13	353, 478, 465	850,862,758
6. Conguilo Access road	7.250.668.04	9,959,820,783	26,273,823,870
7. El fuasmo Access road	262.334.81	450,839,122	1,041,092,445
8. Hembrillo Outlet Access Road	167,537.46	228, 515, 158	605,474,446
Grand Total	29.035,574.42	31,956,624,875	97,236,667,326

				SILL OF QUANTITIES	SEITIT			
Item No.	Description of Works	Unit	Quantity	Foreign Cu Unit Price	Foreign Currency(US\$) Unit Total Price Price	Local Currency(S/.) Unit Total Price Price	êçuivalen Unit Price	6quivalent Price(S/.) Unit Total Price Price
	GENERAL ITEKS				·			
10/	Construction.operation.maintenance and subsequent removal of the Contractor's offices.staff quarters.repair shops.stores laboratory buildings.motor pools.labor camps.etc.including land clearing. drainage and adequate fencing	es			348,670.00	1,034,942,000	8	1.819,449,500
/02	Installation.operation.maintenance and subsequent removal of temporary water system for and in the contractor's offices.laboratory.staff quarters.repair shops.motor pools.etc., and construction site	L.S.			210,220.00	359,234,000	0	832,225,000
/03	Installation.operation.maintenance and subsequent removal of temporary electric system to the contractor's offices, laboratory.staff quarters.labor camps. repair shops.motor pools.etcand const- ruction site	L.S.			272, 610.00	138,863,000		750,885,500
/04	Installation.operation.maintenance and subsequent removal of temporary telecomm- unication system from the CRM's and supervision's offices to the contractor's offices.quarters.etcincluding wire tele- phon line.WHF radio communication system and handy talky					37,298,000	0	407, 593, 000

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ltem No.	Description of Works	Unit	Ouantity	foreign Currency(US\$) Unit Total Price Price	rency(US\$) Total Price	Local Cur Unit Price	Local Currency(S/.) Unit Total Price Price	Equivalent Unit Price	Equivalent Price(S/.) Unit Total Price Price
/05	Construction.operation.maintenance and subsequent removal of the Contractor's temporary construction roads to the various working areas.maintenance of temporary and permanent access roads, and maintenance of the existing roads including temporary supports to strengthen piers of the existing bridges.ctc.	۲.S. ۲.			341,320.00		400,229,000		1,168,199,000
/08	Provision and maintenance of the laboratory equipment and furnitures including provision of necessary testing experts and labor to assist the super- vision	Prov. Sum		·	230,000,00		329,475,000		846,975,000
/07	Exploratory boring and excavation of pits	Prov. Sum			0.00		28,600,000		28,600,000
/08	Monument and memorial	Prov. Sum			0.00		45,000,000		45,000,000
60/	Construction.operation.maintenance and subsequent hand over to CRN the super- vision office.first aid buildings.incuding land clearing and development.mater supply system.sewage and drainage system.electric power supply system.telecommunication system and adequate fencing	ic S.			50,460.00		145.541,000		253,076,000
01/	Provision.maintenance and subsequent hand over to CRM the supervision office furnitures such as desks.tables.shelves. etcoffice equipment such as computer, printer.etcand survey equipment	Prov.			63,830.00		51,750,000		195,367.500

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item No.	Description of Works	Unit.	Unit Quantity	Foreign Currency(US\$) Unit Total Price Price	Local Cur Unit Price	Local Currency(S/.) Unit Total Price Price	Equivalent Price(5/.) Unit Total Price Price	Price(S/. Total Price
/11	/11 Provision.operation and maintenance of the first aid facilities and medicines including opperation of medical services by one doctor.two nurses and one clerk			0.00		0		
/12	<pre>/12 Provision.operation and maintenance of vehicles for CRN and the supervision</pre>	11H		0.00		o		
	Total of item 1			1,681,130.00	2,	2,570,932,000	со	6,353,474,500

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[tem No.	. Description of Korks	tiait t	Quantity -	Foreign C Unit Price	Foreign Currency(US\$) Unit Total Price Price	Local ( Unit Price	Local Currency(S/.) Unit Total Price Price	Equivalen Unit Price	Equivaient Price(S/.) Unit Total Price Price	
~	DAULE PERIPA-LA ESPERANZA Diversion tunnel								·	
2.1	CARE OF RIVER AND CONTROL AND REMOVAL OF KATER									
10/					12.590.00		11,867,580		40,195,380	
/02	coffering Care of water during construction in open air construction site	5.2			8.748.00		21,425,400		41,108,400	
	Subtotal of item 2.1				21,338.00		33,293,280		81,303,780	
2.2	EARTHGORK		·				-			
10/		<b>n</b> 2	7,150	0.14	1,001.60	214	1,530,100	523	3,782,350	
/03		2	10,760	2.54	27,178.00	2635	28,194.500	8350	89,345,000	
/03		ŝ	22,500	3.25	73,125.00	3233	72,742,500	10546	237,273,750	
10/		5E 5	400	7.80	3,120.00	8006	3,202,400	25556	10,222,400	
/02	oopm Underground excavation,all classes, in tunnel and inlet structures	a3.	163,650	43.46	7.112.224.00	43544	43544 7,125,975,600	141329	141329 23,128,490,850	

			_		C			·	
íten No.	o. Description of Works	Unit	Ouantity	Foreign   Unit Price	Foreign Currency(US\$) Unit: Total Price Price	Local Unit Price	local Currency(S/.) Unit Total Price Price	Equivaler Unit Price	Equivalent Price(S/.) Unit Total Price Price
90/		n3	120	2.76	331.20	2942	353,040	9152	1.098.240
/07 /08	of wire net fence 7 Permanent steel support.H-125x125 8 Permanent steel support in inlet shaft. 4 Permanent	ton ton	158 82	1223.55 1095.76	193,320.20 89,852.32	138414 220099	21,869.412 18.048,118	2891402 2685559	456,841.437 220.215,838
01/		5 9 9 9	118.390 390	20.26 2.92	2,398,581.40 1,138.80	100E 3001	1.517,444,440 1.170.390	61781 9571	7.314.252.590 3.732.690
/11		មួយ ភូមិ	103	17.92 17.36	1,845.76 63.44	39526 44520	4,071,178 178,080	79846 83580	8.224.138 334.320
/13	catch basin S Sod facing for inlet and outlet structures	2E	890	0.03	26.70	4522	4,113,580	4590	4,173,555
114		ŝ	80	52.71	3,752.60	32650	1,959,000	173748	10,424,850
	Subtotal of item 2.2				9,905,582.12		9,200,852,338		31,488,412,108
() ()	DRILLING AND GROUTING CORK								
/01	. D.45mm drain holes in tunnel 2 Bakfill grouting in tunnel and inlet 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	н Се	6.310 1,180	9.13 66.91	57,610.30 78,953.80	20217 30879	127,569,270 36,437,220	40750 181427	257.192.445 214.083.270
/03		цу.	3,970	1.32	5.240.40	305	3,596,820	3876	15,337,720
/04 /05 /06		N N N N N N	520 596 107	0.43 2.06 2.16	223.60 1.227.75 231.12	354 386 446	184.080 230.056 47.722	1322 5021 5306	687,180 2,992,516 567,742
	Subtotal of item 2.3				143,486,98		158,065,168		490.910.873

BILL OF QUANTITIES

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584,502,160 12,883,283,350 19,836,912 7.325.730 945,583 11,951,748 1,520,907 72.480.425 30,561,696 6.342,336 37.468.913 3,374,240 7.144.022 136.640,363 60.321.600 Equivalent Price(S/.) Price [ota] 254359 186413 186413 15842 19529 28203 348483.848189137 19529 Price 212400 215486 244191 206635 Unit 214891 208,672,960 4,470,571,600 7,056,192 344.145 956.077 13.585.590 7.049.628 22,510,836 4,671,575 2,646,630 21,508,740 49,543,470 52,299,500 2,553,144 3,254,427 Local Currency(S/.) Price Total 11519 15279 11519 25668 Unit Price 75735 76718 88264 73502 77368 67590 68829 20350 25668 67590 88221 167,035.20 3,738,983.00 5,680.32 2,173.72742.56 2,040.39 267.35 53.25 295.48 3,573.16 8,969.30 38,709.73 2,079.60 17,250.16 10,614.81 Foreign Currency(US\$) Price Total 61.41 73.82 59.17 3.560.25 3.56 3.49 4.08 ÷.08 69.32 61.83 53.47 50.74 52.81 52.81 Price Unit 613 2,570 82 2,720 50,650 ŝ 33 8 571 Unit Quantity ŝ 201 8 30 96 33 잍 잍 പ്പ ŝ ê ŵ ĉ 엍 얼 잍 엍 엍 Concrete, class H, for levelling concrete Concrete class G.for plug and secondary Concrete, class A, for blockout concrete crash boom and foundation concrete of walles of inlet and outlet structures Concrete, class G. for anchor block of Concrete.class C.for floor slab.beam Concrete, class E, for concrete facing Concrete, class D, for inlet structure Concrete, class 7, for drain ditch and Formwork,F3 finish.for concrete of items /01./03./05 and /07 Concrete.class D.for tunnel lining Formwork.Fi finish.for concrete of items /03./04./05 and /07 Formwork, Rightish, for concrete of Formwork, P3 finish, for concrete of Formwork,Fi finish,for concrete of Formwork,F2 finish,for concrete of Description of Works of drain ditch and catch basin and stair of inlet structure concrete in inlet structure tems /02./03./05 and /07 of inlet structure wire net fence CONCRETE WORK catch basin tems /06 tems /08 itens /06 ------Item No. /13 74 15 10/ 22 /03 /02 /03 80/ /01 /08 60/ /10 111 75 3 2.4

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ltem No.	ftem No. Description of Korks	Unit	Quant, ity	Foreign Unit Price	Foreign Currency(US\$) Unit Total Price Price	Local Unit Price	Local Currency(S/.) Unit Total Price Price	Equivaio Unit Price	&guivalent Price(S/.) Unit Total Price Price
/16		щ2 Ш	74,260	23.38	1,736,198.80	5357	397,810,820	57962	4,304,258,120
/18	Reinforcing bars for concrete work Shotcrete in tunnel and inlet structure	ល្ល ព	224.0	357.97 154.05	80,185.28 1,558,986.00	1054028 131410	236,102,272 1,329,869,200	- 60 ST	416,519,152
/19		a ce	100,120	3.97	397.476.40 37.378.00	2060 17417	206.247.200 41.104.120	10993 53530	1,100,569,100 126,329,620
12.		20	300	8.02	7,218.00	8709	7,838,100	26754	24,078,600
/22	-	: e	90	13.54	1,218.60	1737	696,330	38202	3,428,180
/33 /37			212	0.03	1,240.56 2.13	7248 3986 1977	521,856 283,006	46016 4054	3,313,116 287,799
/28	P.V.C.pipe D.150mm diafor weep hole P.V.C.pipe D.150mm diafor weep hole	2 5 5	103 391 12	4.17 8.16 23.19	450.36 3.190.56 278.28	1726 4932	59,184 59,184	20086 20086 57110	1,151,226 7,853,626 685,314
	Subtotal of item 2.4				7,822,801.00		7,088,569,385		24, 889, 871, 635
2.5	RISCELLAREOUS RETAL RORY								
/01 /02 /03	Embedded metal Steel pipe handrail in inlet structure Steel ladder with safety cage in inlet	२० २८ २८ २८ २८ २८	422 2.100 113	0.56 1.81 0.46	236.32 3,801.00 51.98	1198 1057 1435	505,556 2,219,700 162,155	2458 5130 2470	1,037,276 10,771,950 279,110
/04 /05	Sciel steps.round bar, in iniot structure Steel pipes for ster lovel gauge in	60 th	326 756	0.65 1.48	211.90 1.118.88	415 279	135,290 210,924	1878 3609	612,065 2.728,404
/06	utes subcure Grating and hatch cover in inlet structure	k.	6,710	3.61	24.223.10	813	5.455.230	8936	59, 357, 205

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ltem No.	Description of Works	Unit	Quantity	Price	Fereign Currency(US\$) Unit Total Price Price	Local C Unit Price	Goal Currency (S/.) Unit Total Price Price	Equivaler Unit Price	Equivalent Price(S/.) Unit Total Price Price	
5 1 5 5 5				1 1 1 1 1 1 1 1 1 1 1						
/0/	/07 Eire net fence with gate	ž	100	0.86	86.00	1037	103,700	2972	297,200	
	Subtotal of item 2.5				29,729.18		8,732,555		75,683,210	
2.6	CONVERGENCY MEASUREMENT									
10/	. Reasurement of horizontal convergence	ñ0S.	4,680	14.00	65,520.00	11980	56.068.400	43480	203.485.400	
/02		nos.	4,680	14.00	65,520.00	11980	56,066,400	43480	203,486,400	
/03	l seasurement of roof settlement	nos.	4,680 200	0.00	0.00	30000	140,400,000	30000	140.400.000	
/04		10S.	4,680	0.00	0.00 27 707 ED	30000	140,400.000	30000	140,400,000	
cn/ 90/	o ourees measurement of fock addus 1 Stress measurement of shotarote	105. 105.	616 916	189.30	184.567.50	06712	ZI,ZU6,Z5U 89 563 560	61765 517785	504 840 275	
/0/		nos.	60	23.80	1,423.00	20060	1,203,600	73610	4,416,500	
	Subtotal of item 2.6				344,823.00		504,906,150	· ·	1.280.757,900	
2.7	BUILDING KORKS, CONGUILLO INLET SUPERSTRUCTURE	UCTURE								
	(1) Concrete work	. •				·			• .	•
/01 /03 /03	004		45 74 74 6	60.74 53.47 4.67	2,733.30 267.35 681.82	75735 68829 42073	3,408,075 344,145 6,142,658	212400 189137 52581	. 9,558,000 945,683 7,676,753	
/04		2ª	223	4.67	1,041.41	42073	9,382,279	52581	11,725.452	
/02	tuem / vi Reinforcing bars for concrete works	ton	4.6	357.37	1,646.66	1054028	4,848,529	1859461	3,553,518	•
	(2) Hasonry Horks				•			, .		10 J.
/06	/06 Hollow concrete masonry to roof parapet	22 	13	0.00	0.00	16205	210.665	16205	210.665	

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ltem No.	Description of Korks	Unit.	Quantity	Foreign Cu Unit	Foreign Currency(95\$) Unit Total	Local Ct Unit	Local Currency(S/.) Unit Total	Equívalent Unit	Equivalent Price(S/.) Unit Total
			8 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Price	Price	Price	Price	Price	Price
	100mm thick including bunding coment mortar	·						6 8 9 6 9 7 7 7 1	6 5 7 8 9
	<ol> <li>Bituminous Waterproof Roofing</li> </ol>								
10/	<pre>3 ply built-up asphalt roofing including asphalt compound joint and required coaking</pre>	E 61	75	20.00	1,500.00	45000	3,375,000	90000	6,750,300
	(4) Plastering Eork								
/08 /09		8 6 21 02	40 62	0.00	0.00	41197 4669	1.647.530 289.478	411 <b>9</b> 7 4669	1,647,880
/10	for built-up roofing Cement mortar plaster to interior skirting HalDNam	E	35	0.00	0.00	467	16,345	182	16,345
/11	Cement mortar plaster to exterior skirting.M=200mm	6	27	0010	0.00	934	25,218	934	25,218
/12	Cement mortar plaster to interior wall Waterproof cement mortar plaster to	2 2 2 2	146 31	0.00	0.00	41240 65488	6,021.040 2,030,128	41240 55483	6.021.040 2.030.128
/14	parapet including metal wire lain Waterproof coment mortar plaster to roof parapet including metal wire lath	5 <sup>6</sup>	တ	0.00	0.00	271295	2,170,360	271295	2.170.360
	(5) Spray Tile Finish								·
/15	/15 Spray tile on exposed concrete	5 <u>1</u> 2	162	0,00	0.00	2419	391,878	2419	391,878
	(6) Painting Rork								
/16	/16 Oil paint to metal surface	6 2	9;	0.00	0.00	3052	140,392	3052	140,332

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ltem No.	Description of Horks	Unit	Quantity	foreign Cu Unit Price	Poreign Currency(US\$) Unit Total Price Price	Local C Unit Price	Local Currency(S/.) Unit Total Price Price	Bquivalent Unit Price	Bquivalent Price(S/.) Unit Total Price Price
	(6) Steel doors								7 3 4 5 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
111	Steel door leaves and frames including louvers,required hardware,accessories and cauking to outside perimeter	72 E	15	0.00	0.00	412266	6, 183, 390	412266	6.133,990
	(7) Aluminium Kindows and Louvers								
/18		11 2 11		0.00	0.0	104028	416,112	104028	416.112
/18	required hardware, accessionies & causing Alminium louvers and frames including required hardware, accessories & cauking	2 <u>u</u>	~	0.00	0.00	96900	193,800	36900	133,800
	(8) Glazing Korks								
/20	/20 Glazing clear wire glass.t=6.8am	64 19	~	41.06	164.24	9238	36,952	101623	406,492
	(5) Ventilation Kork						• • •		
/21		22		2125.00	2,125.00	239063	239,063	5020313	5,020,313
22/		0U		1015.00	1,015.00	114188	114.188	2397538	2,397,938
3	a.UR-VHS.400 X 200.0=1480	0Ľ	12	42.50	510.00	4781	57,372	100406	1.204.372
161		6 6	1 61	25.00 25.00	100.00 50.00	2813	11.252 5.626	59063 59063	236,252 118,126
	vencrigering zens praven sues. a. Gage 22 b. Gage 24	55 56 56	450 616	0.00	00.0	6500 6500	2,925,000 4,004,000	6500 6500	2,925,000 4,004,000
	Subtotal of item 2.7			·	11, 334.78		54,631,425		81,259,684

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Item No.	Description of Sorks	Unit Quantity		Foreign Cu Unit Price	Foreign Currency(US\$) Unit Total Price Price	Local C Unit Price	Local Curemey(S/.) Unit Total Price Price	Equivalent Unit Price	Equivalent Price(S/.) Unit Total Price Price
2.8	ELECTRICAL KORKS								
-15 -15 -15 -15 -15 -15 -15 -15 -15 -15	Lighting parel Type A.F. 40% x 2 Type B.F. 40% x 1	8 8 8 8 9 9 8 9 9 8 9 8 9 8 9 8 9 8 9 8	30 F1 F1	0.00 401.25 267.50	0.00 5.216.25 8,025.00	241250 90281 50198	241.250 1.173,653 1.805,940	241250 393094 662073	241.250 12.910.216 19.862.100
/04		set ser	67 t- I	200.63 0.00	401.26	15142 13725	90,284 96,075	496560 13725	993,119 96,075
/00	Tumbler switch, 104-127 V Three way switch, 104-127V	set set	r- 19	0.00	0.00 0.00	11363 12286	72.541 73,716	11363 12286	73,541
80/ 08	Conduit pipe.16mm dia.(D.1/2") Conduit pipe.22mm dia.(D.3/4")	FG	153 15	4 C 3	969.42 202.50	4815 6075	2,181,195 455,625	9630 12150	4,362,390
/11	IV MITE.Z.CHMM2(TK14A%G) IV Mire.3.5mm2(TK12A%G) CV cable.4c x 3.5mm2(4x12A%G)	6 5 A	980 230 65	2.00 2.00 2.01	0.00 0.00 134.55	1120 1488 922	1,037,600 342.240 60 580	1120 1485 5500	1,097,600 342,240 263 219
/13 /14		<b>e</b> 4 <u>7</u>	909 90	19 19 19 19 19 19 19 19 19 19 19 19 19 1	1,788.00 117.00	1341 878	804,500 52,680	\$046 \$046	4,827,500
2.9	Subtetat of item 2.8 MISCELLARECUS				16,853.98		8,554,979		46,476,424
/01 /03	Trash boom Dredging of existing inlet channel of Conguillo inict Staff gauge,DIGOmm steel pipe.h=20m	ев 13 С. 83 С. 5	3,000	684.33 84.36	85,541,25 252,080,00 3,095.00	153374 7508	19,246,750 22,524,000 1,392,740	1693717 167318	211.714.553 591,954,000 8.356,490
	Subtotal of item 2.9				341,716.25		43.163,490		812,025,053
	Total of item 2			-1	13,638,165.29		17,110,828,770	Υ	59,046,700,677

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3       CONDULID URK 40.7         3.1       RATHORK         7.1       R.1.950         7.2       R.1.950         7.2       R.1.950         7.2       R.1.950         7.2       R.1.950         7.2       R.1.950         7.3       R.1.950         7.4       R.1.97.10         7.5       R.1.960         7.5       R.1.960         7.5       R.1.960         7.5       R.1.960         7.5       R.1.960         7.5       R.1.960         7.5       R.1.97.10         7.5       R.1.97.10         7.5       R.1.97.10         7.5       R.1.97.10         7.5       Reference         7.5       Reference         7.5       Reference         7.5       Reference     <	ltem No.	. Description of Korks	Sait	Quant! ty	Foreign Cu Unit Price	Foreign Currency(US\$) Unit Total Price Price	local C Unit Price	tocal Currency(S/.) Unit Total Price Price	Equivalent Unit Price	Equivalent Prico(S/.) Unit Total Prico Prico	
CATTRION       C. Starting the site for addit portal       02       1.960       0.14       2.74.40       5.39         Alt portal       addit portal       02       1.960       0.14       2.74.40       5.39         Alt portal       addit portal       02       1.960       0.14       2.34       4.19.40       5.39         Alt portal       addit portal       02       1.960       2.14       2.33       34.36.40       5.36         Alt portal       2.000       3.25       3.1000       3.25       35.40       32.4       4.36.40       5.36         Alt portal       2.000       3.25       3.1000       3.25       3.1000       3.25       3.566       3.56       3.566 </td <td></td> <td>CONGUILLO RORK ADIT</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>		CONGUILLO RORK ADIT									
<ul> <li>(7) Clearing the site for addi portai</li> <li>(7) Observed excernion, in creamon, for</li> <li>(7) Opserved excernion, in creamon, for</li> <li>(7) Opserved excernion, in creamon, for</li> <li>(7) Opserved excernion, in an exchange of the site for addit portai</li> <li>(7) Opserved excernion, in an exchange of the site for addit portai</li> <li>(7) Opserved excernion, in an exchange of the site for addit portai</li> <li>(7) Opserved excernion, in an exchange of the site for addit portai</li> <li>(7) Opserved excernion, in an exchange of the site for addit portai</li> <li>(7) Opserved excernion, and the portai</li> <li>(7) Opserved excernion, and the site for addit portai</li> <li>(7) Opserved excernion, and excernion, addit portai</li> <li>(7) Opserved excernion, addit addited addited for drain ditch and excernion</li> <li>(7) Opserved excernion, addit addited for drain ditch and excernion</li> <li>(7) Opserved excernion</li> <li>(7) Opserved excernion</li> <li>(7) Second basin</li> <li>(7) Opserved excernion</li> <li>(7) Opserved excernin</li> <li>(7) Opserved excernion</li> <li></li></ul>	• •	Elathrork		·				·			
add portal       34.916,400       10546       113.8         (62       dait portal       67 adit portal       14.6       256       14.5       26.10.00       3233       34.916,400       10546       113.8         (75       Open-cut excantion.in weathered rock,       n3       570       7.80       4.445.00       8006       4.553.420       25556       14.5         (75       Dideground excantion.il classes.for       n3       3.560       25.64       81.278.40       78142       273.185.520       135832       33.5       33.5       33.5       33.5       33.5       33.55       33.	10/ 10/		말알	1,960 3,070	0.14 3.54	274.40	2625 2625	419,440 8,089,450	529 8350	1.026.840 25.634,500	
/04       0005       4.563,420       25556       14.5         /05       0007tal       31,45.00       8005       4.563,420       35356       14.5         /05       frain dicton and catch basin       m3       3.560       2.04       31,58.05       117,480       3122       331,50         /05       0001       010,40       2.345       13,58.05       137,580       135322       331,50         /08       0.25mm rock balt       a110,40       2.342       233140       122,400       312         /08       0.25mm rock balt       a11,040       2.342       31344       122,400       312         /08       0.25mm rock balt       a11,040       2.32       33144       152,446       312         /10       3actfiling/ferind       010,050       4.02       2.32       3301       423,444       34         /11       5creth basin       11	/03		93	10,800	3.25	35,100.00	3233	34.916,400	10546	113.891,400	
765       Underground excavation.all classes.in       m3       2,560       25.64       91.278.40       78.42       273.155.520       135832       433.5         765       Trench excavation.all classes.fn       m3       2,560       25.64       91.47       10.40       2342       117.680       9152       3         765       Trench excavation.all classes.fn       m3       2,550       23.65       13.459.05       138.44       1.522,554       2991402       11.82         705       Permanent steel support.H-125x125       ton       til       122.25       53.283.05       13.43       1.522,554       2991402       11.2         705       Backfilling for adit portal       m3       til       122.0       2.333.80       101.45       20.140       9571       12.9         703       Backfilling for adit portal       m3       til       17.35       43.88       3001       420.14       16.52       55.48       61781       10.3       10.3       10.3         710       Backfilling for adit bosin       m3       til       17.35       43.88       3011       45.50       44.520       8571       12.3       10.3       10.3       10.3       10.3       11.2       11.2       10.63       1	/04		43	570	7.80	4,446.00	8006	4,563,420	25556	14.565,920	
<pre>/66 Trench excavation.all classes.for m3 40 2.76 110.40 2342 117.680 3:52 33 train ditch and catch basin /77 Permanent steel suprort.H-125%125 10n 11 1223.55 13.659.05 13.459.05 13.8 /08 D.25mm rock bult in addit tunnel m 2.630 20.26 53.283.80 16198 42.695.480 61781 102.4 /08 Backfilling for addit portal m 3 1.4 2.92 40.88 3001 420.140 9571 1.3 /10 Backfilling for addit portal m 3 1.4 2.92 40.88 3001 420.140 9571 1.3 /10 Backfilling for addit portal m 3 1.4 2.92 40.88 3001 420.140 9571 1.3 /11 Gravel surfacing /12 Gravel surfacing /13 Ket rubble masonry m3 1.0 56.52 565.20 126107 1.261.070 253277 2.5 /14 500 445.20 445.20 44.520 44.520 4.1.6 /1. Subtotal of item 3.1 207.577.47 374.973,895 1.1.033.060 4.690 1.0. /13 ket rubble masonry m 2 200 0.00 6.90 4.622 1.063.050 4.690 1.0. /14 500 facing /15 concrete.class D.for lining of adit m3 611 72.41 44.242.51 85715 52.992,865 2.49633 152.4 /15 concrete.class D.for lining of adit m3 611 72.41 44.242.51 85715 52.992,865 2.49633 152.4 /15 concrete.class D.for lining of adit m3 611 72.41 44.242.51 85715 52.992,865 2.49633 152.4 /15 concrete.class D.for lining of adit m3 611 72.41 44.242.51 85715 52.992,865 2.49633 152.4 /15 concrete.class D.for lining of adit m3 611 72.41 44.242.51 85715 52.992,865 2.49633 152.4 /15 concrete.class D.for lining of adit m3 611 72.41 44.242.51 85715 52.992,865 2.49633 152.4 /15 concrete.class D.for lining of adit m3 611 72.41 44.242.51 85715 52.992,865 2.49633 152.4 /15 concrete.class D.for lining of adit m3 611 72.41 44.242.51 85715 52.992,865 2.49633 152.4 /15 concrete.class D.for lining of adit m3 611 72.41 44.242.51 85715 52.992,865 2.49633 152.4 /15 concrete.class D.for lining of adit m3 611 72.41 44.242.51 85715 52.992,865 2.49633 152.4 /15 concrete.class D.for lining of adit m3 611 72.41 44.242.51 85715 52.992,865 2.49633 152.4 /15 concrete.class D.for lining of adit m3 611 72.41 44.242.51 85715 52.992,865 2.49633 152.4 /15 concrete.class D.for lining of adit m3 611 72.41 44.242.51 85715 52.992,855 2.49633 152.4 /15 concrete.c</pre>	/02	pottar Underground sxcavation,ull adit	<b>a</b> 3	3,560	25.64	91,278,40	78142	278,185,520	135832	483,561,920	
<ul> <li>/C Permanent steel support.H-125X125 ton 11 1223.55 (3.459.05 13.459.05 13.459.05 13.459.05 15.480 61781 162.4</li> <li>/08 D.25mm reck bolt in Arit tunnei m 2 .650 20.26 53.283.80 16196 42.555.489 61781 162.4</li> <li>/10 Backfilling for ndit portal m 3 1.40 2.92 40.88 3001 42.014 9571 1.3</li> <li>/11 Gravel surfacing for drain ditch and m 3 1.40 2.92 40.88 3001 42.014 9571 1.3</li> <li>/11 Gravel surfacing for drain ditch and m 3 1.40 2.92 40.88 3001 42.014 9571 1.3</li> <li>/12 Gravel bedding for drain ditch and m 3 1.4 17.32 788.48 39526 1.739.144 79846 3.5</li> <li>/12 Gravel bedding for drain ditch and m 3 1.0 56.52 556.20 125107 1.251.070 25.327 2.6</li> <li>/14 Sod facing Lem J.1 200 0.03 6.90 4622 1.053.060 4690 4.52.</li> <li>(14 Sod facing Lem J.1 200 0.03 6.90 4622 1.000 4.52.0 1.000 4.52.0 4.50.0 4.50</li></ul>	20/		в3	40	2.76	110.40	2942	117,680	3152	366.080	
<ul> <li>/38 D.25mm rock bolt in acit tunnei m 2.530 20.26 53.283.80 16196 42,595.480 61781 162.4</li> <li>/98 Backfilling for adit portal ma m 2.630 2.92 408.80 3001 420.140 9571 1.3</li> <li>/10 Backfilling for ditch &amp; catch basin m 4 17.32 788.45 3001 420.140 9571 1.3</li> <li>/11 Gravel surfacing for drain ditch and m 3 14 17.36 4730 17.36 44.520 83580 3.6</li> <li>/12 Gravel bedding for drain ditch and m 1 17.36 17.36 44520 4.520 83580 3.6</li> <li>/12 Gravel bedding for drain ditch and m 3 10 56.52 555.20 125107 1.251.070 2.57277 2.6</li> <li>/14 Sod facing m 3.1</li> <li>(15 Subtotal of item 3.1</li> <li>(16 Subtotal of item 3.1</li> <li>(207,577.47 374,979.892 8.25.76 1.0</li> <li>(200 Concrete.class D.for lining of addit m 2 611 72.41 44.242.51 85715 52.982.865 2.436538 152.4</li> </ul>	10/		101	5	1223.55	13,459.05	138414	1,522,554	2891402	714,805,417	
/05       Backfilling, Araic portal       m3       i40       2.32       403.80       3001       420.140       9571       1.3         /10       Backfilling, Araic ditch & catch basin       m3       14       2.92       40.88       3001       420.140       9571       1.3         /11       Gravel surfacing       m3       14       17.32       788.45       39526       1.739.144       75846       3.5         /12       Gravel bedding for drain ditch and       m3       1       17.36       17.35       44520       44.520       83580       3.5         /12       Gravel bedding for drain ditch and       m3       10       55.52       555.20       156107       1.261070       25377       3.5         /14       Sod facing       m2       2.00       0.00       0.00       6.80       46520       1.44.520       83580       3.5         /14       Sobtotal of item 3.1       m2       2.00       0.00       0.00       6.80       4652       1.063.980       8.2.0       8.2.0       8.2.0       8.2.2.0       1.44.520       8.2.2.0       1.44.522       8.2.2.0       1.053.982       8.2.2.0       1.053.982       8.2.2.0       1.053.982       8.2.2.0       1.0	/08		Ę	2,630	20.26	53,283.80	16196	42,595,480	61781	162.484.030	
<pre>/10 3ackfilling.draic ditch &amp; catch basin m3 14 2.92 40.88 3001 42.014 9571 1 /11 Gravel surfacing /11 Gravel surfacing /12 Gravel bedding for drain ditch and m3 1 17.36 44520 17.39,144 79846 3.5 /12 Stavel bedding for drain ditch and m3 1 17.36 44520 17.30 144.520 83580 /13 Wet rubble masonry m3 10 56.52 565.20 126107 2.5677 2.5 /14 Sod facing /13 Wet rubble masonry m2 2.00 0.02 6.90 4622 1.063,060 4690 1.0 /14 Sod facing /13 Subtotal of item 3.1 Subtotal of item 3.1 Subtotal of item 3.1 CONCRETE WORK /C1 Concrete.class D.for lining of addit m3 611 72.41 44.242.51 86715 52.982.865 249638 1.52.4 /C1 Concrete.class D.for lining of addit m3 611 72.41 44.242.51 86715 52.982.865 249638 1.52.4 </pre>	60/		ŝ	071	2.32	403.80	3001	420,140	9571	1.339,940	
/11       Gravel surfacing       m3       44       17.92       788.48       39526       1,739.144       78846       3.5         /12       Gravel bedding for drain ditch and       m3       i       i7.36       17.36       44.520       83580       3.5         /13       Ket rubble masonry       m3       10       56.52       565.20       126107       1.261.070       250277       2.5         /14       Sod facing       m2       10       56.52       565.20       126507       1.693.060       4630       1.6         /14       Subtotal of item 3.1       m2       200       0.03       6.90       4622       1.063.060       4630       1.6         /14       Subtotal of item 3.1       374.979.892       842.1       1.663.060       4630       1.6         Subtotal of item 3.1       207.577.47       374.979.892       842.6       1.663.060       4630       1.2         (CackEETE WORK       8.71.5       52.982.865       2.49638       152.4         /01       Concrete.class D.for lining of addit       m3       1.52.4       44.242.51       85715       52.982.865       249638       152.4	/10		п3.	21	2.92	40.88	3001	42,014	9571	133,994	
<pre>/12 Gravel bedding for drain ditch and m3 i i7.36 17.36 44520 44.520 83580 catch basin /13 Ket rubble masonry m3 10 56.52 555.20 126107 1.261.070 25727 2.5 /14 Sod facing m2 230 0.03 6.96 4622 1.063.060 4690 1.0 Subtotal of item 3.1 374.979.892 842.6 CONCRETE WORK CONCRETE WORK /01 Concrete.class D.for lining of adit m3 611 72.41 44.242.51 86715 52.982.865 249638 152.4 /01 concrete.class D.for lining of adit m3 611 72.41 44.242.51 86715 52.982.865 249638 152.4 /01 concrete.class D.for lining of adit m3 611 72.41 44.242.51 86715 52.982.865 249638 152.4</pre>	E		ŝ	44	17.92	788.48	39526	1,739,144	79846	3,513,224	
<pre>/13 Ket rubble masonry m3 10 56.52 565.20 126107 1.261.070 253277 /14 Sod facing m2 230 0.03 6.90 4622 1.063.060 4690 Subtotal of item 3.1 374.979.892 4622 1.063.060 4690 CONCRETE WORK CONCRETE WORK /C1 Concrete.class D.for lining of adit m3 611 72.41 44.242.51 86715 52.982.865 249638 /C1 concrete.class D.for lining of adit m3 611 72.41 44.242.51 86715 52.982.865 249638</pre>	/12		<b>а</b> 3	<b>,</b>	17.36	17.36	44520	44.520	83580	83,580	
<pre>/14 Sod facing m2 200 0.03 6.90 4622 1.063.060 4690 Subtotal of item 3.1 Subtotal of item 3.1 CONCRETS WGRK CONCRETS WGRK /C1 Concrete.class D.for lining of addt m3 Ell 72.41 44.242.51 86715 52.982.865 249638 /C1 tunnel</pre>	/13		ц. Св	10	56.52	565.20	126107	1.261.070	253277	2,522.779	
Subtotal of item 3.1       374.979.892         Subtotal of item 3.1       374.979.892         CONCRETE WORK       374.979.892         /C1       Concrete.class D.for lining of addit       m3       611       72.41       44.242.51       86715       52.982.865       249638	/14		щ <b>2</b>	230	0.03	6.90	4622	1,063,060	4690	1.078, 585	
CONCRETE WORK /01 Concrete,class D.for lining of adit m3 611 72.41 44.242.51 86715 52.982.865 249638 tunnel		Subtotal of item 3.1				207,577.47		374,979,892	•	8-12,029,200	
Concrete.class D.for lining of adit m3 611 72.41 44.242.51 86715 52.982.865 249638 tunnel	2	CONCRETE WORK				·		· .	2		
	10/	Concrete, class D. for lining tunnel	с <u>э</u>	611	7+,7	44.242.51	86715	52,982,865	803847	152,528,513	

				bill of quantifies	TITLES	:				
ttem No.	Desaription of Karks	Un ít.	Quanti tr	Foreign Cu Unit Price	Foreign Currency(USS) Unit Tota! Price Price	Local G Unit Price	Local Currency(S/.) Unit Total Price Price	Aqui cui ent. Uni t	aquivalons Price(3/.) Unit. Total Price Price	
/02	Concrete class ? Support facing	1 1 3	C.	21 BS	587.59	73502	1.284.554	206835	5.579.132	
* -	walls and portal structure		ว							
/03	Concrete.class f.for drain ditch and catch basin	2	01	61.83	518.30	77369	773, 589	216426	3.164,855	
10/	Concrete.class H.for levelling concrete of drain ditch and catch basin	en En	c4	53.47	108.94	68829	127,658	1891.57	278, 273	
/05	Formwork,?1 finish.For concrete of item /02	24	ന	3.56	32.04	11519	100,671	19523	175,701	
/06	formwork,71 finish,for concrete of item ∕63	¢-3 स	15	0,25	19.50	15279	1,191.762	2:83	1.235,537	
/0/	Pormwork,22 finish.for concrete of item /02	а2	103	3.49	359.47	20350	2,096,050	28202	2,904,858	·
/38	Rornwork.P3 finish.For concrete of item /03	(~) 문	t- *1	4.03	161.76	25663	1,206.396	34848	1.627,255	
60/	Rormwork.74 finish.for concrete of ltem /01.tunnel	2 e	513	14.95	7.654.40	12350	6,323,200	45588	22,545,600	
/10	Reinforeing hars for concrete work	ton		357.97	357.97	1054028	1.654.023	[57653]	1.959.461	
Ë,	Shotcrete in adit tunnel	с Б	225	154.05	34,661.25	131410	22,567,250		107.555.062	
/12	Steel wire mesh for item /11	¶2	2,120	3.37	8,416.40	2060	4.267.200	0000	23, 304, 100	
/13	Anchow bars,D.25mm for concrete facing wall.	Ę	33	13.54	446.82	1737	255,321	38202	260,065	
/:4	<b>₽.Υ.C.ρίρε Ο.50m</b> κ for κανη ήσ!α	Đ.	26	4.17	108.42	1277	33,202	00001	141.175	
	Subtotal of item 3.2				98,813,37		102,076,837		324,406,525	
	1019 01 1408 3				106 300 AA		100 JED 100			

B)

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11100       11100       11100       11100       11100         11100       111100       1111       111100       111100       111100       111100         11100       1110       11111       11111       11111       11111       11111       11111       11111       11111       11111       11111	Item No.	Description of Works	Unit	Quanti Ly	Foreign Cu Unit	Foreign Currency(US\$) Unit Total	Local C Unit	Cocal Curreney(S/.) Unit Total	Equivalent Unit Duise	Equivalent Price(S/.) Unit Total Price Price	
E. Guisson GORK ADIT antisonal cartisonal cartisonal cartisonal cartisonal cartisonal cartisonal cartisonal comment recovarion.in common.for and comment recovarion.in rock.for adit of comment recovarion.all classes.for add portal (comment recovarion.all classes.for add portal (comment recovarion.all classes.for add portal (comment recovarion.all classes.for add comment recovarion.all classes.for add comment recovarion.all classes.for add classes.for add comment recovarion.all classes.for add classes.for add crain ditch and catch basin (comment recovarion.all classes.for add crain ditch and catch basin (comment recover) (comment recover) (co					1						
C11       Cartistorx	~1*	EL GUASHO GORK ADIT									
<ul> <li>(1) Clearing the site for adit portal all 570 0.14 233.80 214 357,380 538 445 4</li> <li>(2) Open-cut excavation in common for all 7.30 2.22 8,280.50 2260 8,541.70 7285 4</li> <li>(3) Open-cut excavation in rook for adit portal (0.14 all portal 0.13 0.000,500 9455 4</li> <li>(4) Open-cut excavation in rook for adit all rook for adit portal 0.13 0.000,500 2455 4</li> <li>(5) Open-cut excavation in rook for adit all rook for adit portal 0.13 0.000,500 2455 4</li> <li>(6) Open-cut excavation all classes, in all 0.560 27.35 179.416.00 81383 533.938.000 142891 82 000 tall 0.14 0.000 tall 0.14 0.000 1.17 0.000 1.17 0.000 1.17 0.000 1.17 0.000 1.17 0.000 1.17 0.000 1.17 0.000 0.12 0.000 0.13 0.000 0.12 0.000 0.12 0.000 0.000 0.12 0.0000 0.12 0.000 0.12 0.000 0.12 0.0000 0.12 0.00</li></ul>	r -1	EARTSHORK						÷			
<ul> <li>/22 Open-cut excavation.in common.for a3 3.730 2.22 8.280.60 2.544.700 7.60 5.65 ft for adit portal</li> <li>/33 Open-cut excavation.in weathered rock. a3 7.300 2.22 1.316.00 2365 21.060.500 9455 ft for adit portal</li> <li>/4 Open-cut excavation.all classes.in a3 7.300 2.22 1.316.00 2365 21.060.500 9455 ft for adit portal</li> <li>/4 Open-cut excavation.all classes.in a3 6.560 27.35 179.416.00 8.333 533.938.080 142331 85 et in between excavation.all classes.in a3 6.560 27.35 179.416.00 8.333 533.938.080 142331 85 et in between excavation.all classes.in a3 6.560 27.35 179.416.00 8.333 533.938.080 142331 85 et in bit to the excavation.all classes.for a3 0 2.76 110.40 2.942 117.680 9152 et in adit</li> <li>/05 Trench excavation.all classes.for a3 40 2.75 110.40 2.942 117.680 9152 et in adit for adit portal</li> <li>/07 Permanent steel suport.1.125.125 to a 31 1223.55 37.330.05 133414 4.200.834 2391402 8</li> <li>/07 Permanent steel suport.1.125.125 to 31 1223.55 37.330.05 133414 4.200.834 2391402 8</li> <li>/07 Permanent steel suport.1.1.25.125 to 31 1223.55 37.330.05 138714 3.200.8360 61781 3.160 0000 16618 ad extra addit portal</li> <li>/08 Backfilling for addit portal</li> <li>/09 Backfilling for addit portal</li> <li>/13 Favel besin</li> <li>/13 favel surfacing for data ditch and</li> <li>/14 2.29 1.433.60 3001 4.200.834 2391402 8</li> <li>/13 favel surfacing for data ditch and</li> <li>/14 2.20 2.31.00 16536 11.431.00 23527 7.433 00 23527 7.433 00 23537 7.433 00 23536 1.433.60 3569 1.44838 2564.00 0000 15.00 0000 15.00 0000 15.00 0000 00</li></ul>	10/	Clearing the site for adit portal	8ª	1,670	0.14	233.80	214	357,380		883,430	
<pre>/03</pre>	/02	Open-cut excavation.in common.for adit nortal	ŝ	3,730	2.22	8, 280.60	0.672	8,541,7UU		UGV,&11,12	
(d Open-eutr excavation.in rock.for adit       m3       336       7.42       2.883.80       7607       2.966.730       24323         (05 Underground excavation.all classes.in       m3       6,550       27.25       179.416.00       81333       533.938.080       142331       82         (05 Underground excavation.all classes.for       m3       6,550       27.75       179.416.00       81333       533.938.080       142831       82         (16       Trench excavation.all classes.for       m3       40       2.75       10.40       2842       117.680       9152         (16       Tench excavation.all classes.for       m3       40       2.75       100.40       2842       117.680       9152         (17       Paranet       sciftuling for adit turnel       m3       140       2.92       400.140       8511       37         (08       3.25mm rock bolt in adit turnel       m3       160       2.92       17.93       8011       8571       37         (08       2.55m rock bolt in adit turnel       m3       16       2.82       4001       83344       4.290.834       8711       37         (16       frauel strining       indit turnel       m3       17.92       2012       4001	/03	Cpen-cut excavation.in weathered rock.	ш3,	7,300	2.32	31,316.00	2385	21,060,500	9455	69,021,500	
(5)       00.001       179,416.00       81333       533,938.080       142931       37         (10)       Underground excavation.all classes.for       m3       6,560       27.35       179,416.00       81333       533,938.080       142931       37         (10)       Tench excavation.all classes.for       m3       0       2.75       110.40       2942       117,680       9152         (10)       Permanent steel support.H-125x125       ton       31       122.3.55       37,330.35       138414       4.290.834       2891402       8         (10)       80       2.556       ton       31       122.3.50       37,330.35       138414       4.290.834       2891402       8         (10)       80       2.556       ton       31       122.3.50       37,330.35       138414       4.290.834       2891402       8         (10)       Backfilling.for adit tunnel       m3       160       2.92       40.88       3001       48.016       8571       33         (10)       Backfilling.for adit of adit of adit of adit mid       m3       16       7.32.00       3014       48.016       9517       35         (11)       Farvel surfacing       m3       17.32       14.33.50 <td>/04</td> <td>Open-cut excavation.in rock.for adit</td> <td>а. Св</td> <td>390</td> <td>7.42</td> <td>2,893.80</td> <td>7607</td> <td>2,966,730</td> <td>24302</td> <td>9.477,780</td> <td></td>	/04	Open-cut excavation.in rock.for adit	а. Св	390	7.42	2,893.80	7607	2,966,730	24302	9.477,780	
/05       Turneh exervation,all classes,for       m3       40       2.75       110.40       2942       117.680       9152         /07       Permanent steel support.H=i25x125       ton       31       1223.55       37.330.05       13814       4.290.834       2891402       8         /07       Permanent steel support.H=i25x125       ton       31       1223.55       37.330.05       138144       4.290.834       2891402       8         /08       80       140       2.92       408.80       3001       420.140       9571       351         /08       Backfilling.for adit portai       m3       16       2.92       408.80       3001       4.20.83       2001       48.016       9571         /10       Backfilling.for dain ditch and       m3       16       2.92       103.35.00       165167       1.251.00       48.016       9571         /11       Gravel basin       m3       2       17.35       3.4.77       44.520       89.040       8356         /12       Gravel basin       m3       2       17.35       3.4.720       89.040       8536         /12       Gravel basin       m3       2       17.35       1.433.60       355.00       16507	/05	cound excavation.all	°? ∎	6,560	27.35	179,416.00	81393	533,938,080	142931	937,624,080	
<ul> <li>77 Crain ditch and catch Jasin</li> <li>70 Permanent steel support.H-125x125 ton 31 1223.55 37,330.05 138414 4,290,834 2891402 8</li> <li>70 8 D.55mm rock bolt in addit tunnel m 31 1223.55 37,330.05 16596 81,789,800 61781 3</li> <li>70 8 Backfilling for addit portai m 3 1,60 2.26 102.313.00 16596 81,789,800 61781 3</li> <li>70 Backfilling for addit portai m 3 1,60 2.92 408.80 3001 420,140 9571 35</li> <li>71 Backfilling for addit portai m 3 1,60 2.92 407 3001 420,140 9571 3</li> <li>71 Gavel surfacing for drain ditch and a 3 2 17.35 34.72 3001 42500 79946 34.72 3001 425,090 79946 7364 17 3550 7364 54.72 3001 4550 79546 73550 7364 17 3550 7354,050 7354 17 3550 7354,050 74650 71,50 74650</li></ul>	/06	Trench excavation,all classes,for	e Se	07	2.76	110.40	2942	117.680	9152	366.080	
/08       0.25mm rock bolt in adit tunnel       m       5.050       20.26       102.313.00       16196       81.789.800       61781       3571         /08       Backfilling for adit portai       m3       140       2.92       408.80       501       420.140       9571       3571         /10       Backfilling for adit portai       m3       16       2.92       46.72       3001       420.140       9571       3571         /11       Gravel surfacing       m3       80       17.92       1.433.60       301       48.016       9571       3571         /12       Gravel surfacing       m3       2       17.35       34.72       44520       89.040       83580       73846         /13       Ker rubble masonry       m3       10       56.52       555.20       125107       1.261.070       253277         /14       Sod facing       m2       500       0.03       15.00       44520       89.040       83580         /14       Sod facing       m3       10       56.52       555.20       126107       1.261.070       253277         /14       Sod facing       m4.1       354.997.69       89.040       8358.006       1.4         <	/0/	drain ditch and catch basin Permanent steel support.H-125x125	ton	31	1223.55	37,330,35	138414	4,290,834	2891402	89,633,447	
/03       Backfilling for adit portai       m3       140       2.92       46.72       3001       420.140       9571         /10       Backfilling drain ditch % catch basin       m3       16       2.92       46.72       3001       48.016       9571         /11       Gravel surfacing       m3       16       2.92       46.72       3001       48.016       9571         /11       Gravel surfacing       m3       17.92       1.433.60       39526       3.162.380       79846         /11       Gravel bedding for drain ditch and       m3       2       17.35       1.432.60       39526       3.162.00       83580         /13       Ket rubble masonry       m3       10       56.52       565.20       126107       1.261.070       253277         /14       Sod facing       m2       10       56.52       555.20       126107       1.261.070       253277         /14       Sod facing       m2       10       56.52       565.20       126107       1.261.070       2531.000       4690         /14       Sod facing       m4.1       354.997.69       307.69       560.354.050       1.4         Subtotal of item 4.1       Storete.class D.for lining of adit	/08	D.25mm rock bolt in adit tunnel	ŧ	5,050	20.26	102,313.00	16196	81,789,800	61781	311.394.050	
<pre>/10 Backfilling.drain ditch % catch basin m3 16 2.92 46.72 300L 44.015 9571 /11 Gravel surfacing for drain ditch and m3 80 17.92 1.433.60 39526 3.162.080 79346 /12 Gravel bedding for drain ditch and m3 2 17.36 34.72 44520 89.040 83580 /13 Ket rubble masonry m2 500 0.03 15.00 46507 1.261.070 253277 /14 Sod facing m2 500 0.03 15.00 4622 2.311.000 4690 /14 Sobtotal of item 4.1 354.997.69 650.354.050 1.4 </pre>	60/	Backfilling for adit portai	E.	140	2.52	408.80	3001	420,140	3571	1,339.940	
<pre>/11 urave1 Surration (12 Grave1 Sedding for drain ditch and m3 2 17.36 34.72 44520 89.040 83580 catch basin (12 Grave1 besin (12 Grave1 b</pre>	97	Backfilling.drain ditch & catch basin	2 °	16 90	2.92	46.72 1 433 ED	39526	3 162 080	79846	133,155 $6.387,580$	
<pre>/13 Wet rubble masonry m3 10 56.52 565.20 126107 1,261.070 253277 /14 Sod facing m2 500 0.03 15.00 4622 2.311.000 4690 /14 Sod facing Subtotal of item 4.1 354,997.69 660.354,050 1.4 CONCRETE WORK</pre>	/17		2 C2	2	17.36	34.72	44520	89,040	83580	167,150	
/14 Sod facing m2 500 0.03 15.00 4622 2.311.000 4690 Subtotal of item 4.1 354.997.69 660.354.050 1.4 CONCRETE WORK 660.354.050 1.4 /01 Concrete, class D.for lining of adit m3 598 77.13 46.123.74 91881 54.944.838 265424 11 tunnel	6.1	catch basin Eat rubhla masanry	е С	01	56.52	565 20	126107	1.261.070		2,532,770	
Subtotal of item 4.1       354,997.69       660.354,050       1.         CONCRETE WORK       000 Concrete.class D.for lining of adit       m3       598       77.13       46.123.74       91881       54.944.838       265424         /01       Concrete.class D.for lining of adit       m3       598       77.13       46.123.74       91881       54.944.838       265424	27	Sod facing	2	500	0 03	15.00	4622	2,311,000		2,344,750	
CONCRETE WORK /01 Concrete,class D.for lining of adit m3 598 77.13 46.123.74 91881 54.944.838 265424 tunnel		Subtotal of item 4.1				354,997.69		660,354,050		1,459,098,853	
Concrete, class D.for lining of adit m3 598 77.13 46.123.74 91881 54.944.838 265424 tunnel	1.2	CONCRETE NORK									
	10/	Concrete, class D.for lining tunnel	л. Сп	598	77.13	46.123.74	91881	54,944,838	265424	158.723.253	

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3,718,921 210,329,900 44,079,925 1,833,696 330,445 -----408.805 58,587 1,378,211 4.117.565 2,160.576 40.009.125 479,703,658 3,012,796 1,938,802,511 9.541,851 Equivalent Price(S/.) Price otal Price 10660 204405 19529 15842 28203 34848 45988 478023 10993 38202 221904 231754 Unit 859461 2,108,056 57,820,400 8,260,600 371,376 147,314 1,329,273 39,587 3,368,233 1,068,548 34,557 2,971,100 1.591,416 10,744,500 44, 799, 798 305,153,848 Local Currency(S/.) Price Total Unit Price 11519 15279 25668 131410 2060 1277 78331 82196 73657 20350 12350 054028 7737 715.94 67,782.00 15,919.70 21.75 116.22 10.58 509.54 252.96 649.92 129.27 864.11 148,846.16 503,843.85 2,743.83 13,006.50 Foreign Currency(US\$) Price Total 5 3.56 0.253.49 4.08 14.95 66.47 58.11 3.9713.54 63.81 357.97 154.05 Price Unit Unit Quantity 4,010 146 2.0 440 870 48 Ş <u>;</u>;; ¢-3 5 62 8 ton 13 13 10 â C1 E 옅 옅 엍 പ ĩ è Concrete, class H, for levelling concrete unchor bars.D.25mm for concrete facing Concrete.class E,for concrete facing Concrete.class F.for drain ditch and of drain ditch and catch basin Formwork fi finish for concrete of Formwork, 73 finish, for concrete of deinforcing bars for concrete work ornwork.Fl finish.for concrete of Pormwork,F2 finish,for concrete of Pormwork, F4 finish, for concrete of Description of Works P.V.C. pipe D.50mm for weep hole Shotcrete in adit tunnel Steel wire mesh for item /ii walls and portal structure Subtotal of item 4.2 tem /01.tunnel Total of item 4 catch basin item /02 item /02 item /02 item /03 wall /14 9928 /02 /03 /02 /08 10 80/ 60/ [tem No. *\*0'

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Equivalent Price(S/.) Unit Totai Price Price				038, 606	21,376,000	42.603.820	5,366,760	346,371,600	366,080	23 131 212	108,116,750	1,339,940	143,565	6,227,988	83,580	2,532,770	2,063,380	560,633,325		152,528,513
Equivalent Unit Price				529	8350	10546	25556	135832	9152	2891402	18/19	9571	9571	79846	83580	253277	4690			249638
Local Currency(S/.) Unit Total Price Price				368,080	6,745,600	13,061,320	1,681,260	199,262,100	117,680	1 107 319	28.343.000	420,140	45,015	3,083,028	44,520	1,261,070	2.033.680	257,573,805		52,982,865
Local C Unit Price				214	2635	3233	8006	78142	2942	138414	16196	3001	3001	39526	44520	126107	4622	·		86715
Poreign Currency(US\$) Unit Total Price Price				240.80	6,502.40	13,120.00	1,638.00	65,382.00	110.40	0 788 40	35.455.00	408.80	43.80	1,397.76	17.36	565.20	13.20	134,653.12		44,242.51
Foreign Cu Unit Price				0.14	2.54	3.25	7.80	25.64	2.76	1993 55	20.26	2.92	2.92	17.92	17.36	56.52	0.03			72.41
Quantity	, , , , , , , , , , , , , , , , , , ,			1,720	2,560	4,040	210	2,550	05	x	1.750	140	15	- 21	н <b>ла</b>	10	440			611
tirt t	6 6 1 1 4 4 4			2 E	<b>n</b> 3	а3 Сп	а <u>3</u>	E S	е С			e E	က E	в3 Св	ŝ	a3	2 E			е С
Description of Works		HERBRILLO NORR ADIT	sarthuork	Clearing the site for adit portai	Open-cut excavation,in common.for adit normal	Copen-cut excavation, in weathered rock. For add portai	Open-cut excavation.in rock.for adit portal	Underground excavation,all classes,in adit	Trench excavation, all classes, for	UFALI ULUCH ANG CAUCH VASIH Dammaant staal sunaant U_1954195	retmanent sveet suppor that ILANAAA D.25mm rock bolt in adit tunne!	Backfilling for adit portal	Backfilling, drain ditch & catch basin	Gravel surfacing	Gravel bedding for drain ditch and catch basin	_		Subtotal of item 5.1	CONCRETE KORK	/01 Concrete.class D.for lining of adit tunnel
ftem No.		n	5.1	/01	/02	/03	/04	/05	/00	107	/0/ 80/	60/	/10	E.	/12	/13	/14		5.2	10/

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Item No.	ltem No. Description of Works	Unit	Unit Quanticy	Foreign Cu Unit Price	Foreign Currency(US\$) Unit "otal Price Price	Local C Unit Price	Local Currency(S/.) Unit Total Price Price	Equivalen Unit Price	Equivalent Price(S/.) Unit Total Price Price
/03	/02 Concrete.class E.for concrete facing	83 83	25	60.11	1,502.75	74484	1,862,100	209732	5.243,288
/03	warts and portar structure 3 Concrete.class F.for drain ditch and ratch basin	е С	11	62.77	690.47	78349	861,839	219582	2,415,397
/04		ŝ	67	54.42	108.84	69810	139,620	192255	. 384,510
/02		CE E	പ	3.56	21.36	11519	69,114	19529	117.174
90/		Clar Se	08	0.25	20.00	15279	1,222,320	15842	1,267,320
/01		щ2	98	3.49	342.02	20350	1,994,300	28203	2,763,845
/08		а 2	61	4.08	199.92	25668	1,257,732	34848	1.707.552
60/	1 FEL 1	22	894	14.95	13,365.30	12350	11,040,900	45988	41,112,825
75	_	ton	1.0	357.97	357.97	1054028	1,054,028	1859461	1.859.461
/11/		မီ	153	154.05	23,569.65	131410	20,105,730	478023	73,137,443
/12		а?	1,480	3.97	5,875.60	2060	3,048,800	10993	16.268,900
E.	Anchor bars.D.25mm for co wall	e	8	13.54	406.20	7737	232,110	38202	1,146.060
/14	1 P.V.C.pipe D.50mm for weep hole	E	26	4.17	108.42	1277	33,202	10660	277,147
	Subtotal of item 5.2				30,811.01		95,904,660		300,229,433
	Total of item 5				225,504.13		353,478,465		860,862,758

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ttem No.	Description of Works	Buit	Quantity	Foreign C Unit Price	Foreign Currency(US\$) Unit Total Price Price	Local Unit Price	Local Currency(S/.) Unit Total Price Price	Equivale: Unit Price	Equivalent Price(S/.) Unit Total Price Price	
9	CONGUILLO ACCESS ROAD	0 8 7 7 7 8 8 8		4 6 6 7 9 9 9 9 9 1	- 4 	1 1 1 1 1 1 1	0 0 0 0 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
0.1	Earthfork									
/01 /02		2 C 2 E 2 E	522.400 797.200	0.14 3.87	73.136.00 3.085.164.00	214 3972	111.793.600 3,166,478.400	529 12680	276,349,600 10,108,097,400	
/03 /04		5 6 5	8.000 492.200	8.96 3.08	71,680.00 1,515,976.00	9236 2764	73,888,000 1,360,440,800	29396 9694	235,168,000 4,771,386,800	
/02		۲ ۳	233,100	3.23	752,913.00	2926	682,050,600	10194	2,376,104,850	
/06 /07 /08		C C C C C	3,460 250,100 1,060	0.17 0.03 62.71	1,608.20 7,503.00 66,472.60	164 4622 32650	1,155,962,200 34,609,000	547 4690 173748	5.169.890 1.172.843.950 184.172.350	
	Subtotal of item 6.1				5,574,452.80		6.586.774.040	·	19,129,292,840	
6.2	ENCAVATION AND FILLING FOR STRUCTURE					-		· .	•	
	SRIDGE					·				
/01 /02 /04	Open-cut excavation,all classes Backfill with selected material Free drainage backfill Gravel bedding	e e e e C co co co	4,220 5,460 123 55	2.76 2.92 18.13 17.36	11,923,20 15,343,20 2,229,99 954,80	2942 3001 30733 44520	12.709,440 15.385,460 3,780,159 2,448,600	9152 9571 71526 83580	39.536.640 52.257.660 8,797.637 4,596.900	
	BON CULVERT							•		
/05	/05 Open-cut excavation.all classes	엍	593	2.76	1.636.68	2942	1,744,606	9152	5,427,136	

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VG Backfill with scienced material a 131 2.32 383.43 3001 383.133 5671 56 drainage backfill with scienced material a 210 18.13 2.807.30 77350 77350 57350	ltem No.	o. Description of Forks	Unit	Quanti ty	Poreign C Unit Price	Currency(USS) Total Price	Local i Unit Price	Currency(S/.) Total Price	Equivalent Unit Price	t Price(S/.) Total Price
707       Free drainage backfill       m3       210       18.13       3.807.30       307.30       377.76       44520       712.325	10/	Backfill with selected m	щ3	131	2.92	382.52	3001	393.131	9571	1 253 801
RETAINING KALL       /08       Dem-vut excentation all classes       m3       4.750       2.76       13.110.00       2842       12.944.500         /10       Backfill with selected material       m3       4.750       2.76       13.110.00       2842       12.944.500         /11       Becking       m3       4.750       2.75       3.912.80       2001       4.02.,240         /11       Becking       m3       1.340       2.82       3.912.80       20.621.843       9.033.720       9.333.720       9.740       9.26.50       9.333.720       9.740       9.741       9.335.400       7.421.400       9.741       9.355.450       7.741       9.355.450       7.741       9.355.550       2.056       2.056       2.056       2.0	0, 0,		e e	210 16	18.13 17.36	3.807.30 277.75	30733 44520	6,453,930	71526 83580	15,020,355
(0)       0pen-eut exeration all classes       m3       4.750       2.76       13.110.00       2942       12.974,500         (10)       Backfill with selected material       m3       1.750       2.312.00       2942       12.974,500         (11)       Free drainage acciviti       m3       1.71       18.13       12.165.22       30033       2033,720         (12)       Gravel bedding       m3       211       17.35       12.165.22       30733       20,521,843         (12)       Gravel bedding       m3       211       17.35       12.165.22       30733       20,521,843         Subtotal of them 6.2       Subtotal of them 6.2       m3       211       17.35       13.505,460       30,521,460         Subtotal of them 6.2       Subtotal of them 6.2       m3       215       13.1006       44520       92,539,049         Subtotal of them 6.2       CUVVERT AND DAMINGE KORK       m3       2.650       232       773,050       92,539,049         CUVVERT AND DAMINGE KORK       m3       2.650       12,520,060       13,754,195       92,535,450       773,450       91,55,521,50       945,395,450       91,565,450       91,565,450       91,565,450       91,565,450       91,565,450       91,565,450       91,565,450		RETAINING KALL				•				507 · · · · · · · ·
/10     Backfill with Selected naterial     m3     1.3.0     2.10     1.1.1.0     2.42     10.31,44       /11     Free drainage backfill     m3     1.3.0     2.13     3.312.80     3001     10.21,344       /11     Free drainage backfill     m3     1.3.0     2.82     3.652.36     4.4520     9.333.720       Subtotal of item 6.2     3.001     1.1.3     1.1.35     3.162.36     4.4520     9.333.720       Subtotal of item 6.2     3.001     1.1.3     1.1.35     12.1.65.26     9.333.720       Subtotal of item 6.2     3.001     1.1.35     1.1.36     2.650     9.335.720       CUVERT AND DANINGE NORK     m3     2.155     1.55.35     19.505,450     9.355,450       /11     Opn-eut excavation.all classes     m3     2.650     2.97     7.738.00     3001     7.952,650       /12     Den-eut excavation.all classes     m3     2.650     2.95     18.23     30133     7.424.420     32.724.135       /13     Strucked stone bedding     m1     1.13     2.55     12.365.450     17.723.450     17.723.450     17.724.135       /13     Strucked stone bedding     m1     1.13     2.55     12.5410     23.470     23.4754,420     23.4763,439       /15<	30/	Open-rut evravation a!!	ŝ		(   					
/1.1     Free drainage ack/fil     m3     671     18.13     12.165.23     30733     20.621.843       /1.2     Gravel bedding     m3     Z11     17.36     3.682.96     44520     9.393,720       Subtotal of item 6.2     Subtotal of item 6.2     m3     Z11     17.35     3.682.96     44520     9.393,720       Subtotal of item 6.2     Subtotal of item 6.2     T.786.00     3001     7.952.660       V0     Cpen-rut excavation.ail classes     m3     6.530     2.75     18.288.80     2942     19.505,460       /0.2     Cpen-rut excavation.ail classes     m3     6.530     2.75     18.13     7.52.95     30733     12.74102       /0.2     Seckfill     m3     2.650     2.81     7.758.00     3001     7.754.195       /0.2     Reinforced concrete pipe.).600mm     m     1.29     56.15     129.657.40     37.65.4103       /0.7     Reinforced concrete pipe.).800mm     m     1.29     55.15     4.352.50     129.400       /0.7     Reinforced concrete pipe.).800mm     m     1.29     55.15     129.654.400       /0.7     Reinforced concrete pipe.).800mm     m     1.29     55.15     129.400       /0.7     Reinforced concrete pipe).800mm     m     1.2	71/	Backfill with selected a	3 C2	1,340	2.32	14.110.00 3,912.80	2942	12.974,500 4.021.340	9152 9571	43,472,000
Subtotal of item 5.2       T0.005.44       32.539.049         CUUVERT AND DAXINGE KOKK       T0.005.44       32.539.049         CUUVERT AND DAXINGE KOKK       T0.005.44       32.539.049         CUUVERT AND DAXINGE KOKK       T0.005.46       32.530.040         70.005.460       T.738.00       3001       7.952.650         70.005.47       T.738.00       3001       7.952.650         70.005.46       T.738.00       3001       7.952.650         70.006.41       mailerial       mailerial       mailerial       1.952.650         70.006.40       T.738.00       3001       7.952.650       12.754.195         70.006.700       Crusted concrete pipe.0.500mm       mailerial       1.810       25.15       45.521.50       129682       24.77       2.754.120         70.006.700       Reinforced concrete pipe.0.500mm       mailerial       1.810       25.515       45.521.50       12.9682       234.774       20         70.705       Reinforced concrete pipe.0.1000mm       milerial       1.753       4.6521.50       12.9682       234.772       25         70.705       Reinforced concrete pipe.0.200mm       milerial       2.220       100.100       1.79524       82.220.505       25       2.4410       2.520	11		e Se Se Se	671 211	18.13	12,165.23 3.662.96	30733 44520	20,621,843 9,393,720	71526 83580	47,993,611
CULVERT AND DAAINGE NORX         /01       CPENT-CUT EXCAVATION, all classes       m3       6.530       2.75       18.298.80       2942       19.505.460         /02       Backfill with selected material       m3       6.530       2.75       18.298.80       2942       19.505.460         /03       Crushed stone bedding       m3       2.650       2.92       7.738.00       3001       7.952.660         /03       Crushed stone bedding       m3       2.650       2.92       7.738.00       3001       7.952.660         /03       Crushed stone bedding       m3       2.650       2.93       7.523.95       30733       12.744.493         /04       Reinforced concrete pipe.D.800mm       m       1.810       25.15       45.535.400       37.744.493         /05       Reinforced concrete pipe.D.800mm       m       1.810       25.15       45.535.400       37.744.493         /06       Reinforced concrete pipe.D.800mm       m       1.810       27.55       48.655.30       30733       45.535.400         /06       Reinforced concrete pipe.D.800mm       m       1.29       96.990.00       55.25.70       57.244.00       37.74.424       32.223.660       20         /08       Free drainage mat		Subtotal of item 6.2				70,006.44		32,639,049		250,153,539
Cpen-cut excavation.all classes         m3         6.530         2.76         18,298.80         2942         19,505,460           Rackfill with selected material         m3         2.6550         2.92         7,738.00         3001         7,952,650           Crushed stone bedding         m3         2.6550         2.92         7,738.00         3001         7,952,650           Crushed stone bedding         m3         2.6550         2.92         7,738.00         3001         7,952,650           Reinforced concrete pipe.0.600mm         m         1.810         25.15         45,521.55         30733         12,754,195           Reinforced concrete pipe.0.600mm         m         1.810         25.15         4,583.99         184213         23,477         2           Reinforced concrete pipe.0.800mm         m         1.29         36.31         4,563.99         184213         23,477         2           Reinforced concrete pipe.0.300mm         m         129         36.31         4,563.99         1693.400         3763,477         2           Reinforced concrete pipe.0.300mm         m         129         65.521.70         3763.410         2         2565,410         3           Record concrete pipe.0.200mm         m3         2.210         <	0.3 2	CULVERT AND DRAINAGE KORK								
Backfill with selected material       m3       2.650       2.92       7.738.00       3001       7.952,650         Crushed stone bedding       m2       415       18.13       7.523.95       3001       7.952,650         Reinforced concrete pipe.D.600mm       m2       415       18.13       7.523.95       3001       7.952,650         Reinforced concrete pipe.D.600mm       m       1.810       25.15       45.521.50       129682       234.724,420       1         Reinforced concrete pipe.D.000mm       m       1.810       25.15       45.521.50       129682       234.724,420       1         Reinforced concrete pipe.D.000mm       m       1.29       36.31       4.6805.58       234.710       256.410       3         Reinforced concrete pipe.D.200mm       m       1.01       47.58       4.805.58       234.410       25.650       2395,400         Reinforced concrete pipe.D.200mm       m       101.600       9.15       36.990.00       515.99       55.35,410       3         Reinforced concrete pipe.D.200mm       m       101.600       9.15       36.990.00       516.22.30       234.710       23,410       3         Rereforated drain pipe.D.200mm       m       101.600       9.12       36.65.22.70	10/	Cpen-cut excavation.all classes	ц С	6 830	9 T.C	12 900 90	6706	10 505 150	(	
Crushed stone bedding       m2       415       18.13       7,523.95       30733       12,754,195         Reinforced concrete pipe.D.600mm       m       1,810       25.15       4,551.50       129682       234.724,420       1         Reinforced concrete pipe.D.800mm       m       1,810       25.15       4,521.50       129682       234.724,420       1         Reinforced concrete pipe.D.800mm       m       1,29       36.31       4,583.99       184213       23.753,477       2         Reinforced concrete pipe.D.800mm       m       1,29       36.31       4,805.58       234.72       23.753,410       3         Reinforced concrete pipe.D.800mm       m       1,0560       9.15       96.999.00       545.395,400       25.655,410       3         Reinforced concrete pipe.D.200mm       m       10.600       9.15       96.999.00       545.395,400       3	/02	Backfill with selected m	2 2 2	2.650	2.92	7.738.00	2402	7 952 650	2018 2018	60.577,750 25 262 150
Reinforced concrete pipe.0.600mm       m       1.810       25.15       45.521.50       129682       234.724.420       1         Reinforced concrete pipe.0.800mm       m       129       36.31       4.5521.50       129682       234.724.420       1         Reinforced concrete pipe.0.800mm       m       129       36.31       4.5521.50       129682       234.724.420       1         Reinforced concrete pipe.0.800mm       m       101       47.58       4.683.39       184213       23.763.477       2         Reinforced concrete pipe.0.200mm       m       101.600       91.15       36.538       224410       22.865.410       3         Reinforced concrete pipe.0.200mm       m       10.600       91.50       96.990.00       545.395.400       3         Reinforced concrete pipe.0.200mm       m       10.600       91.30       67.919.930       3       7       95.995.00       3       3       3       3       3       3       5       5       3       3       3       3       3       3       5       5       3       3       3       3       3       3       3       3       3       3       3       3       3       3       3       3       3	/03	Crushed stone bedding	잍	415	18.13	7.523.95	30733	12.754.195	7:526	24,200,130
Reinforced concrete pipe.D.80Cmn12936.314.833.9913421323.763.477Reinforced concrete pipe.D.1000mma10147.584.805.5822441022.665.410Perforated drain pipe.D.200mma101.6009.1596.990.0051509545.955.400Perforated drain pipe.D.200mma10.6009.1596.990.0051509545.956.400Free drainage material for subdrainm32,21018.1240.667.303073367.919.920Free drainage material for subdrainm32,21018.1240.667.303073367.919.920Concrete.class I.for pipe culvert andm32,21018.1240.667.303073367.919.920Wing wallsconcrete.class F.for side ditch andm33.39053.69215.909.1079239268.823.610Concrete.class H.for levelling concretem33.39053.69215.909.107920924.476.600Concrete.class H.for levelling concretem33.5555.331.936.55707602.476.600Formwork.F1 finish.for concrete ofm23.9563.5614.062.001151945.500.050fibms /09./10 and /11Formwork.F3 finish.for concrete ofm227.8003.4937.303055fibms /09 and /10and /103.493.493.4937.303055565.730.000	70/	Reinforced concrete pipe	e	1.810	25.15	45.52.50	129682	234.724.420	186220	201 147 795
Reinforced concrete pipe, D.1000mm         a         101         47.58         4,805.58         224410         22,685,410           Perforated drain pipe, D.200mm         a         10,600         9.15         96,990.00         51509         545,395,400           Free drainage material for subdrain         m3         2,210         18.12         40,067.30         30733         67,919,930           Free drainage material for subdrain         m3         2,210         18.12         40,067.30         30733         67,919,930           Concrete.class E.for pipe culvert and         m3         2,210         18.12         40,067.30         30733         67,919,930           Wing walls         Concrete.class E.for pipe culvert and         m3         2,210         51.03         55.22.70         754.34         82,223,060           wing walls         Concrete.class F.for side ditch and         m3         3.390         53.59         215,909,10         79299         268,823,610           Concrete.class F.for levelling concrete         m3         3.55         55.33         1,936.55         70760         2,476,600           Formwork, F1 finish, for concrete of         m2         3,556         3.56         14,062.00         145,500,050           ftems /09,/10 and /11         Forworkr	/05	Reinforced concrete pipe.	e	129	36.31	4,683.99	184213	23,763,477	265911	34,302,455
reriorated grain pipe,3.200mm       m       10.600       9.15       96.990.00       51509       545.395.400         free drainage material for subdrain       m3       2.210       18.12       40.667.30       30733       67.919.930         free drainage material for subdrain       m3       2.210       18.12       40.667.30       30733       67.919.930         Concrete.class E.for pipe culvert and       m3       2.210       18.12       40.667.30       30733       67.919.930         wing walls       Concrete.class F.for side ditch and       m3       3.390       53.69       215.909.10       79299       268.823.610         catch basin       Goncrete.class F.for side ditch and       m3       3.390       53.69       215.909.10       79299       268.823.610         Concrete.class F.for levelling concrete       m3       3.390       53.63       215.909.10       79299       268.823.610         Concrete.class H.for levelling concrete       m3       3.55       55.33       1.936.55       70760       2.476.600         Formwork.F1 finich.for concrete of       m2       3.56       3.56       14.062.00       11519       45.500.050         fitems /09./10 and /11       Formwork.F3 finich.for concrete of       m2       2.7800       3.49	on/	Keinforced concrete pipe,	r9	101	47.58	4,805.58	224410	22,665,410	331465	33.477.965
cree drainage material for subdrain       m3       2,210       18.13       40.0657.30       30733       67.919.930         Concrete.class E.for pipe culvert and       m3       1.090       61.03       65.522.70       75434       82.223.060         wing walls       Concrete.class F.for pipe culvert and       m3       1.090       61.03       65.522.70       75434       82.223.060         wing walls       Concrete.class F.for side ditch and       m3       3.390       53.69       215.909.10       79299       268.823.610         Concrete.class F.for side ditch and       m3       3.390       53.69       215.909.10       79299       268.823.610         Concrete.class F.for levelling concrete       m3       3.390       53.63       215.909.10       79299       268.823.610         Concrete.class H.for levelling concrete       m3       3.55       55.33       1.936.55       70760       2.476.600         Formwork.FI finish.for concrete of       m2       3.956       3.56       14.062.00       11519       45.500.050         fitems /09./10 and /11       Formwork.F3 finish.for concrete of       m2       2.7,800       3.49       97.022.00       2055.730.300	in/		FF	10,600	9.15	96,990.00	51509	545.395.400	72097	764.222.900
Concrete.class E.for pipe culvert and m3       1.090       61.03       66.522.70       75434       82.223.060         wing walls       wing walls       3.390       53.69       215.909.10       79299       268,823.610         Concrete.class F.for side ditch and       m3       3.390       53.69       215.909.10       79299       268,823.610         Concrete.class F.for side ditch and       m3       3.390       53.69       215.909.10       79299       268,823.610         Concrete.class H.for levelling concrete       m3       3.5       55.33       1.936.55       70760       2.476.600         Formwork.F1 finish.for concrete of       m2       3.956       3.56       14.062.00       11519       45,500.050         items /09./10 and /11       formwork.F3 finish.for concrete of       m2       27,800       3.49       97.022.00       20350       565.730.300         filens /09 and /10       and /10       3.49       37.022.00       20350       565.730.300       300	20/		е С	2,210	18.13	40,067.30	30733	67, 919, 930	71526	158 071 355
Concrete.class 7.for side ditch and         m3         3.390         53.69         215.909.10         79299         268,823.610           catch basin         catch basin         35         55.33         1,936.55         70760         2,476,600           Concrete.class H.for levelling concrete         m3         35         55.33         1,936.55         70760         2,476,600           Formwork.F1 finish.for concrete of         m2         3,956         3.56         14,062.00         11519         45,500,050           items /09./10 and /11         Fortwork.F3 finish.for concrete of         m2         27,800         3.49         37,022.00         20350         565,730.000           forms /09 and /10         and /10         27,800         3.49         37,022.00         20350         565,730.000	SU /	Concrete,class E.for pipe culvert Wing walls	6 2 3	1,090	61.03	66,522.70	15434	82,223,060	212752	231,899,135
Concrete.class H.for levelling concrete m3 35 55.33 i.936.55 70760 2.476.660 1 Formwork,Fl finish.for concrete of m2 3.950 3.56 i4.062.30 11519 45.500.050 items /09./10 and /11 Formwork.F3 finish.for concrete of m2 27,800 3.49 97,022.00 20350 565.730.300 items /09 and /10	/10	Concrete, class 7, for side catch basin	а З	3.390	63.69	215,909,10	19299	268,823,610	222602	754,619,085
<pre>Formwork.F1 finish.for concrete of m2 3.950 3.56 14.062.00 11519 45.500.050 items /09./10 and /11 Formwork.F3 finish.for concrete of m2 27.800 3.49 37.022.00 20350 565.730.000 items /09 and /10</pre>	11/	Concrete, class H, for leve		35	55.33	i,936.55	70760	2.476.600	195253	5, 833, 838
Formwork.F3 finish.for concrete of m2 27,800 3.49 37,022.00 20350 565,730.900 items /09 and /10	21/	Formwork,Fi finish,for co items /09,/10 and /11	2 E	3,950	3.56	14,062.00	11519	45,500,050	19529	77,139,550
	/13	Formwork,F3 finish,for concrete items /09 and /10	2º	27,800	3.49	37,022,00	20350	565,730,000	28203	784,029,500

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tten ho.	. Description of Korks	Jait	Quantity	Foreign C Unit Price	Foreign Currency(US\$) Unit Total Price Price	Local C Unit Price	Locai Currency(S/.) Unit Total Price Price	Bquivalent Unit Price	Equivalent Price(S/.) Unit Total Price Price	
/15 /15 /17			361-0 391 0 0 0 0	357.97 62.71 12.15 0.03	26,489.78 24,519.61 0.00 0.00	1054028 32650 4408 3986	77.998.072 12.766.150 0	1859461 173748 31746 4054	137,600,077 67,935,273 0 0	
	Jourt Subtotal of item 5.3				672,090.86	:	1,990,798,484		3,503,002,919	
6.4 /01	CONCRETE EORX Concrete alass J for builded clab and	ŝ	211	o o	00 136 00	90152	28 037 272	250307	77.845.477	· · · ·
20/	concrete.class E.for bridge Concrete.class E.for bridge	ີ <b>ເ</b>	90¢	61.02	55,171.12	75434	68, 192, 336	212752	192.327,356	
- 00 - 10/	piers Concrete,class B.jor box culvert Concrete class H for leveling concrete	e e	361 59	61.03 55.33	22,031,83	75434 70760	27.231.674 4.174.840	212752	76,803,292 11.519,898	
/02		3 2	4.640	40.29	186,945,60	50287	233, 331, 680	140940	553, 959, 280	-
90/	Formwork, FI finish.for conditions /02./03./04 and /05	62 (	5,180	3.56	18,440.80	11518	59,563,240	19528	101,155,040 71 221 575	-
/07 /08	<pre>Formwork.fZ finish.for concrete of items /01./02 and /05 Formwork.f3 finish.for concrete of</pre>	2 2 2 2	2,850	4.37	12,454.50 2,247.55	15333 20350 -	43,699,U5U 13,105,400	23105	c)c,(5),() 18,162,410	
60/		ton	134.7	357.97	48,218,56	1054028	141,977,572	1859461	250.469.329	
			ထဲတ	12.15 24.31	94.48	5776	35, 224 46, 208	50474 50474	483, 788	
/12	utugezomm Bituminous coating for contraction joint	28	-3-	0.03	0.12	3986	15,944	4054	16,214	
,	Subtotal of item 6.4				371,203.22		619,510,440		1,454,717,682	

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BILL OF QUANTITIES

Item No.	Description of Sorks	Unit	Unit Quantity	Poreign C Unit. Price	foreign Currency(US\$) Unit Total Price Price	Local C Unit Price	Local Currency(S/.) Unit Total Price Price	Equivaler Unit Price	Equivalent Price(S/.) Unit Total Price Price
6.5	PAUEHENT							-	
10/		a3	18,510	4.72	87,839.20	1661	92,882,510	15611	290,520,710
/02	Graded crushed stone subbase, not less	<b>1</b> 33	20,470	21.24	434,782.80	27261	558,032,670	75051	1.536.293.970
/03	uman corrected com ov Transportation of improved subgrade material	S <sup>E</sup>	9,310	0.47	4,375.70	66**	4,645,690	1557	14,491,015
	Subtotal of item 6.5	·			526,997.70		655,560,370		1.841.305.695
6.6	X1SCELLANEOUS					,			
10/	Guardrail	6	80	73.56	5,884.30	33103		198613	15.889,040
/02	Earning signs	nos	30	120.38	10,834.20	54169		325024	29,252,160
/03	Bearing.fixed type	SOU	8	262.42	2,099.36	59044		649489	5,195,912
5°/	Bearing.movable type	20C	80	262.42	2.099.36	59044		649489	5,195,912
/05	Steel handrails for bridge deak	56	3,790	1.81	6,859.90	1057	4,006,030	5130	19.440,805
90/	P.V.C.drain pipes, D.100mm	ß	t	12.06	84.42	2164		29299	205.093
	P.V.C.pipe,D.75mm for weephole	e	973	8,16	7,333.68	1726		20086	19.543.678
/38	Dowel bars.D.22mm.round bar	ton	0.2	336.00	67.20	1076250		1832250	366,450
60/	Anchor rod with steel pipe.D.32mm for bridge shoe	к	130	0.37	48.10	1184		2017	262,145
	Subtotai of item 6.6				35, 317.02		14,537,900		95,351,195
	Total of item 6				7,250,668.04		9,959,820,783		26,273,823,870

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[te]	ltem No.	o. Description of Works	Unit	quantity	Foreign Cu Unit Price	Foreign Currency(USS) Unit Total Price Price	tocal C Unit Price	Currency(S/.) Total Price	Equivalent Unit Price	Equivalent Price(S/.) Unit Total Price Price	
t	ដ	EL GUASMO ACCESS ROAD									
+ 1		Z-rethwork									
	/01	Clearing the site along access road Open-cut excavation in common including	4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	23,200 400	0.14 2.57	3,248.00 1,028.00	214 2586	4.964.800 1.034.400	529 8369	12,272,800 3,347,400	
	/04		5 5 5 5	100 21,800	7.42 3.08	742.00 67,144.00	7607 2764	760,700	24302 9694	2,430,200 211,329,200	
	/02		۳ ۳	20,700	3.82	79,074.00	3555	73,588,500	12150	251,505.000	
	/06 /08 /08	more than 500m) 5 Compaction of original ground 7 Sod facing 8 Gabion for slope protection	2 2 2 C C C	450 13,400 0	0.17 0.63 62.71	76.50 402.00 0.00	164 4622 32650	73.800 61,934,800 0	547 4690 173748	245.925 62.839.300 0	
		Subtotal of item 7.1				151,714.50		202,612,200	 	543,969,825	
7.2		EXCAVATION AND FILLING FOR STRUCTURE									
		8R1DGE						ţ.			
	6,83/33/33	Copen-cut excavation,all classes 3 Sackfill with selected material 3 Free drainage backfill 6 Gravel bedding	ទីតីតីតី	0000	2.76 2.92 18.13 17.36	0.0000	2942 3001 30733 44520	0000	9152 9571 71526 83580	0000	· · · · · · · · · · · · · · · · · · ·
÷		BOX CULVERT							*.	•	
	/05	/05 Open-cut excavation,all classes	ŝ	316	2.75	872.15	2942	929.672	9152	2,892,032	

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QUANTITIES
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(5)         Backfill with selected material         m3         103         2.32         2.01.46         3001         207.069         9571         1.557.355           (7)         The driange budding         m3         103         1.394.30         3031         207.069         9571         1.557.355         1.557.351         1.21.083.375         1.21.083.375         1.21.083.375         1.21.083.375         1.21.083.375         1.21.083.375         2.305.356         1.21.083.375         2.305.356         1.21.083.375         2.305.356         1.21.083.375         2.305.356         1.21.083.375         2.305.356         1.21.083.375         2.305.356         2.305.356         2.305.356         2.305.356         2.305.356         2.305.356         2.305.356         2.305.356         2.305.356         2.305.356         2.305.356         2.305.356         2.305.356         2.305.356         2.306.356         2.306.356         2.306.356         2.306.356         3.305.356         3.306.356 </th <th>Item No.</th> <th>Description of Korks</th> <th>Unit</th> <th>Quantity</th> <th>Foreign Cu Unit Price</th> <th>Foreign Currency(USS) Unit Total Price Price</th> <th>Local Unit Price</th> <th>Currency(S/.) Total Price</th> <th>Equivalent Unit Price</th> <th>Price(S/.) Total Price</th>	Item No.	Description of Korks	Unit	Quantity	Foreign Cu Unit Price	Foreign Currency(USS) Unit Total Price Price	Local Unit Price	Currency(S/.) Total Price	Equivalent Unit Price	Price(S/.) Total Price
RETAINING WALL         RETAINING WALL           739         Open-cut excavation, all classes         m3         0         2.75         0.00         3942         0         9152           711         Free drainage backfill         m3         0         2.75         0.00         3942         0         9571           711         Free drainage backfill         m3         0         18.13         0.00         3942         0         9571           711         Free drainage backfill         m3         0         18.13         0.00         45873         0         7555         0         7555         0         7555         0         7555         0         7555         0         7555         0         7555         0         0         0         0         3555         0         1555         0         1555         0         1555         0         1555         0         1555         0         1555         0         1555         0         1555         0         1555         0         1555         0         1555         0         1555         0         1555         0         1555         0         1555         0         15555         0         15555 <td< td=""><td>/02/08</td><td>Backfill with selected m Pree drainage backfill Gravel bedding</td><td>55 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5</td><td>69 110 8</td><td>2.92 18.13 17.36</td><td>201.48 1.994.30 138.88</td><td>3001 30733 44520</td><td>207,069 3,380,630 356,160</td><td>9571 71526 83580</td><td>660,399 7,867,805 668,640</td></td<>	/02/08	Backfill with selected m Pree drainage backfill Gravel bedding	55 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	69 110 8	2.92 18.13 17.36	201.48 1.994.30 138.88	3001 30733 44520	207,069 3,380,630 356,160	9571 71526 83580	660,399 7,867,805 668,640
(3)       0       0.00       242       0       957         (1)       Baskfill with selected material       m3       0       2.75       0.00       3042       0       957         (1)       Free drainage backfill       m3       0       2.82       0.00       3042       0       957         (1)       Free drainage backfill       m3       0       17.36       0.00       3472       0       7555         (1)       Free drainage backfill       m3       0       17.36       0.00       3472       0       7555         Subbotal of iten 7.2       m0       0.00       44520       0       0       33205.82       4.873.531         CULVERT AND DAINAGE WORK       m3       0       17.36       1.955.64       242       1.722.838       9152         (0)       Den-cut excavation all classees       m3       272       2.92       794.24       3071       816.272       9571         (0)       Den-cut excavation all classees       m3       272       2.92       1.722.838       9152         (1)       Den-cut excavation all classees       m3       272       1.722.832       201137.21       1.127.121       17256         (2)		RETAINING WALL								
Subtotal of item 7.2       3,206.82       4,873.531         CULVERT AND DAINAGE RORK       3,206.82       4,873.531         CULVERT AND DAINAGE RORK       33,515       1,525.54       2942       1,732.838       9152         OI Den-cut exavation.all classes       a3       27       292       779.24       3671       3571         OI Den-cut exavation.all classes       a3       27       292       794.24       365.72       3571         OS Reinforced concrete pipe.D.600mm       a3       27       29.31       617.27       136.272       36571         OS Reinforced concrete pipe.D.600mm       a       77       25.15       4,501.81       30733       1.1.377.127       71526         OS Reinforced concrete pipe.D.800mm       a       17       25.15       4,501.82       3.131.677       368270         OS Reinforced concrete pipe.D.800mm       a       177       25.15       4,501.82       3.131.677       36526         OS Reinforced concrete pipe.D.800mm       a       177.86       2.1.27       7.2057       37.465         OS Reinforced concrete pipe.D.800mm       a       177.86       2.1.27       7.2057       37.465         OB Reinforced concrete pipe.D.800mm       a       7.801.05       5.1.201.00	/10 /11 /12	Gpen-cut excavation,ali Backfill with selected m Free drainage backfill Gravel bedding		0000	2.76 2.92 17.36	0.00 00.00 00.00	2942 3001 30733 44520	0000	9152 9571 71526 83580	6000
CUUVERT AND DRAINAGE KORK         CUUVERT AND DRAINAGE KORK         /01       Deen-cut excavation.all classes       m3       585       2.76       1.625.64       2942       1.732.838       9152         /02       Backfill with selected material       m3       373       31.137.121       9571       9571         /03       Crushed stone bedding       m3       373       31.137.121       9571       9571         /03       Crushed stone bedding       m3       371       18.13       570.81       30733       1.137.121       9571         /03       Crushed stone bedding       m3       371       18.13       570.33       1.137.121       15525         /05       Reinforced concrete pipe.D.600mm       m       177       36.31       617.27       28591         /05       Reinforced concrete pipe.D.1000mm       m       77.58       1.337.32       23.13.075       1.337.563       7.201.75         /06       Reinforced concrete pipe.D.1000mm       m       77.58       1.307.32       7.301.552       7.205.552       2.23.213.075       1.556         /07       Perforated drain pipe.D.200mm       m       7.301.552       7.205.552       2.2755       2.040.212       7.1556		Subtotal of item 7.2				3,206.82		4,873,531		12,088,876
Open-cut excavation.all classes       m3       558       2.76       1.625.64       2942       1.732.838       9152         Backfill with selected material       m3       37       18.13       294.24       3001       816.272       9571         Backfill with selected material       m3       37       18.13       670.81       30073       1.137.121       71256         Crushed stone bedding       m3       37       18.13       670.81       30733       1.137.121       71256         Reinforced concrete pipe.D.600mm       m       179       25.15       4,501.85       129682       23.13.073       186270         Reinforced concrete pipe.D.000mm       m       177       36.31       617.27       184213       3.131.627       2865911         Reinforced concrete pipe.D.000mm       m       787       9.15       7.201.05       514410       0       373455         Reinforced concrete pipe.D.000mm       m       787       9.15       7.201.05       51509       40.537.683       72097         Reinforced concrete pipe.D.200mm       m3       18.13       7.201.05       51509       40.537.63       7207         Reinforced concrete pipe.D.200mm       m3       28.13       7.201.05       514410	3	CULVERT AND DRAINAGE HORK								
Crushed stone bedding       m3       2/2       2.32       794.24       3001       816.272       9571         Crushed stone bedding       m3       37       18.13       670.81       30733       1.137.121       71526         Reinforced concrete pipe.D.600mm       m       17       36.31       617.27       184213       3.131.621       265911         Reinforced concrete pipe.D.600mm       m       17       36.31       617.27       184213       3.131.621       265911         Reinforced concrete pipe.D.1000mm       m       17       36.31       617.27       184213       3.131.621       265911         Reinforced concrete pipe.D.1000mm       m       77       9.15       7.201.05       51465       0       333465         Perforated train pipe.D.200mm       m       787       9.15       7.201.05       51465       0       333465         Perforated train pipe.D.200mm       m       77.201.05       51509       40.537.583       72097       17526         Perforated train pipe.D.200mm       m3       27       9.15       7.201.05       51304       7.322.532       212752         Proced concrete.class E.for pipe culvert and       m3       27       530.34       7.434       7.322.4421	10/		5 G	585	2.76	1,625.84	2942	1.732.838	9152	5,390,528
Reinforced concrete pipe.D.600m       m       179       25.15       4,501.85       129682       23,213,078       186270       3         Reinforced concrete pipe.D.800m       m       17       35.31       617.27       184213       3,131,621       265911       3         Reinforced concrete pipe.D.800m       m       17       35.31       617.27       184213       3,131,621       265911       3         Reinforced concrete pipe.D.800m       m       177       35.31       617.27       184213       3,131,621       265911       3         Reinforced concrete pipe.D.200m       m       7       36.31       617.27       184213       3,131,621       265911       3         Reinforced concrete pipe.D.200m       m       787       9.15       7.201.05       51509       40,537,583       72097       5         Rree drainage material for subdrain       m3       164       18.13       2.973.32       30733       5040.212       71526       2         Rree drainge material for subdrain       m3       279       530.34       7.395,532       212752       2       2       2       2       2       2       2       2       2       2       2       2       2       2       2	/03	crushed stone bedding	2 2	37	18,13	670 81	30733	816,272	9571 71596	2,603,312
Reinforced concrete pipe, D.800mm       m       17       36.31       617.27       184213       3.131.521       265911         Reinforced concrete pipe, D.1000mm       m       0       47.58       0.00       224410       0       33.465         Perforated drain pipe, D.200mm       m       787       9.15       7,201.05       51509       40.537.583       72097       5         Perforated drain pipe, D.200mm       m       787       9.15       7,201.05       51509       40.537.583       72097       5         Perforated drain pipe, D.200mm       m       787       9.15       7,201.05       51509       40.537.583       72097       5         Perforated drainage material for subdrain       m3       164       18.13       2.973.32       30733       5.040.212       71526       1         Concrete.class F.for pipe culvert and       m3       279       63.69       17.769.51       7.392.532       212752       2         Concrete.class H.for levelling concrete       m3       279       63.69       17.769.51       7.732.320       195253         Concrete.class H.for levelling concrete       m3       7       55.33       357.31       70760       495.320       195253         Concrete.class H.for l	10%	Reinforced concrete pipe.D.600mm	e	617	25.15	4.501.85	129682	23,213,078	186270	33 342 241
Reinforced concrete pipe.D.1000mm       m       77.58       C.00       224410       D       331465       5         Perforated drain pipe.D.200mm       m       787       9.15       7.201.05       51509       40,537,583       72097       5         Perforated drain pipe.D.200mm       m       787       9.15       7.201.05       51509       40,537,583       72097       5         Perforated drain pipe.D.200mm       m       787       9.15       7.201.05       51509       40,537,583       72097       5         Perforated drainage material for subdrain       m3       164       18.13       2.973.32       30733       5,040,212       71526       1         Concrete.class E.for pipe culvert and       m3       98       61.03       5,980.34       7,392,532       212752       2         Concrete.class F.for side ditch and       m3       279       63.69       17,769.51       79299       22,124,421       222602       6         Concrete.class H.for levelling concrete       m3       273       55.32       357.31       70760       495,320       195295         Formwork.FI finish.for concrete of       m2       4.18       3.56       1,488.08       11519       4,814,942       19529 <tr< td=""><td>/05</td><td>Reinforced concrete pipe, D.800mm</td><td>æ</td><td>1.7</td><td>36.31</td><td>617.27</td><td>184213</td><td>3.131.621</td><td>265911</td><td>4.520.479</td></tr<>	/05	Reinforced concrete pipe, D.800mm	æ	1.7	36.31	617.27	184213	3.131.621	265911	4.520.479
Perforated drain pipe, D.200mm       m       787       9.15       7,201.05       51509       40,537,583       72097         Free drainage material for subdrain       m3       164       18.13       2,973.32       30733       5,040,212       71526         Free drainage material for subdrain       m3       164       18.13       2,973.32       30733       5,040,212       71526         Concrete.ciass E.for pipe culvert and       m3       98       51.03       5,980.94       75434       7.392,532       212752         Wing walls       Concrete.ciass E.for pipe culvert and       m3       279       63.69       17,769.51       79299       22,124,421       222602         Concrete.class F.for side ditch and       m3       279       63.69       17,769.51       79299       22,124,421       222602         Concrete.class H.for levelling concrete       m3       279       63.69       1,768.68       1,488.08       19523         Formwork.FI finich.for concrete of       m2       418       3.55       1,488.08       11519       4,814,942       19529         ficens /09,/10 and /11       formorrete of       m2       2,310       3.49       8,061.90       20350       47,008,500       28203         ficens /09 and /	90/	Reinforced concrete pipe, D.1000mm	E	C	47.58	0.00	224410	0	331465	Ċ
Free drainage material for subdrain m3 164 18.13 2.973.32 30733 5.040.212 71526 Concrete.class E.for pipe culvert and m3 98 61.03 5.980.94 75434 7.392.532 212752 wing walls Concrete.class F.for side ditch and m3 279 63.69 17.769.51 79299 22.124.421 222602 catch basin Concrete.class H.for levelling concrete m3 7 55.33 357.31 70760 495.320 195253 Formwork.FI finish.for concrete of m2 418 3.56 1.488.08 11519 4.814.942 19529 items /09./10 and /11 Formwork.F3 finish.for concrete of m2 2.310 3.49 8.061.90 20350 47.008.500 28203 1 formwork.F3 finish.for concrete of m2 2.310 3.49 8.061.90 20350 47.008.500 28203 1 formwork.F3 finish.for concrete of m2 2.310 3.49 8.061.90 20350 47.008.500 28203 1	10/	Perforated drain pipe. D. 200mm	E	787	9.15	7,201.05	51509	40,537,583	72097	56.739.946
Concrete.class E.for pipe culvert and m3       98       51.03       5.980.34       7.392,532       212752         wing walls       concrete.class F.for side ditch and m3       279       53.69       17,769.51       79299       22,124,421       22602       1         Concrete.class F.for side ditch and m3       279       53.69       17,769.51       79299       22,124,421       225602       1         Concrete.class H.for levelling concrete m3       7       55.33       357.31       70760       495,320       195253         Formwork.FI finish.for concrete of m2       m2       418       3.56       1,488.08       11519       4,814,942       19529         items /09,/10 and /11       formwork.F3 finish.for concrete of m2       2,310       3.49       8.061.90       20350       47,008,500       28203         ftems /09 and /10       10       10       10       10       10       10       10	80/	Free drainage material for subdrain	С Ш	164	18.13	2,973.32	30733	5,040,212	71526	11.730.182
Concrete.class F.for side ditch and       m3       279       53.69       17,769.51       79299       22,124,421       22602       1         catch basin       catch basin       7       55.33       357.31       70760       495,320       195253         Concrete.class H.for levelling concrete       m3       7       55.33       357.31       70760       495,320       195253         Formwork.FI finish.for concrete of       m2       418       3.56       1,488.08       11519       4,814,942       19529         items /09,/10 and /11       formwork.F3 finish.for concrete of       m2       2,310       3.49       8.061.90       20350       47,008,500       28203       6         ftems /09 and /10       70       70       3.49       8.061.90       20350       47,008,500       28203       6	/08		5 2 3 3	88 86	61.03	5,280.34	75434	7,392,532	212752	20,849,647
Concrete.class H.for levelling concrete m3 7 55.33 387.31 70760 495,320 195253 Formwork.Fl finish.for concrete of m2 418 3.56 1.488.08 11519 4.814,942 19529 items /09,/10 and /11 Formwork.F3 finish.for concrete of m2 2,310 3.49 8.061.90 20350 47,008,500 28203 6 items /09 and /10	/10		Ë	279	63.69	17,769.51	79299	22,124,421	222602	62,105,819
Formwork.Fl finish.for concrete of m2 418 3.56 1.488.C8 11519 4.814.942 19529 items /09./10 and /11 formwork.F3 finish.for concrete of m2 2.310 3.49 8.061.90 20350 47.008.500 28203 6 items /09 and /10	17	Concrete, class H, for levelling concrete	Е	6	55.33	387.31	70760	495,320	195253	1.366.768
Formwork.F3 finish.For concrete of m2 2,310 3.49 8.061.90 20350 47,008,500 28203 items /09 and /10	/12	Formwork.Fl finish.for concrete of items /09./10 and /11	26	418	3.56	1,488.08	11519	4,814,942	19529	8,163,122
	/13	Formwork,F3 finish.for concrete of items /09 and /10	22	2,310	3.49	8.061.90	20350	47,008,500	28203	65,147.775

						•		•					•							÷		
	Equivalent Price(S/.) Unit Total Price Price	13,016,224 15,984 770		C	303,607,254		0	ç	44.677.815	3.124.040	0		5,565,480	0	9,052,003	000,010,10	52,010,15	170 714	•	36,482		94,480,274
	Equivalent Unit Price	1859461	31746	4054			250307	212752	212752	195253	140940		19528	25166	28203	1010301	1050010	141 C		4054		
	Currency(S/.) Total Price	7,378,196 3 003 800	0.	C	167,826,436		G	Ð	15.841.140	1,132,160	Ö		3,282,630	0	6.532,350		000-00 215°078°11	507°10	•	35,874		44,799,869
·	Local Cu Unit Price	1054028	4408	3986			90152	75434	75434	70760	50287		11518	15333	20350	1051000	0704COT	11100 11110	2	3986		
	foreign Currency(US\$) Unit Total Price Price	2,505.79 5,769.22	0.00	0.00	60,347.03		0.00	0.00	12.816.30	885.28	0.00		1,014.60	0.00	1,120.29	0, 100 0	0,U65.49	C6./CT		0.27		22,080.18
	foreign Cu Unit Price	357.97	12.15	0.03	·		71.18	61.03	61.03	55.33	40.29		3.56	4.37	3.49		18.166	12 76		0.03		
	Quantity		30	D			0	ο	210	91	O		285	0	321		0.5	3 5	•	B B		
	Unit	iç T	일	2 <b>8</b>			° ₽	۲ ۲	Ϋ́Ε	Ê	۲ ۲		20	ä	61 61		loj e	1 2 2 2 6	2	Ш2		
	Description of korks	Reinforcing bars for concrete work	dauton mater 533.t-Juomm Joint filler.10mm	Bituminous coating for contraction joint	Subtotal of item 7.3	CONCRETE WORK	Concrete.class A.for bridge slab and wirders	Concrete class E.for bridge abutment and	piers Concrete class & for box culvert	Concrete.class H.for levelling concrete	Rubble concrete for retaining wall	(concrete class & and rubble/boulder)	Formwork.Fi finish.for concrete of items /02./03./04 and /05	Forawork.F2 finish.for concrete of items /01 /02 and /05	Formwork, F3 finish, for concrete of	items /02 and /03	Reinforcing bars for concrete work	JOINT ILLET FOT CULVETT, UTURE 10:104 filler for experien iviet of		Bituminous coating for contraction	joint	Subtotal of item 7.4
	Item No.	41/ 21/	/16	11		t	10/	/02	/03	/04	/02		90/	10/	/08	207	60/	/ FU	** ~	/12		

Item %0.	<sup>N</sup> 0.	Description of Korks	Unit	Unit Quantity	Foreign Cu Unit Price	Foreign Currency(US\$) Unit Total Price Price	Local ( Unit Price	Local Currency(S/.) Unit Total Price Price	Equivalent Price(S/.) Unit Total Price Price	Price(S/.) Total Price
·	PAV	PAVERENT								
	/01 lmp	Improved subgrade material, not less	មួ	834	4.72	3,936.48	1667	4,162,494	11951	13,019,574
***	/02 Gra	Graded crushed stone subbase.not less	10 E	943	21.24	20,029.32	27261	25,707,123	75051	70,773,093
	/03 Tra mat	unan corrected tok ou Transportation of improved subgrade materiai	ñ	420	0.47	197.40	667	209,580	1557	653,730
	Sub	Subtotal of item 7.5				24,163.20		30,079,197		84,446,397
9	S1%	MI SCELLANEOUS								·
~	/01 Gua	Guardrail	e	Q	73.56	0.00	33103	C	193613	
-	/02 Ear	ning signs	SOR	ശ	120.38	722.28	54169	325.014	325024	1.950.144
	/03 Bea	Bearing fixed type	10S	0	262.42	0.00	59044		649489	0
~		Searing, movable type	SOU	0	262.42	0.00	59044	0	649489	()
-		Steel handrails for bridge deak	50 .2	0	1.81	0010	1057	0	5130	c
-	/06 2.V	P.V.C.drain pipes.D.100mm	e	0	12.06	0.00	2164	0	29299	0
-		.C.pipe,D.75mm for weephole	閂	co	8.16	0.00	1726	0	20086	0
-	/08 Dow	Cowei bars.D.22mm.round bar	ton	0.3	336.00	100.80	1076250	322,875	1832250	549,675
		Anchor rod with steel pipe.D.32mm for bridge shoe	20	0	0.37	0.0	1184		2017	
	Sub	Subtotal of item 7.6				823.08		647.389		2,459,819
	Tot	Total of item 7				262,334.81		450,839.122	-	.,041,092,445

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ltem No.	Description of Korks	Unit	Unit Quantity	Foreign Cu Unit Price	Foreign Currency(US\$) Unit Totai Price Price	Local C Unit Price	Cocal Currency(S/.) Unit Total Price Price	Equivaient Price(S/. Unit Total Price Price	Price(S/.) Total Price	· –
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	MEMBRILLO OUTLET ACCESS ROAD		, F F F F F F F F F F F F F F F F F F F	)   	- 6 F F F F F F F F F F F F F F F F F F F	4 3 3 5 5 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	 			
8	Earthwork									
/01 /02		8 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	5,400 2,240	0.14	756.00 5.756.80	214 2586	1,155,600 5,792,640	529 8369	2,856,600 18,745,440	
/03 /04	weathered rock Open-cut excavation.in rock Embankment (Excavated material to embankment portion.incl.transportation	5 E E	100	7.42 3.08	742.00	7607 2764	760,700 19,900,800	24302 9694	2,430,200 69,796,800	
/05	upto 500m) Embankment (Excavated materia embankment portion,incl.trans	a. S	. 0	3.23	0.00	2925	Ð	10194		
/06 /07 /08	more than 500m) Compaction of original ground Sod facing Gabion for slope protection	S S S S	130 2.900 561	0.17 0.03 62.71	22.10 87.00 35,180.31	164 4622 32650	21,320 13,403,800 18,316,650	547 4690 173748	71,045 13,599,550 97,472,348	
	Subtotal of item 8.1				64,720.21		59,351,510		204,971,983	
8.2	EXCAVATION AND FILLING FOR STRUCTURE BAIDGE									
/01 /02 /03	Open-cut excavation.all classes Backfill with selected material Free drainage backfill Gravel bedding	ភូត ត ត ភូសិ ភូសិ	3.220 2.710 62 27	2.76 2.32 18.13 17.36	8,887.20 7,313.20 1.124.06 468.72	2942 3001 30733 44520	9.473.240 8.132.710 1.305.446 1.202.040	9152 9571 71526 83580	29,459,440 25,937,410 4,434,581 2,256,660	
	SOX CULVERT									
/05	Open-cut excavation.all classes	а Сш	0	2.76	0.00	2942	G	6152		

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tem No.	Description of Works	Unit	Quantity	Foreign Cu Unit Price	Currency(US\$) Totai Price	Local C Unit Price	Currency(S/.) Total Price	Equivalent Price(S/.) Unit Totai Price Price	Price(S/.) Total Price
90,		<b>B</b> 3	0	2.92	0.00	1001	0	9571	G
10/	Free drainage backfill	а; Се	0	18.13	0.00	30733	0	71526	0
/08	Gravel bedding	5 2	0	17.36	0.00	44520	0	83580	0
	TIPN SULLING RALL								
60/	Open-cut excavation.all classes	5 <u>m</u>	G	2.76	0.00	2942	C	9152	0
/10	Backfill with selected m	е С	0	2.92	0.00	3001	0	9571	0
111	Free drainage backfill	<u>۳</u>	0	13.13	0.00	30733	0	71526	0
/12		<b>13</b> 3	0	17.36	0.00	44520	0	83580	0
	Subtotal of item 8.2				18,393.18		20,713,436		62,098,091
8.3	CULVERT AND DRAINAGE KORK								
10/	Open-cut excavation,all classes	ъ Се	35- 25-	2.76	207.00	2942	220,650	9152	686,400
/02	Sackfill with selected a	č	57	2.92	166.44	3001	171,057	9571	545,547
/03	Crushed stone bedding	<b>1</b> 3	2	18.13	36.26	30733	61,466	71526	143,051
70/	Reinforced concrete pipe	B	01	25.15	251.50	129682	1,296,820	186270	1.862,695
/02		e	0	36.31	0.00	184213	G	265911	0
90/	Reinforced concrete pipe	e	C	47.58	0.00	224410	0	331465	0
10/		E	30	9.15	274.50	51509	1.545.270	72097	2,162,895
/08	Free drainage material for subdrain	엹	£	18.13	126.91	30733	215,131	71526	500,679
60/	Concrete.class E.for pipe culvert and wing walks	e B	-3	61.03	244.12	75434	301,736	212752	851,006
/10	Concrete.class F.for side ditch and	ŝ	59	63,69	3, 757. 71	75299	4,678,641	222602	13,133,489
	catch basin								
/11	Concrete, class H.for levelling concrete	5 23	1	55.33	55.33	70760	70,760	195253	195,253
/12	Formwork.Fi finish.for concrete of items /09./10 and /11	<b>n2</b>	32	3.56	113.92	11519	363,608	19529	524,928
/13		а2 2	472	3,49	1,647.28	20350	9,605,200	28203	13,311,580

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concrete Work ton 1.0 357.97 Dam a 2 62.71 Dam a 2 62.71 a 2 62.71 a 2 62.71 a 2 62.71 a 2 61.15 bridge slab and a 3 452 61.03 bridge abutment and a 452 61.03 bridge abutment and a 452 61.03 brow culvert a 3 452 61.03 box culvert a 3 452 61.03 box culvert a 3 452 61.03 a 40.28 a 708 4.37 a 708 4.37 b concrete of a 2 4.37 b concrete of a 2 4.31 b concrete work ton 51.3 357.97 concrete work ton 51.3 357.97 concrete work ton 51.3 357.97 b concrete work ton 51.3 357.97 concrete work ton 51.3 357.97 concrete work ton 51.3 357.97 b concrete of a 2 4.31 b contraction a 2 0 0.03 b contraction a 2 0 0.03 b contraction a 2 0 0.03	Iten No.	Description of Works	Unit	Quantity	Foreign Cu Unit Price	Foreign Currency(US\$) Unit Total Price Price	local C Unit Price	Local Currency(S/.) Unit Total Price Price	Equivalent Unit Price	Bquivaient Price(S/.) Unit Total Price Price
<ul> <li>7.5 Gabion mattress, t=500mm m2 2 52.71 125.42</li> <li>7.15 Joint filler, 10mm m2 0 12.15 0.00</li> <li>90 Joint filler, 10mm m2 0 0.03 0.00</li> <li>90 Joint filler, 10mm m2 0 0.03 0.00</li> <li>90 Subtotal of item 8.3</li> <li>8 Subtotal of item 8.3</li> <li>8 Subtotal of item 8.3</li> <li>8 Subtotal of item 8.3</li> <li>9 Subble concrete of m2 m3 m3</li></ul>	714	Reinforcing bars for concrete work	ton	0	357.97	357.97	1054028	1,054,028	1859461	1.859.461
/15     Joint filler.10m     m2     0     12.15     0.00       /17     Bituminous coating for contraction     m2     0     0.03     0.00       Joint     Subtotal of itcm 8.3     7,364.36       Subtotal of itcm 8.3     Concrete.class A.for bridge slab and     m3     156     71.18     11.104.36       /01     Concrete.class A.for bridge slab and     m3     156     71.18     11.104.36       /02     Concrete.class E.for bridge abutment and     m3     452     61.03     27.558.56       /02     Concrete.class E.for bridge abutment and     m3     452     61.03     0.00       /03     Concrete.class E.for box culvert     m3     452     61.03     0.00       /03     Concrete.class E.for box culvert     m3     452     61.03     0.00       /04     Concrete.class E.for box culvert     m3     452     61.03     0.00       /05     Rubble concrete for retaining wall     m3     452     61.03     0.00       /05     Rubble concrete of     m2     14     55.33     0.00       /06     Rubble concrete of     m2     14     55.33     0.00       /07     Rubble concrete of     m2     14     55.33     0.00       /08     Rubo	1:		ĩ	67	62.71	125.42	32650	65,300	173748	347,495
//7       Bituminous coating for contraction       a2       0       0.03       0.03       0.00         joint       Subtotal of item 8.3       Subtotal of item 8.3       7,364.36       7,364.36         /01       Concrete.class A.for bridge slab and m3       156       71.18       11.104.08         /02       Concrete.class E.for bridge slab and m3       452       61.03       27.585.56         /02       Concrete.class E.for box culvert       m3       452       61.03       0.00         /03       Concrete.class E.for box culvert       m3       14       55.33       774.62         /03       Concrete.class E.for box culvert       m3       14       55.33       774.62         /03       Concrete.class E.for box culvert       m3       14       55.33       774.62         /04       Concrete.class E.for box culvert       m3       14       55.33       774.62         /05       Pormwork.F7       finish.for concrete of       m3       14       55.33       774.62         /07       Rowerk.F7       finish.for concrete of       m2       0.00       00       00         /07       Pormwork.F2       finish.for concrete of       m2       0.349       0.00         /07	/16	,	щ2 2	0	12.15	00	408	o	31746	0
Subtotal of item 8.37,364.36CONCRETE KORKCONCRETE KORK/01Concrete.class A.for bridge slab and m315671.18/11girders/22Concrete.class E.for bridge slab and m345261.03/23Concrete.class E.for bridge abutment and m345261.030.00/24Concrete.class E.for ievelling concrete1455.33774.62/25Concrete.class E.for ievelling concrete1455.33774.62/26Fourmork.F1 finish.for concrete of122623.56932.72/26Formwork.F3 finish.for concrete of122623.56932.72/27filmes/01./02 and /05127784.373.339.86/27filmes/01./02 and /05127784.373.339.86/11Joint filler for culvert.t=10mm1224.3197.24/11Joint filler for culvert.t=10mm121397.24/11Joint filler for culvert.t=10mm121397.24/11Joint filler for culvert.t=10mm121397.24/11Joint filler for culvert.t=10mm121397.24/11Joint filler for culvert.t<=10mm	11/		2e 2	0	0.03	0.00	3986	G	4054	<b>0</b>
CONCRETE EORX/0:Concrete.class A.for bridge slab and m315671.1811.104.38girders2027.585.5691.0327.585.56/02Concrete.class E.for box culvertm345261.0327.585.56/03Concrete.class E.for box culvertm3061.030.00/04Concrete.class E.for box culvertm3040.290.00/05Rubble concrete for retaining wallm31455.33774.62/06Robble concrete for retaining wallm3040.290.00/05Rubble concrete ofm22623.56932.72/06Robble concrete ofm22623.56932.72/07Rowork.F2 finish.for concrete ofm27784.373.399.86/07Rowork.F2 finish.for concrete ofm27784.373.393.86/07Rowork.F2 finish.for concrete ofm2767.139.20/08Rowork.F2 finish.for concrete ofm2000/07Rowork.F2 finish.for concrete ofm203.490.50/08Rowork.F2 finish.for concrete ofm203.490.50/08Rowork.F2 finish.for concrete ofm200.129.23/10Joint filler for culvert.t=10mmm2000.50/11Joint filler for culvert.t=10mmm200.030.50/11Joint filler for expansion joint of <td< td=""><td></td><td>Subtotal of item 8.3</td><td></td><td></td><td></td><td>7,364.36</td><td></td><td>19.654.667</td><td></td><td>36,224,477</td></td<>		Subtotal of item 8.3				7,364.36		19.654.667		36,224,477
Concrete.class A.for bridge slab andm315671.1811.104.08girdersconcrete.class E.for bridge abutment andm345261.0327.585.56concrete.class E.for box culvertm345261.030.00concrete.class H.for levelling concretem31455.33774.62concrete.class H.for levelling concretem31455.33774.62concrete.class E.for box culvertm31455.33774.62concrete.class E.and rubble/boulder)m31455.33774.62concrete.class E and rubble/boulder)m31455.33774.62concrete.class E and rubble/boulder)m31455.33774.62concrete.class F and rubble/boulder)m3149.2339.8610conserver.fr finish.for concrete ofm22623.56932.72conserver.fr finish.for concrete ofm203.490.00filems /02./03.40405m203.490.00filems /01./02and /05m203.490.00filems /01./02and /05m203.490.00filems /01./02and /05m2003.490.00filems /020011./02and /05m2000filems /020011./02and /05m2000filems /020011./02and /05m2000filems /020011./02and /05and	4	CONCRETE KORK								
Concrete, class E, for bridge abutment and m3 452 61.03 27.585.56 piers Concrete, class E, for box culvert m3 0 81.03 0.00 Concrete, class H, for levelling concrete m3 14 55.33 774.62 Concrete class H, for levelling concrete m3 14 55.33 774.62 Rubble concrete for retaining wall m3 0 40.29 0.00 concrete class E and rubble/boulder) formwork, F1 finish, for concrete of m2 262 3.56 932.72 formwork, F2 finish, for concrete of m2 778 4.37 3,339.86 items /02./03./04 and /05 formwork, F3 finish, for concrete of m2 778 4.37 3,339.86 items /01./02 and /05 formwork, F3 finish, for concrete of m2 0 3.49 0.00 items /01./02 and /03 Reinforcing bars for concrete work ton 51.3 357.97 18.363.86 10 joint filler for culvert, t=10mm m2 0 12.15 97.24 bridge, t=20mm Bituminous conting for contraction m2 0 0.03 0.00 joint filler for expansion joint of m2 0 0.03 0.00 joint filler for expansion joint of b1 0 0.03 0.00 joint filler for contraction m2 0 0.03 0.00 joint filler for contraction m2 0 0.03 0.00 joint filler for contraction m2 0 0.03 0.00	10/	Concrete.class A.for bridge girders	ŝ	156	71.18	11,104.38	30152	14,063,712	250307	39,047,892
Concrete, class E. for box culvert m3 0 61.03 0.00 Concrete, class H. for levelling concrete m3 14 55.33 774.62 Concrete class H. for levelling concrete m3 14 55.33 774.62 Rubble concrete for retaining wall m3 0 40.29 0.00 (concrete class E and rubble/boulder) Formwork, F1 finish, for concrete of m2 262 3.56 932.72 items /01./05 m2 778 4.37 3.339.86 items /01./02 and /05 Formwork, F3 finish, for concrete of m2 0 3.49 0.00 items /01./02 and /05 Formwork, F3 finish, for concrete of m2 0 3.49 0.00 items /01./02 and /05 Formwork, F3 finish, for concrete of m2 0 1.0 formwork, F3 finish, for concrete of m2 0 1.13 357.97 18.363.86 10 items /01./02 and /03 Reinforcing bars for concrete work ton 51.3 357.97 18.363.86 10 joint filler for expansion joint of m2 0 12.15 0.00 Joint filler for expansion joint of m2 0 12.15 0.00 joint filler for expansion joint of m2 0 0.03 6.00 joint filler for expansion joint of joint of joint joint of joint of joint joint of joint joint of joint joi	/02	class E.for bridge.		452	61.03	27,585.56	75434	34,096,168	212752	96,163,678
Concrete.class H.for levelling concrete m3 14 55.33 774.62 Rubble concrete for retaining wall m3 0 40.29 0.00 (concrete class E and rubble/boulder) Formwork.F1 finish.for concrete of m2 262 3.56 932.72 items /01./02 and /05 Formwork.F2 finish.for concrete of m2 778 4.37 3.339.86 items /01./02 and /05 Formwork.F2 finish.for concrete of m2 778 4.37 3.339.86 items /01./02 and /05 Formwork.F2 finish.for concrete of m2 0 3.49 0.00 items /01./02 and /03 Formwork.F2 finish.for concrete work ton 51.3 357.97 18.363.86 joint filler for expansion joint of m2 0 12.15 0.00 joint filler for expansion joint of m2 4 24.31 97.24 bridge.f=20mm Bituminous coating for contraction m2 0 0.03 0.00 joint	/03	Concrete, class E, for box culvert	Ê	o	61.03	0.00	75434		212752	0
Rubble concrete for retaining wallm3040.290.00Concrete class E and rubble/boulder)forawork.F1 finish.for concrete ofm22623.56932.72Forawork.F2 finish.for concrete ofm27784.373.339.86Forawork.F2 finish.for concrete ofm27784.373.339.86Forawork.F2 finish.for concrete ofm27784.373.339.86Forawork.F2 finish.for concrete ofm27784.373.339.86Forawork.F2 finish.for concrete ofm27784.373.339.86Forawork.F3 finish.for concrete ofm2744.373.339.86Forawork.F3 finish.for concrete ofm203.490.00Formwork.F3 finish.for concrete workton51.3357.9718.363.8610Formwork.F3 finish.for concrete workton51.3357.9718.363.8610For culvert.t=10mmm2012.150.0010.00Joint filler for expansion joint ofm2424.3197.24Situminous coating for contractionm200.030.00fointfor expansion joint ofm200.030.00Joint filler for expansion joint ofm200.030.00Situminous coating for contractionm200.030.00Jointfor expansion joint ofm200.030.00	/0/	Concrete, class H.for levelling concrete	잍	14	55.33	774.62	70760	990 <b>,</b> 640	195253	2,733,535
(concrete class Z and rubble/boulder)2623.56932.72Pormwork.Fi finish.for concrete ofn22623.56932.72items /02./C3./04 and /057784.373.339.86Formwork.F2 finish.for concrete ofn27784.373.339.86fiems /01./C2 and /05n2n203.490.00formwork.F3 finish.for concrete ofn203.490.00fiems /02 and /05n2n203.490.00filers /02 and /03n2n203.490.00filers /02 and /03n2n203.490.00filer for culvert,t=10nmn2012.150.00Joint filler for expansion joint ofn2424.3197.24bridge.t=20nmstidge.t=20nmn200.030.030.00jointfiller for contractionn200.030.00	/05	Rubble concrete for retaining wall	С <u>г</u>	C	40.29	0.00	50287	0	140940	0
Formwork,Fi finish,for concrete of m2 262 3.56 932.72 items /02./03./04 and /05 Formwork,F2 finish,for concrete of m2 778 4.37 3.339.86 items /01./02 and /05 Formwork,F3 finish,for concrete of m2 0 3.49 0.00 formwork,F3 finish,for concrete of m2 0 3.49 0.00 formwork,F3 finish,for concrete work ton 51.3 357.97 18.352.86 10 formwork,F3 finish,for concrete work ton 51.3 357.97 18.352.86 10 less /02 and /03 Reinforcing bars for concrete work ton 51.3 357.97 18.352.86 10 Joint filler for expansion joint of m2 0 12.15 0.00 Joint filler for expansion joint of m2 4 24.31 97.24 bridge.t=20mm Bituminous coating for contraction m2 0 0.03 0.00 joint		(concrete class Z and rubble/boulder)								
Formwork,F2 finish.for concrete of m2 778 4.37 3.339.86 1 items /01./02 and /05 Formwork,F3 finish.for concrete of m2 0 3.49 0.00 2 formwork,F3 finish.for concrete work ton 51.3 357.97 18.363.86 105 litems /02 and /03 Reinforcing bars for concrete work ton 51.3 357.97 18.363.86 105 Joint filler for expansion joint of m2 0 12.15 0.00 Joint filler for expansion joint of m2 4 24.31 97.24 bridge.t=20mm Situminous coating for contraction m2 0 0.03 0.00 joint	90/	Forawork.Fi finish.for concrete of items /02./03./04 and /05	2	262	3.56	932.72	11518	3,017,716	19528	5.116.336
<pre>?ormwork.F3 finish.for concrete of m2 0 3.49 0.00 2 items /02 and /03 Reinforcing bars for concrete work ton 51.3 357.97 18.363.86 105 Joint filler for culvert,t=10mm m2 0 12.15 0.00 Joint filler for expansion joint of m2 4 24.31 97.24 bridge.t=20mm Situminous coating for contraction m2 0 0.03 0.00 joint</pre>	10/	Formwork,F2 finish.for concrete of items /01./02 and /05	23	778	4.37	3, 339.86	15333	11,929,074	25166	·19.578,759
Reinforcing bars for concrete work ton 51.3 357.97 18,363.86 105 Joint filler for culvert,t=10mm m2 0 12.15 0.00 Joint filler for expansion joint of m2 4 24.31 97.24 bridge,t=20mm Situminous coating for contraction m2 0 0.03 0.00 joint	80/		2 8	0	3.49	0.0	20350	C	28203	D
Joint filler for culvert,t=10mm m2 0 12.15 0.00 Joint filler for expansion joint of m2 4 24.31 97.24 bridge,t=20mm Bituminous coating for contraction m2 0 0.03 0.00 Joint 0.00	50/		ton	51.3	357.97	18,363.86	1054028	54,071,636	1859461	95,390,324
Joint filler for expansion joint of m2 4 24.31 97.24 bridge.t=20mm Bituminous coating for contraction m2 0 0.03 0.00 joint	/10		<b>n</b> 2	0	12.15	0.00	1403	0	31741	
Bituminous coating for contraction m2 0 0.03 0.00 joint	11/	Joint filler for expansion bridge.t=20mm	2°	4	24.31	97.24	5776	23,104		241,894
	/12		20	0	0.03	00.0	3986	C	4054	C
		Subtotal of item 8.4				62,257.94		118,192,050		258.272.418

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	· · ·			BILL OF QUANTITIES	TITIES				
itea No.	o. Description of Horks	Unit	Quantity	Poreign Cu Unit Price	Foreign Currency(US\$) Unit - Total Price Price	Gocal C Unit Price	iocal Currency(S/.) Unit Total Price Price	Equivalent Unit Price	Squivalent Price(S/.) Unit Total Price Price
8.5	PAVENENT								
10/	<pre>I Improved subgrade material.not less that commonted CBD 15</pre>	۳3 ۵	121	4.72	571.12	1681	603.911	15611	1,888,931
/02		ЩЗ,	212	224	4,502,88	27261	5,779,332	12021	15,910,812
/03	H	83	60	0.47	28.20	499	29,940	1557	33,390
	Subtotal of item 8.5				5,102.20		6,413,183		17,893,133
8.6	MISCELLANZOUS								
10/	L Guardrail	f	40	73.56	2,942.40	33103	1,324,120	198613	7,944,520
/02		sou	2	120.38	240.76	54169	108,338	325024	650,048
/03		SOU	4	262.42	1,049.68	59044	236,176	649489	2,597,956
10/	Bearing, movable type	SOU	~*	262.42	1,049.68	59044	236,176	649489	2,597,956
/02		ЯN	1,900	1.81	3,439.00	1057	2,008,300	5130	9,746,050
90/		8	4	12.06	48.24	2164	8,656	29299	117,196
10/		æ	111	8.16	905.76	1726	191,586	.20086	2,229,546
80/	Dowel bars, D. 22mm, round ba	ton	0.0	336.00	0.00	1076250	0	1832250	0
60/	Anchor rod with steel pipe.D.32mm for bridge shoe	Å5	65	0.37	24.05	1184	76,960	2017	131,073
	Subtotal of item 8.6				9.699.57		4.190.312		26,014,345
	Total of item 8				167,537.46		228,515,158		605,474,446
	Grand Total of Package 1			čα	29,035,574.42	3	31,956,624,875	<i>б</i> і	97,286,667,324