GREATER KARACHI BULK WATER SUPPLY SCHEME
K-IV AUGMENTATION WORKS

Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction

SUMMARY SHEET

Bill No.	Description	Amount (PKR)	Amount (Foreign Currency____)
1	BILL 1: PRELIMINARY & GENERAL ITEMS		
2	BILL 2: PROVISIONAL SUMS	4,182,383,000	
3	BILL 3: WATER TRANSMISSION MAIN DN1800		
4	BILL 4: ESMP IMPLEMENTATION COST		
5	BILL 5: DAY WORKS		
	Sub Total-(A)		
6	Sindh Sales Tax (SST) @ 5% (excluding Provisional Sums)		
7	Add 2% Physical Contingencies (excluding Provisional Sums)		
	Sub Total-(B)		
	Grand Total (A+B)		
	Total Amount (Million)		

GREATER KARACHI BULK WATER SUPPLY SCHEME
K-IV AUGMENTATION WORKS

Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction

BILL 1: PRELIMINARY & GENERAL ITEMS

TRANSMISSION MAIN AND APPURTENANCES

S.No.	Description	Unit	Quantity	Rate (PKR)	Unit Rate Foreign Currency___	Amount (PKR)	Amount Foreign Currency___
1.1	**Method related charges**						
1.1.1	Prepare and provide hard and soft editable files As-built drawings as per the specifications for site.	Lump sum	1				
	Sub-total Group 1.1						
1.2	**CAPACITY BUILDING AND TRAININGS**						
1.2.1	Provide Training to KW&SC staff on Operation and Maintenance of the Infrastructure as per particular specifications. Allow for training of at least 10 staff	Lump sum	1				
	Sub-total Group 1.2						
1.3	Risk Insurance 1. Provision of insurance for works & contract equipment 2. Provision of insurance required for Goods 3. Provision of insurance for third parties 4. Provision of insurance to cover accident/injury to contractor's personnel 5. Provision of insurance for liability for breach of professional duty (to be paid as per actual)	Lump sum	1				
1.4	Compliance with Environmental and Social Management Plan	Lump sum	1				
1.5	Compliance with Health and Safety Plan	Lump sum	1				
	Total Bill 1						

GREATER KARACHI BULK WATER SUPPLY SCHEME
Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction
BILL 2: PROVISIONAL SUMS
TRANSMISSION MAIN AND APPURTENANCES

S.No.	Description	Unit	Quantity	Unit Rate (PKR)	Amount (PKR)
2.1	**Contractual Requirements**				
	Provisional sums for the Employer's portion of DAAB costs in accordance with Clause 4.2 of General Conditions of Contract	PS	1	16,200,000	16,200,000
	Sub-total Group 2.1				
2.2	**Testing and Inspection of Works**				
2.2.1	Provide and maintain materials and works testing laboratory in accordance with specifications	PS	1	3,240,000	3,240,000
	Testing of the Works				
2.2.2	Test run the constructed Works for a period of 3 weeks after substantial completion during DLP including supply of leak maintenance materials	PS	1	810,000	810,000
	Testing of Materials				
2.2.3	Concrete materials tests as specified	PS	1	243,000	243,000
2.2.4	Concrete cubes tests as specified (per set of three)	PS	1	243,000	243,000
2.2.5	Earthworks tests as specified	PS	1	243,000	243,000
2.2.6	Other Material Tests as specified	PS	1	162,000	162,000
	Temporary Works				
2.2.7	Provision, construction, and/or improvement of access roads to project site when necessary, including all signage to ensure safe and convenient vehicular and pedestrian access.	PS	1	3,240,000	3,240,000
2.2.8	Erect, maintain and remove project sign boards (location as directed on site)	PS	1	972,000	972,000
2.2.9	Detour road patchwork under traffic doversion works	PS	1	150,000,000	150,000,000
	Sub-total Group 2.2				
2.3	**Provisional sums**				
2.3.1	Allow a provisional sum for FAT test and inspection of pipe, fittings and valves materials manufacturing confirmation by the Employer and Engineer. Rate to cover for Transport and travel, accommodation and allowances.	PS	1	16,200,000	16,200,000
2.3.2	Provisional Sum for laying of pipe with cathodic protection where required, including design based on soil investigations conducted and resestivity results along the pipeline route, in accordance with the project specifications and as directed and approved by the Engineer.	PS	1	295,350,000	295,350,000
2.3.3	Provisional Sum for Geotechnical investigation along the pipeline route including boring, dutch cone sounding, chemical tests, soil analysis, laboratory analysis, and submisison of report and any other field data that may be required as required by the Engineer.	PS	1	6,480,000	6,480,000
2.3.4	Provisional sum for upgradation or rehabilitation of the existing network which is connected to terminal nodal points inclusive of all activities such as rehabilitation, provision of valves, flowmeters and other allied facilities as per the direction of the engineer in charge	PS	1	2,039,000,000	2,039,000,000
2.3.5	Provisional sum for payment to utility agencies for relocation including identification & protection of all public utility services encountered within the works during contract period including power cables, telephone cables, optical fibre cables, gas pipelines, water supply lines, sewers & drains.	PS	1	1,650,000,000	1,650,000,000
	Sub-total Group 2.3				
	Total Bill 2				**4,182,383,000**

GREATER KARACHI BULK WATER SUPPLY SCHEME K-IV AUGMENTATION WORKS							
Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction							
BILL 3: WATER TRANSMISSION MAIN DN1800							
TRANSMISSION MAIN AND APPURTENANCES							
S.No.	Description	Unit	Quantity	Unit Rate (PKR)	Unit Rate Foreign Currency___	Amount (PKR)	Amount Foreign Currency___
1	**CLEARING AND GRUBBING**						
	Clearing jungle (ordinary & dense) with a clearing width along the pipeline alignement, as per specifications, by cutting removing all shrubs, trees as per site girth & taking out their entire roots and filling the hollows with earth complete with dressing consolidating and watering the filling including stacking the serviceable materials and disposal of useless materials cost of lead, lift and include earth etc. Complete in respects as per drawings, specifications and Engineer's instruction.	Sq.m	26,846.00				
2	**DISMANTLING**						
2.1	Dismantling of existing asphalt concrete road including base, sub-base and disposal of dismantled materials to designated place approved by the Engineer.	Cu.m	27,356.00				
2.2	Dismantling cement concrete plain and disposal of dismantled materials to designated place approved by the Engineer.	Cu.m	100.00				
2.3	Dismantling cement concrete reinforced separating reinforcement from concrete cleaning and straightening the same and disposal of dismantled materials to designated place approved by the Engineer.	Cu.m	100.00				
2.4	Dismantling dry brick/ Block masonry and disposal of dismantled materials to designated place approved by the Engineer.	Cu.m	100.00				
3	**EXCAVATION**						
A-1	**EXCAVATION - TRENCHES FOR PIPES**						
	Earthwork excavation in foundation of trenches for pipes in any strata upto any required depth from natural ground level including trial pits, welding pits, dismantlig of all existing, dewatering, dressing, levelling & compacting. Retain approved material for re-use in back-filling / filling. Excavated material / previous construction materials if disposed along the alignment of proposed pipelines and structures shall be disposed off away from site of work at suitable place by dumpers. (No extra payment will be made in this regard). Excess excavation done for working if any for ease of work, will be backfilled by Contractor with same excavated earth or any imported earth, no payment will be made in this regards. Complete in all respects as per drawings, specifications and Engineer's instruction.						
3.1	Soft soil 70%						
3.1.1	Depth range: 0-2 m	Cu.m	113,055.00				
3.1.2	Depth range: 2-5 m	Cu.m	126,374.00				
3.1.3	Depth range: >5 m	Cu.m	528.00				
3.2	Hard soil 20%						
3.2.1	Depth range: 0-2 m	Cu.m	32,301.00				
3.2.2	Depth range: 2-5 m	Cu.m	36,107.00				
3.2.3	Depth range: >5 m	Cu.m	152				
3.3	Provisional quantity for Rock soil 10%						
3.3.1	Depth range: 0-2 m	Cu.m	16,151.00				
3.3.2	Depth range: 2-5 m	Cu.m	18,053.00				
3.3.3	Depth range: >5 m	Cu.m	75.00				
A-2	**SOLDIER PILING - TRENCHES FOR PIPES**						

GREATER KARACHI BULK WATER SUPPLY SCHEME K-IV AUGMENTATION WORKS							
Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction							
BILL 3: WATER TRANSMISSION MAIN DN1800							
TRANSMISSION MAIN AND APPURTENANCES							
S.No.	Description	Unit	Quantity	Unit Rate (PKR)	Unit Rate Foreign Currency___	Amount (PKR)	Amount Foreign Currency___
3.4	Provide, design, install, maintain, and remove a soldier piling system or other equivalent trench support system, subject to the approval and satisfaction of the Engineer for the support of trench and excavation sides, measured per running meter on each side, complete in all respects in accordance with the approved drawings, specifications, and applicable safety regulations. Including all materials, design following soil conditions, excavation depth, groundwater, surcharge loads, and construction sequence, installation of structural steel soldier piles at the specified size, spacing and embedment as required by the design, progressive installation of lagging during excavation, monitoring, adjustment, and protection of adjacent structures, utilities, and personnel, until the excavation is safely backfilled or the shoring system is removed.	Ru.m	32,460.00				
B-1	EXCAVATION - TRENCHES FOR CHAMBERS						
	Earthwork excavation in foundation of chambers in any strata upto any required depth from natural ground level including trial pits, welding pits, dismantlig of all existing, dewatering, dressing, levelling & compacting. Excavated material / previous construction materials if disposed along the alignment of proposed pipelines and structures shall be disposed off away from site of work at suitable place by dumpers. (No extra payment will be made in this regard). Excess excavation done for working if any for ease of work, will be backfilled by Contractor with same excavated earth or any imported earth, no payment will be made in this regards. Complete in all respects as per drawings, specifications and Engineer's instruction.						
3.5	Soft soil 70%						
3.5.1	Depth range: 0-2 m	Cu.m	3,464.00				
3.5.2	Depth range: 2-5 m	Cu.m	3,686.00				
3.5.3	Depth range: >5 m	Cu.m	221.00				
3.6	Hard soil 20%						
3.6.1	Depth range: 0-2 m	Cu.m	990.00				
3.6.2	Depth range: 2-5 m	Cu.m	1,053.00				
3.6.3	Depth range: >5 m	Cu.m	63.00				
3.7	Provisional quantity for Rock soil 10%						
3.7.1	Depth range: 0-2 m	Cu.m	495.00				
3.7.2	Depth range: 2-5 m	Cu.m	527.00				
3.7.3	Depth range: >5 m	Cu.m	32.00				
B-2	SOLDIER PILING - TRENCHES FOR CHAMBERS						
3.8	Provide, design, install, maintain, and remove a soldier piling system or other equivalent trench support system, subject to the approval and satisfaction of the Engineer for the support of trench and excavation sides, measured per running meter on each side, complete in all respects in accordance with the approved drawings, specifications, and applicable safety regulations. Including all materials, design following soil conditions, excavation depth, groundwater, surcharge loads, and construction sequence, installation of structural steel soldier piles at the specified size, spacing and embedment as required by the design, progressive installation of lagging during excavation, monitoring, adjustment, and protection of adjacent structures, utilities, and personnel, until the excavation is safely backfilled or the shoring system is removed.	Ru.m	105				

GREATER KARACHI BULK WATER SUPPLY SCHEME K-IV AUGMENTATION WORKS

Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction

BILL 3: WATER TRANSMISSION MAIN DN1800

TRANSMISSION MAIN AND APPURTENANCES

S.No.	Description	Unit	Quantity	Unit Rate (PKR)	Unit Rate Foreign Currency___	Amount (PKR)	Amount Foreign Currency___
4.	**LOWERING OF SUB SOIL WATER TABLE**						
	Provisional quantity for lowering of sub-soil water table, by installation of tubewells along pipe line and pumping out water, for excavation in open cutting below sub-soil water level, concreting, curing, laying and jointing pipes, filling haunches, etc. till the completion of pipe line, including disposal of pumped out water:-						
4.1	0-1 ft. (0 to 310 mm) below SSWL	R.m	500.00				
4.2	0-2 ft. (0 to 610 mm) below SSWL	R.m	500.00				
4.3	0-3 ft. (0 to 910 mm) below SSWL	R.m	500.00				
4.4	0-4 ft. (0 to 1220 mm) below SSWL	R.m	500.00				
4.5	0-5 ft. (0 to 1520 mm) below SSWL	R.m	500.00				
4.6	0-6 ft. (0 to 1830 mm) below SSWL	R.m	1,000.00				
4.7	0-7 ft. (0 to 2170 mm) below SSWL	R.m	1,000.00				
4.8	0-8 ft. (0 to 2480 mm) below SSWL	R.m	1,000.00				
4.9	0-9 ft. (0 to 2790 mm) below SSWL	R.m	1,000.00				
4.10	0-10 ft. (0 to 3100 mm) below SSWL	R.m	1,000.00				
4.11	0-11 ft. (0 to 3410 mm) below SSWL	R.m	1,000.00				
4.12	0-12 ft. (0 to 3720 mm) below SSWL	R.m	1,500.00				
5	**SAND BEDDING AND PADDING/SURROUNDING**						
	Providing, placing and compacting an imported 200 mm thick sand bedding beneath pipes, including surrounding and backfilling up to 300 mm above the crown of the pipe, including dressing, watering, levelling, consolidation etc. The imported material shall comply with a maximum AASHTO Class A-3 as determined by AASHTO soil classification tests and shall be subject to the Engineer's approval. The method of compaction shall achieve not less than 95% Modified Proctor density. Complete in all respects as per drawings, specifications and Engineer's instruction.	Cu.m	117,281.00				
6	**M.S.PIPE**						
	Providing, laying and jointing of Spiral Welded Mild Steel Pipes as per API 5L – PSL2 , grade X42 for various diameters and thicknesses, end-beveled, externally 3LPE coating (shop applied), internally fusion bonded epoxy (FBE) coating with a minimum 400 – 500 microns Dry Film Thickness (DFT) as per AWWA Standard, joint coating with epoxy and heat shrinkable sleeves, the rate included, cutting, welding, and jointing in trenches, including all fittings, tees, any degree of bends and yees, expander/reducer, flanges, gasket, steel nut bolts and washers, ultrasonic or radiographic inspection of welded joints, , hydrostatic testing (sectional and complete testing), disinfection with chlorine, level and grade, warning tape 300mm wide, 100 micron thick, blue in color, complete in all respect as per drawing, technical specification and Engineer's instruction.						
6.1	72 inch (1828.8 mm OD) x 12.7 mm wall thickness	R.m	26,850.00				
6.2	32 inch (812.8 mm OD) x 8mm wall thickness	R.m	100.00				
6.3	40 inch (1016 mm OD) x 10mm wall thickness	R.m	100.00				

GREATER KARACHI BULK WATER SUPPLY SCHEME K-IV AUGMENTATION WORKS							
Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction							
BILL 3: WATER TRANSMISSION MAIN DN1800							
TRANSMISSION MAIN AND APPURTENANCES							
S.No.	Description	Unit	Quantity	Unit Rate (PKR)	Unit Rate Foreign Currency___	Amount (PKR)	Amount Foreign Currency___
7	**BACKFILLING**						
7.1	**SELECTED MATERIAL BACKFILLING**						
	Structural backfilling using selected imported material borrowed from approved quarries around structures, placed in layers not exceeding 150 mm thickness. The material shall comply with AASHTO Classification and shall meet at least Class A-2-4 or A-4 (or a better class), as approved by the Engineer.Including watering, compacting upto required level with suitable excavated material as approved by the Engineer. The method of compaction shall achieve not less than 95% Modified Proctor density. Complete in respects as per drawings, specifications and Engineer's instruction.	Cu.m	83,765.00				
7.2	**COMMON MATERIAL BACKFILLING**						
	Structural backfilling around structures using common excavated material, placed in layers not exceeding 150 mm thickness. The material shall meet at least AASHTO Class A-4 (or a better class) and be subject to the Engineer's approval. Including watering, compacting upto required level with suitable excavated material as approved by the Engineer. The method of compaction shall achieve not less than 95% Modified Proctor density. Complete in respects as per drawings, specifications and Engineer's instruction.	Cu.m	83,765.00				
8	**PIPE ENCASEMENT**						
	Providing, mixing, and placing Class C (21 MPa) concrete for pipe encasement, including compaction, curing, and finishing, complete in all respects in accordance with the drawings, specifications, and Engineer's instructions	Cu.m	5,800.00				
9	**GRAVEL FILTER**						
	Providing and laying 150mm thick Gravel filter material under stone pitching on side slope and plain surface including clean, hard natural gravel laid to the thickness specified . Complete in all respects as per drawings, specifications and Engineer's instruction.	Cu.m	3,201.98				
10	**STONE PITCHING**						
	Providing and laying 250mm thick Stone pitching above gravel filter material on side slope and plain surface grouted with 1:4 cement sand in Nala crossing/stream/siphon crossing including roughly hammer dressed so that they fit closely together, laid to a true and even surface on a bed of gravels . Complete in all respects as per drawings, specifications and Engineer's instruction.	Cu.m	5,337.68				
11	**RCC CHAMBERS**						
11.1	**PLAIN AND REINFORCED CONCRETE**						
	Providing and laying cement concrete using Ordinary Portland Cement / Sulphate resistant cement / Slag cement (separate or blended as per geo technical recomendations) including mixing, transporting, hosting, placing, form work, scaffolding, vibrating and curing etc., including the cost of form work and its removal complete in all respect as per drawings, specifications and Engineer's instructions (but excluding the cost of the reinforcement).						

GREATER KARACHI BULK WATER SUPPLY SCHEME K-IV AUGMENTATION WORKS							
Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction							
BILL 3: WATER TRANSMISSION MAIN DN1800							
TRANSMISSION MAIN AND APPURTENANCES							
S.No.	Description	Unit	Quantity	Unit Rate (PKR)	Unit Rate Foreign Currency___	Amount (PKR)	Amount Foreign Currency___
11.1.1	Lean/Blinding cement concrete Min. Cylinder Strength of 10 MPa at 28 days under foundations/ footings etc.	Cu.m	150.00				
11.1.2	Reinforced cement concrete Min. Cylinder Strength 28 MPa at 28 days sub/super structural elements etc.	Cu.m	2,320.00				
11.2	**REINFORCEMENT STEEL BAR**						
	Providing and laying reinforcement bars using hot rolled deformed billet steel bars "Grade 60" conforming to ASTM A-615 including the cost of straightening, cutting, bending, binding, wastage and such overlaps as are not shown over the drawings, placing in position on chairs, tying with binding wires, etc., in all kinds of RCC work complete in all respects.	Ton.	80.00				
11.3	**Bitumen Coating**						
	Providing and applying water proofing with two coats (0.5 Kg per Sq.m each) of hot bitumen on concrete surfaces in contact with earth complete in all respects as per drawings, specifications and Engineer's instruction.	Sq.m	5,220.00				
11.4	**Steel Rungs**						
	Providing and fixing 25mm dia. hot dip Galvanized/ epoxy coated Steel Rungs. Each of 400 mm width, 200 mm projected outside the wall and 100 mm embeded in Reinforced Cement Concrete on both ends. Rungss shall be spaced at 300 mm c/c vertically, complete in all respects as per drawings, specifications and Engineer's instruction.	Each	1,750.00				
11.5	**Water Stopper**						
	Providing and embedding PVC water stopper in construction and expansion joints of RCC structures, complete in all respects in accordance with the approved drawings, specifications, and as directed by the Engineer.	R.m	820.00				
11.6	**Chambers Cover**						
	Providing and fixing Precast chambers covers slab Min. Cylinder Strength of 28 MPa concrete with appropriate lifting keys . All cover slabs shall be reinforced as shown in drawing including where chambers project above ground level, covers when in position shall be flush with the adjacent cover slab top surface. For chambers under roads and verges, frames shall be solidly bedded in cement mortar so that the covers when in position are fair and even with the adjacent surfaces. Complete in all respects as per drawings, specifications and Engineer's instruction.						
11.7	Size 0.8m x 0.8m	No.	100.00				
12	**FITTINGS AND VALVES**						
12.1	**BUTTERFLY VALVE**						

GREATER KARACHI BULK WATER SUPPLY SCHEME K-IV AUGMENTATION WORKS							
Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction							
BILL 3: WATER TRANSMISSION MAIN DN1800							
TRANSMISSION MAIN AND APPURTENANCES							
S.No.	Description	Unit	Quantity	Unit Rate (PKR)	Unit Rate Foreign Currency___	Amount (PKR)	Amount Foreign Currency___
	Providing, installation, testing, and commissioning of PN16 double flanged butterfly valves made of ductile iron EN-GJS-450 material, designed to BS 5155, with a polyurethane coating (thickness 80 µm, color: RAL 5002), standard epoxy coating , allowing for Operating Pressures of 16 bar with options for higher velocities and various actuator/valve combinations. Manual actuation is available via manual gearboxes key & Labour. Complete as per drawings, specifications, and Engineer's instructions.						
a-	**DI Double Flanged Dismantling Joint PN16**						
	DN1800mm	No.	5.00				
b-	**MS Straight Specials PN16**						
	DN1800mm Flanged Spigot with puddle flange (L=2000mm)	No.	10.00				
c-	**DI Butterfly Valve PN16**						
	1800mm	No.	5.00				
d-	**Roadside Ventilation**						
	OD 200mm, uPVC Class E PN16 Air vent pipe with stainless steel mesh as per the drawings	R.m	30.00				
12.2	**AIR RELEASE VALVE (With Isolation Valve)**						
	Providing, installation, testing, and commissioning of a PN16 float consisting double body, double orifce air release valves with isolation valves made ductile iron EN-GJS-450 material, designed to AWWA C512 (14), with nominal pressures and a maximum permissible pressure of 16 bar. Includes packing, key, and labor. Complete in all respects as per drawings, specifications, and Engineer's instructions.						
a-	**Air Valve DN 200mm**	No.	24.00				
b-	**MS Straight Specials PN16**						
	DN1800mm Double Spigot with puddle flange (L=2000mm)	No.	48.00				
	DN200 Flanged Spigot Pipe (L=400mm)	No.	24.00				
c-	**DI Gate Valves PN16**						
	DN200 FLANGED Gate Valve	No.	24.00				
d-	**Roadside Ventilation Assembly**						
	OD 200, uPVC PN16 Air vent pipe to the ventilation chamber as per the drawings	R.m	144.00				
12.3	**AIR INLET CHECK VALVE (With Isolation Valve)**						

GREATER KARACHI BULK WATER SUPPLY SCHEME K-IV AUGMENTATION WORKS
Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction
BILL 3: WATER TRANSMISSION MAIN DN1800
TRANSMISSION MAIN AND APPURTENANCES

S.No.	Description	Unit	Quantity	Unit Rate (PKR)	Unit Rate Foreign Currency___	Amount (PKR)	Amount Foreign Currency___
	Supply and installation of air inlet check valve in swan neck arrangement, conical body and disc type, flanged to EN 1092-2, suitable for PN 16 working pressure. Body, inlet cone, connection cone and disc in Steel S235, internally and externally epoxy coated (min. 250 µm) in accordance with DIN 30677. The item includes packing, all necessary bends and fittings for the swan-neck installation, and all labor required. Complete in all respects as per drawings, specifications, and the Engineer's instructions.						
a-	**AIR INLET CHECK VALVE DN 300mm**	No.	24.00				
b-	**MS Straight Specials PN16**						
	DN300 Flanged Spigot Pipe (L=400mm)	No.	24.00				
c-	**DI Gate Valves PN16**						
	DN300 FLANGED Gate Valve	No.	24.00				
12.4	**WASHOUT VALVE**						
	Providing, installation, jointing, and fixing of a PN16 washout valve made of ductile iron EN-GJS-450 material with stainless steel 410 seat rings & stem, designed to BS 5150 / EN558 (3) complete with flanges, gaskets, nuts, bolts, pipes, key, and labor with nominal pressures of PN 16 bar. This includes all necessary pipes and fittings for draining the lines as per standards. Complete in all respects as per drawings, specifications, and Engineer's instructions.						
a-	**DI Double Flanged Dismantling Joint PN16**						
	DN300mm	No.	10.00				
b-	**PE Pipe**						
	OD300mm PE PN16 Pipe, L= 6m	R.m	60.00				
	OD500mm PE PN16 Pipe, L= 10m	R.m	100.00				
c-	**MS Junctions and Branches PN16**						
	DN300 Flanged Spigot MS Pipe Piece (L=200mm)	No.	10.00				
d-	**DI Gate Valves PN16**						
	DN300mm Double Flanged Gate Valve	No.	10.00				
e-	**Surface Box for Buried Gate Valve**						
	Surface Box	No.	10.00				
13	**THRUST / Anchor Blocks**						
	Providing and fixing of Thrust / Anchor blocks under pipe lines at horizontal, vertical bends, Tees, Reducers and blank ends constructed with concrete Minimum cylindrical strength Class C (21 MPa) . Including Complete design to be approved by the Engineer and complete construction in all respects as specifications and Engineer's instruction.	Cu.m	330.00				

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TRANSMISSION MAIN AND APPURTENANCES							
S.No.	Description	Unit	Quantity	Unit Rate (PKR)	Unit Rate Foreign Currency___	Amount (PKR)	Amount Foreign Currency___
14	**REINSTATEMENT**						
	Reinstatement of Road Surface i/c excavation of unsuitable material, sub grade preparation, granular sub base, aggregate base, cut back asphalt for bituminous prime and tack coat and asphaltic concrete for base & wearing course complete in all respect as per drawing and as directed by the Engineer/Incharge.						
14.1	Formation, dressing and preparing sub-grade as per drawings, sepecification and as directed by the Engineer.	Sq.m	130,267.00				
14.2	Providing and laying sub-base course of crushed stone aggregate of approved quality and grade, including placing, mixing, spreading and compaction of sub-base material to required depth, camber, grade to achieve 100% maximum modified AASHO dry density, including carriage of all material to site of work .	Cu.m	19,540.00				
14.3	Providing and laying base course of crushed stone aggregate of approved quality and grade, and supply and spreading of stone screening, including placing, mixing, spreading and compaction of base course material to required depth, camber and grade to achieve 100% maximum modified AASHO dry density, including carriage of all materials to site of work.	Cu.m	19,540.00				
14.4	Providing and laying bituminous priming coat, using 10 lbs. kerosene oil and 10 lbs. binder per 100 Sft. or 0.5 Kg kerosene and 0.5 Kg binder per square metre.	Sq.m	130,267.00				
14.5	Providing and laying plant premixed bituminous base course (4% Bitumen), including compaction and finishing to required camber, grade and density, and carriage of all material to site of work. Provisional Quantity will used after the approval of Engineer.	Cu.m	6,513.00				
14.6	Providing and laying bituminous tack coat, using 10 lbs. of bitumen per 100 Sft (0.49 Kg of bitumen per sq.m.)	Sq.m	130,267.00				
14.7	Providing and laying plant premixed bituminous carpet, including compaction and finishing to required camber, grade and density, and carriage of all material to site of work.	Cu.m	6,513.00				
15	**THRUST BORING**						
	Full design and construction by Pipe Jacking for identified crossings as per the specifications and typical drawings including Detailed design finalization of the project works to be approved by the Engineer, hydraulic and hydrological analysis, alignment design, structural design, Temporary access shaft design, Permanent exit shaft design, geotechnical investigation and design, utility designs, etc. Construction of the micro-tunnel with all associated activities / requirements including: Preparation and general installation, approvals and permits, Thrust and reception shafts, pipe sleeves (84" MS sleeve for 72" pipe), necessary fittings, cement and sand slurry grouting (1:2) in the annular space including supply of pipe as stated in pipe specifications, Transport and installation, and subsequent removal of the Pipe Jacking equipments, Shored trench at the inlet and outlet side. Complete in all respects as per drawings, specifications and Engineer's instruction.	R.m	700.00				
16	**CONNECTION FROM TRANSMISSION MAIN**						
	Providing connections for future conveyance and connection with existing system including the cost of fabrication, fixing, jointing, all fittings, Tees etc. Complete in all respects as per drawings, specifications and Engineer's instruction.						

GREATER KARACHI BULK WATER SUPPLY SCHEME K-IV AUGMENTATION WORKS							
Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction							
BILL 3: WATER TRANSMISSION MAIN DN1800							
TRANSMISSION MAIN AND APPURTENANCES							
S.No.	Description	Unit	Quantity	Unit Rate (PKR)	Unit Rate Foreign Currency___	Amount (PKR)	Amount Foreign Currency___
16.1	**Interconnection - Old Pipri Main**						
	Interconnection to existing pipeline to Old Pipri Main from proposed 72 inch MS pipe including civil works / chambers, all fitting / specials, Tee / Y, flanges, gaskets, nuts, bolts, pipes, key, transition piece for PRCC connection and labor with nominal pressures of PN 16 bar etc. for regular operational purpose complete in all respects as per drawing KWSSIP_K-IV_R1-W302, specifications and as per the direction of the Engineer in charge.						
a-	**MS Reducer PN16**						
	DN 1800mm/800mm	No.	1.00				
	DN 1200mm/800mm	No.	1.00				
b-	**DI Double Flanged Dismantling Joint PN16**						
	DN800mm	No.	4.00				
	DN300mm	No.	1.00				
c-	**MS Straight Specials PN16**						
	DN800mm Flanged Spigot with puddle flange (L=2000mm)	No.	8.00				
d-	**DI T-Strainer PN16**						
	DN800mm	No.	1.00				
f-	**DI Butterfly Valve PN16**						
	DN800mm	No.	2.00				
g-	**MS Junctions and Branches PN16**						
	DN1200mm Flanged Y junction	No.	1.00				
	DN1800mm welded Y junction	No.	1.00				
	DN200mm Flanged Spigot MS Pipe Piece (L=400mm)	No.	1.00				
	DN300mm Flanged Spigot MS Pipe Piece (L=200mm)	No.	1.00				
	DN300 Flanged Spigot MS Pipe Piece (L=200mm)	No.	1.00				
i-	**Air Release Valve PN16**						
	DN200mm	No.	1.00				
j-	**DI Air Inlet Check Valve PN16**						
	DN300mm, Air Inlet Check Valve	No.	1.00				
k-	**DI Gate Valves PN16**						
	DN300mm FLANGED Gate Valve	No.	2.00				
	DN200mm FLANGED Gate Valve	No.	1.00				
m-	**PE Pipe**						
	OD300mm PE PN16 Pipe, L= 6m	R.m	6.00				
	OD500mm PE PN16 Pipe, L= 10m	R.m	10.00				

GREATER KARACHI BULK WATER SUPPLY SCHEME K-IV AUGMENTATION WORKS							
Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction							
BILL 3: WATER TRANSMISSION MAIN DN1800							
TRANSMISSION MAIN AND APPURTENANCES							
S.No.	Description	Unit	Quantity	Unit Rate (PKR)	Unit Rate Foreign Currency___	Amount (PKR)	Amount Foreign Currency___
n-	**Surface Box for Buried Gate Valve**						
	Surface Box	No.	1.00				
o-	**EM Flowmeter PN16**						
	DN800 mm	No.	1.00				
p-	**Plunger Valve PN16**						
	DN800 mm - Diam to be verified by the contractor's supplier as per specifications	No.	1.00				
r-	**Roadside Ventilation**						
	OD 200mm, uPVC Class E PN16 Air vent pipe with stainless steel mesh as per the drawings	R.m	18.00				
	OD 200mm, uPVC Class E PN16 Air vent pipe to ventilation chamber as per the drawings	R.m	6.00				
16.2	**Interconnection - At Y-Junction**						
	Interconnection to existing pipeline at Y-Junction from proposed 72 inch MS pipe including civil works / chambers, all fitting / specials, Tee / Y, flanges, gaskets, nuts, bolts, pipes, key, transition piece for PRCC connection and labor with nominal pressures of PN 16 bar etc. for regular operational purpose complete in all respects as per drawing KWSSIP_K-IV_R1-W302, specifications and as per the direction of the Engineer in charge.						
a-	**MS Reducer PN16**						
	DN 1800mm/1200mm	No.	1.00				
	DN 1650mm/1000mm	No.	1.00				
	DN 1200mm/1000mm	No.	1.00				
b-	**DI Double Flanged Dismantling Joint PN16**						
	DN1200mm	No.	1.00				
	DN1000mm	No.	4.00				
	DN300mm	No.	1.00				
c-	**MS Straight Specials PN16**						
	DN1200mm Flanged Spigot with puddle flange	No.	2.00				
	DN1000mm Flanged Spigot with puddle flange	No.	8.00				
d-	**DI T Strainer PN16**						
	DN1000mm	No.	1.00				
f-	**DI Butterfly Valve PN16**						
	DN1200mm	No.	1.00				
	DN1000mm	No.	2.00				
g-	**MS Junctions and Branches PN16**						
	DN1650mm Flanged Y junction	No.	1.00				
	DN1200mm welded Y junction	No.	1.00				

GREATER KARACHI BULK WATER SUPPLY SCHEME K-IV AUGMENTATION WORKS

Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction

BILL 3: WATER TRANSMISSION MAIN DN1800

TRANSMISSION MAIN AND APPURTENANCES

S.No.	Description	Unit	Quantity	Unit Rate (PKR)	Unit Rate Foreign Currency___	Amount (PKR)	Amount Foreign Currency___
	200mm Flanged Spigot MS Pipe Piece (L=400mm)	No.	1.00				
	300mm Flanged Spigot MS Pipe Piece (L=200mm)	No.	1.00				
	DN300 Flanged Spigot MS Pipe Piece (L=200mm)	No.	1.00				
h-	**MS Bends PN16**						
	DN1000mm, 45° steel welded Bend	No.	1.00				
i-	**Air Release Valve PN16**						
	DN200mm	No.	1.00				
j-	**DI Air FInlet Check Valve PN16**						
	DN300mm, Air Inlet Check Valve	No.	1.00				
k-	**DI Gate Valves PN16**						
	DN300mm FLANGED Gate Valve	No.	2.00				
	DN200mm FLANGED Gate Valve	No.	1.00				
m-	**PE Pipe**						
	OD300mm PE PN16 Pipe, L= 6m	R.m	6.00				
	OD500mm PE PN16 Pipe, L= 10m	R.m	10.00				
n-	**Surface Box for Buried Gate Valve**						
	Surface Box	No.	1.00				
o-	**EM Flowmeter PN16**						
	DN1000 mm	No.	1.00				
p-	**Plunger Valve PN16**						
	DN1000 mm - Diam to be verified by the contractor's supplier as per specifications	No.	1.00				
r-	**Roadside Ventilation**						
	OD 200mm, uPVC Class E PN16 Air vent pipe with stainless steel mesh as per the drawings	R.m	36.00				
	OD 200mm, uPVC Class E PN16 Air vent pipe to ventilation chamber as per the drawings	R.m	6.00				
16.3	**Emergency Connections**						
	General connection of 1000mm from proposed 72 inch MS pipe including civil works / valve chamber, all fitting / specials, Tee / Y, flanges, gaskets, nuts, bolts, pipes, key, and labor with nominal pressures of PN 16 bar etc. for regular operational purpose complete in all respects as per drawings, specifications and as per the direction of the Engineer in charge.						
a-	DN 1000mm	No.	3.00				
b-	**MS Straight Specials PN16**						

GREATER KARACHI BULK WATER SUPPLY SCHEME K-IV AUGMENTATION WORKS							
Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction							
BILL 3: WATER TRANSMISSION MAIN DN1800							
TRANSMISSION MAIN AND APPURTENANCES							
S.No.	Description	Unit	Quantity	Unit Rate (PKR)	Unit Rate Foreign Currency___	Amount (PKR)	Amount Foreign Currency___
	DN1000mm Double Flanged Pipe With Puddle Flange (L=2000mm)	No.	3.00				
	DN1800mm Flanged Spigot Pipe With Puddle Flange (L=2000mm)	No.	6.00				
c-	**MS Junctions and Branches PN16**						
	DN1800 x1000mm flanged Reducing Tee	No.	3.00				
d-	**DI Butterfly Valves PN16**						
	DN1000 mm	No.	3.00				
e-	**DI Non Return Valve PN16**						
	DN1000 mm	No.	3.00				
f-	**MS Blank Flange PN16**						
	DN1000 mm	No.	3.00				
h-	**Roadside Ventilation**						
	OD 200mm, uPVC Class E PN16 Air vent pipe with stainless steel mesh as per the drawings	R.m	18.00				
16.4	**Connection at the existing treated water tank outlet**						
	Connection with the existing MS pipe at the R1 treated water tank outlet including civil works to the existing reducer, all fitting / specials, gaskets, nuts, bolts,, key, and labor with nominal pressures of PN 16 bar etc. for regular operational purpose complete in all respects as per drawings, specifications and as per the direction of the Engineer in charge.	No.	1.00				
17	**Automation and Control of Plunger Valve**						
	Providing and installing of automation and control for the plunger valves including Supply and installation of an analog pressure sensor 0-6 bar, IP65, PLC with dual PID loop, Installation and configuration of a multi-turn electric actuator 4-20 mA for the plunger valve, Integration of an HMI with the PLC (communication, testing, alarms) , the supply and installation of the electrical power supply with power and control cables, and the complete verification and functional testing in coordination with the plunger valve supplier as per specifications.	No.	2.00				
			Total Bill 3				

GREATER KARACHI BULK WATER SUPPLY SCHEME K-IV AUGMENTATION WORKS

Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction

BILL 4: ESMP IMPLEMENTATION COST

Sr. No.	Parameter	Mechanism	No. of Samples	No. of Sampling Locations	Frequency	Quantity	Unit Rate (PKR)	Unit Rate (Foreign Currency____)	Amount (PKR)	Amount Foreign Currency ____
A	**PRE- CONSTRUCTION PHASE (at Start of Project)**									
A-1	**Environmental Monitoring Cost**									
1	Water Resources/ Water Quality	Grab sampling and laboratory testing of water samples by SEPA-approved Laboratory for monitoring as per Sindh environmental quality standards.	1	3	1	3				
2	Noise Levels	Noise monitoring in dBA Leq. as per Sindh environmental quality standards	1	3	1	3				
3	Ambient Air Monitoring	Monitoring of CO, CO2, SOx, NOx, HC and PM2.5 PM10 by SEPA approved Laboratory as per Sindh environmental quality standards	1	3	1	3				
4	Soil Quality	Sampling and testing of soil for the parameters including but not limited to Total Phosphates, Nitrate, Ammonia, Heavy Metals etc.	1	3	1	3				
5	Effluent Quality	Sampling and testing of liquid effluents for the parameters including but not limited to pH, Temeperature, DO, Turbidity, TOC, Totals P., TSS, BOD5, COD,Cd, Cu, Fe, Pb, Oil and grease, Fecal coliform etc.	1	3	1	3				
								Sub-Total (A-1)		
A-2	**Tree Plantation Cost**									
1	Tree Plantation Cost	Plantation of 1,750 trees of at least 3-4 feet height, against the damage of 175 plants/trees including transplantation of Critically Endangered Specieis i.e., Camiphora Wighiti (Guggul) and Endagered Species i.e., Camiphora Stocksiana (Bhai Guggul).	Lumpsum							
								Sub-Total (A-2)		
A-3										
1	CESMP	Preparation of CESMP under the umbrella of ESIA and site specific conditions.	Lumpsum							
								Sub-Total (A-3)		
								Sub-Total A ((A-1) + (A-2)+(A-3))		
B	**CONSTRUCTION PHASE (22 months)**									
B-1	**Environmental Monitoring Cost (for 03 Locations)**									
1	Water Resources/ Water Quality Monitoring	Grab sampling and laboratory testing of water samples by SEPA-approved Laboratory for monitoring as per Sindh environmental quality standards.	1	3	Quarterly (7)	21				
2	Noise Levels	Noise monitoring in dBA Leq. as per Sindh environmental quality standards	1	3	Quarterly (7)	21				
3	Ambient Air Monitoring	Monitoring of CO, CO2, SOx, NOx, HC and PM2.5 PM10 by SEPA approved Laboratory as per Sindh environmental quality standards	1	3	Quarterly (7)	21				
4	Emissions Monitoring	Monitoring of point sources including but not limited to generators, construction vehicles, construction machinery for emissions such as CO, CO2, SOx, NOx, HC and PM2.5 PM10 by SEPA approved Laboratory as per Sindh environmental quality standards	1	3	Quarterly (7)	21				
5	Soil Quality Monitoring	Sampling and laboratory testing of soil for the parameters including but not limited to Total Phosphates, Nitrate, Ammonia, Heavy Metals etc.	1	3	Quarterly (7)	21				
6	Wastewater Quality Monitoring	Sampling and testing of liquid effluents for the parameters including but not limited to pH, Temeperature, DO, Turbidity, TOC, Totals P., TSS, BOD5, COD,Cd, Cu, Fe, Pb, Oil and grease, Fecal coliform etc.	1	3	Quarterly (7)	21				
								Sub-Total (B-1)		

GREATER KARACHI BULK WATER SUPPLY SCHEME K-IV AUGMENTATION WORKS

Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction

BILL 4: ESMP IMPLEMENTATION COST

Sr. No.	Parameter	Mechanism	No. of Samples	No. of Sampling Locations	Frequency	Quantity	Unit Rate (PKR)	Unit Rate (Foreign Currency____)	Amount (PKR)	Amount Foreign Currency ____
B-2	**Environmental and Social Management Cost**									
1	1- Environment Specialist (01 No.), Social Expert (01 No.), OHS Specialist (01 No.), Medical Officer (01 No.), OHS Officers (05 Nos.), Social / Community Liaison / Communication Officer (01 No.), Gender Officer (01 No.), Flagman (06 Nos.), Security Guard (06 Nos.)	Implementation and supervision of environmental, social, occupational health and safety (OHS), community health and safety, GRM and labour and gender-related requirements throughout the construction period, including monitoring compliance with the CESMP, OHS Policy and sub-plans; conducting toolbox talks and trainings; ensuring provision and use of appropriate PPE; maintaining housekeeping, hard barricading , traffic management, security arrangements and safety signage; emergency preparedness and response; first aid and medical support; stakeholder engagement, grievance management, SEA/SH and GBV prevention measures; community liaison; access control; deployment of flagmen for traffic and pedestrian safety; site security; inspection, communication material development and dissemination, GRM, monitoring, reporting, record maintenance, and implementation of corrective actions to ensure compliance with contractual, national and World Bank ESF requirements.			Monthly	22				
2	HSE Management	Implementation of Occupational Health and Safety (OHS) measures throughout the construction period, including provision and use of appropriate PPE, housekeeping, safety signages, toolbox talks, inspections, permit-to-work system, incident reporting and investigation, compliance monitoring, emergency preparedness and response, implementation of approved OHS Plans, and provision, installation, maintenance, and removal of all temporary safety arrangements including hard barricades/MS corrugated sheets, rigid barriers, bollards, traffic cones, temporary lighting for night works, Grievance Redress Mechanism (GRM) information boards and signage, deployment of safety personnel, and other measures necessary to ensure the safety of workers, road users, and nearby communities on both sides of the trench, complete in all respects as directed by the Engineer	Lumpsum							
2A	Climate-Appropriate PPE	Supply, replacement, and maintenance of appropriate PPEs (with branding & nigh-time reflection) for all workers and visitors throughout the construction period, including climate-appropriate PPE such as cooling safety helmets, breathable safety shoes, reflective jackets, gloves, safety goggles, hearing protection, and fall protection & harnessing equipment. In addition, where pipe-laying or excavation activities may expose workers to wastewater due to damage or interception of existing sewer lines, the Contractor shall provide appropriate task-specific PPE, including waterproof/rubber gloves or chemical-resistant gloves, waterproof safety boots, waterproof coveralls or protective suits, safety goggles or face shields, respiratory protection (where required), hand sanitizer, disinfectants, and adequate washing and decontamination facilities to protect workers from biological and chemical hazards and sufficient Site Lighting for Night-time Operations. The Contractor shall ensure proper use, maintenance, and timely replacement of all PPE in accordance with the approved CESMP, OHS Plan, and applicable national and international occupational health and safety standards.	Lumpsum							
2B	Trench and Public Safety Measures	Provision, installation, maintenance and removal upon completion of hard barricades, MS corrugated sheets, rigid barriers, bollards, traffic cones, warning tapes, warning signboards, warning lights, lighting arrangements, battery operated night time reflective lights , cones, flagmen, traffic marshals, trench guards and other safety personnel for protection of workers and public along both sides of trenches and work areas throughout the project alignment, complete in all respects as directed by the Engineer.	Lumpsum							

GREATER KARACHI BULK WATER SUPPLY SCHEME K-IV AUGMENTATION WORKS

Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction

BILL 4: ESMP IMPLEMENTATION COST

Sr. No.	Parameter	Mechanism	No. of Samples	No. of Sampling Locations	Frequency	Quantity	Unit Rate (PKR)	Unit Rate (Foreign Currency____)	Amount (PKR)	Amount Foreign Currency ____
2C	Heat Stress Management	Implementation of heat stress management measures including provision of potable drinking water, ORS, shaded rest areas, cooling facilities, worker awareness sessions, monitoring and emergency response arrangements during high temperature conditions.	Lumpsum							
2D	Grievance Redress Mechanism (GRM)	Establishment, operation and maintenance of worker and community grievance redress mechanisms including complaint registration, investigation, resolution, record keeping, communication and reporting.	Lumpsum							
3	Traffic Managment	Traffic management during road crossing works including a safe and efficient movement of traffic, minimizing disruptions through signage, diversions, and deployment of traffic control personnel, Traffic regulation; establishment, operation and removal Traffic regulation; establishment, operation and removal	Lumpsum							
4	Solid Waste Management	Collecting, segregating, transporting, disposing of, and managing domestic, commercial, and construction wastes (solid)			Monthly	22				
5	Liquid Waste Management	Collecting, segregating, transporting, disposing of, and managing domestic, commercial, and construction wastes (liquid)			Monthly	22				
6	Septic Tanks	Construction of septic tanks for liquid waste management	Lumpsum							
7	Training Cost	Preparation of literature and printing material such as posters & pamphlets and arranging trainer(s), and venue, etc.			Monthly	22				
8	Training Cost	Awareness and training sessions for all workers, including subcontractors, on HIV/AIDS, other communicable diseases, and the prevention of Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH). The training shall promote safe health practices, respectful workplace behavior, and gender-sensitive engagement.	Lumpsum							
9	Medical Screening of Contractor's Staff	Conducting medical screening of all staff members at the time of recruitment and annal follow up screening.	Lumpsum							
10	Noise Meter	Procuring of noise meter for ambient noise level monitoring at site as per IEC 61672-1 (Class II).	Lumpsum							
11	Emergency & rescue equipment	Provision of emergency and rescue equipmet incuding but not limited to fire extinguishers, gas detectors, breathers, ladders for access and ingress etc.	Lumpsum							
12	Water Sprinkling	Water sprinkling for dust suppression using water bowsers.	Lumpsum							
13	Potable meter for Particulate Matter	Procurement of potable handheld meter for detecting PM in the range of 0 to 1,000 µg/m³ with accuracy of ±10% to ±15% of the reading.	Lumpsum							
14	15- Vehicle and Generators Fitness Certification and Driving Licensing of heavy vehicles, cranes etc.	Ensure vehicle certification of each vehicle, machinery/equipment, Generators used for the work , licensing of each driver/operator and record maintenance of all such documentation	Lumpsum							
15	16- Security Managemen	Procurement and installation of CCTV Cameras (including night vision capabilities) with DVR covering all the active construction sites with online monitoring system.	Lumpsum							
16	Social Compliance	Conducting stakeholder consultations and maintaining a continous liaison	Lumpsum							
								Sub-Total B ((B-1) + (B-2))		
C	**Post Construction and Defect Liability PHASE (One Year Cost)**									
C-1	**Environmental Monitoring Cost**									
1	Water Resources/ Water Quality	Grab sampling and laboratory testing of water samples by SEPA-approved Laboratory for monitoring as per Sindh environmental quality standards.	1	2	Biannually	4				

GREATER KARACHI BULK WATER SUPPLY SCHEME K-IV AUGMENTATION WORKS

Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction

BILL 4: ESMP IMPLEMENTATION COST

Sr. No.	Parameter	Mechanism	No. of Samples	No. of Sampling Locations	Frequency	Quantity	Unit Rate (PKR)	Unit Rate (Foreign Currency____)	Amount (PKR)	Amount Foreign Currency ____
2	Noise Levels	Noise monitoring in dBA Leq. as per Sindh environmental quality standards	1	2	Biannually	4				
3	Ambient Air	Monitoring of CO, CO2, SOx, NOx, HC and PM2.5 PM10 by SEPA approved Laboratory as per Sindh environmental quality standards	1	2	Biannually	4				
								Sub-Total (C-1)		
C-2	**Environmental and Social Management Cost**									
1	Environment, Social, Medical and OHS specialist of contractor	Conducting and monitoring all environment, social and OHS related activities.			Monthly	12				
								Sub-Total (C-2)		
								Sub-Total C ((C-1) + (C-2))		
D	**Miscellaneous**									
1	Misc.	Misc. @ 10 of the ESMP cost.	To be claimed as per actual receipts on pro rata basis.							
								Total Bill 4 (A+B+C+D)		

GREATER KARACHI BULK WATER SUPPLY SCHEME
K-IV AUGMENTATION WORKS

Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction

BILL 5: DAY WORKS

Day Works

S.No.	Description	Unit	Quantity	Unit Rate PKR	Unit Rate Foreign Currency ____	Amount in PKR	Amount in Foreign Currency ____
I) LABOUR							
D101	Ganger (Foreman)	Hr	40				
D102	Labourer	Hr	80				
D103	Plumber	Hr	20				
D104	Mason	Hr	40				
D105	Carpenter	Hr	20				
D106	Steel Work Erector	Hr	20				
D107	Surveyor	Hr	20				
D108	Driver for vehicle up to 10 tons	Hr	40				
D109	Operator for Excavator, Dragline, shovel or crane	Hr	40				
D110	Operator for tractor, (tracked) with dozer blade or ripper	Hr	40				
D111	Welder	Hr	20				
II) MATERIAL							
D201	Cement, ordinary Portland or equivalent in bags	M.Ton	8				
D202	Sulphate resisting cement	M.Ton	8				
D203	Deform Steel reinforcing bar to BS 4449 or equivalent	M.Ton	8				
D204	Fine aggregate for concrete	Cu.m	200				
D205	Coarse aggregate	Cu.m	120				
D206	Gabion with stone fill.	Cu.m	60				
D207	M.S. Plate upto 12.7mm thick grade x 42, API	M.Ton	4				
D208	Granular Sub base	Cu.m	40				
III) CONSTRUCTIONAL PLANT							
D301	Excavator and Back Hoes (with or without hammer)						
	1. JCB-III or equivalent.	Hr	40				
	2.CAT 225 or equivalent	Hr	40				
D302	Tractor (tracked) including bull or angle dozer:						
	1. Up-to and including 150HP	Hr	40				
	2. Over 150 to 200 HP	Hr	40				
	3. Over 200 to 250 HP	Hr	40				
D303	Tractor with ripper:						
	1. Up-to and including 200HP	Hr	40				
	2. Over 200 to 250 HP	Hr	40				
D304	Wheel loader upto $3m^3$	Hr	40				
D305	Dump Truck	Hr	40				

GREATER KARACHI BULK WATER SUPPLY SCHEME
K-IV AUGMENTATION WORKS

Lot 1 : WATER TRANSMISSION MAIN FROM R1 TO Y-Junction

BILL 5: DAY WORKS

Day Works

S.No.	Description	Unit	Quantity	Unit Rate PKR	Unit Rate Foreign Currency ____	Amount in PKR	Amount in Foreign Currency ____
D306	Water Tanker	Hr	40				
D307	Hand Compactor	Hr	40				
D308	Batching Plant	Hr	40				
D309	Welding Plant	Hr	40				
D310	Generator upto 55 KVA	Hr	40				
D311	Dewatering Pumps	Hr	40				
D312	Jack Hammer	Hr	40				
D313	Compressor	Hr	40				
					Total Bill 5		