

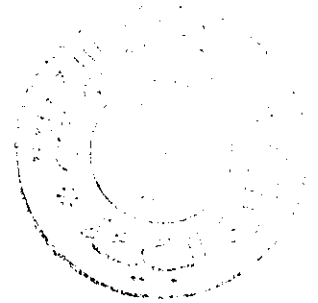
الجمهورية اللبنانية

مكتب وزير الدولة لشؤون التنمية الإدارية
مركز مشاريع ودراسات القطاع العام

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REPUBLIC OF LEBANON
MINISTRY OF THE ENVIRONMENT

Republic of Lebanon
Office of the Minister of State for Administrative Reform
Center for Public Sector Projects and Studies
(C.P.S.P.S.)



NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL COLLECTORS
AND PUMPING STATIONS

BILL OF QUANTITIES

(VOLUME III - part 1)

JULY 1994



ASSOCIATED CONSULTING ENGINEERS S.A.L
BEIRUT-LEBANON

NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST - SOUTH COASTAL COLLECTORS
AND PUMPING STATIONS

VOLUME III
BILLS OF QUANTITIES
DOCUMENT K

NORTH BEIRUT OUTFALL HEADWORKS
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VOLUME III
BILLS OF QUANTITIES

SECTION 1

PREAMBLES

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VOLUME III
BILLS OF QUANTITIES

SECTION 1
PREAMBLES

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SECTION 1

PREAMBLES

1. GENERAL

The items in these Bills of Quantities do not necessarily contain full descriptions of the required work and, when pricing the Contractor is to refer to the Drawings and the Specifications. The rates will be deemed to include for the full cost of the work as described in all Documents to provide and maintain a complete construction and installation.

The Contractor shall, during his study of the Tender, address his queries, if any, to the Employer, who will study and clarify all such queries.

Should the Contractor during his study of the Tender Documents consider that there is any shortage, error or inconsistency, especially in the Technical Documents, Bills of Quantities or Drawings which would affect the rates of his Tender or the value of the works, the Contractor must have all such points clarified by the Employer before submitting his Tender.

Tenders shall be strictly in accordance with the Tender Documents and shall not be qualified in any way. Any such qualification is liable to result in a tender which is otherwise favourable, not being considered. The Tenderer shall therefore ensure that any explanatory or descriptive matter included with his tender does not constitute a qualification to the Contract's requirements and the provisions and conditions as stipulated in the documents. The Tenderer shall not alter the text of the Bills of Quantities. Any alteration to the text inserted by the Tenderer shall be ignored and the text read shall be that as printed.

The Tenderer is required to give a rate for each item in the Bills of Quantities . Any item not priced shall be deemed to have been included for elsewhere in the rates.

The Bills of Quantities shall be priced in U.S. Dollars. All payment made to the Contractor in accordance with all certificates, accounts and similar documents relating to this Contract shall be in U.S. Dollars.

Unless otherwise described or priced separately, the Contractor shall include in his rates where required or applicable for all sundry labours such as but not limited to straight, raking and circular cutting, fitting, notching, forming or cutting holes, chasing, angles, ends, short lengths, circular work, surface treatments, contraction joints, forming key, chamfer edges, rebates, grooves, etc..., and the like as shown on the drawings or required by the specification or the execution of the Works.

The Contractor shall satisfy himself as to the meaning of every item in the Bills of Quantities. Unless otherwise described or priced separately, the rates inserted in the Bills of Quantities by the Contractor shall be deemed to cover all costs of permanent and temporary materials, accessories or works, labour, tools, plant, equipment, means of transportation, loading , off- loading, handling, storing , providing samples, testing , curing, quality control tests, power, water, surveying and setting out, providing surveying instruments and chainmen to the Engineer when requested, dewatering, shuttering, scaffoldings, admixtures, additives, laps, cuttings, waste, protecting all works, cleaning and handing over, making good any surfaces disturbed, safety precautions, things necessary for the proper construction, completion, operation and maintenance of the works before issuance of the " Certificate of Completion" of such works; for the full customs, import duties, risks liabilities , government duties, taxes and other fees, expenses and interests of money, administrative expenses, guarantees and bonds required ,

costs of preparing the tender; works in connection with measurements and final account , mobilization and demobilization, establishments charges , profit, overheads except for those described and priced separately under Section 2 of these Bills of Quantities , and for all costs of unforeseen factors or obligations set forth or implied in the Contract Documents of whatever nature , all for the completed and accepted works as called for in the Contract Documents and to the full satisfaction of the Engineer. No claim for additional payment will be approved for any error or misunderstanding by the Contractor in these respects.

When pricing these Bills of Quantities, the Contractor must be aware of all site conditions, route of the underground utilities, locations of the manholes or any other facilities or structures. The Contractor shall include in his rates where required or applicable, the extra costs for: excavating alongside, through or under existing utilities or others if encountered during execution. The rates shall also include for breaking up, removing, sealing, reconstructing and reinstating all disturbed existing facilities or others where found above site or encountered during excavation.

The Contractor is expected to take all necessary precautions to avoid damaging services and where they are interrupted to reconnect them immediately . No separate payment shall be made and the rates in the Bills of Quantities shall be deemed to cover adequately all costs . The Contractor's attention is drawn to the fact that statutory penalties may be imposed by the service authorities in addition to the cost of repair. Details of these requirements may be obtained from the respective authorities.

Location of existing utilities by actual hand digging trial pits or any other means shall be measured and paid for as an item under Section 2 Special Items of the Bills of Quantities.

Preparation of all "Shop Drawings" for existing Utilities showing location, protection details, supports maintenance in operation and any necessary relocation or reconstruction of any of these utilities or relevant structures, all to be submitted for the approval of the relevant authorities, shall be measured and paid for as an item under Section 2 Special Items of the Bills of Quantities

The Contractor should include in his price for the provision of one full set of prints for the use of the Engineer, of all the above "Shop Drawings" together with all existing utilities and services drawings as collected by the contractor from various Ministries and Authorities in the area of the works.

The accuracy of the quantities given in the Bills of Quantities is not guaranteed. Notwithstanding the quantities given in the Bills of Quantities, all works itemized therein will be subject to re-measurement. Such re-measurement will be in the unit of measurement shown and at the rate inserted against each item stated in the Bills of Quantities and payment made on the re-measurement quantities.

Any item of work included in the Bills of Quantities which is not carried out shall be omitted from the interim and final statements. Any additional item of work carried out on the Engineer's instructions shall be included in the relevant interim and final statements.

The methods of measurement used and which shall be used for re-measurement of any variations ordered in the works are as stated in the text of the items of the Bills of Quantities or as implied hereinafter.

The method of measurement stated hereinafter shall be strictly adhered to, notwithstanding any trade, local or general custom. In the event of any item not being stated in the text of items of the Bills of Quantities, then such items shall not be considered to be additional to the work and shall not be measured or paid for.

Unless otherwise stated, all measurements shall be net and shall be applicable to finished work only as completed and no allowance shall be made for wastage, working spaces, bulking, shrinkage, overlaps and the like. Unless otherwise described, the units of measurement for each item shall be as shown in the Bills of Quantities. Measurement shall be rounded up or down to the nearest whole unit and exact half units shall be rounded up. Any thickness stated in this Document shall be deemed to be the finished thickness.

Unit rates shall be mentioned in these Bills of Quantities both in figures and letters. In case of a difference between the two, prices mentioned in letters shall be used.

When the expressions "Ditto and do" appear under an item in the Bills of Quantities, they shall be deemed to mean that the said item included the whole relevant description of the preceding item together with any description written before or after the said expressions.

The rates and prices inserted by the Contractor shall apply throughout the Contract and to any additional work ordered by the Engineer.

Certain items in the Bill of Quantities are designated "provisional" in the description column to indicate that certain items and quantities for the work covered by such items are the best possible estimates that may be made in advance of the execution of the work. The provision of such facilities as described in the items so designated will be used only at written direction and discretion of the Engineer. If not used either wholly or in part, the amount not used shall be deducted from the Contract price.

Notwithstanding the provision of Clause 52(3) of the Conditions of Contract, no claim will be entertained with respect to overhead charges or any other cost that may allegedly result from the omission of all or part of the work covered by provisional items.

Maintenance and protection of traffic has been measured under Section 2 special items. The Contractors monthly rates shall include for all labour, tools materials, equipment and incidentals necessary to carry out the works in accordance with the specification.

The following definition and notations are used in the Bills of Quantities:

Definition

As described means: as described in the Specification or shown on the Drawings:

Notations

<u>Abbreviations</u>	<u>Description</u>
L.M.	Linear Meter
S.M.	Square Meter
C.M.	Cubic Meter
mm	Millimeter
cm	Centimeter
m	Meter
Kg.	Kilogram
L.S.	Lump Sum
No.	Number
Qty.	Quantity
Drg.	Drawing
Th.	Thick
Dp.	Deep
B.S.	British Standard
n.e.	Not Exceeding
Dia.	Diameter
φ	Diameter

SECTION 1
PREAMBLES

2. METHOD OF MEASUREMENT

Special Items - Section 2

Special Items have been measured as either a lump sum or by month.

Items measured by month will be paid monthly at the rates inserted in the Bill of Quantities.

Lump Sum items shall generally not be paid until all the requirements and obligations set forth in these respects are accomplished completely to the satisfaction of the Engineer.

However, where Lump Sum items involve the Contractor in periodic costs, a detailed breakdown of the Lump Sum price should be submitted with the contractor's tender to enable periodic payment to be assessed.

In the absence of such a breakdown, payment shall be made at the Engineer's discretion.

The Lump Sum amount of the maintenance and operation cost for the twelve (12) calendar months period will be paid monthly in equal parts, providing that the Contractor complies with what is mentioned above.

Excavation and Earthwork

All excavations except those for pipe or cable trenches, shall be measured in cubic meters. The volume measured shall be the volume which is to be either occupied by or vertically above any part of works to be excavated. Additional excavation necessary to provide working space or for shoring shall not be measured. The volume of such excavations shall be computed as the product of the horizontal or plan area of the base or blinding layer, and the average depth from the starting level to the underside of the base or blinding layer.

All excavations including excavation to reduce levels shall start from natural ground levels, as no measurement shall be carried out for removal of vegetable soil. Starting levels of excavations to be carried out in areas already excavated and measured shall be the bottom level of such excavation previously measured.

Trench excavation for underground utilities (pipes, cables etc.) shall be measured in linear meters stating the pipe or cable size and the average depth of trench in one meter stages.

Length of trench shall be the same length of item to be laid in, deducting all excavation measured under other items, or voids where trench is not carried out.

Width of trench shall not be considered, the minimum width shall be as stated on the drawings or described in the specification. Trenches to be used for more than one item, shall be so described stating the number and size of each utility within the trench.

The average depth of trench shall be the difference between the average natural ground level and the average invert level between two stations plus the thickness of the pipe and bedding as specified. The average natural ground level is defined by using the levels at the two stations only and the average invert level is defined by using the invert levels of the starting and ending points of the two stations. The two stations mentioned above are any structure at the starting and ending points of each pipe section (normally between two manholes) with no structure whatsoever interrupting this pipe or cable section.

Additional trench excavation in rock areas to provide greater depth of sand bed to pipes shall be deemed to be included in the rates for excavation.

In addition to what is stated before in these preambles and in the description of the items, the rates of excavation items shall include but not be limited to :

- Excavating in any type of ground, including rock excavation, structural fill, contaminated fill, clay or others..
- Excavating by hand or machine.
- Dewatering operations necessary for keeping excavation free from water whether rain water, sea water or any other sources.
- Levelling or grading and compacting bottom of excavations.
- All necessary double handling of excavated materials.
- Trimming or planking and strutting sides, bracing, driving steel sheeting or piling and any other temporary or permanent supports. to sides of excavation.
- Selecting excavated materials, backfilling and compacting.
- Removal of surplus materials and storage of selected backfill including all labour and transport cost involved in removing such material to an approved storage area away from the site and it's subsequent re-transport back to the site.
- The additional excavation necessary to provide working space or shoring.
- Locating, exposing by hand digging or special equipment, supporting, protecting and maintaining existing services and utilities.
- Making good all work disturbed.
- Temporary supports to roads or structure as required by the Engineer.
- Any backfilling, concrete fill or other works required to be carried out to excavations as a result of excavations beyond the specified line and level.
- Working above or under, alongside, across or near existing utilities and utility structures including pipes, cables, ducts, duct banks, manholes, septic tanks, chambers, services, valves, thrust blocks, drainage channels, gully inlets, and the like, and maintaining existing services in operation. Repair and reinstatement of all utilities affected by the excavation, payment of fines resulting from damage to any utility, temporary support of any utility if deemed necessary, maintaining existing services in operation and all necessary works in connection with the protection and safety of adjacent structures, utilities and services, and all other incidental works.
- Providing and operating all pump and pump stations for overpumping and flow diversion of sewage as specified.
- Reinstatement of all surfaces damaged by traffic due to the Works.

Exploratory Pits and Trenches

The excavation of exploratory pits and trenches by the Contractor to determine the location and condition of existing services and utilities has been measured as an item under Section 2 Special Items. The Contractor shall allow in his costs for all reinstatement of surfaces damaged or removed as a result of these exploratory trenches.

At the discretion of the Engineer, the Contractor may be requested in writing to undertake certain exploratory excavations at specified locations in addition to those required above. These shall be paid for separately at the rates indicated in section 18 of the bills of quantities.

Excavation of Poor Soil Below Formation Level

Excavation of poor soil below the formation level of structures, pipework, culverts etc. and backfilling with approved material shall be measured net in cubic meters stating the nature of the backfill material. Rates shall include for all additional earthwork supports of any nature, disposal of excavated materials and all other works listed under "Excavation and Earthwork" of these Preambles.

Soil Stabilisation

Soil stabilisation shall be measured net in Square meters stating the maximum depth in five meter stages to which the stabilisation is required.

Rates shall include for all costs in respect of the Contractor's chosen method as detailed in the specification.

Fill to Make Up Levels

All fill work to make up levels shall be measured net in cubic meters. Measured volume shall be based on the dimensions as shown on the drawings or ordered by the Engineer.

Fill work to make up levels using surplus excavated materials shall be measured and priced separately to that using imported selected fill.

The rates of fill work using imported selected fill shall include for:

- Finding approved borrow pit.
- Excavating and importing materials.
- Spreading and compacting in layers.

Aggregate Sub-base

Coarse aggregate sub-base under manholes where poor soil conditions are encountered shall be measured net in square meters stating the thickness.

Measured area shall be based on the dimensions as shown on the drawings or ordered by the Engineer.

In addition to what is stated before in these preambles, the rates shall include for spreading and compacting to any depth.

Surface Restoration

Breaking up existing paving and reinstating shall be measured separately in square meters stating the type of paving to be reinstated. The area to be reinstated shall extend to all surfaces broken up or disturbed and in the opinion of the Engineer required to be reinstated. The area to be measured shall be limited to the minimum width of trench as requested in the drawings and to the area occupied by any manhole, chamber or other structure below the ground. No payment shall be made for any area excavated to provide working space or over broken for shoring or other purposes.

In addition to what is stated above, and in the description of the item, the rate shall include for breaking up to any thickness including bases and sub-bases, and for cutting and trimming edges as necessary.

Removal and restoration of concrete kerbing shall be measured in Linear meters. Rates shall include for the removal of all broken and loose kerbstones, all foundations, haunches and rubble, all restoration works to existing kerbstones prior to re-use, removal of debris to an approved dumping area, storage of kerbstones for re-use, and re-laying kerbings with new or restored kerbstones as directed by the Engineer including new plain concrete

foundation and haunching, expansion joints and bituminous emulsion tack coat as required.

Removal and restoration of street lighting poles shall be enumerated. Rates shall include for all co-ordination with the appropriate authorities, removal of existing pole and foundations and disposal of debris to an approved dumping area, storage and re-fixing of lighting poles including new concrete foundations and all temporary and permanent associated electrical works.

Removal and restoration of concrete planters and other street furniture shall be enumerated. Rates shall include for carefully removing furniture to an approved storage area, all necessary renovation works and re-fixing furniture in position.

Removal and restoration of landscaped areas such as shrubbery, planting areas and ground cover shall be measured in square meters. Rates shall include for reinstatement of the landscape areas to their original condition or better as directed by the Engineer, together with all necessary watering, fertilization and maintenance of areas until firmly established.

Removal and restoration of trees shall be enumerated. Rates shall include for the removal and preservation of existing trees including lifting, transplanting, storing, watering, maintaining and replanting in permanent position or the replacement of all trees removed with new semi-mature trees of the same species removed together with all necessary topsoil, preparation, watering, fertilization and maintenance until firmly established.

Pipework

Pipes shall generally be measured net in linear meters over all fittings along the center line of pipe for each diameter and type separately. The length of pipe shall be measured net between the external faces of the structures at both ends.

Back drop pipes shall be measured in linear meters and quantities shall be added to the quantity of pipes of same size and type.

In addition to what is stated before in these preambles, or in the descriptions of the items, the rates of the pipes shall include wherever required for:

- Laying in trench at any depth,

- Calibrating and preparing ends for jointing and jointing materials.
- All fittings such as but not limited to, elbows, bends, tees, branches, couplings, flanges, gaskets, adaptors and the like.
- Coatings and linings whether done in the manufacture or on site.
- Providing any temporary or permanent supports, fixing brackets and accessories
- Thrust blocks as required.
- Connecting pipes to existing manholes or pipes, including breaking up, pipe sleeve or adaptor if required or others, mortar, thrust blocks and making good.
- Temporary plugging ends.
- Additional works at backdrop pipes.
- Testing of pipelines in accordance with the Specification.

Rates for G.R.P pipes shall be deemed to include for all costs in respect of any alternative manufacturing method proposed by the contractor in accordance with the specification .
No additional costs for such alternatives will be entertained

Culverts and Channels

Culverts and channels shall be measured net in linear meters along the center line for each size separately. The length of culvert or channel shall be measured net between the external faces of the structures at both ends.

In addition to what is stated before in these preambles, and in the descriptions of the items, the rates of the culverts shall include wherever required for:

- Constructing in trench at any depth.
- Building in ends to manholes, culverts or other structures and making good.
- Inserts, blots, waterstops and the like.
- Coating and linings.
- Construction Joints.
- Expansion Joints.
- Reinforcement.
- All Kinds of shuttering.
- Admixtures and additives.
- Surface treatments .
- Sulphate resistant cement

The rates of back drop pipes jointed directly to the culverts shall include for:

- Additional earthwork.
- Concrete work and brick dam.
- Pipes and fittings with all necessary labour, coating and lining
- Building in pipe into concrete wall.
- Jointing pipe to existing live line

Pipe Bedding

Pipe beds, haunches, cradles and surrounds shall be measured net in linear meters, for each pipe diameter separately stating the type of material to be used. Length shall be to the same length of pipe surrounded.

Beds, haunches, cradles and surrounds to multiple pipes shall be so described stating the number and size of each pipe within the trench.

Thickness of beds, haunches, cradles and surrounds shall be as shown on the drawings. Bed shall be considered 150 mm only for all pipes. Additional bedding under pipes at rocky areas shall be deemed to be included in the contractor's rates.

In addition to what is stated above, the rates shall include for spreading and compacting to any depth.

The Contractor's rates for concrete beds, haunches, cradles and surrounds shall include for the complete construction including materials, concrete formwork, reinforcement, fabric filter material, etc, and any additional excavation in the trench required for the bedding or surround. The rates for concrete beds, haunches, cradles and surrounds shall include for compressible impregnated fiberboard incorporated at pipe joints extending to full height and width of the concrete, and all concrete supports (minimum two per pipe length).

Utilities

The Contractor shall include in his rates for maintaining existing services in operation and all necessary works in connection with the protection and safety of adjacent structures, utilities and services, all as detailed under Section 1- General of these preambles.

Breaking of concrete surround to existing pipe in trench shall be paid for as an extra over item.

Temporary and Permanent Relocation of Existing Utilities

Temporary and permanent relocation of existing utilities shall be measured net in linear meters. The work will be executed solely at the direction of the Engineer. The rates for relocation of existing utilities are shown as provisional items in the Bills of Quantities. The rates for these items shall allow for all work and the provision of materials including plugging flow and temporary works to maintain services in operation, excavation, disposal of excavated material, upholding sides of excavation, keeping excavation free from water, protecting and supporting all existing utilities, dismantling pipe work, cables, and the like, laying new ones in position as per the requirements and specifications of the various service authorities, reconnecting services into operation, testing, disinfecting, backfilling, and dismantling temporary diversion works and reinstating to original route as appropriate and making good all surfaces disturbed.

Safety in Sewers and Sanitary Structures

No separate payment shall be made for this item, the cost of which shall be deemed to be included in the rates for other work where safety procedures and equipment are required.

Highway Undercrossing

Rates for highway undercrossings shall be based upon a construction method proposed by the contractor and submitted with his tender.

The rates for bored and cased highway undercrossing pipe installation shall include excavation in any type of soil including rock, and shall include full compensation for furnishing all labour, materials, tools and equipment, necessary boreholes for soil investigation, and for doing all work involved in making boring and steel casing, excavation, dewatering, furnishing, installing, backfilling and maintaining steel casing, pressure grouting around steel casing, furnishing and installing sewer pipe inside casing and filling with sand, sealing end of casing, installing and demolishing of all start and end pits for the tunneling operation, backfilling all excavations, supporting and

protecting all utilities whether under or above ground, all surface restoration work, and any repair of damages of any nature due to the Works.

Alternatively, the contractor may submit rates for micro tunneling to form highway undercrossings. Similarly such rates shall include for all cost in connection with this method and all protection and reinstatement as required.

Measurement shall be by linear meter of each pipe diameter in each range. The length shall be from the face of starting manhole to the face of receiving manhole, on both sides of the highway where the undercrossing occurs.

Sewer Pipeline and Manholes Cleaning

Sewer pipeline cleaning shall be measured in linear meters stating the diameter of pipeline to be cleaned.

Manhole cleaning shall be enumerated stating the overall internal dimensions of the manhole to be cleaned.

Rates for sewer pipeline and manhole cleaning shall include for all cleaning works as required by the Specification, all overpumping and flow diversion of existing sewage and disposal of all sludge, dirt, sand, rocks, grease and other solid or semi-solid materials resulting from the cleaning operations to an approved dumping area at the end of each working day.

CCTV Inspection

CCTV inspection of new and existing sewer pipelines shall be measured in linear meters.

Rates shall include for all the requirements of the relevant section of the Specification.

Rates for CCTV inspection of existing sewer pipelines shall include for all necessary overpumping and flow diversion of existing sewage to allow inspection to proceed.

Renovation of Existing Manholes

Renovation works to existing manholes shall be enumerated stating the type of renovation works to be carried out.

Rates shall include for all the requirements of the relevant Section of the specification.

Overpumping and Flow Diversion

No separate payment shall be made for overpumping or flow diversion, including the furnishing and operation of pumps, soundproofing and noise control, the cost of which will be included in the rates for pipe laying, renovation work, construction of manholes or chambers, and associated work as appropriate. It shall include dealing with any flow arising from any source and all overpumping and flow diversion operation of the sewage flow including all plant and labour, pumps, pumping station pressure lines, power generators, stand by pumps, 24-hour attendant, and noise abatement for the duration of the Works.

The cost shall include all necessary protection measures for pressure lines from traffic either by raised, protective, steel covers or by actually excavating and burying lines in reservations, sidewalks, street crossings, all as approved by the Engineer. The work shall also cover all temporary structures needed to install the pumps, pumping stations and pressure lines. Also the work shall include for all excavation, backfilling and reinstatement of all surfaces damaged as a result of these operations.

Abandonment of Pipes and Manholes

The rates for grout filling of pipes on lines directed by the Engineer to be abandoned shall be paid for separately in accordance with the rate shown in the Bill of Quantities. Measurement shall be by the meter run for pipes measured by the horizontal distance between face of manholes.

Concrete Work

In general concrete work shall be measured net as executed, but no deductions shall be made for the following:

- Volume of any steel, bolts, inserts and the like embedded in the concrete.
- Voids not exceeding 0.05 square meter in works given in square meters.
- Voids not exceeding 0.05 cubic meter in works given in cubic meters.

All measurements shall be based on the dimensions as shown on the drawings or ordered by the Engineer.

Works measured in square meters shall be classified according to the thickness and type of concrete.

Quantity of columns shall be measured from top of foundation base or footing up to the soffits of beams or suspended slabs only.

Quantity of beams shall be measured based on the dimensions of the beam section under floor slab or suspended slab.

Quantity of parapets shall be measured from top of roof slab.

Concrete encasement shall be measured net in linear meters, for each pipe diameter separately, length shall be to the same length of pipe encased by concrete.

Quantity of suspended slabs shall be measured based on the internal dimensions of the walls on which slabs are laid.

Quantity of walls shall be measured based on the center line, from the top of floor slab up to the top of suspended slab.

In addition to what is stated before in these preambles, and in the descriptions of the items, the rates of concrete work shall include wherever required for:

- All kind of shuttering, including fair faced work
- Admixtures and additives
- Embedded waterstops, bolts inserts, puddle flanges and the like.

- Surface treatments
- All sundry labour and builder's work in connection with Electro-Mechanical works.
- Sulphate resistant cement
- Complete work of pipe section built into concrete walls.

Steel Reinforcement

Unless otherwise stated in the description of the item, steel bar reinforcement shall be measured separately stating the grade. All bends, hooks, overlaps and splices shall be measured if such are shown on the Drawings.

Piling

Piling shall be measured in linear meter for each pile type separate. Each pile shoe and head shall be enumerated as extra over piling quantity, classified according to the pile type.

The rates of piling items shall include for all earthworks, concrete work, reinforcement, driving piles by special equipment and dewatering if necessary.

The rate of pile shoe and head shall include for cutting off pile to the required levels, preparing steel to form pile head and pile shoe.

Blockwork

Unless otherwise described, blockwork shall be measured net in square meters, stating the thickness and type of wall. Double skin blockwall shall be measured once stating the composition of the wall. Deductions not exceeding 0.10 square meter for voids, openings and courses displaced by other materials shall not be made.

In addition to what is stated before in these preambles and in the description of the items, the rates shall include if required for all incidental labour, admixtures, wall ties, raking out joints, flushing up against slabs and beams, builder's work in connection with Electro-Mechanical works.

Waterproofing and Roofing

All quantities of waterproofing, protective coating , PVC Lining and roofing, shall be measured net in square meters. Only forming roof skirting shall be measured in linear meters.

Measured area shall be the actual covered area to the dimensions as shown on the drawings or ordered by the Engineer, but deductions not exceeding 0.50 square meter for openings, voids or surfaces not covered shall not be made.

Reinforced fiberglass plastic roof cover for each lift station shall be measured separately as one complete item involving all frame work, bracing, covers, fixing accessories, water- proofing and sealing, making good and others as described.

In addition to what is stated before in these preambles and in the descriptions of the items, the rates shall include if required for laying level, to falls or cross-falls, work in narrow width, small and isolated areas, surface preparation, priming, coating adhesives, bonding agents, mastics, reglets, flashings, reinforcing edges, laps, passings and intersections, working around pipes and openings and turning into grooves, forms of bays and for all sundry labour.

Drainage and Plumbing

Internal drainage and plumbing pipework shall generally be measured net in linear meters over all fittings along the center line of pipe for each diameter and type separately. Items not described and priced separately in these Bills of Quantities shall not be measured.

In addition to what is stated before in these preambles or in the descriptions of the items, the rates shall include if required for all fittings including tees, elbows, bends, unions, flanges, gaskets, couplings, reducers and the like if not measured separately, fixing accessories, coating and painting, builders work in connection with drainage and plumbing, wrapping, insulation materials and labour etc.



Doors, Windows and Louvres

Doors, windows and louvres shall be enumerated stating each type and size separately. In addition to what is stated before in these preambles and in the description of the items, the rates shall include if required for all frames, architraves, anchors, ironmongery, fixing accessories, built in louvres, fixed panels, glass, sealant, mastics, weather stripping, hooks, operating mechanism and painting etc.

Metal Works

The quantities of all items billed in this section shall be measured net to the dimensions shown on the drawings or ordered by the Engineer.

Measurement of handrails and balustrades given in Linear meters shall be based on the length of the top rail including balusters.

In addition to what is stated before in these preambles and in the descriptions of the items, the rates shall include if required for all fixing, labour and accessories, frames, grouting, making good, coating and painting etc.

Sanitary Fixtures and Accessories

Sanitary fixtures and accessories shall be enumerated. Items built into cupboards shall be enumerated complete with their cupboards.

In addition to what is stated before in these preambles and in the descriptions of the items, the rates shall include if required for all fittings and related accessories, assembling and mounting, connections to water, soil and waste pipes, flexible hoses, cupboards, cut-off valves, mixers, taps, strainers, traps and for all fittings necessary to complete each item and not described and priced separately.

Floor, Wall and Ceiling Finishings

All floors, walls and ceilings finishings shall be measured net as the actual area covered. No distinction shall be made according to type of base, location or height. Quantities of items measured in square meters shall be based on the dimensions as shown on the

drawings or ordered by the Engineer, but deductions not exceeding 0.50 square meter for openings, voids and surfaces not covered shall not be made.

All painting not described and priced separately shall be included in the items on which they are applied.

All painting applied on items billed under Mechanical and Electrical sections shall be deemed to be included in the items on which they are applied. This clause supersedes any other understanding or statement if found in the Contract Documents.

No measurement shall be made for any painting work applied on items for repairing, curing or protecting purposes, in other words any work to be carried out on site and which should have been done in the manufacture or for removal of corrosion, stain or others, shall not be paid for.

In addition to what is stated before in these preambles or in the descriptions of the items, the rates shall include if required for all surface preparation, working in any width or area, for jointing to other painting colours or finishing materials, putty filler, stopping, priming undercoats and finishing coats, laying level or to falls, polishing, admixtures, forms for bays, wire mesh, grouting, making good, surface treatments and for all sundry labour.

External Works

Method of measurement for external works shall be as stated and described in the various items of works billed under this section and according to the method of measurement of works stated before in these preambles if applicable. All quantities shall be measured net to the dimensions as described.

Asphaltic courses shall be measured in square meters for each type and thickness separately.

Prime coat shall be included in the asphaltic binder course. Tack coats shall be measured separately in square meters and equal to the measurable area of the bituminous wearing course.

Curbstones shall be measured in linear meters.

Concrete work and earthworks shall be measured as stated before in these preambles.

Excavation for manholes shall be measured in accordance with the relevant section of these preambles.

Construction of manholes shall be enumerated stating the overall internal dimensions and the depth to under side of base slab. Depth shall be stated in 0.5m stages.

The contractor's rates for manholes shall be deemed to include for all work and materials necessary to construct the manholes complete, including all concrete works, formwork, reinforcement, benchings, surface treatments, grading concrete bricks, cast iron steps and manhole covers and frames all as detailed on drawings and in accordance with the specification.

The contractor's rates for manholes shall be deemed to include all necessary working around existing pipelines and all associated protection as required.

Internal and external waterproofing to manholes shall be measured separately in square meters. The contractor's rates shall include for all preparatory work necessary for each type of waterproofing specified.

Fence work and boundary walls shall be measured net in linear meter, deducting void sections, or sections occupied by gates or others. Gates shall be enumerated.

In addition to what is stated before in these preambles and in the descriptions of the items, the rates of the asphaltic courses shall include for all preparation of sub-grade, spreading and compacting to falls and cross-falls, working into recesses and around structures including manual compacting, and for providing tapered edges.

The rates of curbstone shall include for all earthwork, concrete work, form work and reinforcement.

The rates of concrete work and earthworks shall include all details as stated before in these preambles.

The rates of boundary wall shall include all earthworks, concrete work, blockwork, and all works required to complete this work.

The rates of fence work shall include for earthwork, concrete work, posts, fencing mesh, braces, rails, barbed wire, accessories, assembling, erecting, cutting, painting high level areas, grading, levelling, and compacting along the fence center line.

Rates of gates shall include for all necessary components assembling, hanging, painting and fitting complete.

Mechanical Works

All items of plant and equipment and all other works measured in Number, Set, Unit or Lump Sum, shall be deemed to include all works and accessories as supplied by the manufacturer and as detailed in the Specification and on drawings. No separate measurement shall be made for any work required in order to complete the system as described.

All pipes and fittings shall be included in the rates of the items on which they are fixed except for those described and priced separately in these Bills of Quantities. Painting and coatings to pipework and fittings shall be deemed to be included in the Contractors rates and prices.

The Contractor's rates for mechanical works shall include for the design and construction or supply and fixing of all machine bases, grouting, steel frames or benches and all other fixing supports as shown on the drawings or as required by the equipment manufacturer's, all to the satisfaction of the Engineer.

The Contractor's rates and prices shall be deemed to include the taking and checking of all measurements to ensure that his offered items of equipment can be accommodated within the structures as designed and any adjustment of structure or room size required in order to accommodate such equipment.

All costs in connection with checking of information and values given in the Tender Documents for items of equipment, pipes and the like shall be deemed to be included in the Contractor's rates and prices.

All costs in respect of flow modeling tests, as required by the Specification, shall be included in the Contractor's rates and prices

The sum included for the provision of spare parts, as detailed in the Particular Specification, shall include for the complete cost and profit of the items delivered to the Employer. A Complete list of all spare parts included shall be submitted with the Contractor's tender

In addition to what is stated before in these preambles and in the descriptions of the items, the rates shall include for, wherever required, all materials and fixing accessories, assembling, mounting and fixing all works as supplied by the manufacturer, all electrical works not billed separately in the Bills of Quantities, painting, coating, couplings, flanges, gaskets, T key handle for valves, bolts, nuts, anchors, brackets and the like, grouting, making good, etc...

All testing and commissioning of mechanical works is deemed to be included in the Contractor's rates and prices.

The Contractor in addition to the spare parts listed in the specifications should provide with his tender on separate sheets, complete lists of the spare parts sufficient for 24 months operation of the works as recommended by the suppliers with their relative prices delivered to the Employer.

Electrical Works

Electrical equipment shall be measured in complete items unless otherwise stated. The rates shall include the supplying of all materials, fixing, terminating, connecting, accessories, etc.

Cables shall be measured in linear meters from the boards to the equipment or from the main board to submain or from board to board etc.

The rates of cables inside building shall include cable trays and ladders, sleeves, pipes, conduits, boxes, and all accessories etc.

The rates of cables outside the buildings or interconnecting buildings shall include excavation, backfilling, laying in trenches, laying in ducts and terminating in boards or equipment. Ducts are measured separately.

Rates for ducts shall include excavation, sand bed and surround, protective tiles, ducts, pipes and backfilling with approved material all as detailed in the specification and on drawings

Lighting points, lighting fittings, lighting switches, disconnecting switches, MCC's, MDB's, submains, panel boards, self powered emergency exit signs, sockets, time switch panel, local starters, lock-off switches, level switches, wall fan outlets, telephone points and outdoor lighting fittings are enumerated.

Rates of lighting points shall include all conduits, boxes, wires and accessories to provide power from the lighting panels to the points all complete as described.

Rates of lighting switches shall include boxes, device, device plate, wires, conduits and necessary accessories all complete as described.

Rates of sockets shall include all conduits, boxes, wires, socket proper, and accessories to provide power from the panel board to sockets all complete as described.

The rates of lighting fittings shall include all internal wiring within the fitting, control gears, anti-vibration mountings, tubes, lamps, lamp holders, fixing etc. all complete as described.

Rates of outdoor lighting fitting shall include pole top lantern, lamp, lamp holder, control gear, connection box, all necessary accessories, pit excavation, concrete foundation and pole painting all complete as described.

The rates of disconnecting switches shall include all necessary wires, conduits boxes etc. If the isolating switches are fed by cables, cables shall be measured separately.

The rates of earthing systems shall include all materials, fixing and terminating, earth pits, rods, conductor from boards to rod, connectors, excavation etc. all complete as

described. The bare copper conductor interconnecting the several earth pits is measured separately.

Rates of Motor Control Centers (MCC's) shall include the board installed with all starters, controls, control units, selector switches, transformers, complete as described, excluding data acquisition system & supervisory control panel which shall be measured separately.

The rates for Data Acquisition system shall include , supervisory control panel (SCP), installation within MCC, interfaces, connections to MCC's & to external sensors, detectors, switches, telephone lines, etc....

The rates of Main Distribution Boards, submains and panel boards shall include the board installed complete as described.

The rates of lock-off switches, local starters, alarms, etc. shall include all conduits, wires, boxes etc. complete as described.

The rates of self powered emergency exit signs shall include all wiring, conduits, accessories, etc. complete as described.

The rates for danger detection system shall include all conduits, wiring, outlets, etc. , per unit price for components shown on drawings, & per lump sum for systems not shown on plans but described in schedules.

The rates of telephone points shall include all conduits, wiring, wire boxes, etc. inside the building complete as described.

The telephone boards (PABX) and all cables interconnecting buildings including trenching, laying, backfilling, terminating etc. are itemized.

The rates of Generators include the generators completely installed with main breakers, accessories, controls, control panel, day fuel tanks etc. to give a complete working generating station as described.

The substations shall include all transformers, bus bars, high tension cells completely equipped with bus bar couplers, H.T. breakers, H.T. switches, L.T. air breakers inside substation, transfer switches and H.T. interconnecting cabling are itemized all complete as described.

H.T. cable interconnecting substations One & Two together with L.T. cables are measured separately.

The sum included for the provision of spare parts, as detailed in the Particular Specification, shall include for the complete cost and profit of the items delivered to the Employer. A Complete list of all spare parts included shall be submitted with the Contractor's tender

All testing and commissioning of Electrical works is deemed to be included in the Contractor's rates and prices.

NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST - SOUTH COASTAL COLLECTORS
AND PUMPING STATIONS

SECTION 1

PREAMBLES

3. SUMMARY

AMOUNT U.S.S

- 1 - General
- 2 - Method of Maesurement.....

TOTAL CARRIED TO GENERAL SUMMARY

NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST - SOUTH COASTAL COLLECTORS
AND PUMPING STATIONS

VOLUME III
BILLS OF QUANTITIES

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NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL COLLECTORS
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VOLUME III
BILLS OF QUANTITIES

SECTION 2

SPECIAL ITEMS

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 2- SPECIAL ITEMS**

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	All insurances required by the Contract Documents. Per Lump Sum U.S. Dollars.	L.S	1		350 000
B	Supply, install, furnish, equip and remove Engineers Main site office including all supplies, and telephones all as detailed in the Specification. Per Lump Sum U.S. Dollars.	L.S	1		140 000
C	Maintenance of Engineers main site office including all supplies, and telephones for the duration of the Contract. Per Month U.S. Dollars	MNTH	30	2600	78 000
D	Supply, install, furnish, equip and remove Engineers Second and Third site offices including all supplies, and telephones all as detailed in the Specification. Per Lump Sum U.S. Dollars.	L.S	1		77 500
E	Maintenance of Engineers Second and Third site offices including all supplies, and telephones for the duration of the Contract. Per Month of U.S. Dollars	MNTH	30	1750	52 500
K2/1 CARRIED TO COLLECTION					698 000

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 2- SPECIAL ITEMS**

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Allow for the cost of providing to the Engineer all periodic reports and site photographs all in accordance with the requirements of the specification. Per Lump Sum U.S. Dollars.	L.S	1		1500
B	Allow for all costs in respect of the training of the Employers personnel all in accordance with the requirements of the Conditions of Contract and Specification. Per Lump Sum U.S. Dollars.	L.S	1		75000
C	Allow for the investigation and location of all existing services and utilities on under or over the site by hand digging trial pits or by any other means necessary, all as detailed in the Specification and as required by the Engineer. Per Lump Sum U.S. Dollars.	L.S	1		75000
D	Allow for the preparation and provision of all "Shop Drawings" showing the location of existing services and utilities together with protection details and the like all in accordance with the Specification Per Lump Sum U.S. Dollars.	L.S	1		5000
K2/2 CARRIED TO COLLECTION					156500

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 2- SPECIAL ITEMS**

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A.	Allow for all costs in respect of traffic control requirements and the maintenance of all public and private roads for the duration of the Contract all in accordance with the specification.				
	Per Month U.S. Dollars.	MNTH	30	6650	199500
B.	Allow for all costs in respect of full computer based surge analysis of the proposed pressure main and the existing outfall pipe all in accordance with the Specification.				
	Per Lump Sum U.S. Dollars.	L.S	1		20000
C.	Allow for the provision of all working (shop) drawings, as built drawings and operating manuals all as detailed in the Specification.				
	Per Lump Sum U.S. Dollars.	L.S	1		50000
D.	Allow for all maintenance and operation costs for the whole 12 months maintenance period all in accordance with the requirements of the Conditions of Contract and Specification.				
	Per Lump Sum U.S. Dollars.	L.S	1		1600000
K2/3 CARRIED TO COLLECTION					1869500

**NORTH BEIRUT OUTFALL HEADWORKS
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**VOLUME III BILLS OF QUANTITIES
SECTION 2- SPECIAL ITEMS**

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p>Include the Provisional Sum of \$75000 in respect of the provision of surge protection equipment all in accordance with the Specification.</p> <p>Per Lump Sum U.S. Dollars.</p> <p>.....</p> <p>.....</p> <p>CARRIED TO COLLECTION</p> <p><u>COLLECTION</u></p> <p><u>PAGE</u></p> <p>K2/1</p> <p>K2/2</p> <p>K2/3</p> <p>K2/4</p> <p>TOTAL CARRIED TO GENERAL SUMMARY</p>	L.S	1		<p>75,000.00</p> <hr/> <p>75,000</p> <hr/> <p>698,000</p> <p>156,500</p> <p>1,869,500</p> <p>75,000</p> <hr/> <p>2,799,000</p> <hr/>
K2/4					

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL COLLECTORS
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VOLUME III
BILLS OF QUANTITIES

SECTION 3

SEWER PIPES

PIPEWORK

Note : - Various options exist with regard to the pipework installations as follows .

- a) Pipes of diameter up to and including 600mm may be either G.R.P or class 18 atmosphere asbestos cement
- b) Pipes of diameter between 600mm and 900mm shall be G.R.P
- c) Pipes of diameter 900mm and above may be either G.R.P. or reinforced concrete with PVC Linings
- d) All pressure lines are to be G.R.P.

Accordingly, the Pipework and Sundries sections for Lines A,E,G,S and S2 have been divided into two Options (Lines C and S-G are pressure Lines).

Option 1 - All pipes to be G.R.P

Option 2 - Pipes of diameter up to and including 600mm to be asbestos cement, pipes of diameter between 600mm and 900mm to be G.R.P. and pipes of 900mm diameter and above to be reinforced concrete with PVC Liner

The Contractor is to price for both of these options but only the cost of his preferred option is to be carried forward to the summary of this section.

The Engineer reserves the right to instruct either of these options to be adopted and also to instruct the use of either G.R.P or asbestos cement for pipes of diameter up to and including 600mm.

In the event of the Engineer exercising the above right then the Contractor's tender will be adjusted accordingly using the Contractor's rates as appropriate.

NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL COLLECTORS
AND PUMPING STATIONS

SECTION 3

SEWER PIPES

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NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL COLLECTORS
AND PUMPING STATIONS

LINE A

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**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

I. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>EARTHWORK</u>				
	<u>Trench work including all necessary excavation in all kinds of materials, grading or levelling and compacing or trimming bottom of excavation, planking and strutting or trimming sides, dewatering excavation of all water sources, backfilling and compacting in layers up to the formation levels (including extra fill at ground level if required), removing surplus excavated materials from site, all as described.</u>				
A	Trench for pipes 200 mm diameter, average depth over 1m but n.e. 2 m Per Linear Meter U.S. Dollars.	L.M	2	23	46
B	Ditto, 200 mm diameter, average depth over 2m but n.e. 3 m Per Linear Meter U.S. Dollars.	L.M	3	65	195
C	Ditto, 200 mm diameter, average depth over 3m but n.e. 4 m Per Linear Meter U.S. Dollars.	L.M	7	197	1379
D	Ditto, 300 mm diameter, average depth over 1m but n.e. 2m Per Linear Meter U.S. Dollars.	L.M	2	25	50
K3/1-2 CARRIED TO COLLECTION					1670

**NORTH BEIRUT OUTFALL HEADWORKS
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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICES \$
A	Trench for pipes 1400mm diameter, average depth over 3m but n.e. 4m. Per Linear Meter U.S. Dollars.	L.M	60	246	14760
B	Ditto 1400mm diameter, average depth over 4m but n.e. 5m. Per Linear Meter U.S. Dollars.	L.M	378	320	120960
C	Ditto 1400mm diameter, average depth over 5m but n.e. 6m Per Linear Meter U.S. Dollars.	L.M	69	448	30912
D	Ditto 1500mm diameter, average depth over 3m but n.e. 4m. Per Linear Meter U.S. Dollars.	L.M	385	249	95865
E	Ditto 1500mm diameter, average depth over 4m but n.e. 5m. Per Linear Meter U.S. Dollars.	L.M	421	324	136404
F	Ditto 1500mm diameter, average depth over 5m but n.e. 6m Per Linear Meter U.S. Dollars.	L.M	67	454	30418
K3/1-6		CARRIED TO COLLECTION			429319

NORTH BEIRUT OUTFALL HEADWORKS
 NORTH AND WEST-SOUTH COASTAL
 COLLECTORS AND PUMPING STATIONS

VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICES S
	<u>EARTHWORK</u>				
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	<u>PAGE</u>				
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	K3/1-4		172081
	K3/1-5		877532
	K3/1-6		429319
	K3/1-7		450347
	K3/1-8		CARRIED TO SUMMARY		2 071 787

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>OPTION 1</u>				
	<u>G.R.P pipes; including all necessary fittings, jointing all necessary fittings, jointing materials and fixing accessories, all as described</u>				
A	Pipes 200mm diameter.				
	Per Linear Meter U.S. Dollars	L.M	12	54	648
B	Pipes 300mm diameter.				
	Per Linear Meter U.S. Dollars.	L.M	4	68	272
C	Pipes 400mm diameter.				
	Per Linear Meter U.S. Dollars	L.M	402	96	38592
D	Pipes 500 mm diameter.				
	Per Linear Meter U.S. Dollars	L.M	335	155	51925
E	Pipes 600 mm diameter.				
	Per Linear Meter U.S. Dollars	L.M	716	164	117424
K3/1-9 CARRIED TO COLLECTION					208861

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Pipes 900 mm diameter. Per Linear Meter U.S. Dollars	L.M	293	279	81747
B	Pipes 1000 mm diameter. Per Linear Meter U.S. Dollars	L.M	2794	316	882904
C	Pipes 1200 mm diameter. Per Linear Meter U.S. Dollars	L.M	536	419	224584
D	Pipes 1400 mm diameter. Per Linear Meter U.S. Dollars	L.M	507	533	270231
E	Pipes 1500 mm diameter. Per Linear Meter U.S. Dollars	L.M	873	611	533403
F	Pipes 1600 mm diameter. Per Linear Meter U.S. Dollars	L.M	571	688	392848
G	Pipes 1800 mm diameter. Per Linear Meter U.S. Dollars	L.M	793	844	669292
K3/I-10 CARRIED TO COLLECTION					3055009

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>OPTION 1</u> <u>SUNDRIES</u> <u>Pipe Bedding</u> 50 mm thick concrete blinding bed class C, laid in trenches to receive concrete pipe encasement. Per Square Meter U.S. Dollars	S.M	886	3	2658
B	Concrete encasement class A for pipes 350 mm diameter, including all necessary reinforcement Per Linear Meter U.S. Dollars	L.M	25	48	1200
C	Ditto for pipes 400mm diameter Per Linear Meter U.S. Dollars	L.M	15	55	825
F	Ditto for pipes 600mm diameter Per Linear Meter U.S. Dollars	L.M	35	82	2870
E	Ditto for pipes 1000mm diameter Per Linear Meter U.S. Dollars	L.M	396	141	55836

K3/1-12

CARRIED TO COLLECTION

63389

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Concrete encasement class A for pipes 1600 mm diameter, including all necessary reinforcement Per Linear Meter U.S. Dollars	L.M	30	304	9120
B	Ditto for pipes 1800mm diameter Per Linear Meter U.S. Dollars	L.M	15	360	5400
C	Sand and cement bed and surround for 200 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	12	19	228
D	Ditto for 300 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	4	25	100
E	Ditto for 350mm diameter pipes Per Linear Meter U.S. Dollars	L.M	190	29	5510
F	Ditto for 400 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	387	33	12771
K3/1-13 CARRIED TO COLLECTION					33129

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

I. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Sand and cement bed and surround for 500 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	335	41	13735
B	Ditto for 600 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	681	49	33369
C	Ditto for 900 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	293	80	23440
D	Ditto for 1000 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	2398	92	220616
E	Ditto for 1200 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	536	122	65392
F	Ditto for 1400 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	508	151	76708
K3/I-14 CARRIED TO COLLECTION					433260

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

I. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	Sand and cement bed and surround for 1500 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	873	166	144918
B	Ditto for 1600 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	541	182	98462
C	Ditto for 1800 mm diameter pipes Per Linear Meter U.S. Dollars <u>Surface Restoration</u>	L.M	778	216	168048
D	Breaking up existing asphalt paving and reinstating with new asphalt Per Square Meter U.S. Dollars	S.M	15549	15	233235
E	Breaking up existing decorative concrete tile paving and reinstating with new tiles to match existing Per Square Meter U.S. Dollars	S.M	750	12	9000
F	Breaking up existing reinforced concrete paving and reinstating with new reinforced concrete with new sub-base complete Per Square Meter U.S. Dollars	S.M	450	15	6750
K3/1-15 CARRIED TO COLLECTION					660413

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

I. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Removing and reinstating concrete curbs Per Linear Meter U.S. Dollars	L.M	7500	15	12500
B	Removing and reinstating concrete planters, litter bins, benches and other items of street furniture Per Number U.S Dollars	No.	100	75	7500
C	Removing and reinstating street lighting poles Per Number U.S Dollars	No.	100	200	20000
D	Reinstatement of landscaped areas Per Square Meter U.S Dollars	S.M	300	2	600
E	Removing and reinstating trees Per Number U.S Dollars	No.	100	250	25000
K3/1-16 CARRIED TO COLLECTION					165600

NORTH BEIRUT OUTFALL HEADWORKS
 NORTH AND WEST-SOUTH COASTAL
 COLLECTORS AND PUMPING STATIONS

VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

I. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<p><u>OPTION 1</u></p> <p><u>COLLECTION</u></p> <p><u>PAGE</u></p> <p>K3/1-12</p> <p>K3/1-13</p> <p>K3/1-14</p> <p>K3/1-15</p> <p>K3/1-16</p> <p>K3/1-17</p> <p>TOTAL OPTION 1 CARRIED TO SUMMARY (IF PREFERRED OPTION)</p>				<p>63389</p> <p>33129</p> <p>433260</p> <p>660413</p> <p>165600</p> <p>26700</p> <hr/> <p>1382491</p>
K3/1-18					

NORTH BEIRUT OUTFALL HEADWORKS
 NORTH AND WEST-SOUTH COASTAL
 COLLECTORS AND PUMPING STATIONS

VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

I. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>OPTION 2</u>				
	<u>PIPEWORK</u>				
	<u>Asbestos cement pipe, class 18 atmosphere, including all necessary fittings, jointing all necessary fittings, jointing materials and fixing accessories, all as described</u>				
A	Pipes 200mm diameter.				
	Per Linear Meter U.S. Dollars.	L.M	12	29	348
B	Pipes 300mm diameter.				
	Per Linear Meter U.S. Dollars.	L.M	4	43	172
C	Pipes 400mm diameter.				
	Per Linear Meter U.S. Dollars	L.M	402	63	25326
D	Pipes 500 mm diameter.				
	Per Linear Meter U.S. Dollars	L.M	335	79	26465
E	Pipes 600 mm diameter.				
	Per Linear Meter U.S. Dollars	L.M	716	112	80192
K3/1-19 CARRIED TO COLLECTION					132503

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NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>Reinforced concrete pipes with PVC Linings, including all necessary fittings, jointing all necessary fittings, jointing materials and fixing accessories, all as described</u>				
A	Pipes 900 mm diameter. Per Linear Meter U.S. Dollars	L.M	293	337	98741
B	Pipes 1000 mm diameter. Per Linear Meter U.S. Dollars	L.M	2794	386	1078484
C	Pipes 1200 mm diameter. Per Linear Meter U.S. Dollars	L.M	536	501	268536
D	Pipes 1400 mm diameter. Per Linear Meter U.S. Dollars	L.M	507	666	337662
E	Pipes 1500 mm diameter. Per Linear Meter U.S. Dollars	L.M	873	773	674829
F	Pipes 1600 mm diameter. Per Linear Meter U.S. Dollars	L.M	571	884	504764
K3/1-20 CARRIED TO COLLECTION					2963016

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>OPTION 2</u> <u>SUNDRIES</u>				
	<u>Pipe Bedding</u>				
A	50 mm thick concrete blinding bed class C, laid in trenches to receive concrete pipe encasement.				
	Per Square Meter U.S. Dollars	S.M	886	3	2658
B	Concrete cradle class A for pipes 1000mm diameter, including all necessary reinforcement				
	Per Linear Meter U.S. Dollars	L.M	178	98	17444
C	Concrete encasement class A for pipes 350 mm diameter, including all necessary reinforcement				
	Per Linear Meter U.S. Dollars	L.M	25	48	1200
D	Ditto for pipes 400mm diameter				
	Per Linear Meter U.S. Dollars	L.M	15	55	825
E	Ditto for pipes 600mm diameter				
	Per Linear Meter U.S. Dollars	L.M	35	82	2870
K3/1-22		CARRIED TO COLLECTION			24997

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COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

I. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Concrete encasement class A for pipes 1000 mm diameter, including all necessary reinforcement Per Linear Meter U.S. Dollars	L.M	218	141	30738
B	Ditto for pipes 1600 mm diameter Per Linear Meter U.S. Dollars	L.M	30	304	9120
C	Ditto for pipes 1800mm diameter Per Linear Meter U.S. Dollars	L.M	15	360	5400
D	Sand and cement bed and surround for 200 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	12	19	228
E	Ditto for 300 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	4	25	100
F	Ditto 350mm diameter pipes Per Linear Meter U.S. Dollars.	L.M	190	29	5510
K3/I-23 CARRIED TO COLLECTION					51096

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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	Sand and cement bed and surround for 400 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	387	33	12771
B	Ditto for 500 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	335	41	13735
C	Ditto for 600 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	681	49	33369
D	Selected granular material bed and surround for 900 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	293	45	13185
E	Ditto for 1000 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	2398	49	117502
F	Ditto for 1200 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	536	71	38056
G	Ditto for 1400 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	508	88	44704
K3/I-24 CARRIED TO COLLECTION					273322

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

I. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Selected granular material bed and surround for 1500 mm diameter pipes				
	Per Linear Meter U.S. Dollars	L.M	873	97	84681
B	Ditto for 1600 mm diameter pipes				
	Per Linear Meter U.S. Dollars	L.M	541	106	57346
C	Ditto for 1800 mm diameter pipes				
	Per Linear Meter U.S. Dollars	L.M	778	126	98028
	<u>Surface Restoration</u>				
D	Breaking up existing asphalt paving and reinstating with new asphalt				
	Per Square Meter U.S. Dollars	S.M	15549	15	233235
E	Breaking up existing decorative concrete tile paving and reinstating with new tiles to match existing				
	Per Square Meter U.S. Dollars	S.M	750	12	9000
F	Breaking up existing reinforced concrete paving and reinstating with new reinforced concrete with new sub-base complete				
	Per Square Meter U.S Dollars	S.M	450	15	6750
K3/I-25 CARRIED TO COLLECTION					489040

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

I. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Removing and reinstating concrete curbs Per Linear Meter U.S. Dollars	L.M	7500	15	112500
B	Removing and reinstating concrete planters, litter bins, benches and other items of street furniture Per Number U.S Dollars	No.	100	75	7500
C	Removing and reinstating street lighting poles Per Number U.S Dollars	No.	100	200	20000
D	Reinstatement of landscaped areas Per Square Meter U S Dollars	S.M	300	2	600
E	Removing and reinstating trees Per Number U.S Dollars	No.	100	250	25000
K3/1-26 CARRIED TO COLLECTION					165600

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NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>General Sundry Works</u> Extra over trench work for backfilling trenches above pipe surrounds with plain concrete Class B Per Cubic Meter U.S Dollars	C.M	445	60	26700

K3/I-27

26700

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

I. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<p><u>OPTION 2</u></p> <p><u>COLLECTION</u></p> <p><u>PAGE</u></p> <p>K3/1-22 K3/1-23 K3/1-24 K3/1-25 K3/1-26 K3/1-27</p> <p>TOTAL OPTION 2 CARRIED TO SUMMARY (IF PREFERRED OPTION)</p>				<p>24997 51096 273322 489010 165600 26700</p> <hr/> <p>1030755</p>
K3/1-28					

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL COLLECTORS
AND PUMPING STATIONS**

LINE A
SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNTS</u>
Earthwork	K3/1-8	2 071 787
<u>Option 1*</u>		
Pipework	K3/1-11	3 280 425
Sundries	K3/1-18	1,382,491
<u>Option 2*</u>		
Pipework	K3/1-21	(4,031,954)
Sundries	K3/1-28	(1,030,755)
TOTAL CARRIED TO MAIN SUMMARY		6,734,703

* The Contractor is to include the costs of his preferred option only

NORTH BEIRUT OUTFALL HEADWORKS
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AND PUMPING STATIONS

LINE C

INDEX

DESCRIPTION

PAGE

Earthwork	K3/2-2
Pipework.....	K3/2-3
Sundries	K3/2-4
Summary.....	K3/2-8

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 NORTH AND WEST-SOUTH COASTAL
 COLLECTORS AND PUMPING STATIONS

VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

2. LINE C

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<p><u>EARTHWORK</u></p> <p><u>Trench work including all necessary excavation in all kinds of materials, grading or levelling and compacting or trimming bottom of excavation, planking and strutting or trimming sides, dewatering excavation of all water sources, backfilling and compacting in layers up to the formation levels (including extra fill at ground level if required), removing surplus excavated materials from site, all as described.</u></p>				
A	<p>Trench for 2 no. pipes each 450 mm diameter, average depth over 1m but n.e. 2m</p> <p>Per Linear Meter U.S. Dollars.</p>	L.M	610	36	21960
B	<p>Ditto, 2no. pipes each 450 mm diameter, average depth over 2m deep but n.e. 3m</p> <p>Per Linear Meter U.S. Dollars.</p>	L.M	198	89	17622
C	<p>Ditto, 2no. pipes each 450 mm diameter, average depth over 5m but n.e. 6m.</p> <p>Per Linear Meter U.S. Dollars.</p>	L.M	13	423	5499
K3/2-2		CARRIED TO SUMMARY			45081

**NORTH BEIRUT OUTFALL HEADWORKS
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COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

2. LINE C

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>PIPEWORK</u></p> <p><u>GRP Pressure pipe including all necessary fittings jointing all necessary fittings, jointing materials and fixing accessories, all as specified</u></p> <p>Pipes 450 mm diameter.</p> <p>Per Linear Meter U.S. Dollars</p> <p>.....</p> <p>.....</p>	L.M	1632	125	204 000
K3/2-3 CARRIED TO SUMMARY					204 000

NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS

VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES

2. LINE C

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>SUNDRIES</u>				
	<u>Pipe Bedding</u>				
A	50 mm thick concrete blinding bed class C, laid in trenches to receive concrete pipe cradle or encasement.				
	Per Square Meter U.S. Dollars	S.M.	167	3	501
B	Concrete encasement class A for 2 no. 450 mm diameter pipes, including all necessary reinforcement				
	Per Linear Meter U.S. Dollars	L.M.	101	104	10504
C	Sand cement bed and surround for 2no. 450 mm diameter pipes				
	Per Linear Meter U.S. Dollars	L.M.	715	63	45045
	<u>Surface Restoration</u>				
D	Breaking up existing asphalt paving and reinstating with new asphalt				
	Per Square Meter U.S. Dollars	S.M.	1469	15	22035
E	Breaking up existing decorative concrete tile paving and reinstating with new tiles to match existing				
	Per Square Meter U.S. Dollars	S.M.	150	12	1800

K3/2-4

CARRIED TO COLLECTION

79885

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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

2. LINE C

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Breaking up existing reinforced concrete paving and reinstating with new reinforced concrete with new sub-base complete Per Square Meter U.S Dollars	S.M	100	15	1500
B	Removing and reinstating concrete curbs Per linear Meter U.S. Dollars	L.M	700	15	10500
C	Removing and reinstating concrete planters, litter bins, benches and other items of street furniture Per Number U.S Dollars	No.	20	75	1500
D	Removing and reinstating street lighting poles Per Number U.S Dollars	No.	20	200	4000
E	Reinstatement of landscaped areas Per Square Meter U.S Dollars	S.M	60	2	120
F	Removing and reinstating trees Per Number U.S Dollars	No.	20	250	5000
K3/2-5 CARRIED TO COLLECTION					22620

**NORTH BEIRUT OUTFALL HEADWORKS
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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

2. LINE C

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>General Sundry Works</u> Cast iron Air Release Valve within chambers, as described. Per Number U.S Dollars	No.	12	500	6000
B	Cast iron isolating gate valves to suit 450 mm diameter pipework, within chambers, as described. Per Number U.S Dollars	No.	2	900	1800
K3/2-6 CARRIED TO COLLECTION					7800

NORTH BEIRUT OUTFALL HEADWORKS
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VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

2. LINE C

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>COLLECTION</u>				
	PAGE				
	K3/2-4 .....	.....	.....	.....	79885
	K3/2-5 .....	.....	.....	.....	22620
	K3/2-6 .....	.....	.....	.....	7800
	TOTAL CARRIED TO SUMMARY				110305
K3/2-7					

NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL COLLECTORS
AND PUMPING STATIONS

LINE C

SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNTS</u>
Earthwork	K3/2-2	45081
Pipework	K3/2-3	204000
Sundries	K3/2-7	110305
TOTAL CARRIED TO MAIN SUMMARY		<hr/>
		359386

NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL COLLECTORS
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LINE E

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Earthworks	K3/3-2
<u>Option 1</u>	
Pipework	K3/3-5
Sundries	K3/3-6
<u>Option 2</u>	
Pipework	K3/3-10
Sundries	K3/3-11
Summary	K3/3-7

Note: - Two Options are proposed for this line with regard to works involved in crossing the Beirut River.

Option A: - By means of a tunnelling method for 2no. 1800mm diameter pipes beneath the river between E.MH3 and E.MH4.

Option B: - By means of a sewer culvert diversion along one bank of the river crossing near the mouth of the river and connecting to an existing culvert along the opposite river bank.

For the purpose of pricing these alternative schemes, all work between E.MH3 and E.MH5 has been billed separately for each option.

All items for line E in this section relate to work up to E.MH3 and from E.MH5 as appropriate.

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>EARTHWORK</u>				
	<u>Trench work including all necessary excavation in all kinds of materials, grading or levelling and compacting or trimming bottom of excavation, planking and strutting or trimming sides, dewatering excavation of all water sources, backfilling and compacting in layers up to the formation levels (including extra fill at ground level if required), removing surplus excavated materials from site, all as described.</u>				
A	Trench for pipes 300 mm diameter, average depth over 1m but n.e. 2 m				
	Per Linear Meter U.S. Dollars.	L.M	9	24	216
B	Ditto, 400 mm diameter, average depth over 1m but n.e. 2m				
	Per Linear Meter U.S. Dollars.	L.M	6	27	162
C	Ditto, 1800 mm diameter, average depth over 3m but n.e. 4m				
	Per Linear Meter U.S. Dollars.	L.M	59	257	15163
D	Ditto, 1800 mm diameter, average depth over 4m but n.e. 5m				
	Per Linear Meter U.S. Dollars.	L.M	196	333	65268
K3/3-2		CARRIED TO COLLECTION			80809

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VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Trench for pipes 1800 mm diameter, average depth over 5m but n.e 6m Per Linear Meter U.S. Dollars.	L.M	302	468	141336
B	Ditto 1800 mm diameter, average depth over 6m but n.e. 7m Per Linear Meter U.S. Dollars	L.M	719	562	404078
C	Ditto 1800mm diameter, average depth over 7m but n.e. 8m. Per Linear Meter U.S. Dollars.	L.M	618	648	400464
D	Ditto 1800mm diameter, average depth over 8m but n.e. 9m. Per Linear Meter U.S. Dollars.	L.M	881	738	650178
E	Ditto 1800mm diameter, average depth over 9m but n.e. 10m Per Linear Meter U.S. Dollars.	L.M	158	828	130824
F	Ditto 1800mm diameter, average depth over 10m but n.e. 11m Per Linear Meter U.S. Dollars.	L.M	135	918	123930
K3/3-3 CARRIED TO COLLECTION					1850810

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VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>EARTHWORK</u>				
	<u>COLLECTION</u>				
	<u>PAGE</u>				
	K3/3-2				80809
	K3/3-3				1850810
	TOTAL CARRIED TO SUMMARY				<hr/> 1931619 <hr/>
K3/3-4					

NORTH BEIRUT OUTFALL HEADWORKS
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VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<p><u>OPTION 1</u> <u>PIPEWORK</u></p> <p><u>GRP pipes including all necessary fittings, jointing all necessary fittings, jointing materials and fixing accessories, all as described.</u></p>				
A	<p>Pipes 300mm diameter.</p> <p>Per Linear Meter U.S. Dollars.</p> <p>.....</p> <p>.....</p>	L.M	9	68	612
B	<p>Pipes 400mm diameter</p> <p>Per Linear Meter U.S. Dollars</p> <p>.....</p> <p>.....</p>	L.M	6	96	576
C	<p>Pipes 1800mm diameter.</p> <p>Per Linear Meter U.S. Dollars</p> <p>.....</p> <p>.....</p>	L.M	3069	874	2682306
<p>K3/3-5 CARRIED TO SUMMARY</p>					<p>2683494</p>

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VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>OPTION 1</u> <u>SUNDRIES</u>				
	<u>Pipe Bedding</u>				
A	50 mm thick concrete blinding bed class C, laid in trenches to receive concrete pipe encasement.				
	Per Square Meter U.S. Dollars	S.M	7846	3	23538
B	Concrete encasement Class A for pipes 300 mm diameter, including all necessary reinforcement				
	Per Linear Meter U.S. Dollars	L.M	9	42	378
C	Ditto for pipes 400mm diameter				
	Per Linear Meter U.S. Dollars	L.M	6	55	330
D	Ditto for pipes 1800 mm diameter				
	Per Linear Meter U.S. Dollars	L.M	2511	360	903960
E	Sand and cement bed and surround for 1800mm diameter pipes				
	Per Linear Meter U.S. Dollars.	L.M	558	216	120528
K3/3-6 CARRIED TO COLLECTION					1048734

**NORTH BEIRUT OUTFALL HEADWORKS
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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>Surface Restoration</u> Breaking up existing asphalt paving and reinstating with new asphalt Per Square Meter U.S. Dollars	S.M	10934	15	164010
B	Breaking up existing decorative concrete tile paving and reinstating with new tiles to match existing Per Square Meter U.S. Dollars	S.M	500	12	6000
C	Breaking up existing reinforced concrete paving and reinstating with new reinforced concrete with new sub-base complete Per Square Meter U.S Dollars	S.M	300	15	4500
D	Removing and reinstating concrete curbs Per Linear Meter U.S. Dollars	L.M	3000	15	45000
E	Removing and reinstating concrete planters, litter bins, benches and other items of street furniture Per Number U.S Dollars	No.	75	75	5625
K3/3-7 CARRIED TO COLLECTION					225 135

NORTH BEIRUT OUTFALL HEADWORKS
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VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Removing and reinstating street lighting poles Per Number U.S Dollars	No.	75	200	15000
B	Reinstatement of landscaped areas Per Square Meter U.S Dollars	S.M	200	2	400
C	Removing and reinstating trees Per Number U.S Dollars	No.	75	250	18750
K3/3-8 CARRIED TO COLLECTION					34150

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 SECTION 3 - SEWER PIPES

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<p><u>OPTION 1</u></p> <p><u>COLLECTION</u></p> <p><u>PAGE</u></p> <p>K3/3-6 K3/3-7 K3/3-8</p> <p>TOTAL CARRIED TO SUMMARY (IF PREFERRED OPTION)</p>				<p>1048734 225135 34150</p> <hr/> <p>1308019</p>
K3/3-9					

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VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	<u>OPTION 2</u> <u>PIPEWORK</u>				
	<u>Asbestos cement pressure pipe, class 18 atmosphere, including all necessary fittings, jointing all necessary fittings, jointing materials and fixing accessories, all as described</u>				
	Pipes 300mm diameter. Per Linear Meter U.S. Dollars.	L.M	9	43	387
B	Pipes 400mm diameter				
	Per Linear Meter U.S. Dollars	L.M	6	63	378
C	<u>Reinforced concrete pipes, with P.V.C. linings, including all necessary fittings, jointing all necessary fittings, jointing materials and fixing accessories, all as described</u>				
	Pipes 1800mm diameter. Per Linear Meter U.S. Dollars	L.M	3069	1160	3560 040
K3/3-10 CARRIED TO SUMMARY				3560 805	

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3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>OPTION 2</u> <u>SUNDRIES</u>				
	<u>Pipe Bedding</u>				
A	50 mm thick concrete blinding bed class C, laid in trenches to receive concrete pipe encasement.				
	Per Square Meter U.S. Dollars	S.M	7846	3	23538
B	Concrete cradle Class A for pipes 1800 mm diameter, including all necessary reinforcement				
	Per Linear Meter U.S. Dollars	L.M	2218	288	638784
C	Concrete encasement class A for pipes 300 mm diameter, including all necessary reinforcement				
	Per Linear Meter U.S. Dollars	L.M	9	42	378
D	Ditto for pipes 400mm diameter				
	Per Linear Meter U.S. Dollars.	L.M	6	55	330
E	Ditto for pipes 1800mm diameter,				
	Per Linear Meter U.S. Dollars	L.M	293	360	105480
K3/3-11		CARRIED TO COLLECTION			768 510

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 SECTION 3 - SEWER PIPES

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Selected granular material bed and surround for 1800mm diameter pipes Per Linear Meter U.S. Dollars <u>Surface Restoration</u>	L.M	558	216	120 528
B	Breaking up existing asphalt paving and reinstating with new asphalt Per Square Meter U.S. Dollars	S.M	10934	15	164 010
C	Breaking up existing decorative concrete tile paving and reinstating with new tiles to match existing Per Square Meter U.S. Dollars	S.M	500	12	6000
D	Breaking up existing reinforced concrete paving and reinstating with new reinforced concrete with new sub-base complete Per Square Meter U.S. Dollars	S.M	300	15	4500
E	Removing and reinstating concrete curbs Per Linear Meter U.S. Dollars	L.M	3000	15	45000
K3/3-12 CARRIED TO COLLECTION					340 038

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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Removing and reinstating concrete planters, litter bins, benches and other items of street furniture Per Number U.S Dollars	No.	75	75	5625
B	Removing and reinstating street lighting poles Per Number U.S Dollars	No.	75	200	15000
C	Reinstatement of landscaped areas Per Square Meter U.S Dollars	S.M	200	2	400
D	Removing and reinstating trees Per Number U.S Dollars	No.	75	250	18750
K3/3-13 CARRIED TO COLLECTION					39775

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3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<p><u>OPTION 2</u></p> <p><u>COLLECTION</u></p> <p><u>PAGE</u></p> <p>K3/3-11</p> <p>K3/3-12</p> <p>K3/3-13</p> <p>TOTAL CARRIED TO SUMMARY (IF PREFERRED OPTION)</p>				<p>768 510</p> <p>340 038</p> <p>39 775</p> <hr/> <p>1148 323</p>
K3/3-14					

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LINE E
SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNTS</u>
Earthwork	K3/3-4	1,931,619
<u>Option 1*</u>		
Pipework	K3/3-5	2,683,494
Sundries	K3/3-9	1,308,019
<u>Option 2*</u>		
Pipework	K3/3-10	(3,560,805)
Sundries	K3/3-14	(1,148,323)
TOTAL CARRIED TO MAIN SUMMARY		5,923,132

* The Contractor is to include the costs of his preferred option only.

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LINE G

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<u>DESCRIPTION</u>	<u>PAGE</u>
Earthwork	K3/4-2
<u>Option 1</u>	
Pipework.....	K3/4-5
Sundries	K3/4-6
<u>Option 2</u>	
Pipework.....	K3/4-10
Sundries	K3/4-11
Summary.....	K3/4-15

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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<p><u>EARTHWORK</u></p> <p><u>Trench work including all necessary excavation in all kinds of materials, grading or levelling and compacting or trimming bottom of excavation, planking and strutting or trimming sides, dewatering excavation of all water sources, backfilling and compacting in layers up to the formation levels (including extra fill at ground level if required), removing surplus excavated materials from site, all as described.</u></p>				
A	<p>Trench for pipes 300 mm diameter, average depth over 1m but n.e. 2m</p>				
	<p>Per Linear Meter U.S. Dollars.</p>	L.M	72	24	1728
B	<p>Ditto, 1000 mm diameter, average depth over 3m deep but n.e. 4m</p>				
	<p>Per Linear Meter U.S. Dollars.</p>	L.M	356	228	81168
C	<p>Ditto, 1000 mm diameter, average depth over 4m but n.e. 5m.</p>				
	<p>Per Linear Meter U.S. Dollars.</p>	L.M	206	296	60976
D	<p>Ditto, 1000 mm diameter, average depth over 5m but n.e. 6m</p>				
	<p>Per Linear Meter U.S. Dollars.</p>	L.M	151	418	63118
K3/4-2 CARRIED TO COLLECTION					206 990

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SECTION 3 - SEWER PIPES**

4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICES S
A	Trench for pipes 1000 mm diameter, average depth over 6m but n.e. 7m Per Linear Meter U.S. Dollars.	L.M	165	497	82005
B	Ditto, 1400 mm diameter, average depth over 2m but n.e. 3m Per Linear Meter U.S. Dollars.	L.M	71	91	6461
C	Ditto, 1400mm diameter, average depth over 3m but n.e. 4m. Per Linear Meter U.S. Dollars.	L.M	281	242	68002
D	Ditto, 1400mm diameter, average depth over 4m but n.e. 5m. Per Linear Meter U.S. Dollars.	L.M	393	316	124188
E	Ditto, 1400mm diameter, average depth over 5m but n.e. 6m Per Linear Meter U.S. Dollars.	L.M	503	444	223332
F	Ditto 1400mm diameter, average depth over 6m but n.e. 7m Per Linear Meter U.S. Dollars.	L.M	210	529	111090
K3/4-3 CARRIED TO COLLECTION					615078

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4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICES \$
	<p><u>EARTHWORK</u></p> <p><u>COLLECTION</u></p> <p><u>PAGE</u></p> <p>K3/4-2</p> <p>K3/4-3</p> <p>TOTAL CARRIED TO SUMMARY</p>				<p>206 990</p> <p>615 078</p> <hr/> <p>822 068</p>
	K3/4-4				

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4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$				
A	<u>OPTION 1</u> <u>PIPEWORK</u>								
	<u>G.R.P. pipes, including all necessary fittings, jointing all necessary fittings, jointing materials and fixing accessories, all as described</u>								
	Pipes 300mm diameter.								
	Per Linear Meter U.S. Dollars	L.M	72	68	4896				
.....									
B	Pipes 1000mm diameter.								
	Per Linear Meter U.S. Dollars.					L.M	878	316	277448
.....									
C	Pipes 1400mm diameter.								
	Per Linear Meter U.S. Dollars					L.M	1458	533	777114
.....									
K3/4-5 OPTION 1 CARRIED TO SUMMARY					1059458				

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SECTION 3 - SEWER PIPES**

4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
	<u>OPTION 1</u>					
	<u>SUNDRIES</u>					
	<u>Pipe Bedding</u>					
A	50 mm thick concrete blinding bed class C, laid in trenches to receive concrete pipe cradle or encasement					
	Per Square Meter U.S. Dollars	S.M.	2008	3	6024	
B	Concrete encasement class A for pipes 1000 mm diameter, including all necessary reinforcement					
	Per Linear Meter U.S. Dollars	L.M.	316	141	44556	
C	Ditto for pipes 1400mm diameter					
	Per Linear Meter U.S. Dollars	L.M.	613	251	153863	
D	Sand and cement bed and surround for 300 mm diameter pipes					
	Per Linear Meter U.S. Dollars.	L.M.	72	25	1800	
K3/4-6					CARRIED TO COLLECTION	206243

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SECTION 3 - SEWER PIPES**

4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Sand and cement bed and surrounds for 1000mm diameter pipes Per Linear Meter U.S. Dollars	L.M	562	92	51704
B	Ditto for 1400 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	845	151	127595
	<u>Surface Restoration</u>				
D	Breaking up existing asphalt paving and reinstating with new asphalt Per Square Meter U.S. Dollars	S.M	5049	15	75735
E	Breaking up existing decorative concrete tile paving and reinstating with new tiles to match existing Per Square Meter U.S. Dollars	S.M	200	12	2400
F	Breaking up existing reinforced concrete paving and reinstating with new reinforced concrete with new sub-base complete Per Square Meter U.S. Dollars	S.M	150	15	2250
K3/4-7 CARRIED TO COLLECTION					259684

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SECTION 3 - SEWER PIPES**

4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Removing and reinstating concrete curbs Per Linear Meter U.S. Dollars	L.M	1500	15	22500
B	Removing and reinstating concrete planters, litter bins, benches and other items of street furniture Per Number U.S Dollars	No.	40	75	3000
C	Removing and reinstating street lighting poles Per Number U.S Dollars	No.	25	200	5000
D	Reinstatement of landscaped areas Per Square Meter U.S Dollars	S.M	100	2	200
E	Removing and reinstating trees Per Number U.S Dollars	No.	25	250	6250
K3/4-8 CARRIED TO COLLECTION					36950

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4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<p><u>OPTION 1</u></p> <p><u>COLLECTION</u></p> <p><u>PAGE</u></p> <p>K3/4-6 K3/4-7 K3/4-8</p> <p>TOTAL OPTION 1 CARRIED TO SUMMARY (IF PREFERRED OPTION)</p>				<p>206243 259684 36950</p> <hr/> <p>502877</p>
					K3/4-9

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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>OPTION 2</u>				
	<u>PIPEWORK</u>				
	<u>Asbestos cement pressure pipe, class 18 atmosphere, including all necessary fittings, jointing all necessary fittings, jointing materials and fixing accessories, all as described</u>				
A	Pipes 300mm diameter. Per Linear Meter U.S. Dollars.	L.M	72	43	3096
B	<u>Reinforced concrete pipes, with P.V.C linings, including all necessary fittings, jointing all necessary fittings, jointing materials and fixing accessories, all as described</u> Pipes 1000mm diameter. Per Linear Meter U.S. Dollars.	L.M	878	386	338 908
C	Pipes 1400mm diameter. Per Linear Meter U.S. Dollars	L.M	1458	667	972 486
	K3/4-10 OPTION 2 CARRIED TO SUMMARY				1 314 490

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4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>OPTION 2</u> <u>SUNDRIES</u> <u>Pipe Bedding</u> 50 mm thick concrete blinding bed class C, laid in trenches to receive concrete pipe cradle or encasement. Per Square Meter U.S. Dollars	S.M	2008	3	6024
B	Concrete cradle class A for pipes 1000 mm diameter, including all necessary reinforcement Per Linear Meter U.S. Dollars	L.M	316	98	30968
C	Ditto for pipes 1400mm diameter Per Linear Meter U.S. Dollars	L.M	542	194	105148
D	Concrete encasement class A for pipes 1400mm diameter, including all necessary reinforcement Per Linear Meter U.S. Dollars	L.M	71	251	17821
E	Sand and cement bed and surround for 300 mm diameter pipes Per Linear Meter U.S. Dollars.	L.M	72	25	1800
K3/4-11		CARRIED TO COLLECTION			161761

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SECTION 3 - SEWER PIPES**

4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Selected granular material bed and surrounds for 1000 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	562	49	27538
B	Ditto for 1400 mm diameter pipes Per Linear Meter U.S. Dollars <u>Surface Restoration</u>	L.M	845	88	74360
C	Breaking up existing asphalt paving and reinstating with new asphalt Per Square Meter U.S. Dollars	S.M	5049	15	75735
D	Breaking up existing decorative concrete tile paving and reinstating with new tiles to match existing Per Square Meter U.S. Dollars	S.M	200	12	2400
E	Breaking up existing reinforced concrete paving and reinstating with new reinforced concrete with new sub-base complete Per Square Meter U.S Dollars	S.M	150	15	2250
K3/4-12 CARRIED TO COLLECTION					182 283

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4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Removing and reinstating concrete curbs Per Linear Meter U.S. Dollars	L.M	1500	15	22500
B	Removing and reinstating concrete planters, litter bins, benches and other items of street furniture Per Number U.S Dollars	No.	40	75	3000
C	Removing and reinstating street lighting poles Per Number U.S Dollars	No.	25	200	5000
D	Reinstatement of landscaped areas Per Square Meter U.S Dollars	S.M	100	2	200
E	Removing and reinstating trees Per Number U.S Dollars	No.	25	250	6250
K3/4-13 CARRIED TO COLLECTION					36950

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4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<p><u>OPTION 2</u></p> <p><u>COLLECTION</u></p> <p><u>PAGE</u></p> <p>K3/4-11</p> <p>K3/4-12</p> <p>K3/4-13</p> <p>TOTAL OPTION 2 CARRIED TO SUMMARY (IF PREFFERED OPTION)</p>				<p>161761</p> <p>182283</p> <p>36950</p> <hr/> <p>380994</p>
K3/4-14					

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LINE G

SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNTS</u>
Earthwork	K3/4-4	822 068
<u>Option 1*</u>		
Pipework	K3/4-5	1 059 458
Sundries	K3/4-9	502 877
<u>Option 2*</u>		
Pipework	K3/4-10	(1 314 490)
Sundries	K3/4-14	(380 994)
TOTAL CARRIED TO MAIN SUMMARY		2,384,403

* The Contractor is to include the costs of his preferred option only

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LINE S

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<u>DESCRIPTION</u>	<u>PAGE</u>
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Pipework.....	K3/5-5
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<u>Option 2</u>	
Pipework.....	K3/5-10
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5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>EARTHWORK</u> <u>Trench work including all necessary excavation in all kinds of materials, grading or levelling and compacting or trimming bottom of excavation, planking and strutting or trimming sides, dewatering excavation of all water sources, backfilling and compacting in layers up to the formation levels (including extra fill at ground level if required), removing surplus excavated materials from site, all as described.</u>				
A	Trench for pipes 200 mm diameter, average depth over 1m but n.e. 2m				
	Per Linear Meter U.S. Dollars.	L.M	51	23	1173
B	Ditto, 400 mm diameter, average depth over 3m deep but n.e. 4m				
	Per Linear Meter U.S. Dollars.	L.M	332	205	68060
C	Ditto 600 mm diameter, average depth over 3m but n.e. 4m.				
	Per Linear Meter U.S. Dollars.	L.M	643	213	136959
D	Ditto, 600 mm diameter, average depth over 4m but n.e. 5m				
	Per Linear Meter U.S. Dollars.	L.M	205	276	56580
K3/5-2		CARRIED TO COLLECTION			262772

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5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICES S
A	Trench for pipes 900 mm diameter, average depth over 3m but n.e. 4m Per Linear Meter U.S. Dollars	L.M	1322	224	296 128
B	Ditto 900 mm diameter, average depth over 4m but n.e. 5m Per Linear Meter U.S. Dollars	L.M	300	291	87 300
C	Ditto 900mm diameter, average depth over 5m but n.e. 6m. Per Linear Meter U.S. Dollars	L.M	372	413	153 636
D	Ditto 1200mm diameter, average depth over 3m but n.e. 4m. Per Linear Meter U.S. Dollars	L.M	192	239	45 888
E	Ditto 1200mm diameter, average depth over 4m but n.e. 5m Per Linear Meter U.S. Dollars	L.M	114	310	35 340
K3/5-3 CARRIED TO COLLECTION					618 292

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5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICES \$
	<u>EARTHWORK</u>				
	<u>COLLECTION</u>				
	<u>PAGE</u>				
	K3/5-2		262772
	K3/5-3		618292
	TOTAL CARRIED TO SUMMARY				<u>881064</u>
	K3/5-4				

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5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>OPTION 1</u> <u>PIPEWORK</u> <u>G.R.P pipes, including all necessary fittings, jointing all necessary fittings, jointing materials and fixing accessories, all as described</u>				
A	Pipes 200mm diameter.				
	Per Linear Meter U.S. Dollars	L.M	51	54	2754
B	Pipes 400mm diameter				
	Per Linear Meter U.S. Dollars	L.M	332	96	31872
C	Pipes 600mm diameter.				
	Per Linear Meter U.S. Dollars	L.M	848	164	139072
D	Pipes 900 mm diameter.				
	Per Linear Meter U.S. Dollars	L.M	1994	279	556326
E	Pipes 1200 mm diameter.				
	Per Linear Meter U.S. Dollars	L.M	306	419	128214
K3/5-5 OPTION 1 CARRIED TO SUMMARY					858 238

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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>OPTION 1</u>				
	<u>SUNDRIES</u>				
	<u>Pipe Bedding</u>				
A	50 mm thick concrete blinding bed class C, laid in trenches to receive concrete pipe cradle or encasement.				
	Per Square Meter U.S. Dollars	S.M	507	3	1521
B	Concrete encasement class A for pipes 900 mm diameter, including all necessary reinforcement				
	Per Linear Meter U.S. Dollars	L.M	317	128	40576
C	Sand and cement bed and surround for 200 mm diameter pipes				
	Per Linear Meter U.S. Dollars	L.M	51	19	969
D	Ditto for 400 mm diameter pipes				
	Per Linear Meter U.S. Dollars	L.M	332	33	10956
E	Ditto for 600 mm diameter pipes				
	Per Linear Meter U.S. Dollars	L.M	848	49	41552
K3/5-6 CARRIED TO COLLECTION					95574

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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Sand and cement bed and surround for 900 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	1677	81	135837
B	Ditto for 1200 mm diameter pipes Per Linear Meter U.S. Dollars <u>Surface Restoration</u>	L.M	306	122	37332
C	Breaking up existing asphalt paving and reinstating with new asphalt Per Square Meter U.S. Dollars	S.M	5242	15	78630
D	Breaking up existing decorative concrete tile paving and reinstating with new tiles to match existing Per Square Meter U.S. Dollars	S.M	250	12	3000
E	Breaking up existing reinforced concrete paving and reinstating with new reinforced concrete with new sub-base complete Per Square Meter U.S. Dollars	S.M	150	15	2250
K3/5-7 CARRIED TO COLLECTION					257049

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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Removing and reinstating concrete curbs Per Linear Meter U.S. Dollars	L.M	3000	15	45000
B	Removing and reinstating concrete planters, litter bins, benches and other items of street furniture Per Number U.S Dollars	No.	50	75	3750
C	Removing and reinstating street lighting poles Per Number U.S Dollars	No.	50	200	10000
D	Reinstatement of landscaped areas Per Square Meter U.S Dollars	S.M	100	2	200
E	Removing and reinstating trees Per Number U.S Dollars	No.	50	250	12500
K3/5-8 CARRIED TO COLLECTION					71450

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 SECTION 3 - SEWER PIPES**

5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>OPTION 1</u> <u>SUNDRIES</u> <u>COLLECTION</u> <u>PAGE</u> K3/5-6 K3/5-7 K3/5-8 TOTAL OPTION 1 CARRIED TO SUMMARY (IF PREFERRED OPTION)				95574 257049 71450 <hr/> 424073
K3/5-9					

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SECTION 3 - SEWER PIPES**

5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>OPTION 2 PIPEWORK</u>				
	<u>Asbestos cement pressure pipe, class 18 atmosphere, including all necessary fittings, jointing all necessary fittings, jointing materials and fixing accessories, all as described</u>				
A	Pipes 200mm diameter. Per Linear Meter U.S. Dollars.	L.M	51	29	1479
B	Pipes 400mm diameter. Per Linear Meter U.S. Dollars.	L.M	332	63	20916
C	Pipes 600mm diameter. Per Linear Meter U.S. Dollars	L.M	848	112	94976
	<u>Reinforced concrete pipes, with P.V.C. linings, including all necessary fittings, jointing all necessary fittings, jointing materials and fixing accessories, all as described</u>				
E	Pipes 900 mm diameter. Per Linear Meter U.S. Dollars	L.M	1994	337	671978
K3/5-10 CARRIED TO COLLECTION					789349

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VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Pipes 1200 mm diameter. Per Linear Meter U.S. Dollars	L.M	306	501	153306
					153306
	<p style="text-align: center;"><i>Carried to Collection</i></p> <p><u>OPTION 2</u> <u>PIPEWORK</u> <u>COLLECTION</u> <u>Page</u> K3/5-10 K3/5-11</p> <p>TOTAL OPTION 2 CARRIED TO SUMMARY IF PREFERRED OPTION)</p>				<p>789349 153306</p> <hr/> <p>942655</p>
K3/5-11					

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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>OPTION 2</u>				
	<u>SUNDRIES</u>				
	<u>Pipe Bedding</u>				
A	50 mm thick concrete blinding bed class C, laid in trenches to receive concrete pipe cradle or encasement.				
	Per Square Meter U.S. Dollars	S.M	507	3	1521
B	Concrete cradle class A for pipes 900 mm diameter, including all necessary reinforcement				
	Per Linear Meter U.S. Dollars	L.M	317	89	28213
C	Sand and cement bed and surround for 200 mm diameter pipes				
	Per Linear Meter U.S. Dollars	L.M	51	19	969
D	Ditto for 400 mm diameter pipes				
	Per Linear Meter U.S. Dollars	L.M	332	33	10956
E	Ditto for 600 mm diameter pipes				
	Per Linear Meter U.S. Dollars	L.M	848	49	41552
K3/5-12 CARRIED TO COLLECTION					83211

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VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Selected granular material bed and surround for 900 mm diameter pipes Per Linear Meter U.S. Dollars	L.M	1677	45	75465
B	Ditto for 1200 mm diameter pipes Per Linear Meter U.S. Dollars <u>Surface Restoration</u>	L.M	306	71	21726
C	Breaking up existing asphalt paving and reinstating with new asphalt Per Square Meter U.S. Dollars	S.M	5242	15	78630
D	Breaking up existing decorative concrete tile paving and reinstating with new tiles to match existing Per Square Meter U.S. Dollars	S.M	250	12	3000
E	Breaking up existing reinforced concrete paving and reinstating with new reinforced concrete with new sub-base complete Per Square Meter U.S. Dollars	S.M	150	15	2250
K3/5-13 CARRIED TO COLLECTION					181 071

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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Removing and reinstating concrete curbs Per Linear Meter U.S. Dollars	L.M	3000	15	45000
B	Removing and reinstating concrete planters, litter bins, benches and other items of street furniture Per Number U S Dollars	No.	50	75	3750
C	Removing and reinstating street lighting poles Per Number U.S Dollars	No.	50	200	10000
D	Reinstatement of landscaped areas Per Square Meter U.S Dollars	S.M	100	2	200
E	Removing and reinstating trees Per Number U.S Dollars	No.	50	250	12500
K3/5-14 CARRIED TO COLLECTION					71450

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 SECTION 3 - SEWER PIPES

5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>OPTION 2</u> <u>SUNDRIES</u> <u>COLLECTION</u> <u>PAGE</u> K3/5-12 K3/5-13 K3/5-14 TOTAL OPTION 2 CARRIED TO SUMMARY (IF PREFERRED OPTION)				83211 181071 71450 <hr/> 335732
K3/5-15					

NORTH BEIRUT OUTFALL HEADWORKS
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LINE 5
SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNTS</u>
Earthwork	K3/5-4	881 064
<u>Option 1*</u>		
Pipework	K3/5-5	858 238
Sundries	K3/5-9	424 073
<u>Option 2*</u>		
Pipework	K3/5-11	(942 655)
Sundries	K3/5-15	(335 732)
TOTAL CARRIED TO MAIN SUMMARY		2,163,375

* The Contractor is to include the costs of his preferred option only

NORTH BEIRUT OUTFALL HEADWORKS
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LINE S-G

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Earthwork	K3/6-2
Pipework.....	K3/6-3
Sundries	K3/6-4
Summary.....	K3/6-8

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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

6. LINE S-G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S	
	<u>EARTHWORK</u>					
	<u>Trench work including all necessary excavation in all kinds of materials, grading or levelling and compacting or trimming bottom of excavation, planking and strutting or trimming sides, dewatering excavation of all water sources, backfilling and compacting in layers up to the formation levels (including extra fill at ground level if required), removing surplus excavated materials from site, all as described.</u>					
A	Trench for 2no. pipes each 700 mm diameter, average depth over 1m but n.e. 2m					
	Per Linear Meter U.S. Dollars.	L.M	589	39	22971	
B	Ditto, for 2no. pipes each 700 mm diameter, average depth over 2m deep but n.e. 3m					
	Per Linear Meter U.S. Dollars.	L.M	327	98	32046	
K3/6-2					CARRIED TO SUMMARY	55017

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VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

6. LINE S-G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>PIPEWORK</u></p> <p><u>GRP Pressure pipe including all necessary fittings, jointing materials and fixing accessories, all as specified</u></p> <p>Pipes 700 mm diameter.</p> <p>Per Linear Meter U.S. Dollars</p> <p>.....</p> <p>.....</p>	L.M	1832	188	344 416
K3/6-3 CARRIED TO SUMMARY					344 416

**NORTH BEIRUT OUTFALL HEADWORKS
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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

6. LINE S-G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>SUNDRIES</u>				
	<u>Pipe Bedding</u>				
A	50 mm thick concrete blinding bed class C, laid in trenches to receive concrete pipe cradle or encasement.				
	Per Square Meter U.S. Dollars	S.M	168	3	504
B	Concrete encasement class A for 2no. 700 mm diameter pipes, including all necessary reinforcement				
	Per Linear Meter U.S. Dollars	L.M	73	150	10950
C	Sand cement bed and surround for 2no. 700 mm diameter pipes				
	Per Linear Meter U.S. Dollars	L.M	843	90	75870
	<u>Surface Restoration</u>				
D	Breaking up existing asphalt paving and reinstating with new asphalt				
	Per Square Meter U.S. Dollars	S.M	2107	15	31605
E	Breaking up existing decorative concrete tile paving and reinstating with new tiles to match existing				
	Per Square Meter U.S. Dollars	S.M	150	12	1800
K3/6-4		CARRIED TO COLLECTION			120729

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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

6. LINE S-G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	Breaking up existing reinforced concrete paving and reinstating with new reinforced concrete with new sub-base complete Per Square Meter U.S Dollars	S.M	100	15	1500
B	Removing and reinstating concrete curbs Per Linear Meter U.S. Dollars	L.M	750	15	11250
C	Removing and reinstating concrete planters, litter bins, benches and other items of street furniture Per Number U.S Dollars	No.	20	75	1500
D	Removing and reinstating street lighting poles Per Number U.S Dollars	No.	20	200	4000
E	Reinstatement of landscaped areas Per Square Meter U.S Dollars	S.M	60	2	120
F	Removing and reinstating trees Per Number U.S Dollars	No.	20	250	5000
K3/6-5 CARRIED TO COLLECTION					23370

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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

6. LINE S-G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	<p><u>General Sundry Works</u></p> <p>Cast iron Air Valve within chambers, as described</p> <p>Per number U.S Dollars</p> <p>.....</p> <p>.....</p>	No.	8	500	4000
B	<p>Cast iron isolating gate valves to suit 700 mm diameter pipework, within chambers, as described</p> <p>Per Number U.S Dollars</p> <p>.....</p> <p>.....</p>	No	4	1500	6000
K3/6-6 CARRIED TO COLLECTION					10000

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VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

6. LINE S-G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>SUNDRIES</u>				
	<u>COLLECTION</u>				
	<u>PAGE</u>				
	K3/6-4 .....	.....	.....	.....	120729
	K3/6-5 .....	.....	.....	.....	23370
	K3/6-6	10000
	TOTAL CARRIED TO SUMMARY				<hr/> 154099 <hr/>
K3/6-7					

NORTH BEIRUT OUTFALL HEADWORKS
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AND PUMPING STATIONS

LINE S-G

SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNTS</u>
Earthwork	K3/6-2	55017
Pipework	K3/6-3	344416
Sundries	K3/6-7	154 099

TOTAL CARRIED TO MAIN SUMMARY

553 532

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NORTH AND WEST-SOUTH COASTAL COLLECTORS
AND PUMPING STATIONS

LINE S2

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Earthwork	K3/7-2
<u>Option 1</u>	
Pipework.....	K3/7-5
<u>Option 2</u>	
Pipework.....	K3/7-6
Sundries	K3/7-7
Summary.....	K3/7-10

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VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

7. LINE S2

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S	
	<u>EARTHWORK</u>					
	<u>Trench work including all necessary excavation in all kinds of materials, grading or levelling and compacting or trimming bottom of excavation, planking and strutting or trimming sides, dewatering excavation of all water sources, backfilling and compacting in layers up to the formation levels (including extra fill at ground level if required), removing surplus excavated materials from site, all as described.</u>					
A	Trench for pipes 300 mm diameter, average depth over 2m but n.e. 3m					
	Per Linear Meter U.S. Dollars.	L.M	405	68	27540	
B	Ditto, 400 mm diameter, average depth over 1m deep but n.e. 2m					
	Per Linear Meter U.S. Dollars.	L.M	97	27	2619	
C	Ditto 400 mm diameter, average depth over 2m but n.e. 3m.					
	Per Linear Meter U.S. Dollars	L.M	189	70	13230	
D	Ditto, 400 mm diameter, average depth over 3m but n.e. 4m					
	Per Linear Meter U.S. Dollars.	L.M	56	205	11480	
K3/7-2					CARRIED TO COLLECTION	54869

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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

7. LINE S2

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICES \$
A	Trench for pipes , 400mm diameter, average depth over 4m but n.e. 5m. Per Linear Meter U.S. Dollars.	L.M	55	265	14575
B	Ditto 500mm diameter, average depth over 4m but n.e 5m Per Linear Meter U.S. Dollars.	L.M	52	271	14092
K3/7-3 CARRIED TO COLLECTION					28667

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7. LINE S2

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICES \$
	<u>EARTHWORK</u>				
	<u>COLLECTION</u>				
	<u>PAGE</u>				
	K3/7-2				54869
	K3/7-3				28667
	TOTAL CARRIED TO SUMMARY				<hr/> 83536 <hr/>
	K3/7-4				

NORTH BEIRUT OUTFALL HEADWORKS
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VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

7. LINE S2

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>OPTION 1</u> <u>PIPEWORK</u> <u>G.R.P pipes, including all necessary fittings, jointing all necessary fittings, jointing materials and fixing accessories, all as described</u>				
A	Pipes 300mm diameter. Per Linear Meter U.S. Dollars.	L.M	405	68	27540
B	Pipes 400mm diameter. Per Linear Meter U.S. Dollars.	L.M	397	96	38112
C	Pipes 500mm diameter. Per Linear Meter U.S. Dollars	L.M	52	155	8060
K3/7-5 OPTION 1 CARRIED TO SUMMARY					73712

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VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

7. LINE S2

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>OPTION 2</u>				
	<u>PIPEWORK</u>				
	<u>Asbestos cement pressure pipe, class 18 atmosphere, including all necessary fittings, jointing all necessary fittings, jointing materials and fixing accessories, all as described</u>				
A	Pipes 300mm diameter.				
	Per Linear Meter U.S. Dollars	L.M	405	43	17415
B	Pipes 400mm diameter.				
	Per Linear Meter U.S. Dollars	L.M	397	63	25011
C	Pipes 500mm diameter				
	Per Linear Meter U.S. Dollars	L.M	52	79	4108
K3/7-6 OPTION 2 CARRIED TO SUMMARY					46534

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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

7. LINE S2

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>SUNDRIES</u>				
	<u>Pipe Bedding</u>				
A	Sand and cement bed and surrounds for 300 mm diameter pipes				
	Per Linear Meter U.S. Dollars	L.M	405	25	10125
B	Ditto for 400 mm diameter pipes				
	Per Linear Meter U.S. Dollars	L.M	397	33	13101
C	Ditto for 500 mm diameter pipes				
	Per Linear Meter U.S. Dollars	L.M	52	41	2132
	<u>Surface Restoration</u>				
D	Breaking up existing asphalt paving and reinstating with new asphalt				
	Per Square Meter U.S. Dollars	S.M	758	15	11370
E	Breaking up existing decorative concrete tile paving and reinstating with new tiles to match existing				
	Per Square Meter U.S. Dollars	S.M	75	12	900
K3/7-7 CARRIED TO COLLECTION					37628

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**VOLUME III BILLS OF QUANTITIES
SECTION 3 - SEWER PIPES**

7. LINE S2

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Breaking up existing reinforced concrete paving and reinstating with new reinforced concrete with new sub-base complete				
	Per Square Meter U.S Dollars	S.M	50	15	750
B	Removing and reinstating concrete curbs				
	Per Linear Meter U.S. Dollars	L.M	750	15	11250
C	Removing and reinstating concrete planters, litter bins, benches and other items of street furniture				
	Per Number U.S Dollars	No.	10	75	750
D	Removing and reinstating street lighting poles				
	Per Number U.S Dollars	No.	10	200	2000
E	Reinstatement of landscaped areas				
	Per Square Meter U.S Dollars	S.M	30	2	60
F	Removing and reinstating trees				
	Per Number U.S Dollars	No.	10	250	2500
K3/7-8 CARRIED TO COLLECTION					17310

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VOLUME III BILLS OF QUANTITIES
 SECTION 3 - SEWER PIPES

7. LINE S2

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICES \$
	<u>SUNDRIES</u>				
	<u>COLLECTION</u>				
	<u>PAGE</u>				
	K3/7-7		37628
	K3/7-8		17310
	TOTAL CARRIED TO SUMMARY				<hr/> 54938 <hr/>
	K3/7-9				

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AND PUMPING STATIONS

LINE S2
SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNTS</u>
Earthwork	K3/7-4	83,536
<u>Option 1*</u>		
Pipework	K3/7-5	73,712
<u>Option 2*</u>		
Pipework	K3/7-6	(46,534) *
Sundries	K3/7-9	54,938
TOTAL CARRIED TO MAIN SUMMARY		212,186

* The Contractor is to include the costs of his preferred option only

* Option 1 chosen to be compatible with other lines.

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SECTION 3

SEWER PIPES

MAIN SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNTS</u>
1. Line A	K3/1-29	6,734,703
2. Line C	K3/2-8	359,386
3. Line E	K3/3-15	5,923,132
4. Line G	K3/4-15	2,384,403
5. Line S	K3/5-16	2,163,375
6. Line S-G	K3/6-8	553,532
7. Line S2	K3/7-10	212,186
TOTAL CARRIED TO GENERAL SUMMARY		18,330,717

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SECTION 4
SEWER CULVERTS

NORTH BEIRUT OUTFALL HEADWORKS
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SECTION 4

SEWER CULVERTS

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
1. Line A	K4/1-1
2 Line E	K4/2-1
3. Main Summary	K4/3-1

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LINE A

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Earthworks	K4/1-2
Culverts	K4/1-3
Sundries	K4/1-4
Summary	K4/1-7

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**VOLUME III BILLS OF QUANTITIES
SECTION 4 - SEWER CULVERTS**

I. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>EARTHWORK</u>				
	<u>Trench work including all necessary excavation, in all kinds of materials, grading or levelling and compacting or trimming bottom of excavation, planking and strutting or trimming sides, dewatering excavation of all water sources, backfilling and compacting in layers up to the formation levels (including extra fill at ground level if required), removing surplus excavated materials from site, all as described.</u>				
A	Excavate trenches for sewer culverts over 4m but n.e 6m deep.				
	Per Cubic Meter U.S. Dollars	C M	32376	17	550 392
B	Ditto, over 6m but n.e. 8m deep.				
	Per Cubic Meter U.S. Dollars	C.M	5579	19.5	108 790
C	Ditto, over 8 m but n.e 10 m deep.				
	Per Cubic Meter U.S. Dollars	C M	2420	21	50820
K4/1-2 CARRIED TO SUMMARY					710 002

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 4 - SEWER CULVERTS**

I. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
	<u>CULVERTS</u>					
	<u>Reinforced concrete box culverts, including reinforcement, formwork, sulphate resistant concrete, surface treatments, protective coatings incidental labor etc. complete as described.</u>					
A	Box culverts with internal dimensions 3.0 x 2.0 m.					
	Per Linear Meter U.S. Dollars	L.M	1362	1080	1470960	
B	All work related to jointing 3m wide culvert of line A with 3 m wide culvert of line E at A.MH.1 complete all as shown on drawings					
	Per Item U.S. Dollars.	Item	1		1000	
C	PVC Liner to internal surfaces of box culverts including all preparatory work, jointing etc., all as described					
	Per Square Meter U.S. Dollars.	S.M	13620	24	326880	
K4/1-3					CARRIED TO SUMMARY	1798840

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 4 - SEWER CULVERTS**

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>SUNDRIES</u></p> <p>50 mm thick concrete blinding bed class C, laid in trenches to receive concrete culverts including all necessary formwork and sundry labour as described.</p> <p>Per Square Meter U.S. Dollars.</p> <p>.....</p> <p>.....</p>	S.M	7491	3	22473
B	<p>Breaking up existing asphalt paving and reinstating with new asphalt</p> <p>Per Square Meter U.S. Dollars.</p> <p>.....</p> <p>.....</p>	S.M	7491	15	112365
C	<p>Breaking up existing decorative concrete tile paving and reinstating with new tiles to match existing</p> <p>Per Square Meter U.S. Dollars.</p> <p>.....</p> <p>.....</p>	S.M	325	12	3900
D	<p>Breaking up existing reinforced concrete paving and reinstating with new reinforced concrete with new sub-base complete</p> <p>Per Square Meter U.S. Dollars.</p> <p>.....</p> <p>.....</p>	S.M	200	15	3000
K4/I-4 CARRIED TO COLLECTION					141738

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 4 - SEWER CULVERTS**

I. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Removing and reinstating concrete curbs Per Linear Meter U.S. Dollars	L.M	1200	15	18000
B	Removing and reinstating concrete planters, litter bins, benches and other items of street furniture Per Number U.S. Dollars	No.	75	75	5625
C	Removing and reinstating street lighting poles Per Number U.S. Dollars.	No.	75	200	15000
D	Reinstatement of landscaped areas Per Square Meter U.S. Dollars	S.M	150	2	300
E	Removing and reinstating trees Per Number U.S. Dollars.	No.	75	250	18750
K4/1-5 CARRIED TO COLLECTION					57675

NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL COLLECTORS
AND PUMPING STATIONS

LINE A
SUMMARY

AMOUNT \$

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNT \$</u>
Earthwork	K4/1-2	710 002
Culverts	K4/1-3	1798 840
Sundries	K4/1-6	199 413
TOTAL CARRIED TO MAIN SUMMARY		2 708 255

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL COLLECTORS
AND PUMPING STATIONS**

LINE E

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Earthworks	K4/2-2
Culverts	K4/2-3
Sundries	K4/2-4
Summary	K4/2-7

Note: - Two Options are proposed for this line with regard to works involved in crossing the Beirut River.

Option A: - By means of a tunnelling method for 2no. 1800mm diameter pipes beneath the river between E.MH3 and E.MH4.

Option B: - By means of a sewer culvert diversion along one bank of the river crossing near the mouth of the river and connecting to an existing culvert along the opposite river bank.

For the purpose of pricing these alternative schemes, all work between E.MH3 and E.MH5 has been billed separately for each option.

All items for line E in this section relate to work up to E.MH3 and from E.MH5 as appropriate.

NORTH BEIRUT OUTFALL HEADWORKS
 NORTH AND WEST-SOUTH COASTAL
 COLLECTORS AND PUMPING STATIONS

VOLUME III BILLS OF QUANTITIES
 SECTION 4 - SEWER CULVERTS

2. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>EARTHWORK</u>				
	<u>Trench work including all necessary excavation, in all kinds of materials, grading or levelling and compacting or trimming bottom of excavation, planking and strutting or trimming sides, dewatering excavation of all water sources, backfilling and compacting in layers up to the formation levels (including extra fill at ground level if required), removing surplus excavated materials from site, all as described.</u>				
A	Excavate trenches for sewer culverts over 4m but n.e. 6m deep.				
	Per Cubic Meter U.S. Dollars	C.M	7872	16.5	129 888
B	Ditto, over 6m but n.e. 8m deep.				
	Per Cubic Meter U.S. Dollars	C.M	2288	20.5	46 904
K4/2-2 CARRIED TO SUMMARY					176 792

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 4 - SEWER CULVERTS**

2. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>CULVERTS</u>				
	<u>Reinforced concrete box culverts, including reinforcement, formwork, sulphate resistant concrete, surface treatments, protective coatings incidental labor etc. complete as described.</u>				
A	Box culverts with internal dimensions 3.0 x 2.0 m.				
	Per Linear Meter U.S. Dollars	L.M	349	1080	376920
B	PVC Liner to internal surfaces of box culverts including all preparatory work, jointing etc., all as described				
	Per Square Meter U.S. Dollars.	S.M	3492	24	83808
K4/2-3 CARRIED TO SUMMARY					460728

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 4 - SEWER CULVERTS**

2. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>SUNDRIES</u>				
A	50 mm thick concrete blinding bed class C, laid in trenches to receive concrete culverts including all necessary formwork and sundry labour as described.				
	Per Square Meter U.S. Dollars.	S.M	1921	3	5763
B	Breaking up existing asphalt paving and reinstating with new asphalt				
	Per Square Meter U.S. Dollars.	S.M	1921	15	28815
C	Breaking up existing decorative concrete tile paving and reinstating with new tiles to match existing				
	Per Square Meter U.S. Dollars.	S.M	250	12	3000
D	Breaking up existing reinforced concrete paving and reinstating with new reinforced concrete with new sub-base complete				
	Per Square Meter U.S. Dollars.	S.M	150	15	2250
	K4/2-4 CARRIED TO COLLECTION				39828

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL
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**VOLUME III BILLS OF QUANTITIES
SECTION 4 - SEWER CULVERTS**

2. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Removing and reinstating concrete curbs Per Linear Meter U.S. Dollars	L.M	300	15	4500
B	Removing and reinstating concrete planters, litter bins, benches and other items of street furniture Per Number U.S. Dollars.	No.	30	75	2250
C	Removing and reinstating street lighting poles Per Number U.S. Dollars.	No.	30	200	6000
D	Reinstatement of landscaped areas Per Square Meter U.S. Dollars	S.M	75	2	150
E	Removing and reinstating trees Per Number U.S. Dollars.	No	30	250	7500
K4/2-5 CARRIED TO COLLECTION					20400

NORTH BEIRUT OUTFALL HEADWORKS
 NORTH AND WEST-SOUTH COASTAL
 COLLECTORS AND PUMPING STATIONS

VOLUME III BILLS OF QUANTITIES
 SECTION 4 - SEWER CULVERTS

2. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>SUNDRIES</u>				
	<u>COLLECTION</u>				
	<u>PAGE</u>				
	K4/2-4				39 828
	K4/2-5				20 400
	TOTAL CARRIED TO SUMMARY				<hr/> 60 228 <hr/>
K4/2-6					

NORTH BEIRUT OUTFALL HEADWORKS
 NORTH AND WEST-SOUTH COASTAL COLLECTORS
 AND PUMPING STATIONS

LINE E

SUMMARY

AMOUNT \$

DESCRIPTION

PAGE

Earthwork	K4/2-2	176 792
Culverts	K4/2-3	460 728
Sundries	K4/2-6	60 228

697 748

TOTAL CARRIED TO MAIN SUMMARY

NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL COLLECTORS
AND PUMPING STATIONS

SECTION 4

SEWER CULVERTS

MAIN SUMMARY

AMOUNT \$

DESCRIPTION

PAGE

Line A K4/1-7

2,708,255

Line E K4/2-7

697,748

TOTAL CARRIED TO GENERAL SUMMARY

3,406,003

NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL COLLECTORS
AND PUMPING STATIONS

VOLUME III
BILLS OF QUANTITIES

SECTION 5

MANHOLES

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST-SOUTH COASTAL COLLECTORS
AND PUMPING STATIONS**

SECTION 5

MANHOLES

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
1. Line A	K5/1-1
2. Line C	K5/2-1
3. Line E	K5/3-1
4. Line G	K5/4-1
5. Line S	K5/5-1
6. Line S-G	K5/6-1
7. Line S2	K5/7-1
8. Main Summary	K5/8-1

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST - SOUTH COASTAL COLLECTORS
AND PUMPING STATIONS**

1. LINE A

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Earthwork	K5/1-2
Manholes	K5/1-5
Waterproofing	K5/1-10
Summary	K5/1-11

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST - SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 5 MANHOLES**

I. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>EARTHWORK</u>				
	<u>Pits for manholes including all necessary excavation in all kinds of materials, grading or levelling and compacting or trimming bottom of excavation, planking and strutting or trimming sides, dewatering excavation of all water sources, backfilling and compacting in layers up to the formation levels (including extra fill at ground level if required), removing surplus excavated materials from site, all as described.</u>				
A	Excavate pits n.e. 2 m deep.				
	Per Cubic Meter U.S. Dollars	C.M	34	7.5	255
B	Ditto n.e. 4m deep.				
	Per Cubic Meter U.S. Dollars	C.M	1211	12	14532
C	Ditto n.e. 6m deep.				
	Per Cubic Meter U.S. Dollars	C.M	4198	13	54574
D	Ditto over 6m deep.				
	Per Cubic Meter U.S. Dollars	C.M	216	13	2808
K5/1-2 CARRIED TO COLLECTION					72169

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST - SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 5 MANHOLES**

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Breaking up existing asphalt paving and reinstating with new asphalt				
	Per Square Meter U.S. Dollars	S.M	1283	15	19245
B	Breaking up existing decorative concrete tile paving and reinstating with new tiles to match existing				
	Per Square Meter U.S. Dollars	S.M	200	12	2400
C	Breaking up existing reinforced concrete paving and reinstating with new reinforced concrete with new sub-base complete				
	Per Square Meter U.S. Dollars	S.M	100	15	1500
D	Removing and reinstating concrete curbs				
	Per Linear Meter U.S. Dollars	L.M	75	15	1125
E	Removing and reinstating concrete planters, litter bins, benches and other items of street furniture				
	Per Number U.S. Dollars	No.	15	75	1125
F	Removing and reinstating street lighting poles				
	Per Number U.S. Dollars	No.	5	200	1000
K5/1-3 CARRIED TO COLLECTION					26395

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST - SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 5 MANHOLES**

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Reinstatement of landscaped areas				
	Per Square Meter U.S. Dollars	S.M	50	2	100
B	Removing and reinstating trees				
	Per Number U.S. Dollars	No.	5	250	1250
C	Coarse aggregate sub-base 150 mm thick under manholes where poor soil conditions are encountered.				
	Per Square Meter U.S. Dollars	S.M	193	2	386
	CARRIED TO COLLECTION				1736
	<u>COLLECTION</u>				
	<u>PAGE</u>				
	K5/1-2				72169
	K5/1-3				26395
	K5/1-4				1736
	TOTAL CARRIED TO SUMMARY				100300
K5/1-4					

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST - SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 5 MANHOLES**

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>MANHOLES</u>				
	<u>Reinforced concrete manholes complete, including all concrete work (using sulphate resistant cement), blinding, all necessary formwork, reinforcement, benchings, pipe sleeves, couplings, concrete plugs for future use, making good around pipes, surface treatments, admixtures, grading concrete bricks to manhole shaft as required, cast iron steps and 840 x 840 mm heavy duty cast iron manhole cover and frame, all as detailed and as described</u>				
A	1.20 x 1.20 m internally; depth 2 - 2.5 m.				
	Per Number U.S. Dollars	No.	1	1080	1080
B	Ditto; depth 2.5 - 3m				
	Per Number U.S. Dollars	No.	4	1185	4740
C	Ditto; depth 3 - 3.5m				
	Per Number U.S. Dollars	No.	9	1280	11520
D	Ditto; depth 3.5 - 4m				
	Per Number U.S. Dollars	No.	6	1380	8280
E	Ditto; depth 4 - 4.5m				
	Per Number U.S. Dollars	No.	4	1485	5940
K5/1-5		CARRIED TO COLLECTION			31560

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**VOLUME III BILLS OF QUANTITIES
SECTION 5 MANHOLES**

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	1.20 x 1.20 m internally; depth 4.5 - 5m Per Number U.S. Dollars	No	2	1575	3150
B	Ditto; depth 2.5 - 3 m; shaft type manhole to culvert Per Number U.S. Dollars	No.	8	2665	21320
C	Ditto; depth 3 - 3.5m; ditto Per Number U.S. Dollars	No.	3	3090	9270
D	Ditto; depth 4 - 4.5m; ditto Per Number U.S. Dollars	No.	1		3935
E	Ditto; depth 4.5 - 5m; ditto Per Number U.S. Dollars	No.	1		4360
F	Ditto; depth 5 - 5.5m Per Number U.S. Dollars	No.	1		4785
G	1.90 x 1.90m internally; depth 2.5 - 3m Per Number U.S. Dollars	No.	3	1845	5535
K5/1-6 CARRIED TO COLLECTION					52355

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST - SOUTH COASTAL
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**VOLUME III BILLS OF QUANTITIES
SECTION 5 MANHOLES**

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	1.90 x 1.90m internally ; depth 3 - 3.5m Per Number U.S. Dollars	No	6	1970	11820
B	Ditto; depth 3.5 - 4 m Per Number U.S. Dollars	No	8	2070	16560
C	Ditto; depth 4 - 4.5 m Per Number U.S. Dollars	No.	11	2170	23870
D	Ditto; depth 4.5 - 5 m Per Number U.S. Dollars	No.	12	2265	27180
E	Ditto; depth 5 - 5.5 m Per Number U.S. Dollars	No.	5	2370	11850
F	Ditto; depth 5.5 - 6 m Per Number U.S. Dollars	No.	5	2470	12350
G	Ditto; depth 6 - 6.5 m Per Number U.S. Dollars	No.	3	2565	7695
K5/1-7 CARRIED TO COLLECTION					111325

**NORTH BEIRUT OUTFALL HEADWORKS
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VOLUME III BILLS OF QUANTITIES
SECTION 5 MANHOLES

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	1.90 x 1.90m internally ; depth 7 - 7.5m Per Number U.S. Dollars	No.	1	2765	2765
B	2.30 x 2.30 m internally; depth 3.5 - 4 m Per Number U.S. Dollars	No.	5	2635	13175
C	Ditto; depth 4 - 4.5 m Per Number U.S. Dollars	No.	8	2735	21880
D	Ditto; depth 4.5 - 5 m Per Number U.S. Dollars	No.	12	2835	34020
E	Ditto; depth 5 - 5.5 m Per Number U.S. Dollars	No.	18	2930	52740
F	Ditto; depth 5.5 - 6 m Per Number U.S. Dollars	No.	2	3035	6070
G	Ditto; depth 6 - 6.5 m Per Number U.S. Dollars	No.	8	3135	25080
K5/1-8 CARRIED TO COLLECTION					155730

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST - SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 5 MANHOLES**

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	2.30 x 2.30 m internally; depth 6.5 - 7 m Per Number U.S. Dollars	No.	4	3230	12920
B	Ditto; depth 7 - 7.5 m Per Number U.S. Dollars	No.	3	3330	9990
CARRIED TO COLLECTION					<hr/> 22910
<u>COLLECTION</u>					
<u>PAGE</u>					
K5/1-5					31560
K5/1-6					52355
K5/1-7					111325
K5/1-8					155730
K5/1-9					22910
TOTAL CARRIED TO SUMMARY					<hr/> 373880
K5/1-9					

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**VOLUME III BILLS OF QUANTITIES
SECTION 5 MANHOLES**

1. LINE A

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>WATERPROOFING</u>				
A	Protect internal surfaces of concrete manholes with two coats of an approved coal tar compound				
	Per Square Meter U.S. Dollars	S.M	250	5	1250
B	Protect internal surfaces of concrete manholes with P.V.C. linings as described				
	Per Square Meter U.S. Dollars	S.M	3131	24	75144
C	Prepare and apply three coats of an approved coal tar compound to external surfaces of concrete manholes				
	Per Square Meter U.S. Dollars	S.M	4460	7	31220
D	Prepare and install torch applied bitumen waterproofing membrane to external surfaces of concrete manholes including priming concrete surfaces and application of required protection to waterproofing membrane all as described				
	Per Square Meter U.S. Dollars	S.M	2242	27	60534
K5/1-10 CARRIED TO SUMMARY					168 148

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AND PUMPING STATIONS

LINE A

SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNT \$</u>
Earthwork	K5/1-4	100 300
Manholes	K5/1-9	373 880
Waterproofing	K5/1-10	168 148
TOTAL CARRIED TO MAIN SUMMARY		<u>642 328</u>

**NORTH BEIRUT OUTFALL HEADWORKS
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2. LINE C

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Earthwork	K5/2-2
Chambers	K5/2-4
Waterproofing	K5/2-6
Summary	K5/2-7

Republic of Lebanon
Office of the Minister of State for Administrative Reform
Center for Public Sector Projects and Studies
(C.P.S.P.S.)

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST - SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 5 MANHOLES**

2. LINE C

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>EARTHWORK</u>				
	<u>Pits for chambers including all necessary excavation in all kinds of materials, grading or levelling and compacting or trimming bottom of excavation, planking and strutting or trimming sides, dewatering excavation of all water sources, backfilling and compacting in layers up to the formation levels (including extra fill at ground level if required), removing surplus excavated materials from site, all as described.</u>				
A	Excavate pits n.e. 2 m deep.				
	Per Cubic Meter U.S. Dollars	C.M	8	7.5	60
B	Ditto n.e. 4m deep.				
	Per Cubic Meter U.S. Dollars	C.M	60	12	720
C	Breaking up existing asphalt paving and reinstating with new asphalt				
	Per Square Meter U.S. Dollars	S.M	29	15	435
D	Removing and reinstating concrete curbs				
	Per Linear Meter U.S. Dollars	L.M	10	15	150
	K5/2-2	CARRIED TO COLLECTION			1365

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**VOLUME III BILLS OF QUANTITIES
SECTION 5 MANHOLES**

2. LINE C

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p>Coarse aggregate sub-base 150 mm thick under manholes where poor soil conditions are encountered.</p> <p>Per Square Meter U.S. Dollars</p> <p>.....</p> <p>.....</p> <p>CARRIED TO COLLECTION</p> <p><u>COLLECTION</u></p> <p><u>PAGE</u></p> <p>K5/2-2</p> <p>K5/2-3</p> <p>TOTAL CARRIED TO SUMMARY</p>	S.M	10	2	<p>20</p> <hr/> <p>20</p> <hr/> <p>1365</p> <p>20</p> <hr/> <p>1385</p>
K5/2-3					

**NORTH BEIRUT OUTFALL HEADWORKS
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**VOLUME III BILLS OF QUANTITIES
SECTION 5 MANHOLES**

2. LINE C

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>CHAMBERS</u>				
	<u>Reinforced concrete Inspection Chambers No. 1 complete all as detailed on drawing NC-CS-444, including all concrete work (using sulphate resistant cement), blinding, all necessary formwork, reinforcement, concrete supports, pipe sleeves, couplings, making good around pipes, surface treatments, admixtures, grading concrete bricks to manhole shaft as required, cast iron steps and heavy duty cast iron manhole cover and frame ref. LS 42 Class 1 all as detailed and as described</u>				
A	1.50 x 1.40 m internally; depth 2 - 2.5 m.				
	Per Number U.S. Dollars	No.	5	1350	6750
				
				
B	Ditto; depth 3 - 3.5 m				
	Per Number U.S. Dollars	No.	1		1650
				
				
K5/2-4 CARRIED TO COLLECTION					8400

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**VOLUME III BILLS OF QUANTITIES
SECTION 5 MANHOLES**

2. LINE C

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>Reinforced concrete Washout Chamber complete, including all concrete work (using sulphate resistant cement), blinding, all necessary formwork, reinforcement, pipe sleeves, couplings, making good around pipes, surface treatments, admixtures, grading concrete bricks to manhole shaft as required, cast iron steps and heavy duty cast iron manhole cover and frame, ref. LS 42 Class1 all as detailed and as described</u></p> <p>1.50 x 1.40 m internally; depth 1.5 - 2m</p> <p>Per Number U.S. Dollars</p> <p>.....</p> <p>.....</p> <p>CARRIED TO COLLECTION</p> <p><u>COLLECTION</u></p> <p><u>PAGE</u></p> <p>K5/2-4</p> <p>K5/2-5</p> <p>TOTAL CARRIED TO SUMMARY</p>	No.	1		<p>1200</p> <hr/> <p>1200</p> <hr/> <p>8400</p> <p>1200</p> <hr/> <p>9600</p> <hr/>
K5/2-5					

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 COLLECTORS AND PUMPING STATIONS

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 SECTION 5 MANHOLES

2. LINE C

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>WATERPROOFING</u></p> <p>Prepare and apply three coats of an approved coal tar compound to external surfaces of concrete manholes</p> <p>Per Square Meter U.S. Dollars</p> <p>.....</p> <p>.....</p>	S.M	120	7	840
K5/2-6 CARRIED TO SUMMARY					840

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AND PUMPING STATIONS

LINE C

SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNT \$</u>
Earthwork	K5/2-3	1385
Manholes	K5/2-5	9600
Waterproofing	K5/2-6	840
TOTAL CARRIED TO MAIN SUMMARY		<u>11825</u>

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AND PUMPING STATIONS

3. LINE E

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Earthwork	K5/3-2
Manholes	K5/3-6
Waterproofing.....	K5/3-10
Summary	K5/3-11

Note: - Two Options are proposed for this line with regard to works involved in crossing the Beirut River.

Option A: - By means of a tunnelling method for 2no. 1800mm diameter pipes beneath the river between E.MH3 and E.MH4.

Option B: - By means of a sewer culvert diversion along one bank of the river crossing near the mouth of the river and connecting to an existing culvert along the opposite river bank.

For the purpose of pricing these alternative schemes, all work between E.MH3 and E.MH5 has been billed separately for each option.

All items for line E in this section relate to work up to E.MH3 and from E.MH5 as appropriate.

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SECTION 5 - MANHOLES**

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
	<u>EARTHWORK</u>					
	<u>Pits for manholes including all necessary excavation in all kinds of materials, grading or levelling and compacting or trimming bottom of excavation, planking and strutting or trimming sides, dewatering excavation of all water sources, backfilling and compacting in layers up to the formation levels (including extra fill at ground level if required), removing surplus excavated materials from site, all as described</u>					
A	Excavate pits n.e. 4m deep					
	Per Cubic Meter U.S. Dollars.	C.M	55	7.5	413	
B	Ditto n.e. 6m deep					
	Per Cubic Meter U.S. Dollars.	C.M	704	12	8448	
C	Ditto n.e. 8m deep					
	Per Cubic Meter U.S. Dollars.	C.M	4019	13	52247	
D	Ditto n.e. 10m deep					
	Per Cubic Meter U.S. Dollars.	C.M	3859	13	50167	
E	Ditto n.e. 12m deep					
	Per Cubic Meter U.S. Dollars.	C.M	1079	15	16185	
K5/3-2					CARRIED TO COLLECTION	127460

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**VOLUME III BILLS OF QUANTITIES
SECTION 5 - MANHOLES**

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Breaking up existing asphalt paving and reinstating with new asphalt Per Square Meter U.S. Dollars.	S.M	1284	15	19260
B	Breaking up existing decorative concrete tile paving and reinstating with new tiles to match existing Per Square Meter U.S. Dollars.	S.M	200	12	2400
C	Breaking up existing reinforced concrete paving and reinstating with new reinforced concrete with new sub-base complete Per Square Meter U.S. Dollars.	S.M	100	15	1500
D	Removing and reinstating concrete curbs Per Linear Meter U.S. Dollars	L.M	150	15	2250
E	Removing and reinstating concrete planters, litter bins, benches and other items of street furniture Per Number U.S. Dollars.	No.	15	75	1125
K5/3-3 CARRIED TO COLLECTION					26535

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SECTION 5 - MANHOLES**

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Removing and reinstating street lighting poles Per Number U.S. Dollars.	No.	15	200	3000
B	Reinstatement of landscaped areas Per Square Meter U.S. Dollars.	S.M	50	2	100
C	Removing and reinstating trees Per Number U.S. Dollars.	No.	5	250	1250
D	Coarse aggregate sub-base 150mm thick under manholes where poor soil conditions are encountered Per Square Meter U.S. Dollars.	S.M	642	2	1284
K5/3-4 CARRIED TO COLLECTION					5634

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3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>COLLECTION</u>				
	<u>PAGE</u>				
	K5/3-2				127 460
	K5/3-3				26 535
	K5/3-4				5634
	TOTAL CARRIED TO SUMMARY				159 629
	K5/3-5				

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SECTION 5 - MANHOLES**

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>MANHOLES</u>				
	<u>Reinforced concrete manholes complete, including all concrete work (using sulphate resistant cement), blinding, all necessary formwork, reinforcement, benchings, pipe sleeves, couplings, concrete plugs for future use, making good around pipes, surface treatments, admixtures, grading concrete bricks to manhole shaft as required, cast iron steps and 840 x 840mm heavy duty cast iron manhole cover and frame, all as detailed and as described</u>				
A	1.20 x 1.20m internally; depth 2 - 2.5m; shaft type manhole to culvert				
	Per Number U.S. Dollars.	No.	2	2245	4490
				
				
B	Ditto; depth 4 - 4.5m				
	Per Number U.S. Dollars.	No.	1		3935
				
				
K5/3-6 CARRIED TO COLLECTION					8425

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SECTION 5 - MANHOLES**

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	3.20 x 3.20m internally; depth 4 - 4.5m Per Number U.S. Dollars	No.	3	4220	12660
B	Ditto; depth 4.5 - 5m Per Number U.S. Dollars	No.	5	4340	21700
C	Ditto; depth 5.5 - 6m Per Number U.S. Dollars	No.	1	4570	4570
D	Ditto; depth 6 - 6.5m Per Number U.S. Dollars	No.	3	4690	14070
E	Ditto; depth 6.5 - 7m Per Number U.S. Dollars	No.	7	4805	33635
F	Ditto; depth 7 - 7.5m Per Number U.S. Dollars	No.	3	6110	18330
G	Ditto; depth 7.5 - 8m Per Number U.S. Dollars	No.	8	6235	49880
K5/3-7 CARRIED TO COLLECTION					154845

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**VOLUME III BILLS OF QUANTITIES
SECTION 5 - MANHOLES**

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	3.20 x 3.20m internally; depth 8 - 8.5m Per Number U.S. Dollars	No.	4	6355	25420
B	Ditto; depth 8.5 - 9m Per Number U.S. Dollars	No.	9	6475	58275
C	Ditto; depth 9 - 9.5m Per Number U.S. Dollars	No.	4	6600	26400
D	Ditto; depth 10 - 10.5m Per Number U.S. Dollars	No.	3	6840	20520
E	Ditto; depth 10.5 - 11m Per Number U.S. Dollars	No.	1	6965	6965
K5/3-8 CARRIED TO COLLECTION					137580

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 SECTION 5 - MANHOLES

3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>COLLECTION</u>				
	<u>PAGE</u>				
	K5/3-6	8425
	K5/3-7	154845
	K5/3-8	137580
	TOTAL CARRIED TO SUMMARY				<u>300850</u>
	K5/3-9				

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3. LINE E

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
<u>WATERPROOFING</u>					
A	Protect internal surfaces of concrete manholes with two coats of an approved coal tar compound Per Square Meter U.S. Dollars	S.M	150	5	750
B	Protect internal surfaces of concrete manholes with P.V.C. linings as described Per Square Meter U.S. Dollars	S.M	2250	24	54000
C	Prepare and apply three coats of an approved coal tar compound to external surfaces of concrete manholes Per Square Meter U.S. Dollars	S.M	4481	7	31367
D	Prepare and install torch applied bitumen waterproofing membrane to external surfaces of concrete manholes including priming concrete surfaces and application of required protection to waterproofing membrane all as described Per Square Meter U.S. Dollars	S.M	826	27	22302
K5/3-10 CARRIED TO SUMMARY					108419

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AND PUMPING STATIONS

LINE E
SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNTS</u>
Earthwork	K5/3-5	159 629
Manholes	K5/3-9	300 850
Waterproofing	K5/3-10	108 419
TOTAL CARRIED TO MAIN SUMMARY		<hr/> 568 898 <hr/>

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4. LINE G

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Earthwork	K5/4-2
Manholes	K5/4-5
Waterproofing	K5/4-7
Summary	K5/4-8

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SECTION 5 MANHOLES**

4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>EARTHWORK</u>				
	<u>Pits for manholes including all necessary excavation in all kinds of materials, grading or levelling and compacting or trimming bottom of excavation, planking and strutting or trimming sides, dewatering excavation of all water sources, backfilling and compacting in layers up to the formation levels (including extra fill at ground level if required), removing surplus excavated materials from site, all as described.</u>				
A	Excavate pits n.e. 4 m deep.				
	Per Cubic Meter U.S. Dollars	C.M	169	12	2028
B	Ditto n.e. 6m deep.				
	Per Cubic Meter U.S. Dollars	C.M	955	13	12415
C	Ditto over 6m deep.				
	Per Cubic Meter U.S. Dollars	C.M	537	13	6981
D	Breaking up existing asphalt paving and reinstating with new asphalt				
	Per Square Meter U.S. Dollars	S.M	328	15	4920
K5/4-2 CARRIED TO COLLECTION					26344

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4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Removing and reinstating trees Per Number U.S. Dollars	No.	3	250	750
B	Coarse aggregate sub-base 150 mm thick under manholes where poor soil conditions are encountered. Per Square Meter U.S. Dollars	S.M	50	2	100
CARRIED TO COLLECTION					<hr/> 850
<u>COLLECTION</u>					
<u>PAGE</u>					
K5/4-2					26344
K5/4-3					2175
K5/4-4					850
TOTAL CARRIED TO SUMMARY					<hr/> 29369
K5/4-4					

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4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>MANHOLES</u>				
	<u>Reinforced concrete manholes complete, including all concrete work (using sulphate resistant cement), blinding, all necessary formwork, reinforcement, benchings, pipe sleeves, couplings, concrete plugs for future use, making good around pipes, surface treatments, admixtures, grading concrete bricks to manhole shaft as required, cast iron steps and 840 x 840 mm heavy duty cast iron manhole cover and frame, all as detailed and as described</u>				
A	1.90 x 1.90 m internally; depth 2 - 2.5 m.				
	Per Number U.S. Dollars	No.	1		1645
B	Ditto; depth 3 - 3.5m				
	Per Number U.S. Dollars	No.	1		1970
C	Ditto; depth 3.5 - 4m				
	Per Number U.S. Dollars	No.	4	2070	8280
D	Ditto; depth 4 - 4.5m				
	Per Number U.S. Dollars	No.	6	2170	13020
E	Ditto; depth 4.5 - 5m				
	Per Number U.S. Dollars	No.	6	2265	13590
K5/4-5		CARRIED TO COLLECTION			38 505

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SECTION 5 MANHOLES**

4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	1.90 x 1.90 m internally; depth 5 - 5.5m Per Number U.S. Dollars	No	5	2370	11850
B	Ditto; depth 5.5 - 6 m; Per Number U.S. Dollars	No.	6	2470	14820
C	Ditto; depth 6 - 6.5m Per Number U.S. Dollars	No.	6	2565	15390
D	Ditto; depth 6.5 - 7m Per Number U.S. Dollars	No.	4	2665	10660
	CARRIED TO COLLECTION				<hr/>
	<u>COLLECTION</u>				52720
	<u>PAGE</u>				
	K5/4-5				38505
	K5/4-6				52720
	TOTAL CARRIED TO SUMMARY				<hr/>
					91225
K5/4-6					

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SECTION 5 MANHOLES**

4. LINE G

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>WATERPROOFING</u>				
A	Protect internal surfaces of concrete manholes with two coats of an approved coal tar compound				
	Per Square Meter U.S. Dollars	S.M	50	5	250
B	Protect internal surfaces of concrete manholes with P.V.C. linings as described				
	Per Square Meter U.S. Dollars	S.M	861	24	20664
C	Prepare and apply three coats of an approved coal tar compound to external surfaces of concrete manholes				
	Per Square Meter U.S. Dollars	S.M	1660	7	11620
KS/4-7 CARRIED TO SUMMARY					32534

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LINE G

SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNT \$</u>
Earthwork	K5/4-4	29 369
Manholes	K5/4-6	91 225
Waterproofing	K5/4-7	32 534
TOTAL CARRIED TO MAIN SUMMARY		<u>153 128</u>

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5. LINE S

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Earthwork	K5/5-2
Manholes	K5/5-5
Waterproofing	K5/5-8
Summary	K5/5-9

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**VOLUME III BILLS OF QUANTITIES
SECTION 5 MANHOLES**

5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>EARTHWORK</u>				
	<u>Pits for manholes including all necessary excavation in all kinds of materials, grading or levelling and compacting or trimming bottom of excavation, planking and strutting or trimming sides, dewatering excavation of all water sources, backfilling and compacting in layers up to the formation levels (including extra fill at ground level if required), removing surplus excavated materials from site, all as described.</u>				
A	Excavate pits n.e. 4 m deep.				
	Per Cubic Meter U.S. Dollars	C.M	551	12	6612
B	Ditto n.e. 6m deep.				
	Per Cubic Meter U.S. Dollars	C.M	1633	13	21229
C	Ditto over 6m deep.				
	Per Cubic Meter U.S. Dollars	C.M	102	13	1326
D	Breaking up existing asphalt paving and reinstating with new asphalt				
	Per Square Meter U.S. Dollars	S.M	510	15	7650
K5/5-2 CARRIED TO COLLECTION					36817

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5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Breaking up existing decorative concrete tile paving and reinstating with new tiles to match existing Per Square Meter U.S. Dollars	S.M.	100	12	1200
B	Breaking up existing reinforced concrete paving and reinstating with new reinforced concrete with new sub-base complete Per Square Meter U.S. Dollars	S.M.	50	15	750
C	Removing and reinstating concrete curbs Per Linear Meter U.S. Dollars	L.M.	50	15	750
D	Removing and reinstating concrete planters, litter bins, benches and other items of street furniture Per Number U.S. Dollars	No.	10	75	750
E	Removing and reinstating street lighting poles Per Number U.S. Dollars	No.	5	200	1000
F	Reinstatement of landscaped areas Per Square Meter U.S. Dollars	S.M.	50	2	100
K5/5-3 CARRIED TO COLLECTION					4550

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5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Removing and reinstating trees Per Number U.S. Dollars	No.	5	250	1250
B	Coarse aggregate sub-base 150 mm thick under manholes where poor soil conditions are encountered. Per Square Meter U.S. Dollars	S.M	150	2	300
CARRIED TO COLLECTION					<hr/> 1550 <hr/>
<u>COLLECTION</u>					
<u>PAGE</u>					
K5/5-2					36817
K5/5-3					4550
K5/5-4					1550
TOTAL CARRIED TO SUMMARY					<hr/> 42917 <hr/>
K5/5-4					

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SECTION 5 MANHOLES**

5. LINE 5

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>MANHOLES</u>				
	<u>Reinforced concrete manholes complete, including all concrete work (using sulphate resistant cement), blinding, all necessary formwork, reinforcement, benchings, pipe sleeves, couplings, concrete plugs for future use, making good around pipes, surface treatments, admixtures, grading concrete bricks to manhole shaft as required, cast iron steps and 840 x 840 mm heavy duty cast iron manhole cover and frame, all as detailed and as described</u>				
A	1.20 x 1.20 m internally; depth 3 - 3.5 m.				
	Per Number U.S. Dollars	No.	2	1280	2560
B	Ditto; depth 3.5 - 4m				
	Per Number U.S. Dollars	No.	4	1380	5520
C	Ditto; depth 4 - 4.5m				
	Per Number U.S. Dollars	No.	2	1485	2970
D	1.90 x 1.90 m internally; depth 3.5 - 4m				
	Per Number U.S. Dollars	No.	14	2070	28980
E	Ditto; depth 4 - 4.5m				
	Per Number U.S. Dollars	No.	22	2170	47740
K5/5-5		CARRIED TO COLLECTION			87770

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SECTION 5 MANHOLES

5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	1.90 x 1.90 m internally; depth 4.5 - 5m Per Number U.S. Dollars	No	6	2265	13590
B	Ditto; depth 5 - 5.5 m Per Number U.S. Dollars	No.	5	2370	11850
C	Ditto; depth 5.5 - 6m Per Number U.S. Dollars	No.	6	2470	14820
D	Ditto; depth 6 - 6.5m Per Number U.S. Dollars	No.	2	2565	5130
K5/5-6 CARRIED TO COLLECTION					45390

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**VOLUME III BILLS OF QUANTITIES
SECTION 5 MANHOLES**

5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>Reinforced concrete Discharge Chamber 1 complete all as detailed on drawing NC-CS-444, including all concrete work (using sulphate resistant cement), blinding, all necessary formwork, reinforcement, cyclopean concrete benchings, pipe sleeves, couplings, vent pipes, vent post, making good around pipes, surface treatments, admixtures, grading concrete bricks to manhole shafts as required, cast iron steps and 3 no. heavy duty cast iron manhole covers and frames, ref. LS 42 Class 1 all as detailed and as described</u></p> <p>3.60 x 2.00 m internally; depth 4 - 4.5 m.</p> <p>Per Number U.S. Dollars</p> <p>.....</p> <p>.....</p> <p>CARRIED TO COLLECTION</p> <p><u>COLLECTION</u></p> <p><u>PAGE</u></p> <p>K5/5-5</p> <p>K5/5-6</p> <p>K5/5-7</p> <p>TOTAL CARRIED TO SUMMARY</p>	No.	1		<p>4250</p> <hr/> <p>4250</p> <hr/> <p>87770</p> <p>45390</p> <p>4250</p> <hr/> <p>137410</p>
K5/5- 7					

**NORTH BEIRUT OUTFALL HEADWORKS
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SECTION 5 MANHOLES**

5. LINE S

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>WATERPROOFING</u>				
A	Protect internal surfaces of concrete manholes with two coats of an approved coal tar compound				
	Per Square Meter U.S. Dollars	S.M	150	5	750
B	Protect internal surfaces of concrete manholes with P.V.C. linings as described				
	Per Square Meter U.S. Dollars	S.M	1299	24	31176
C	Prepare and apply three coats of an approved coal tar compound to external surfaces of concrete manholes				
	Per Square Meter U.S. Dollars	S.M	2448	7	17136
D	Prepare and install torch applied bitumen waterproofing membrane to external surfaces of concrete manholes including priming concrete surfaces and application of required protection to waterproofing membrane all as described				
	Per Square Meter U.S. Dollars	S.M	78	27	2106
K5/5-8 CARRIED TO SUMMARY					51168

NORTH BEIRUT OUTFALL HEADWORKS
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AND PUMPING STATIONS

LINE S

SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNT \$</u>
Earthwork	K5/5-4	42 917
Manholes	K5/5-7	137 410
Waterproofing	K5/5-8	51 168
TOTAL CARRIED TO MAIN SUMMARY		<u>231 495</u>

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6. LINE SG

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Earthwork	K5/6-2
Chambers	K5/6-4
Waterproofing	K5/6-7
Summary	K5/6-8

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6. LINE SG

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>EARTHWORK</u>				
	<u>Pits for chambers including all necessary excavation in all kinds of materials, grading or levelling and compacting or trimming bottom of excavation, planking and strutting or trimming sides, dewatering excavation of all water sources, backfilling and compacting in layers up to the formation levels (including extra fill at ground level if required), removing surplus excavated materials from site, all as described.</u>				
A	Excavate pits n.e. 4 m deep	C.M	108	12	1296
	Per Cubic Meter U.S. Dollars				
				
				
B	Breaking up existing asphalt paving and reinstating with new asphalt	S.M	40	15	600
	Per Square Meter U.S. Dollars				
				
				
C	Removing and reinstating concrete curbs	L.M	15	15	225
	Per Linear Meter U.S. Dollars				
				
				
D	Coarse aggregate sub-base 150 mm thick under manholes where poor soil conditions are encountered.	S.M	15	2	30
	Per Square Meter U.S. Dollars				
				
				
K5/6-2		CARRIED TO SUMMARY			2151

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6. LINE SG

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	<p><u>CHAMBERS</u></p> <p><u>Reinforced concrete Inspection Chambers No.2 complete all as detailed on drawing NC-CS-444, including all concrete work (using sulphate resistant cement), blinding, all necessary formwork, reinforcement, concrete supports, pipe sleeves, couplings, making good around pipes, surface treatments, admixtures, grading concrete bricks to manhole shaft as required, cast iron steps and heavy duty cast iron manhole cover and frame ref LS 42 Class 1 all as detailed and as described</u></p> <p>1.70 x 1.70 m internally; depth 2 - 2.5 m.</p> <p>Per Number U.S. Dollars</p> <p>.....</p> <p>.....</p>	No.	3	1600	4800
B	<p><u>Reinforced concrete Air Release Valve Chambers complete, including all concrete work (using sulphate resistant cement), blinding, all necessary formwork, reinforcement, concrete supports, pipe sleeves, couplings, making good around pipes, surface treatments, admixtures, grading concrete bricks to manhole shaft as required, cast iron steps and heavy duty cast iron manhole cover and frame ref LS 42 Class 1 all as detailed and as described</u></p> <p>1.70 x 1.70 m internally; depth 2 - 2.5 m.</p> <p>Per Number U.S. Dollars</p> <p>.....</p> <p>.....</p>	No.	1	1600	1600
K5/6-3		CARRIED TO COLLECTION			6400

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6 LINE SG

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>Reinforced concrete Washout Chamber complete, including all concrete work (using sulphate resistant cement), blinding, all necessary formwork, reinforcement pipe sleeves, couplings, making good around pipes, surface treatments, admixtures, grading concrete bricks to manhole shaft as required, cast iron steps and heavy duty cast iron manhole cover and frame ref LS 42 Class 1 all as detailed and as described</u></p> <p>1.70 x 1.70 m internally; depth 2 - 2.5 m.</p> <p>Per Number U.S. Dollars</p> <p>.....</p> <p>.....</p>	No.	1		1600
B	<p><u>Reinforced concrete Discharge Chamber 2 complete all as detailed on drawing NC-CS-444, including all concrete work (using sulphate resistant cement), blinding, all necessary formwork, reinforcement, cyclopean concrete benchings, pipe sleeves, couplings, vent pipes, vent post, making good around pipes, surface treatments, admixtures, grading concrete bricks to manhole shafts as required, cast iron steps and 3 no. heavy duty cast iron manhole covers and frames, ref. LS 42 Class 1 all as detailed and as described</u></p> <p>3.60 x 2.00 m internally; depth 4 - 4.5 m.</p> <p>Per Number U.S. Dollars</p> <p>.....</p> <p>.....</p>	No.	1		4250
K5/6-4 CARRIED TO COLLECTION					5850

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6. LINE SG

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>COLLECTION</u>				
	<u>PAGE</u>				
	K5/6-3		6400
	K5/6-4		5850
	TOTAL CARRIED TO SUMMARY				<hr/> 12250 <hr/>
	K5/6-5				

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6. LINE SG

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>WATERPROOFING</u>				
	Protect internal surfaces of concrete manholes with P.V.C. linings as described				
	Per Square Meter U.S. Dollars	S.M	30	24	720
B	Prepare and apply three coats of an approved coal tar compound to external surfaces of concrete manholes				
	Per Square Meter U.S. Dollars	S.M	140	7	980
K5/6-6					CARRIED TO SUMMARY
					1700

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LINE SG

SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNT \$</u>
Earthwork	K5/6-2	2151
Manholes	K5/6-5	12250
Waterproofing	K5/6-6	1700
TOTAL CARRIED TO MAIN SUMMARY		<hr/> 16101 <hr/>

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7. LINE S2

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Earthwork	K5/7-2
Manholes	K5/7-5
Waterproofing	K5/7-7
Summary	K5/7-8

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**VOLUME III BILLS OF QUANTITIES
SECTION 5 MANHOLES**

7. LINE S2

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>EARTHWORK</u>				
	<u>Pits for manholes including all necessary excavation in all kinds of materials, grading or levelling and compacting or trimming bottom of excavation, planking and strutting or trimming sides, dewatering excavation of all water sources, backfilling and compacting in layers up to the formation levels (including extra fill at ground level if required), removing surplus excavated materials from site, all as described.</u>				
A	Excavate pits n.e. 4 m deep.				
	Per Cubic Meter U.S. Dollars	C.M	214	12	2568
B	Ditto n.e. 6 m deep.				
	Per Cubic Meter U.S. Dollars	C.M	69	13	897
C	Breaking up existing asphalt paving and reinstating with new asphalt				
	Per Square Meter U.S. Dollars	S.M	87	15	1305
D	Breaking up existing decorative concrete tile paving and reinstating with new tiles to match existing				
	Per Square Meter U.S. Dollars	S.M	25	12	300
K5/7-2		CARRIED TO COLLECTION			5070

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7. LINE S2

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Breaking up existing reinforced concrete paving and reinstating with new reinforced concrete with new sub-base complete Per Square Meter U.S. Dollars	S.M	10	15	150
B	Removing and reinstating concrete curbs Per Linear Meter U.S. Dollars	L.M	25	15	375
C	Removing and reinstating concrete planters, litter bins, benches and other items of street furniture Per Number U.S. Dollars	No.	5	75	375
D	Removing and reinstating street lighting poles Per Number U.S. Dollars	No.	2	200	400
E	Reinstatement of landscaped areas Per Square Meter U.S. Dollars	S.M	25	2	50
F	Removing and reinstating trees Per Number U.S. Dollars	No.	3	250	750
K5/7-3 CARRIED TO COLLECTION					2100

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7. LINE S2

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p>Coarse aggregate sub-base 150 mm thick under manholes where poor soil conditions are encountered.</p> <p>Per Square Meter U.S. Dollars</p> <p>.....</p> <p>.....</p> <p>CARRIED TO COLLECTION</p> <p><u>COLLECTION</u></p> <p><u>PAGE</u></p> <p>K5/7-2 K5/7-3 K5/7-4</p> <p>TOTAL CARRIED TO SUMMARY</p>	S M	15	2	<p>30</p> <hr/> <p>30</p> <hr/> <p>5070 2100 30</p> <hr/> <p>7200</p>
K5/7-4					

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7. LINE S2

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>MANHOLES</u>				
	<u>Reinforced concrete manholes complete, including all concrete work (using sulphate resistant cement), blinding, all necessary formwork, reinforcement, benching pipe sleeves, couplings, concrete plugs for future use, making good around pipes, surface treatments, admixtures, grading concrete bricks to manhole shaft as required, cast iron steps and 840 x 840 mm heavy duty cast iron manhole cover and frame, all as detailed and as described</u>				
A	1.20 x 1.20 m internally; depth 2.5 - 3 m.				
	Per Number U.S. Dollars	No.	10	1185	11850
B	Ditto; depth 3 - 3.5 m				
	Per Number U.S. Dollars	No.	4	1280	5120
C	Ditto; depth 3.5 - 4 m				
	Per Number U.S. Dollars	No.	1		1380
D	Ditto; depth 4 - 4.5 m				
	Per Number U.S. Dollars	No.	1		1485
E	Ditto; depth 4.5 - 5 m				
	Per Number U.S. Dollars	No.	1		1575
K5/7-5		CARRIED TO COLLECTION			21410

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7. LINE S2

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	1.20 x 1.20 m internally; depth 5 - 5.5 m. Per Number U.S. Dollars CARRIED TO COLLECTION <u>COLLECTION</u> <u>PAGE</u> K5/7-5 K5/7-6 TOTAL CARRIED TO SUMMARY	No.	1		1680 <hr/> 1680 21410 1680 <hr/> 23090
K5/7-6					

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7. LINE S2

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>WATERPROOFING</u>				
A	Protect internal surfaces of concrete manholes with two coats of an approved coal tar compound				
	Per Square Meter U.S. Dollars	S.M	10	5	50
B	Protect internal surfaces of concrete manholes with P.V.C. linings as described				
	Per Square Meter U.S. Dollars	S.M	201	24	42824
C	Prepare and apply three coats of an approved coal tar compound to external surfaces of concrete manholes				
	Per Square Meter U.S. Dollars	S.M	385	7	2695
D	Prepare and install torch applied bitumen waterproofing membrane to external surfaces of concrete manholes including priming concrete surfaces and application of required protection to waterproofing membrane all as described				
	Per Square Meter U.S. Dollars	S.M	17	27	459
K5/7-7 CARRIED TO SUMMARY					8028

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LINE S2

SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNT \$</u>
Earthwork	K5/7-4	7200
Manholes	K5/7-6	23090
Waterproofing	K5/7-7	8028
TOTAL CARRIED TO MAIN SUMMARY		38318

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SECTION 5

MANHOLES

MAIN SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNT \$</u>
1. Line A	K5/1-11	642 328
2. Line C	K5/2-7	11 825
3. Line E	K5/3-11	568 898
4. Line G	K5/4-8	153 128
5. Line S	K5/5-9	231 495
6. Line SG	K5/6-7	16 101
7. Line S2	K5/7-8	38 318

TOTAL CARRIED TO GENERAL SUMMARY

1 662 093

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SECTION 6

PUMPING AND LIFT STATIONS

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
1. Pumping Station A1-North	K6/1-1
2. Lift Station A2-North	K6/2-1
3. Lift Station A3-North	K6/3-1
4. Pumping Station A1-South	K6/4-1
5. Pumping Station A2-South	K6/5-1
6. Main Summary	K6/6-1

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PUMPING STATION A1-NORTH

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Earthwork.....	K6/1-2
Concrete Work.....	K6/1-3
Metal Work	K6/1-6
Floor, Wall and Ceiling Finishings	K6/1-7
Mechanical Work.....	K6/1-8
Electrical Work.....	K6/1-13
Summary.....	K6/1-20

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1. PUMPING STATION A1-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	<u>EARTHWORK</u> Excavation for basement. Per Cubic Meter U.S. Dollars	C.M	218	7	1526
K6/1-2 CARRIED TO SUMMARY					1526

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I. PUMPING STATION A1-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S	
	<u>CONCRETE WORK</u>					
A	Sulphate resistant lean concrete class C in 50 mm blinding bed.					
	Per Square Meter U.S. Dollars	S.M	46	3	138	
B	Sulphate resistant cyclopean concrete in filling around structures					
	Per Cubic Meter U.S. Dollars	C.M	22	60	1320	
C	Sulphate resistant reinforced concrete class A in ground slabs					
	Per Cubic Meter U.S. Dollars	C.M	14	80	1120	
D	Ditto in 200 mm thick walls					
	Per Square Meter U.S. Dollars	S.M	19	32	608	
E	Ditto in 350 mm thick walls					
	Per Square Meter U.S. Dollars	S.M	133	56	7448	
F	Reinforced concrete class A in 200mm thick solid suspended slabs					
	Per Square Meter U.S. Dollars	S.M	33	20	660	
K6/1-3					CARRIED TO COLLECTION	11 294

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I. PUMPING STATION A1-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	<u>Steel reinforcement bent, hooked and fixed in position with and including laps, spacers, tying wires all as described.</u>				
	Plain mild steel bars. Per Kilogram U.S. Dollars				
B	High tensile deformed steel bars.				
	Per Kilogram U.S. Dollars				
K6/1-4 CARRIED TO COLLECTION					3488

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1. PUMPING STATION A1-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>COLLECTION</u>				
	<u>Page</u>				
	K6/1-3.....				11 294
	K6/1-4.....				3 488
	TOTAL CARRIED TO SUMMARY				<hr/> 14 782 <hr/>
K6/1-5					

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1. PUMPING STATION A1-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>METAL WORK</u>				
A	Galvanised steel checkered plate cover and frame 70 x 70cm fixed into reinforced concrete				
	Per Number U.S. Dollars	No.	1		90
B	Ditto 70 x 120cm ditto				
	Per Number U.S. Dollars	No.	1		140
C	Ditto 85 x 120cm ditto				
	Per Number U.S. Dollars	No.	4	170	680
D	Galvanised cast iron steps, fixed into concrete walls				
	Per Number U.S. Dollars	No.	4	12	48
K6/1-6 CARRIED TO SUMMARY					958

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I. PUMPING STATION A1-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>FLOOR, WALL AND CEILING FINISHINGS</u>				
	<u>Floors</u>				
A	Prepare and apply anti-corrosive epoxy resin coating to internal concrete surfaces				
	Per Square Meter U.S. Dollars	S.M	36	15	540
				
				
	<u>Walls - Internally</u>				
B	PVC Liner as coating to internal concrete surfaces				
	Per Square Meter U.S. Dollars	S.M	124	24	2976
				
				
C	Prepare and apply anti-corrosive epoxy resin coating to internal concrete surfaces.				
	Per Square Meter U.S. Dollars	S.M	18	16	288
				
				
	<u>Ceilings</u>				
D	Prepare and apply anti-corrosive epoxy resin coating to internal concrete surfaces				
	Per Square Meter U.S. Dollars	S.M	13	16	208
				
				
E	PVC Liner as coating to internal concrete surfaces				
	Per Square Meter U.S. Dollars	S.M	19	24	456
				
				
K6/1-7		CARRIED TO SUMMARY			4468

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1. PUMPING STATION A1-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>MECHANICAL WORKS</u>				
	<u>Wall mounted Penstocks, installed and tested, complete including frame, door, sealers, fasteners, motor and all accessories as specified and shown on drawings</u>				
A	Penstock, 0.50 m wide with extension spindle, off seating type				
	Per Number U.S. Dollars	No.	1		11040
	<u>Ductile iron pipes, installed and tested complete with all fittings and accessories, jointing and jointing materials, supports and hangers, all as described</u>				
B	Ductile iron pipe, 250 mm diameter				
	Per Linear Meter U.S. Dollars	L.M	20	260	5200
C	Ditto 300 mm diameter				
	Per Linear Meter U.S. Dollars	L.M	5	350	1750
K6/1-8 CARRIED TO COLLECTION					17990

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I. PUMPING STATION A1-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>Valves, installed, connected and tested, complete including all accessories as specified and shown on drawings</u></p> <p>Gate valve, 250 mm diameter</p> <p>Per Number U.S. Dollars.</p> <p>.....</p>	No.	4	760	3040
B	<p>Check valve, 250 mm diameter</p> <p>Per Number U.S. Dollars.</p> <p>.....</p>	No.	4	520	2080
C	<p><u>Sewage pump, submersible type, installed and tested, complete with motor, guide rails, all connections and accessories as specified</u></p> <p>Sewage pump 142 LPS capacity at 9.3m head of 320 Kw motor</p> <p>Per Number U.S. Dollars.</p> <p>.....</p>	No.	4	19650	78600
K6/1-9 CARRIED TO COLLECTION					83720

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 SECTION 6 PUMPING & LIFT STATIONS

1. PUMPING STATION A1-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	<p><u>Mercury switch level control units, installed connected and tested complete with all connections, relays, and all accessories as specified and/or shown on drawings</u></p> <p>Level control unit</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p>	No.	1		3600
B	<p><u>FANS</u></p> <p><u>Supply fan, centrifugal installed and tested, complete with all accessories and fittings, connections and controls all as specified and shown on drawings</u></p> <p>Supply roof fan of 3/4 HP motor</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p>	No.	1		900
C	<p>Filtered supply roof of 1HP motor</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p>	No.	1		2000
K6/1-10 CARRIED TO COLLECTION					6500

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1. PUMPING STATION A1-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>ODOR CONTROL</u></p> <p><u>Activated carbon filter, installed and tested, complete with galvanized steel casing, dust filters, plastic removable media panels and all accessories as described</u></p> <p>Activated carbon filter to treat 2100 m³/Hr</p> <p>Per Number U.S. Dollars</p> <p>.....</p>	No.	1		33350
B	<p><u>Ductwork</u></p> <p>400 mm diameter GRP pipe exhaust air ducts; installed and tested, complete including excavation, bedding, backfilling, supports, seams, fittings, couplings and accessories, all as specified.</p> <p>Per Linear Meter U.S. Dollars.</p> <p>.....</p>	LM	10	275	2750
K6/1-11 CARRIED TO COLLECTION					36100

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SECTION 6 PUMPING & LIFT STATION**

1. PUMPING STATION A1 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>ELECTRICAL WORKS</u> <u>Incoming Supply Cut- Out</u> Incoming Cut- Out as described Per Number U.S. Dollars	No.	1		2000
B	<u>Generator and Control Panel</u> 150KVA generator ABGSM rating 'B' category 2 load acceptance, grade 1 voltage regulation complete with GCP/NA1 control panel, protection, battery charger and accessories all as described. Per Number U.S. Dollars	No.	1		45000
C	<u>Earthing</u> Earth electrodes & pits as described Per Number U.S. Dollars	No.	2	300	600
D	Earthing conductors & bonding of equipment as described Per Lump Sum U.S. Dollars	L.S.	1		3000
E	<u>Motor Control Centers</u> MCC/NA1 as described Per Number U.S. Dollars	No.	1		15000
K 6/1-13 CARRIED TO COLLECTION					67600

**NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST - SOUTH COASTAL
COLLECTORS AND PUMPING STATIONS**

**VOLUME III BILLS OF QUANTITIES
SECTION 6 PUMPING & LIFT STATION**

1. PUMPING STATION A1 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	<u>Data Acquisition System</u> Complete system including SCP/NA1 Per Number U.S. Dollars	No.	1		10000
B	<u>Cables</u> 3 ½ C 150 + 95mm² ECC XLPE /SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	20	130	2600
C	4C-16mm² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	100	15	1500
D	3 C 10 mm² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	40	13	520
E	4 C 4 mm² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	20	8	160
F	3 C 2.5 PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	25	5	125
K 6/1- 14 CARRIED TO COLLECTION					14905

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 SECTION 6 PUMPING & LIFT STATION

1. PUMPING STATION A1 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	<u>Control System Cabling & Connections to Equipment & Devices</u> Complete system as described Per Lump Sum U.S. Dollars	L.S	1		2000
B	<u>Lighting Points</u> Lighting point, for hazardous zone 1 as described Per Number U.S. Dollars	No.	3	50	150
C	Ditto but for hazardous zone 2. as described Per Number U.S. Dollars	No.	3	35	105
D	<u>Accessories</u> One gang, one way lighting switch 15 A, 220 V, weatherproof IP54. as described Per Number U.S. Dollars	No.	1	30	30
E	Single phase single socket outlet 15A, 220V, 3 pin weatherproof IP54 as described Per Number U.S. Dollars	No.	2	50	100
K 6/1-15 CARRIED TO COLLECTION					2385

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1. PUMPING STATION A1 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	Fire alarm breakglass station, for hazardous zone 2 as described Per Number U.S. Dollars	No	1		300
B	Ditto but hazardous zone 0 as described Per Number U.S. Dollars	No	1		400
C	Fire alarm siren, weatherproof IP54 as described Per Number U.S. Dollars	No	1		250
	<u>Lighting Fittings</u>				
D	Lighting fitting type K19 as described Per Number U.S. Dollars	No	3	2000	6000
E	Lighting fitting type K20 as described Per Number U.S. Dollars	No	2	650	1300
F	Lighting fitting type K32 as described Per Number U.S. Dollars	No	2	400	800
K 6/1-16 CARRIED TO COLLECTION					9050

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VOLUME III BILLS OF QUANTITIES
 SECTION 6 PUMPING & LIFT STATION

1. PUMPING STATION A1 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	Lighting fitting type K70 as described Per Number U.S. Dollars	No.	1		400
B	Lighting fitting type K82 as described Per Number U.S. Dollars <u>Disconnect Switches With Auxiliary Contacts.</u>	No.	1		300
C	15A TP&N, weatherproof IP54 as described Per Number U.S. Dollars	No.	2	50	100
D	15 A DP, weatherproof IP54 as described Per Number U.S. Dollars <u>Telephone System</u>	No.	6	40	240
E	Telephone point, as described Per Number U.S. Dollars	No.	1		35
F	Wall type telephone hand-set with enclosure. as described Per Number U.S. Dollars	No.	1		70
K 6/1-17 CARRIED TO COLLECTION					1145

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**VOLUME III BILLS OF QUANTITIES
SECTION 6 PUMPING & LIFT STATION**

I. PUMPING STATION A1 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
A	Telephone Terminal cabinet for 10 pairs, IP54 as described Per Number U.S. Dollars	No	1		100	
B	100mm dia PVC duct laid in trenches as described Per Linear Meter U.S Dollars	L.M	60	15	900	
C	Connection to SCP/NA1 as described Per Lump Sum U.S. Dollars <u>Lock-Off Switches</u>	L.S	1		200	
D	Lock-off switches, for hazardous zone 2 as described Per Number U.S. Dollars <u>Equipment Connections Supplied by MCC/NA1</u>	No.	4	150	600	
E	Circuit references 1.2.3.4. hazardous zone 0 installation Per Number U.S. Dollars	No.	4	150	600	
K 6/1- 18					CARRIED TO COLLECTION	2400

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I. PUMPING STATION A1 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Circuit references 8,9 for hazardous zone 2 as described Per Number U.S. Dollars	No	2	100	200
B	Circuit references 10,11,12 IP54 as described Per Number U.S. Dollars	No	3	70	210
CARRIED TO COLLECTION					410
<u>COLLECTION</u>					
<u>Pages</u>					
K 6/1-13.....					6760
K 6/1-14.....					14905
K 6/1-15.....					2385
K 6/1-16.....					9050
K 6/1-17.....					1145
K 6/1-18.....					2400
K 6/1-19.....					410
TOTAL CARRIED TO SUMMARY					97 895
K 6/1- 19					

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PUMPING STATION A1-NORTH

SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNT \$</u>
Earthwork	K6/1-2	1526
Concrete Work	K6/1-5	14782
Metal Work	K6/1-6	958
Floor, Wall and Ceiling Finishings.....	K6/1-7	4468
Mechanical Work.....	K6/1-12	144310
Electrical Work	K6/1-19	97895
TOTAL CARRIED TO MAIN SUMMARY		263,939

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LIFT STATION A2-NORTH

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Earthwork	K6/2-2
Concrete Work	K6/2-3
Blockwork	K6/2-7
Waterproofing and Roofing.....	K6/2-8
Doors, Windows and Louvers	K6/2-9
Metal Work	K6/2-10
Floor, Wall and Ceiling Finishings.....	K6/2-11
Mechanical Work.....	K6/2-14
Electrical work	K6/2-18
Summary	K6/2-27

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2. LIFT STATION A2-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>EARTHWORK</u> Excavation for basement. Per Cubic Meter U.S. Dollars	C.M	1138	7	7966
B	Backfilling to concrete structures with selected surplus excavated materials well compacted in layers as described Per Cubic Meter U.S. Dollars	C.M	202	12	2424
K6/2-2 CARRIED TO SUMMARY					10390

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2. LIFT STATION A2-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
	<u>CONCRETE WORK</u>					
A	Sulphate resistant lean concrete class C in 50 mm blinding bed					
	Per Square Meter U.S. Dollars	S.M	172	3	516	
B	Ditto class B 30 mm thick over waterproofing membrane.					
	Per Square Meter U.S. Dollars	S.M	172	2	344	
C	Ditto class B in benching to channels					
	Per Cubic Meter U.S. Dollars	C.M	3	60	180	
D	Sulphate resistant reinforced concrete class A in ground slabs					
	Per Cubic Meter U.S. Dollars	C.M	143	80	11440	
E	Ditto in sloping ground slabs					
	Per Cubic Meter U.S. Dollars	C.M	45	82	3690	
F	Ditto in 150 mm thick walls					
	Per Square Meter U.S. Dollars	S.M	65	24	1560	
K6/2-3					CARRIED TO COLLECTION	17730

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SECTION 6 PUMPING & LIFT STATIONS**

2. LIFT STATION A2-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
A	Sulphate resistant reinforced concrete class A in 200 mm thick walls					
	Per Square Meter U.S. Dollars	S.M	62	32	1984	
B	Ditto in 300 mm thick walls					
	Per Square Meter U.S. Dollars	S.M	230	48	11040	
C	Ditto in 550 mm thick walls					
	Per Square Meter U.S. Dollars	S.M	262	90	23580	
D	Ditto in 900 mm thick walls					
	Per Square Meter U.S. Dollars	S.M	69	150	10350	
E	Ditto in stairs and landings					
	Per Cubic Meter U.S. Dollars	C.M	21	100	2100	
F	Reinforced concrete class A in 200 mm thick solid suspended slabs					
	Per Square Meter U.S. Dollars	S.M	58	20	1160	
K6/2-4					CARRIED TO COLLECTION	50214

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2. LIFT STATION A2-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>Steel reinforcement bent, hooked and fixed in position with and including laps, spacers, tying wires all as described.</u> Plain mild steel bars.	Kg	10057	.45	4526
	Per Kilogram U.S. Dollars				
B	High tensile deformed steel bars.	Kg	40229	.45	18103
	Per Kilogram U.S. Dollars				
K6/2-5 CARRIED TO COLLECTION					22629

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2. LIFT STATION A2-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>COLLECTION</u>				
	<u>Page</u>				
	K6/2-3.....				17730
	K6/2-4.....				50214
	K6/2-5.....				22629
	TOTAL CARRIED TO SUMMARY				<hr/> 90573 <hr/>
K6/2-6					

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2. LIFT STATION A2-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	<p><u>BLOCKWORK</u></p> <p>Precast concrete hollow blocks in 100mm thick wall as protection to waterproofing membrane.</p> <p>Per Square Meter U.S. Dollars</p> <p>.....</p> <p>.....</p>	S.M	348	7	2436
K6/2-7 CARRIED TO SUMMARY					2436

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2. LIFT STATION A2-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
<u>WATERPROOFING AND ROOFING</u>						
<u>Waterproofing</u>						
A	Waterproofing membrane to base slabs consisting of polymer modified bitumen membrane minimum 4 mm thick applied over blinding bed with all necessary surface preparation, priming and bitumen coatings, all as described.	S.M	172	20	3440	
	Per Square Meter U.S. Dollars					
B	Waterproofing membrane to underground wall consisting of polymer modified bitumen membrane minimum 4 mm thick including turning edge of membrane at top into notch and sealing with mastic, surface preparation, priming and bitumen coatings, all as described.	S.M	348	20	6960	
	Per Square Meter U.S. Dollars					
<u>Roofing</u>						
C	Removable reinforced fiberglass roof covers to fit structural opening size 11.20 x 8.90m including all structural supports, fixings, flashings and fittings complete, all to be designed by the Contractor	L.S	1		4000	
	Per Lump Sump U.S. Dollars					
K6/2-8					CARRIED TO SUMMARY	14400

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 SECTION 6 PUMPING & LIFT STATIONS

2. LIFT STATION A2-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>DOORS, WINDOWS AND LOUVERS</u>				
	<u>Metal doors and frames</u>				
	Metal door for structural opening 120 x 220 cm.				
	Per Number U.S. Dollars	No.	1		250
B	<u>Louvers</u>				
	Aluminium louvers for structural opening 100 x 100 cm.				
	Per Number U.S. Dollars	No	2	100	200
K6/2-9		CARRIED TO SUMMARY			450

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2. LIFT STATION A2-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>METAL WORK</u>				
A	Galvanised cast iron steps, fixed into concrete walls				
	Per Number U.S. Dollars	No	37	12	444
B	Galvanised steel stairs 110 cm wide x 70 cm high complete with balustrading and all fixings and fittings, fixed to concrete				
	Per Number U.S. Dollars	No	1	90	90
C	Heavy duty cast iron lockable grid cover and frame 600 mm diameter fixed into reinforced concrete				
	Per Number U.S. Dollars	No	3	250	750
D	Medium duty cast iron lockable cover, frame to suit opening size 110cm x 110 cm, fixed into reinforced concrete				
	Per Number U.S. Dollars	No	4	350	1400
E	Aluminium balustrade 1000mm high consisting of handrails, intermediate rails and posts, fixed to concrete including all necessary fixing accessories				
	Per Linear Meter U.S. Dollars	L.M	25	70	1750
K6/2-10		CARRIED TO SUMMARY			4434

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2. LIFT STATION A2-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>FLOOR, WALL AND CEILING FINISHINGS</u>				
	<u>Floors</u>				
A	Cement/sand screed bed (1:4), laid to falls and cross falls 50mm thick				
	Per Square Meter U.S. Dollars	S.M	26	6	156
B	Prepare and apply anti-corrosive epoxy resin coating to internal concrete surfaces.				
	Per Square Meter U.S. Dollars	S.M	186	16	2976
C	Non-slip Carborundum strips fixed to reinforced concrete steps				
	Per Linear Meter U.S. Dollars	L.M	43	2	86
	<u>Walls - Internally</u>				
D	PVC Liner as coating to internal concrete surfaces of wet well				
	Per Square Meter U.S. Dollars	S.M	61	24	1464
E	Prepare and apply resin base paint to smooth fair faced concrete walls.				
	Per Square Meter U.S. Dollars	S.M	66	4	264
K6/2-11				CARRIED TO COLLECTION	4946

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2. LIFT STATION A2-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>Ceilings</u> Prepare and apply emulsion paint of polyvinyl acetate (PVA) type to smooth fair faced concrete ceilings Per Square Meter U.S. Dollars	S.M	25	4	100
B	<u>Walls - Externally</u> Prepare and apply silicone clear paint to exposed smooth fair faced concrete finish. Per Square Meter U.S. Dollars	S.M	142	4	568
K6/2-12		CARRIED TO COLLECTION			668

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2. LIFT STATION A2-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>MECHANICAL WORKS</u></p> <p><u>Wall mounted Penstocks, installed and tested, complete including frame, door, sealers, fasteners motors and all accessories as specified and shown on drawings</u></p> <p>Penstock, 0.60 m wide with extension spindle</p> <p>Per Number U.S. Dollars.</p>	No.	4	11040	44160
B	<p><u>GRP pipe, installed and tested complete with all fittings and accessories, jointing and jointing materials all as described</u></p> <p>GRP pipe, 1000 mm diameter</p> <p>Per Linear Meter U.S. Dollars.</p>	L.M	4	316	1264
C	<p><u>Fire extinguisher, dry chemical portable type, wall-mounted complete including hose and nozzle, trigger, safety pin and all accessories as specified and shown on drawings</u></p> <p>Portable, dry chemical fire extinguisher, minimum 6 Kg capacity</p> <p>Per Number U.S. Dollars.</p>	No.	4	75	300
K6/2-14 CARRIED TO COLLECTION					45724

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**VOLUME III BILLS OF QUANTITIES
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2. LIFT STATION A2-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>EQUIPMENT</u></p> <p><u>Sewage pumps, archimedean screw, 3-start type, installed and tested as per project's specific characteristic curve, complete with all controls and connections, gear box, motors, couplings base bearing and lubrications system, steel trough and all accessories as specified and shown on drawings</u></p> <p>1200 mm diameter pump and 10 m screw length of 344 LPS and 32Kw motor</p> <p>Per Number U.S. Dollars</p>	No.	3	130000	390000
B	<p><u>Mercury switch level control units, installed connected and tested complete with all connections, relays, and all accessories as specified and/or shown on drawings</u></p> <p>Level control unit</p> <p>Per Number U.S. Dollars</p>	No.	1		15000
C	<p><u>DUCT-WORK</u></p> <p><u>Exhaust air pipes, installed and tested, complete, including hangers, supports, seams, fittings and accessories, all as specified</u></p> <p>800 mm GRP round pipe for air outlet</p> <p>Per Linear Meter U.S. Dollars</p>	L.M	15	400	6000
K6/2-15 CARRIED TO COLLECTION					411000

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2. LIFT STATION A2-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>LOUVERS</u></p> <p><u>Anodized aluminium louvers, installed, complete including frame, blades, fasteners and all accessories as specified</u></p> <p>Louver size 1000 x 1000 mm</p> <p>Per Number U.S. Dollars.</p> <p>.....</p>	No	2	100	200
B	<p><u>FANS</u></p> <p><u>Exhaust Fan, installed and tested, complete with all accessories and fittings, connections and controls all as specified and shown on drawings</u></p> <p>Exhaust fan of 3 HP motor</p> <p>Per Number U.S. Dollars.</p> <p>.....</p>	No.	1		2000
C	<p><u>Odor control, activated carbon filter, installed and tested, complete with galvanized steel casing, dust filters, plastic removable media panels and all accessories as specified and shown on drawings</u></p> <p>Activated carbon filter to treat 9600 m³/HR of air</p> <p>Per Number U.S. Dollars.</p> <p>.....</p>	No.	1		145000
K6/2-16 CARRIED TO COLLECTION					147 200

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2. LIFT STATION A2-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>COLLECTION</u>				
	<u>PAGE</u>				
	K6/2-14	45724
	K6/2-15	411000
	K6/2-16	147200
	TOTAL CARRIED TO SUMMARY				603924
	K6/2-17				

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2. LIFT STATION A2 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	<u>ELECTRICAL WORKS</u> <u>Incoming Supply Cut- Out</u> Incoming Cut- Out as described Per Number U.S. Dollars	No.	1		2000
B	<u>Generator and Control Panel</u> 150KVA generator ABGSM rating 'B' category 2 load acceptance, grade 1 voltage regulation complete with GCP/NA2 control panel, protection, battery charger and accessories all as described. Per Number U.S. Dollars	No.	1		45000
C	<u>Subpanel Board</u> SPB/NA2 as described Per Number U.S. Dollars	No.	1		300
D	<u>Earthing</u> Earth electrodes & pits as described Per Number U.S. Dollars	No.	2	300	600
E	Earthing conductors & bonding of equipment as described Per Lump Sum U.S. Dollars	L.S	1		5000
K6/2-18 CARRIED TO COLLECTION					52900

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2. LIFT STATION A2 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>Motor Control Centers</u>				
A	MCC/NA2 as described				
	Per Number U.S. Dollars	No.	1		16500
				
				
	<u>Cables</u>				
B	3 ½ C 150 + 95mm² ECC XLPE /SWA/PVC as described				
	Per Linear Meter U.S. Dollars	L.M	30	130	3900
				
				
C	4C-16mm² PVC/SWA/PVC as described				
	Per Linear Meter U.S. Dollars	L.M	95	15	1425
				
				
D	3 C 10 mm² PVC/SWA/PVC as described				
	Per Linear Meter U.S. Dollars	L.M	45	13	585
				
				
E	4 C 4 mm² PVC/SWA/PVC as described				
	Per Linear Meter U.S. Dollars	L.M	30	8	240
				
				
F	4C 2.5 mm² PVC/SWA/PVC as described				
	Per Linear Meter U.S. Dollars	L.M	60	5	300
				
				
K6/2-19 CARRIED TO COLLECTION					22950

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2. LIFT STATION A2 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	3 C 2.5 PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	50	4.5	225
B	<u>Control System Cabling & Connections to Equipment & Devices</u> Complete sytem as described Per Lump Sum U.S. Dollars <u>Lighting Points</u>	L.S	1		2000
C	Lighting point, hazardous zone 2 as described Per Number U.S. Dollars	No.	7	50	350
D	Ditto but for hazardous zone 0 (Zero) as described Per Number U.S. Dollars <u>Accessories</u>	No.	15	80	1200
E	One gang, one way lighting switch 15 A, 220 V, weatherproof IP54.as described Per Number U.S. Dollars	No.	1		30
K6/2-20 CARRIED TO COLLECTION					3805

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2. LIFT STATION A2 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	One gang, one way key operated lighting switch 15 A, 220 V, weatherproof IP54.as described Per Number U.S. Dollars	No.	1		80
B	Single phase single socket outlet 15A, 220V, 3 pin, for hazardous zone 2 as described Per Number U.S. Dollars	No	2	80	160
C	Fire alarm breakglass station, for hazardous zone 2 as described Per Number U.S. Dollars	No	1		300
D	Ditto but for hazardous zone 0 (Zero) as described Per Number U.S. Dollars	No	3	400	1200
E	Fire alarm siren, for hazardous zone 2 as described Per Number U.S. Dollars	No.	1		300
F	Ditto but, for hazardous zone 0 (Zero) as described Per Number U.S. Dollars	No.	1		400
K6/2-21 CARRIED TO COLLECTION					2440

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2. LIFT STATION A2 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>Lighting Fittings</u>				
A	Lighting fitting type K10 as described Per Number U.S. Dollars	No.	3	700	2100
B	Lighting fitting type K12 as described Per Number U.S. Dollars	No.	5	300	1500
C	Lighting fitting type K19 as described Per Number U.S. Dollars	No.	3	2000	6000
D	Lighting fitting type K40 as described Per Number U.S. Dollars	No.	6	350	2100
E	Lighting fitting type K82 as described Per Number U.S. Dollars	No.	2	300	600
F	Lighting fitting type K90 as described Per Number U.S. Dollars	No.	6	450	2700
K6/2-22 CARRIED TO COLLECTION					15000

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2. LIFT STATION A2 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	<u>Disconnect Switches With Auxiliary Contacts</u> 15A TP&N, weatherproof IP54 as described Per Number U.S. Dollars	No.	8	50	400
B	15 A 6 POLE, weatherproof IP54as described Per Number U.S. Dollars	No.	1		100
C	15 A DP, weatherproof IP54 as described Per Number U.S. Dollars	No.	3	40	120
D	<u>Telephone System</u> Telephone point,as described Per Number U.S. Dollars	No.	1		35
E	Wall type telephone hand-set, IP54 with enclosure as described Per Number U.S. Dollars	No.	1		120
K6/2-23 CARRIED TO COLLECTION					775

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2. LIFT STATION A2 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	Telephone Terminal cabinet for 10 pairs, IP54 as described Per Number U.S. Dollars	No	1		100
B	100mm dia PVC duct laid in trenches as described Per Linear Meter U.S.Dollars	L.M	20	15	300
C	Connection to SCP/NA2 as described Per Lump Sum U.S. Dollars <u>Lock-off Switches</u>	L.S	1		200
D	Lock-off switches, hazardous zone 2 as described Per Number U.S. Dollars <u>Equipment Connections Supplied by MCC/NA2</u>	No.	4	150	600
E	Circuit references 1,2,3,4, hazardous zone 2 installation as described Per Number U.S. Dollars	No.	4	150	600
K6/2-24 CARRIED TO COLLECTION					1800

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2. LIFT STATION A2 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Circuit references 5,6,7,8,9,10,11,12 IP54as described Per Number U.S. Dollars	No	8	70	560
B	Circuit references 13 for hazardous zone 2 as described Per Number U.S. Dollars	No.	1	100	100
C	Circuit references 14 IP54 as described Per Number U.S. Dollars <u>Equipment Connections Supplied by SPB/NA2</u>	No	1	120	120
D	Circuit references 4,5,6 IP54 as described Per Number U.S. Dollars <u>Data Acquisition System</u>	No.	3	70	210
E	Complete system including SCP/NA2 Per Number U.S. Dollars	No.	1		10000
K6/2-25 CARRIED TO COLLECTION					10990

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الجمهورية اللبنانية
مكتب وزير الدولة لشؤون التنمية الإدارية
مركز مشاريع ودراسات القطاع العام

LIFT STATION A2-NORTH

SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNT \$</u>
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Concrete Work	K6/2-6	90573
Blockwork	K6/2-7	2436
Waterproofing and Roofing	K6/2-8	14400
Doors, Windows and Louvers	K6/2-9	450
Metal Work	K6/2-10	4474
Floor, Wall and Ceiling Finishings	K6/2-13	5614
Mechanical Work.....	K6/2-17	603924
Electrical Work.....	K6/2-26	110660
TOTAL CARRIED TO MAIN SUMMARY		842881

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LIFT STATION A3-NORTH

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Earthwork	K6/3-2
Concrete Work	K6/3-3
Blockwork	K6/3-7
Waterproofing and Roofing.....	K6/3-8
Doors, Windows and Louvers	K6/3-9
Metal Work	K6/3-10
Floor, Wall and Ceiling Finishings.....	K6/3-11
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3. LIFT STATION A3-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>EARTHWORK</u>				
A	Excavation for basement. Per Cubic Meter U.S. Dollars	C.M	1297	7	9079
B	Backfilling to concrete structures with selected surplus excavated materials well compacted in layers as described Per Cubic Meter U.S.Dollars	C.M	143	12	1716
K6/3-2					CARRIED TO SUMMARY 10795

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3. LIFT STATION A3-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>CONCRETE WORK</u>				
A	Sulphate resistant lean concrete class C in 50 mm blinding bed.				
	Per Square Meter U.S. Dollars	S.M	202	3	606
B	Ditto class B 30 mm thick over waterproofing membrane.				
	Per Square Meter U.S. Dollars	S.M	202	2	404
C	Ditto class B in benching to channels				
	Per Cubic Meter U.S. Dollars	C.M	6	60	360
D	Sulphate resistant reinforced concrete class A in ground slabs				
	Per Cubic Meter U.S. Dollars	C.M	198	80	15840
E	Ditto in sloping ground slabs				
	Per Cubic Meter U.S. Dollars	C.M	61	82	5002
F	Ditto in 150 mm thick walls				
	Per Square Meter U.S. Dollars	S.M	45	24	1080
K6/3-3		CARRIED TO COLLECTION			23292

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3. LIFT STATION A3-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Sulphate resistant reinforced concrete class A in 200 mm thick walls				
	Per Square Meter U.S. Dollars	S.M	16	32	512
B	Ditto in 300 mm thick walls				
	Per Square Meter U.S. Dollars	S M	178	48	8544
C	Ditto in 400 mm thick walls				
	Per Square Meter U.S. Dollars	S.M	78	64	4992
D	Ditto in 550 mm thick walls				
	Per Square Meter U.S. Dollars	S.M	236	90	21240
E	Ditto in 900 mm thick walls				
	Per Square Meter U.S. Dollars	S.M	33	150	4950
F	Ditto in stairs and landings				
	Per Cubic Meter U.S. Dollars	C.M	16	100	1600
K6/3-4 CARRIED TO COLLECTION					41838

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3. LIFT STATION A3-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
A	Reinforced concrete class A in 200 mm thick solid suspended slabs					
	Per Square Meter U.S. Dollars	S.M	77	20	1540	
B	Ditto in 200 mm thick walls					
	Per Square Meter U.S. Dollars	S.M	69	30	2070	
	<u>Steel reinforcement bent, hooked and fixed in position with and including laps, spacers, tying wires all as described.</u>					
C	Plain mild steel bars.					
	Per Kilogram U.S. Dollars	Kg	11550	.45	5198	
D	High tensile deformed steel bars.					
	Per Kilogram U.S. Dollars	Kg	47212	.45	21245	
K6/3-5					CARRIED TO COLLECTION	30053

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3. LIFT STATION A3-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>BLOCKWORK</u></p> <p>Precast concrete hollow blocks in 100mm thick wall as protection to waterproofing membrane.</p> <p>Per Square Meter U.S. Dollars</p> <p>.....</p> <p>.....</p>	S.M	363	7	2541
K6/3-7 CARRIED TO SUMMARY					2541

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3. LIFT STATION A3-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
<u>WATERPROOFING AND ROOFING</u>					
<u>Waterproofing</u>					
A	Waterproofing membrane to base slabs consisting of polymer modified bitumen membrane minimum 4 mm thick applied over blinding bed with all necessary surface preparation, priming and bitumen coatings, all as described.	S.M	202	20	4040
	Per Square Meter U.S. Dollars				
B	Waterproofing membrane to underground wall consisting of polymer modified bitumen membrane minimum 4 mm thick including turning edge of membrane at top into notch and sealing with mastic, surface preparation, priming and bitumen coatings, all as described.	S.M	363	20	7260
	Per Square Meter U.S. Dollars				
<u>Roofing</u>					
C	Removable reinforced fiberglass roof covers to fit structural opening size 11.20 x 8.90m including all structural supports, fixings, flashings and fittings complete, all to be designed by the Contractor	L.S	1		4000
	Per Lump Sump U.S. Dollars				
K6/3-8 CARRIED TO SUMMARY					15300

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3. LIFT STATION A3-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	<u>DOORS, WINDOWS AND LOUVERS</u>				
	<p><u>Doors</u></p> <p><u>Metal doors and frames</u></p> <p>Metal door for structural opening 120 x 220 cm.</p> <p>Per Number U.S. Dollars</p> <p>.....</p> <p>.....</p>				
B	<p><u>Louvers</u></p> <p>Aluminium louvers for structural opening 100 x 100 cm in 200 mm thick walls</p> <p>Per Number U.S. Dollars</p> <p>.....</p> <p>.....</p>	No	1		250
K6/3-9 CARRIED TO SUMMARY					450

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3. LIFT STATION A3-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>METAL WORK</u> Aluminium balustrade 1000 mm high consisting of handrails intermediate rails and posts, fixed to concrete including all necessary fixing accessories Per Linear Meter U.S. Dollars	L.M	30	70	2100
B	Galvanised cast iron steps, fixed into concrete walls Per Number U.S. Dollars	No.	31	12	372
C	Galvanised steel stairs 110 cm wide x 140 cm high complete with balustrading and all fixings and fittings, fixed to concrete Per Number U.S. Dollars	No.	1		170
D	Heavy duty cast iron lockable grid cover and frame 600 mm diameter fixed into reinforced concrete Per Number U.S. Dollars	No.	3	250	750
E	Heavy duty cast iron lockable cover and frame to suit opening size 100 x 100 cm, fixed into reinforced concrete Per Number U.S. Dollars	No.	4	320	1280
K6/3-10		CARRIED TO SUMMARY			4672

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3. LIFT STATION A3-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S	
	<u>FLOOR, WALL AND CEILING FINISHINGS</u>					
	<u>Floors</u>					
A	Cement/sand screed bed (1:4), laid to falls and cross falls 50mm thick					
	Per Square Meter U S Dollars	S.M	42	6	252	
B	Prepare and apply anti-corrosive epoxy resin coating to internal concrete surfaces.					
	Per Square Meter U.S. Dollars	S.M	148	16	2368	
C	PVC Liner as coating to internal concrete surfaces					
	Per Square Meter U S. Dollars	S.M	13	24	312	
D	Non-slip Carborundum strips fixed to reinforced concrete steps					
	Per Linear Meter U.S. Dollars	L.M	25	2	50	
K6/3-11					CARRIED TO COLLECTION	2982

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3. LIFT STATION A3-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>Walls - Internally</u>				
A	PVC Liner as coating to internal concrete surfaces of wet well				
	Per Square Meter U.S. Dollars	S.M	170	24	4080
B	Prepare and apply resin base paint to smooth fair faced concrete walls.				
	Per Square Meter U.S. Dollars	S.M	106	4	424
C	Prepare and apply anti-corrosive epoxy resin coating to internal concrete surfaces.				
	Per Square Meter U.S. Dollars	S.M	89	16	1424
	<u>Ceilings</u>				
D	Prepare and apply emulsion paint of polyvinyl acetate (PVA) type to smooth fair faced concrete ceilings				
	Per Square Meter U.S. Dollars	S.M	38	4	152
E	PVC liner as coating to internal surfaces of wet well				
	Per Square Meter U.S. Dollars	S.M	40	24	960
K6/3-12		CARRIED TO COLLECTION			7040

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3. LIFT STATION A3-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	<p><u>Walls - Externally</u></p> <p>Prepare and apply silicone clear paint to exposed smooth fair faced concrete finish.</p> <p>Per Square Meter U S Dollars</p> <p>.....</p> <p>.....</p> <p>CARRIED TO COLLECTION</p> <p><u>COLLECTION</u></p> <p><u>Page</u></p> <p>K6/3-11.....</p> <p>K6/3-12.....</p> <p>K6/3-13.....</p> <p>TOTAL CARRIED TO SUMMARY</p>	S.M	162	4	<p>648</p> <hr/> <p>648</p> <hr/> <p>2982</p> <p>7040</p> <p>648</p>
K6/3-13					10670

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3. LIFT STATION A3-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
	<u>MECHANICAL WORKS</u>					
	<u>Wall mounted Penstocks, installed and tested, complete including frame, door, sealers, fasteners motor and all accessories as specified and shown on drawings</u>					
A	Penstock, 1.00 m wide					
	Per Number U.S. Dollars.	No.	4	13260	53040	
					
					
	<u>GRP, pipe installed and tested complete with all fittings and accessories, jointing and jointing materials all as described</u>					
B	GRP Pipe, 1400 mm diameter					
	Per Linear Meter U.S. Dollars.	L.M	4	750	3000	
					
					
	<u>Fire extinguisher, dry chemical portable type, wall-mounted complete including hose and nozzle, trigger, safety pin and all accessories as specified and shown on drawings</u>					
C	Portable, dry chemical fire extinguisher, minimum 6 Kg capacity					
	Per Number U.S. Dollars.	No.	4	75	300	
					
					
K6/3-14					CARRIED TO COLLECTION	56340

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3. LIFT STATION A3-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<p><u>EQUIPMENT</u></p> <p><u>Sewage pumps, Archimedean screw, 3-start type, installed and tested as per project's specific characteristic curve, complete with all controls and connections, gear box, motors, couplings and base bearing and lubrication system, steel trough and all accessories as specified and shown on drawings</u></p> <p>A 1800 mm diameter pump and 7.4 m screw length of 890 LPS and 60 Kw motor</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p> <p><u>Mercury switch level control units, installed connected and tested complete with all connections, relays, and all accessories as specified and/or shown on drawings</u></p> <p>B Level control unit</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p> <p><u>DUCT-WORK</u></p> <p><u>Exhaust air pipe, installed and tested, complete, including hangers, supports, seams, fittings and accessories, all as specified</u></p> <p>C 900 mm GRP round pipe for air outlet</p> <p>Per Linear Meter U.S. Dollars.</p> <p>.....</p> <p>.....</p>	<p>No.</p> <p>No.</p> <p>LM</p>	<p>3</p> <p>1</p> <p>15</p>	<p>138500</p> <p></p> <p>500</p>	<p>415500</p> <p>15000</p> <p>7500</p>
K6/3-15				CARRIED TO COLLECTION	438000

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3. LIFT STATION A3-NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>LOUVERS</u></p> <p><u>Anodized aluminum louvers, installed, complete including frame, blades fasteners and all accessories, as specified</u></p> <p>Louvers size 1000 x 1000 mm</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p>	No	2	100	200
B	<p><u>FANS</u></p> <p><u>Exhaust Fan, installed and tested, complete with all accessories and fittings, connections and controls all as specified and shown on drawings</u></p> <p>Exhaust fan of 3 HP motor</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p>	No	1		2000
C	<p><u>Odor control, activated carbon filter, installed and tested, complete with galvanized steel casing, dust filters, plastic removable media panels and all accessories as specified and shown on drawings</u></p> <p>Activated carbon filter to treat 10,000 m³/HR of air</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p>	No	1		220 900
K6/3-16 CARRIED TO COLLECTION					223 100

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ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>COLLECTION</u>				
	<u>PAGE</u>				
	K6/3-14.....	56340
	K6/3-15.....	438000
	K6/3-16.....	223100
	TOTAL CARRIED TO SUMMARY				717440
	K6/3-17				

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3. LIFT STATION A3 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>ELECTRICAL WORKS</u> <u>Incoming Supply Cut- Out</u> Incoming Cut- Out as described Per Number U.S. Dollars	No.	1		2500
B	<u>Generator and Control Panel</u> 250KVA generator ABGSM rating 'B' category 2 load acceptance, grade 1 voltage regulation complete with GCP/NA3 control panel, protection, battery charger and accessories all as described Per Number U.S. Dollars	No.	1		65000
C	<u>Subpanel Board</u> SPB/NA3 as described Per Number U.S. Dollars	No.	1		300
D	<u>Earthing</u> Earth electrodes & pits as described Per Number U.S. Dollars	No	2		600
E	Earthing conductors & bonding of equipment as described Per Lump Sum U.S. Dollars	L.S	1		5000
K6/3-18 CARRIED TO COLLECTION					73400

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3. LIFT STATION A3 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>Motor Control Centers</u> MCC/NA3 as described Per Number U.S. Dollars	No.	1		18000
B	<u>Data Acquisition System</u> Complete system including SCP/NA3 Per Number U.S. Dollars	No.	1		10000
C	<u>Cables</u> 3 ½ C 150 + 95mm² ECC XLPE /SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	20	130	2600
D	4C-35mm² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	95	25	2375
E	3 C 10 mm² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	45	13	585
F	4 C 2.5 mm² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	125	5	625
K6/3-19 CARRIED TO COLLECTION					34185

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3. LIFT STATION A3 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	3 C 2.5 PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	50	4.5	225
B	<u>Control System Cabling & Connections to Equipment & Devices</u> Complete system as described Per Lump Sum U.S. Dollars	L.S	1		2000
	<u>Lighting Points</u>				
C	Lighting point, for hazardous zone 2 as described Per Number U.S. Dollars	No.	7	50	350
D	Ditto but for hazardous zone 1 as described Per Number U.S. Dollars	No.	15	70	1050
	<u>Accessories</u>				
E	One gang, one way lighting switch 15 A, 220 V, weatherproof IP54.as described Per Number U.S. Dollars	No.	1	30	30
K6/3-20 CARRIED TO COLLECTION					3655

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3. PUMPING STATION A3 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	One gang, one way key lighting switch 15 A, 220 V, weatherproof IP54 as described Per Number U.S. Dollars	No.	2	80	160
B	Single phase single socket outlet 15A, 220V, 3 pin for hazardous zone 2 as described Per Number U.S. Dollars	No	2	80	160
C	Fire alarm breakglass station, for hazardous zone 2 as described Per Number U.S. Dollars	No	1	300	300
D	Ditto but hazardous zone 0 as described Per Number U.S. Dollars	No.	3	400	1200
E	Fire alarm siren, weatherproof IP54 as described Per Number U.S. Dollars	No.	1		300
F	Ditto but for hazardous zone 0 as described Per Number U.S. Dollars	No.	1		400
K6/3-21 CARRIED TO COLLECTION					2520

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SECTION 6 PUMPING & LIFT STATIONS**

3. LIFT STATION A3 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>Lighting Fittings</u>				
A	Lighting fitting type K10 as described Per Number U.S. Dollars	No.	3	700	2100
B	Lighting fitting type K12 as described Per Number U.S. Dollars	No.	5	300	1500
C	Lighting fitting type K19 as described Per Number U.S. Dollars	No.	3	2000	6000
D	Lighting fitting type K40 as described Per Number U.S. Dollars	No.	6	350	2100
E	Lighting fitting type K82 as described Per Number U.S. Dollars	No.	2	300	600
F	Lighting fitting type K90 as described Per Number U.S. Dollars	No.	3	450	1350
K6/3-22 CARRIED TO COLLECTION					13650

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3. LIFT STATION A3 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>Disconnect Switches With Auxiliary Contacts.</u> 15A TP&N, weatherproof IP54 as described Per Number U.S. Dollars	No	4	50	200
B	Ditto but for hazardous zone 0 as described Per Number U.S. Dollars	No	5	150	750
C	15 A DP, weatherproof IP54 as described Per Number U.S. Dollars	No	3	40	120
D	<u>Telephone System</u> Telephone point, as described Per Number U.S. Dollars	No.	1		35
E	Wall type telephone hand-set with enclosure as described Per Number U.S. Dollars	No.	1		70
K6/3-23 CARRIED TO COLLECTION					1175

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3. LIFT STATION A3 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Telephone Terminal cabinet for 10 pairs, IP54 as described Per Number U.S. Dollars	No	1		100
B	100mm dia PVC duct laid in trenches as described Per Linear Meter U.S. Dollars	L.M	60	15	900
C	Connection to SCP/NA1 as described Per Lump Sum U.S. Dollars	L.S	1		200
D	<u>Lock-off Switches</u> Lock-off switches, for hazardous zone 0 as described Per Number U.S. Dollars	No	4	150	600
E	<u>Equipment Connections Supplied by MCC/NA1</u> Circuit references 1,2,3,4, hazardous zone 1 installation as described Per Number U.S. Dollars	No.	4	225	900
K6/3-24 CARRIED TO COLLECTION					2700

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3. LIFT STATIONS A1 - NORTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Circuit references 8,9 IP54 as described Per Number U.S. Dollars	No	2	70	140
B	Circuit references 10,11,12 IP54as described Per Number U.S. Dollars	No.	3	100	300
CARRIED TO COLLECTION					440
<u>COLLECTION</u>					
<u>Pages</u>					
K6/3-18.....					73400
K6/3-19.....					34185
K6/3-20.....					3655
K6/3-21.....					2520
K6/3-22.....					13650
K6/3-23.....					1175
K6/3-24.....					2700
K6/3-25.....					440
TOTAL CARRIED TO SUMMARY					131,725
K6/3-25					

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LIFT STATION A3-NORTH

SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNT \$</u>
Earthwork	K6/3-2	10795
Concrete Work	K6/3-6	95183
Blockwork	K6/3-7	2541
Waterproofing and Roofing	K6/3-8	15300
Doors, Windows and Louvers	K6/3-9	450
Metal Work	K6/3-10	4672
Floor, Wall and Ceiling Finishings	K6/3-13	10670
Mechanical Work.....	K6/3-17	717440
Electrical Work.....	K6/3-25	131725
TOTAL CARRIED TO MAIN SUMMARY		988,776

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PUMPING STATION A1-SOUTH

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Earthwork	K6/4-2
Concrete Work	K6/4-3
Blockwork	K6/4-8
Waterproofing and Roofing	K6/4-9
Drainage and Plumbing	K6/4-12
Doors, Windows and Louvers	K6/4-16
Metal Work	K6/4-19
Sanitary Fixtures and Accessories	K6/4-22
Floor, Wall and Ceiling Finishings	K6/4-24
Mechanical Work	K6/4-28
Electrical work	K6/4-31
Summary	K6/4-53

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>EARTHWORK</u>				
A	Excavation for basement.				
	Per Cubic Meter U.S. Dollars	C.M	4256	7	29792
				
				
B	Excavation for footings and ground beams				
	Per Cubic Meter U.S Dollars	C.M	825	7	5775
				
				
C	Spread and compact in layers surplus excavated materials to make up levels and to fill concrete voids				
	Per Cubic Meter U.S.Dollars	C.M	862	12	10344
				
				
K64-2 CARRIED TO SUMMARY					45911

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S	
	<u>CONCRETE WORK</u>					
A	Sulphate resistant lean concrete class C in 50 mm blinding bed.					
	Per Square Meter U.S. Dollars	S.M	441	3	1323	
B	Ditto 30mm thick over waterproofing membrane					
	Per Square Meter U.S. Dollars	S.M	441	2	882	
C	Ditto class B in beds and bases					
	Per Cubic Meter U.S. Dollars	C.M	23	60	1380	
D	Ditto class B in sloping beds and bases					
	Per Cubic Meter U.S. Dollars	C.M	6	80	480	
E	Cyclopean concrete in filling to structures					
	Per Cubic Meter U.S. Dollars	C.M	238	60	14280	
K6/4-3					CARRIED TO COLLECTION	18345

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Sulphate resistant reinforced concrete class A in wall footings and ground beams				
	Per Cubic Meter U.S. Dollars	C.M	70	80	5600
B	Ditto in raft foundations				
	Per Cubic Meter U.S. Dollars	C.M	268	80	21440
C	Ditto in ground slabs				
	Per Cubic Meter U.S. Dollars	C.M	21	80	1680
D	Ditto in 200 mm thick walls				
	Per Square Meter U.S. Dollars	S.M	48	32	1536
E	Ditto in 250 mm thick walls				
	Per Square Meter U.S. Dollars	S.M	51	40	2040
F	Ditto in 600 mm thick walls				
	Per Square Meter U.S. Dollars	S.M	1216	96	116736
G	Ditto in 200 mm thick suspended slabs				
	Per Square Meter U.S. Dollars	S.M	298	20	5960
K6/4-4 CARRIED TO COLLECTION					154992

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
A	Sulphate resistant reinforced concrete class A in 250 mm thick solid suspended slabs					
	Per Square Meter U.S. Dollars	S.M	6	25	150	
B	Ditto in columns					
	Per Cubic Meter U.S. Dollars	C.M	17	120	2040	
C	Ditto in beams					
	Per Cubic Meter U.S. Dollars	C.M	26	120	3120	
D	Reinforced concrete class A in 200mm thick parapets					
	Per Square Meter U.S. Dollars	S.M	19	32	608	
E	Ditto in 150 mm thick solid suspended slabs					
	Per Square Meter U.S. Dollars	S.M	38	15	570	
F	Ditto in 200 mm thick solid suspended slabs					
	Per Square Meter U.S. Dollars	S.M	302	20	6040	
K6/4-5					CARRIED TO COLLECTION	12528

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Reinforced concrete class A in columns Per Cubic Meter U.S. Dollars	C.M	7	120	840
B	Ditto in beams Per Cubic Meter U.S. Dollars	C.M	45	120	5400
C	Extra over reinforced concrete parapet wall for forming gargoyle Per Number U.S. Dollars	No.	4	5	20
D	<u>Steel reinforcement bent, hooked and fixed in position with and including laps, spacers, tying wires all as described.</u> Plain mild steel bars Per Kilogram U.S. Dollars	Kg	28215	.45	12697
E	High tensile deformed steel bars. Per Kilogram U.S. Dollars	Kg	112858	.45	50786
K6/4-6 CARRIED TO COLLECTION					69743

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>BLOCKWORK</u>				
A	Precast concrete hollow blocks in 200mm thick external walls				
	Per Square Meter U.S. Dollars	S.M	66	10	660
B	Ditto in 200 mm thick internal walls				
	Per Square Meter U.S. Dollars	S.M	94	10	940
C	Precast concrete hollow blocks in 100mm thick wall as protection to waterproofing membrane				
	Per Square Meter U.S. Dollars	S.M	830	7	5810
K6/4-8 CARRIED TO SUMMARY					7410

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
<u>WATERPROOFING AND ROOFING</u>					
<u>Waterproofing</u>					
A	Waterproofing membrane to base slabs consisting of polymer modified bitumen membrane minimum 4 mm thick applied over blinding bed with all necessary surface preparation, priming and bitumen coatings, all as described.	S.M	441	20	8820
Per Square Meter U.S. Dollars					
.....					
B	Waterproofing membrane to underground wall consisting of polymer modified bitumen membrane minimum 4 mm thick including turning edge of membrane at top into notch and sealing with mastic, surface preparation, priming and bitumen coatings, all as described.	S.M	830	20	16600
Per Square Meter U.S. Dollars					
.....					
<u>Roofing</u>					
C	Lightweight concrete, minimum 50 mm thick, laid to falls and cross-falls.	S.M	331	6	1986
Per Square Meter U.S. Dollars					
.....					
D	Cement screed (1:4) 30mm thick, laid over lightweight concrete.	S.M	331	2	662
Per Square Meter U.S. Dollars					
.....					
K6/4-9					CARRIED TO COLLECTION
					28068

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Waterproofing membrane consisting of two layers of roofing felt embedded solidly in bitumen compound and protected with well-graded limestone chippings Per Square Meter U.S. Dollars	S.M	331	30	9930
B	Forming waterproofing skirting by bending and tucking into reglets the roofing felt and fixing aluminium flashings, including fixing the plastic reglet in concrete and filling it with sealant Per Linear Meter U.S. Dollars	L.M	74	22	1628
C	Extra over for rainwater outlet in waterproofing membrane system Per Number U.S. Dollars	No	4	10	40
K6/4-10 CARRIED TO COLLECTION					11598

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>COLLECTION</u>				
	<u>Page</u>				
	K6/4-9.....				28068
	K6/4-10.....				11598
	TOTAL CARRIED TO SUMMARY				<hr/> 39666
	K6/4-11				

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4. PUMPING STATION AI-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
<u>DRAINAGE AND PLUMBING</u>					
<u>Drainage</u>					
A	Cast iron drain pipe 100 mm diameter Per Linear Meter U.S. Dollars	L.M	2	45	90
B	Ditto 80 mm diameter Per Linear Meter U.S. Dollars	L.M	2	40	80
C	Galvanized steel drain pipe 65 mm diameter Per Linear Meter U.S. Dollars	L.M	1	25	25
D	Ditto vent pipe 50 mm diameter Per Linear Meter U.S. Dollars	L.M	7	23	161
E	Clean out box with chrome-plated brass frame and cover. Per Number U.S. Dollars	No.	1	80	80
K6/4-12 CARRIED TO COLLECTION					436

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	15 x 15 cm chrome-plated frame and strainer at floor drain Per Number U.S. Dollars <u>Plumbing</u>	No	1	65	65
B	Seamless galvanized steel water pipes 40 mm diameter Per Linear Meter U.S. Dollars	L.M	6	22	132
C	Ditto 25mm diameter Per Linear Meter U.S. Dollars	L.M	25	16	400
D	Ditto 20mm diameter Per Linear Meter U.S. Dollars	L.M	9	12	108
E	Ditto 15mm diameter Per Linear Meter U.S. Dollars <u>Plumbing accessories</u>	L.M	2	7	14
F	Gate valve 40mm diameter Per Number U.S. Dollars	No.	1	85	85
K6/4-13		CARRIED TO COLLECTION			804

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	Hose faucet 20mm diameter Per Number U.S. Dollars	No.	2	6	12
K6/4-14 CARRIED TO COLLECTION					12

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>COLLECTION</u>				
	<u>Page</u>				
	K6/4-12.....				436
	K6/4-13.....				804
	K6/4-14.....				12
	TOTAL CARRIED TO SUMMARY				<hr/> 1252 <hr/>
	K6/4-15				

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
<u>DOORS, WINDOWS AND LOUVERS</u>					
<u>Doors</u>					
<u>Metal doors and frames</u>					
A	Metal double door for structural opening 190 x 220 cm.				
	Per Number U.S. Dollars	No.	2	400	800
.....					
.....					
<u>Wood Doors and frames</u>					
B	Wood door for structural opening 70 x 220 cm				
	Per Number U.S. Dollars	No.	2	150	300
.....					
.....					
<u>Aluminium doors and frames</u>					
C	Aluminium door and frame for structural opening 90 x 220 cm				
	Per Number U.S. Dollars	No.	1		240
.....					
.....					
D	Aluminium double doors and frame for structural opening 180 x 220 cm				
	Per Number U.S. Dollars	No.	1		360
.....					
.....					
K6/4-16 CARRIED TO COLLECTION					1700

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	Rolling shutter door for structural opening 300 x 490cm Per Number U.S. Dollars	No.	2	900	1800
K6/4-17				CARRIED TO COLLECTION	1800

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>COLLECTION</u>				
	<u>Page</u>				
	K6/4-16.....				1700
	K6/4-17.....				1800
	TOTAL CARRIED TO SUMMARY				<hr/> 3500 <hr/>
	K6/4-18				

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>METAL WORK</u>				
A	Aluminium handrail consisting of 40 x 40mm aluminium tubes, with all necessary fixing accessories				
	Per Linear Meter U.S. Dollars	L.M	11	70	770
B	Galvanised steel balustrade 1100 cm high consisting of handrails intermediate rails and posts, fixed to concrete or steelwork including all necessary fixing accessories				
	Per Linear Meter U.S. Dollars	L.M	58	90	5220
C	Ditto, raking to staircases				
	Per Linear Meter U.S. Dollars	L.M	19	90	1710
D	Steel grills and frames to channels and pits				
	Per Number U.S. Dollars	No.	40	80	3200
E	Galvanised cast iron steps, fixed into concrete walls				
	Per Number U.S. Dollars	No.	12	12	144
K6/4-19		CARRIED TO COLLECTION			11044

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Galvanized steel staircase comprising 2no. flights of steps and 1no. intermediate landing, overall size 1.00 m wide x 4.65 m high Per Number U.S. Dollars	No.	1		300
B	Ditto comprising 4no flights of steps and 3no. intermediate landings, overall size 1.00m wide x 7.65m high Per Number U.S. Dollars	No.	1		550
K6/4-20 CARRIED TO COLLECTION					850

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>COLLECTION</u>				
	Page				
	K6/4-19.....				11044
	K6/4-20.....				850
	TOTAL CARRIED TO SUMMARY				<u>11894</u>
K6/4-21					

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S	
	<u>SANITARY FIXTURES AND ACCESSORIES</u>					
	<u>Sanitary Fixtures</u>					
A	Lavatory basin, white vitreous china 560 x 405 mm for wall fixing, complete with all accessories					
	Per Number U.S. Dollars	No.	1		200	
B	European water closets, white vitreous china siphonic action, ditto					
	Per Number U.S. Dollars	No.	1		200	
C	Shower tray of white ceramic glazed fireclay 760 x 760mm, ditto					
	Per Number U.S. Dollars	No.	1		300	
D	Fiber reinforced water tank 2m ³ net capacity, complete with gate valves, float valves and all accessories					
	Per Number U.S. Dollars	No.	1		360	
E	Electric water heater 80Lt/5KW complete with all valves and accessories					
	Per Number U.S. Dollars	No.	1		250	
K6/4-22					CARRIED TO COLLECTION	1310

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>Accessories</u>				
A	Toilet paper holder				
	Per Number U.S. Dollars	No.	1		10
				
				
B	Towel rail				
	Per Number U.S. Dollars	No.	1		10
				
				
C	Wall Mirror 450 x 450mm				
	Per Number U.S. Dollars	No.	1		25
				
				
	CARRIED TO COLLECTION				45
	<u>COLLECTION</u>				
	<u>Page</u>				
	K6/4-22				1310
	K6/4-23				45
	TOTAL CARRIED TO SUMMARY				1355
K6/4-23					

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S	
	<u>FLOOR, WALL AND CEILING FINISHINGS</u>					
	<u>Floors</u>					
A	Cement/sand screed bed (1:4), laid to falls and cross falls 50mm thick					
	Per Square Meter U.S. Dollars	S.M	108	6	648	
B	Prepare and apply anti-corrosive epoxy resin coating to internal concrete surfaces					
	Per Square Meter U.S. Dollars	S.M	202	16	3232	
C	Ceramic tiles 100x100x10mm thick laid to falls on sand and mortar bed 90mm thick					
	Per Square Meter U.S. Dollars	S.M	33	15	495	
D	Ceramic skirting 100mm high x 10mm thick					
	Per Linear Meter U.S. Dollars	L.M	38	4	152	
E	Marble thresholds, cut to fit between door frames.					
	Per Linear Meter U.S. Dollars	L.M	2	10	20	
K6/4-24					CARRIED TO COLLECTION	4547

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
	<u>Walls - Internally</u>					
A	Plasterwork to all kind of wall surfaces Per Square Meter U.S. Dollars	S.M	234	4	936	
B	Glazed ceramic wall tiles 150 x 150 mm Per Square Meter U.S. Dollars	S.M	26	16	416	
C	PVC Liner as coating to internal concrete surfaces of wet well Per Square Meter U.S. Dollars	S.M	158	24	3792	
D	Prepare and apply resin base paint to plastered walls. Per Square Meter U.S. Dollars	S.M	207	4	828	
	<u>Ceilings</u>					
E	Plasterwork to all soffits of horizontal and sloping slabs Per Square Meter U.S. Dollars	S.M	59	4	236	
K6/4-25					CARRIED TO COLLECTION	6208

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Prepare and apply emulsion paint of polyvinyl acetate (PVA) type to plastered ceilings Per Square Meter U.S. Dollars	S.M	59	4	236
B	PVC Liner as coating to internal concrete surfaces of wetwell Per Square Meter U.S. Dollars <u>Walls - Externally</u>	S.M	15	24	360
C	Prepare and apply white cement plaster to walls Per Square Meter U.S. Dollars	S.M	249	8	1992
D	Prepare and apply white paint to exposed plaster finish Per Square Meter U.S. Dollars	S.M	249	5	1245
K6/4-26 CARRIED TO COLLECTION					3833

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>COLLECTION</u>				
	<u>Page</u>				
	K6/4-24.....	4547
	K6/4-25.....	6208
	K6/4-26.....	3833
	TOTAL CARRIED TO SUMMARY				<hr/> 14588 <hr/>
	K6/4-27				

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
	<u>MECHANICAL WORKS</u>					
	<u>Overhead travelling crane installed complete and tested, including all I beam supports, rails, main travelling bridge, drive unit, hoist unit, chains, pulleys, anchors and all accessories, all as specified and shown on drawings.</u>					
A	Crane capacity 1 1/2 ton, 5.60m span and 14.00m travel					
	Per Number U.S. Dollars.	No.	1		32700	
B	Ditto but 6.00 m travel					
	Per Number U.S. Dollars.	No.	1		29450	
C	Ditto but capacity 2 ton, 8.50m span and 14.00 m travel					
	Per Number U.S. Dollars.	No.	1		35000	
D	Ditto but capacity 3 ton and 5.00 m span and 14.00 m travel					
	Per Number U.S. Dollars.	No.	1		36750	
K6/4-28					CARRIED TO COLLECTION	133900

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4. MECHANICAL WORKS

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	<p><u>Mechanical bar screen, installed and tested, including bars, raking mechanism, beaching pan, motor, anchors, 1/2 ton movable screening dumpster and all accessories, all as specified and shown on drawings</u></p> <p>Mechanical bar screen, 1.2 m wide with 2HP motor</p> <p>Per Number U.S. Dollars.</p>	No.	1		70000
B	<p><u>Hand-raked bar screen, installed and tested, complete including bars, hand rake to suit bar screens, beaching pan, anchors and all accessories, all as specified and shown on drawings</u></p> <p>Hand-raked bar screen 1.0 m wide</p> <p>Per Number U.S. Dollars.</p>	No.	1		15000
C	<p><u>Channel mounted Penstocks, installed and tested, complete including metal frame, reinforced composite door, sealers, fasteners and all accessories as specified and shown on drawings</u></p> <p>Penstock, 1.00 m wide</p> <p>Per Number U.S. Dollars.</p>	No.	4	11040	44160
K6/4-29		CARRIED TO COLLECTION			129160

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	Penstock, 1.20 m wide Per Number U.S. Dollars <u>Adjustable weirs for level control, manual adjustment, installed and tested including all accessories as specified and shown on drawings</u>	No.	2	11040	22080
B	Adjustable weir, 3.20 m long Per Number U.S. Dollars <u>Grit removal unit, or detritor installed and tested, complete including, electric motor and connections and controls, deflectors, grit scraping mechanism, appropriate channeling to grit pump, overpass and rails and all necessary accessories, all as specified and shown on drawings</u>	No.	1		10000
C	Detritor of 3.50m diameter and 1 1/2 Kw motor Per Number U.S. Dollars <u>Ductile iron pipes, installed and tested complete with all fittings and accessories, jointing and jointing materials, supports and hangers, all as described</u>	No.	1		180000
D	Ductile iron pipe, 80 mm diameter Per Linear Meter U.S. Dollars	L.M	10	85	850
K6/4-30 CARRIED TO COLLECTION					212930

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
	<u>Ductile iron pipes, installed ... (cont'd)</u>					
A	Ductile iron pipe, 100 mm diameter					
	Per Linear Meter U.S. Dollars.	L.M	26	100	2600	
B	Ditto but 200 mm diameter					
	Per Linear Meter U.S. Dollars.	L.M	20	210	4200	
C	Ditto but 250 mm diameter					
	Per Linear Meter U.S. Dollars.	L.M	20	260	5200	
D	Ditto but 300 mm diameter					
	Per Linear Meter U.S. Dollars.	L.M	72	350	25200	
E	Ditto but 400 mm diameter					
	Per Linear Meter U.S. Dollars.	L.M	8	400	3200	
K6/4-31					CARRIED TO COLLECTION	40400

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S	
	<u>Valves, installed, connected and tested, complete including all accessories as specified and shown on drawings.</u>					
A	Gate valve , 15 mm diameter					
	Per Number U.S. Dollars.	No.	6	75	450	
B	Ditto but 20 mm diameter					
	Per Number U.S. Dollars.	No.	2	100	200	
C	Ditto but 40 mm diameter					
	Per Number U.S. Dollars.	No.	3	250	750	
D	Ditto but 100 mm diameter					
	Per Number U.S. Dollars.	No.	2	500	1000	
E	Ditto but 200 mm diameter					
	Per Number U.S. Dollars.	No.	5	1500	7500	
F	Ditto but 250 mm diameter					
	Per Number U.S. Dollars.	No.	5	2500	12500	
K6/4-32					CARRIED TO COLLECTION	22400

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
	<u>Valves, installed, connected ... (cont'd)</u>					
A	Gate valve 300 mm diameter					
	Per Number U.S. Dollars	No.	4	3500	14000	
B	Check valve, 200 mm diameter					
	Per Number U.S. Dollars	No.	5	1200	6000	
C	Check valve, 300 mm diameter					
	Per Number U.S. Dollars	No.	2	2500	5000	
	<u>PVC pipe for waste vent, jointed and tested complete with fittings and all accessories as specified and shown on drawings</u>					
D	32 mm diameter pipe					
	Per Linear Meter U.S. Dollars	L.M	5	5	25	
E	40 mm ditto					
	Per Linear Meter U.S. Dollars	L.M	3	6	18	
F	50 mm ditto					
	Per Linear Meter U.S. Dollars	L.M	2	7	14	
K6/4-33					CARRIED TO COLLECTION	25057

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	75 mm diameter pipe Per Linear Meter U.S. Dollars	L.M	3	10	30
B	110 mm ditto Per Linear Meter U.S. Dollars	L.M	18	12	216
	<u>Fire extinguisher, dry chemical portable type, wall-mounted complete including hose and nozzle, trigger, safety pin and all accessories as specified and shown on drawings</u>				
C	Portable, dry chemical fire extinguisher, minimum 6 Kg capacity Per Number U.S. Dollars	No.	7	75	525
	<u>Fire extinguisher, dry chemical, cart-mounted, complete with safety valve, pressure gauge hose with appropriate length, trigger, complete with all accessories, as specified and shown on drawings</u>				
D	Wheeled dry chemical fire extinguisher with 50 Kg capacity Per Number U.S. Dollars.	No.	2	500	1000
K6/4-34 CARRIED TO COLLECTION					1771

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>EQUIPMENT</u>				
	<u>Sewage pumps, vertical, centrifugal, non-clog type, installed and tested as per project's specific characteristic curve, complete with all controls and connections, gauges, motors, couplings and all accessories as specified and shown on drawings.</u>				
A	200 mm diameter pump of 160 LPS at 53.5 m head and 200 HP motor				
	Per Number U.S. Dollars.	No.	5	16100	80500
				
				
	<u>Grit pump, submersible type, installed and tested, complete with motor, all connections and accessories as specified and shown on drawings</u>				
B	Grit pump, 10 LPS capacity at 10 m head of 5.85 KW motor				
	Per Number U.S. Dollars.	No.	1		9255
				
				
C	Ditto but 12 LPS capacity at 16 m head of 5.85 KW motor				
	Per Number U.S. Dollars.	No.	1		14535
				
				
K6/4-35		CARRIED TO COLLECTION			104290

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>Sump pump, submersible type, installed and tested, complete with motor, all connections and accessories as specified</u></p> <p>Sump pump 10 LPS capacity at 14m head of 3.75 KW motor</p> <p>Per Number U.S. Dollars</p>	No	1		6530
B	<p><u>Mercury switch level control units, installed connected and tested complete with all connections, relays, and all accessories as specified</u></p> <p>Level control unit</p> <p>Per Number U.S. Dollars</p>	No	1		15000
C	<p><u>Electromagnetic flowmeter, installed, connected and tested, complete with sensors, transmitter, display, body and all accessories as specified</u></p> <p>Electromagnetic flowmeter, 300 mm diameter</p> <p>Per Number U.S. Dollars</p>	No	2	8910	17820
K6/4-36 CARRIED TO COLLECTION					39350

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>DUCT-WORK</u></p> <p><u>Supply and Exhaust air ducts, installed and tested, complete, including hangers, supports, seams, stiffeners, volume dampers, extractors, fittings and accessories, all as specified (unit weight given is net duct weight. Rate to include all additional accessories)</u></p> <p>0.6 mm metal thickness of low velocity galvanized steel duct-work</p> <p>Per Kilogram U.S. Dollars.</p> <p>.....</p>	Kg	950	7	6650
B	<p><u>AIR TERMINALS</u></p> <p><u>Air terminals, installed, connected and tested complete with all accessories, all as specified</u></p> <p>Exhaust grille 250 x 150 mm</p> <p>Per Number U.S. Dollars.</p> <p>.....</p>	No.	3	50	150
C	<p>Ditto but 450 x 200 mm</p> <p>Per Number U.S. Dollars.</p> <p>.....</p>	No.	4	75	300
K6/4-37		CARRIED TO COLLECTION			7100

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>Air terminals, installed. (cont'd)</u> Supply grille 350 x 300 mm Per Number U.S. Dollars.	No.	6	200	1200
B	<u>FANS</u> <u>Fan, exhaust and filtered supply, installed and tested, complete with all accessories and fittings, connections and controls all as specified and shown on drawings</u> Exhaust roof fan of 0.10 Kw motor Per Number U.S. Dollars.	No.	1		1500
C	Exhaust roof fan of 3 HP motor Per Number U.S. Dollars.	No.	1		2000
D	Ditto but 5 HP Per Number U.S. Dollars.	No.	1		3000
K6/4-38		CARRIED TO COLLECTION			7700

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4. PUMPING STATION A1-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>Fan, exhaust and filtered supply. (cont'd)</u> Filtered supply roof fan of 3 HP motor Per Number U.S. Dollars.	No.	2	2000	4000
B	<u>Odor control, activated carbon filter, installed and tested, complete with galvanized steel casing, dust filters, plastic removable media panels and all accessories as specified and shown on drawings</u> Activated carbon filter to treat 16,000 m3/HR of air Per Number U.S. Dollars.	No.	1		290 000
C	<u>Split-System, direct expansion, heat pump air conditioner, installed, connected tested complete with all connections and controls, outdoor unit with compressor, condenser and fan and enclosure, indoor unit with evaporator and fan, enclosure, grilles and all accessories as specified.</u> Split-System heat pump of 2-ton refrigeration capacity Per Number U.S. Dollars.	No.	1		2200
K6/4-39 CARRIED TO COLLECTION					296200

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4. PUMPING STATION A1-SOUTH**

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE · \$
	<u>COLLECTION</u>				
	<u>Page</u>				
	K6/4-28.....				133900
	K6/4-29.....				129160
	K6/4-30.....				212930
	K6/4-31.....				40400
	K6/4-32.....				22400
	K6/4-33.....				25057
	K6/4-34.....				1771
	K6/4-35.....				104290
	K6/4-36.....				39350
	K6/4-37.....				7100
	K6/4-38.....				7700
	K6/4-39.....				296200
	TOTAL CARRIED TO SUMMARY				<u>1020258</u>
	K6/4-40				

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4. PUMPING STATION A1 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>ELECTRICAL WORKS</u> <u>Incoming Supply Substation</u>				
A	Package substation as described				
	Per Number U.S. Dollars	No.	1		30 000
				
				
	<u>Generator and Control Panel</u>				
B	800KVA generator ABGSM rating 'B' category 2 load acceptance, grade 1 voltage regulation complete with GCP/NA1 control panel, protection, battery charger and accessories all as described				
	Per Number U.S. Dollars	No	1		150 000
				
				
	<u>Subpanel Board</u>				
C	SPB/SA1 as described				
	Per Number U.S. Dollars	No	1		300
				
				
	<u>Earthing</u>				
D	Earth electrodes & pits as described				
	Per Number U.S. Dollars	No	5	300	1500
				
				
E	Earthing conductors & bonding of equipment as described				
	Per Lump Sum U.S Dollars	L.S	1		6000
				
				
K6/4- 41 CARRIED TO COLLECTION					187 800

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4. PUMPING STATION A1 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>Motor Control Centers</u> MCC/SA1 as described Per Number U.S. Dollars	No.	1		20 000
B	<u>Data Aquisition System</u> Complete System including SCP/SA1 Per Number U.S. Dollars	No	1		10 000
C	<u>Cables</u> 3 ½ C 240mm² XLPE /SWA/PVC - 120mm² ECC as described Per Linear Meter U.S. Dollars	L M	120	180	21 600
D	4C-95mm² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	50	80	4000
E	4C-16mm² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	15	15	225
F	3 C 10 mm² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	50	13	650
K6/4- 42 CARRIED TO COLLECTION					56475

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4. PUMPING STATION A1 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	4C 4 mm ² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	100	8	800
B	4C 2.5 mm ² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	100	5	500
C	3C 2.5 mm ² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	40	4.5	180
	<u>Control System Cabling & Connections to Equipment & Devices</u>				
D	Complete system as described Per Lump Sum U.S. Dollars	L.S	1		2000
	<u>Lighting Points</u>				
E	Lighting point, weatherproof IP54 as described Per Number U.S. Dollars	No.	44	50	2200
F	Ditto but for hazardous zone 2 as described Per Number U.S. Dollars	No.	17	80	1360
K6/4-43		CARRIED TO COLLECTION			7040

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4. PUMPING STATION A1 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Lighting point, weatherproof IP54 for hazardous zone 0 (Zero) as described Per Number U.S. Dollars <u>Accessories</u>	No.	16	80	1280
B	One gang, one way lighting switch 15 A, 220 V, weatherproof IP54 as described Per Number U.S. Dollars	No.	8	30	240
C	Ditto but for hazardous zone 2 as described Per Number U.S. Dollars	No.	1		80
D	Ditto but for hazardous zone 0 (Zero) as described Per Number U.S. Dollars	No	1		80
E	One gang, two way lighting switch 15 A, 220 V, weatherproof IP54 as described Per Number U.S. Dollars	No	1		80
K6/4- 44 CARRIED TO COLLECTION					1760

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4. PUMPING STATION A1 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	One gang, two way lighting switch 15 A, 220 V, weatherproof IP54 for hazardous zone 2 as described Per Number U.S. Dollars	No.	1		80
B	Ditto but hazardous zone 0 (Zero) as described Per Number U.S. Dollars	No.	1		80
C	Single phase single socket outlet 15A, 220V, 3 pin, weatherproof IP54 as described Per Number U.S. Dollars	No.	7	50	350
D	Fire alarm breakglass station weatherproof IP54 as described Per Number U.S. Dollars	No.	2	300	600
E	Ditto but for hazardous zone 2 as described Per Number U.S. Dollars	No.	1		300
F	Ditto but hazardous zone 0 (Zero) as described Per Number U.S. Dollars	No.	2	400	800
K6/4-45 CARRIED TO COLLECTION					2210

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4. PUMPING STATION A1 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	Fire alarm siren, weatherproof IP54 as described Per Number U.S. Dollars	No	1		300
B	Ditto but, for hazardous zone 2 as described Per Number U.S. Dollars	No.	1		400
C	Ditto but for hazardous zone 0 as described Per Number U.S. Dollars	No	1		400
D	Fire Alarm detector as described Per Number U.S. Dollars	No.	2	150	300
E	Smoke detector as described Per Number U.S. Dollars <u>Lighting Fittings</u>	No.	1		150
F	Lighting fitting type K1 as described Per Number U.S. Dollars	No.	35	150	5250
K6/4- 46 CARRIED TO COLLECTION					6800

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4. PUMPING STATION A1 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Lighting fitting type K3 as described Per Number U.S. Dollars	No.	1		150
B	Lighting fitting type K7 as described Per Number U.S. Dollars	No	1		200
C	Lighting fitting type K8 as described Per Number U.S. Dollars	No	5	200	1000
D	Lighting fitting type K15 as described Per Number U.S. Dollars	No.	2	200	400
E	Lighting fitting type K20 as described Per Number U.S. Dollars	No.	10	400	4000
F	Lighting fitting type K32 as described Per Number U.S. Dollars	No.	12	400	4800
G	Lighting fitting type K40 as described Per Number U.S. Dollars	No.	2	350	700
K6/4- 47 CARRIED TO COLLECTION					11250

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4. PUMPING STATION A1 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Lighting fitting type K82 as described Per Number U.S. Dollars	No.	5	300	1500
B	Lighting fitting type K90 as described Per Number U.S. Dollars <u>Disconnect Switches With Auxiliary Contacts</u>	No.	4	450	1800
C	15 A TP& N, weatherproof IP54 as described Per Number U.S. Dollars	No.	2	50	100
D	Ditto but hazardous zone 0 as described Per Number U.S. Dollars	No.	5	80	400
E	15A, six pole & N weatherproof IP54as described Per Number U.S. Dollars	No.	2	100	200
F	15 A DP, weatherproof IP54 as described Per Number U.S. Dollars	No.	5	40	200
K6/4-48		CARRIED TO COLLECTION			4200

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4. PUMPING STATION A1 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>Telephone System</u>				
A	Telephone point, as described				
	Per Number U.S. Dollars	No	1		35
B	Wall type telephone hand-set, as described				
	Per Number U.S. Dollars	No	1		70
C	Telephone Terminal cabinet for 10 pairs, IP54 as described				
	Per Number U.S. Dollars	No	1		100
D	100mm dia PVC duct laid in trenches as described				
	Per Linear Meter U.S. Dollars	L.M	60	15	900
E	Connection to SCP/NA1 as described				
	Per Lump Sum U.S. Dollars	L.S	1		200
	<u>Lock-Off Switches</u>				
F	Lock-off switches, for hazardous zone 2 as described				
	Per Number U.S. Dollars	No	5	150	750
K6/4- 49 CARRIED TO COLLECTION					2055

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4. PUMPING STATION A1 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>Equipment Connections Supplied By MCC/NA2</u>				
	Circuit references 1,2,3,4, 5 hazardous zone 0 installation as described Per Number U.S. Dollars					No	5	400	2000
B	Circuit references 6,7,8 hazardous zone 0 as described				
	Per Number U.S. Dollars					No	3	100	300
C	Circuit references 9,10 hazardous zone 0 as described				
	Per Number U.S. Dollars					No	2	80	160
D	Circuit references 11,14 IP54 as described				
	Per Number U.S. Dollars					No	2	80	160
E	Circuit references 15,16 IP54 as described				
	Per Number U.S. Dollars				
K6/4-50 CARRIED TO COLLECTION					2780

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4. PUMPING STATION A1 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	Circuit references 17 IP54 as described Per Number U.S. Dollars <u>Equipment Connections Supplied by SPB/SA1</u>	No	1		150
B	Circuit references 7 IP54 as described Per Number U.S. Dollars	No	1		50
C	Circuit references 8 IP54 as described Per Number U.S. Dollars	No	1		50
D	Circuit references 9,10 IP54 as described Per Number U.S. Dollars	No	2	50	100
E	Circuit references 11 as described Per Number U.S. Dollars	No	1		100
K6/4-51 CARRIED TO COLLECTION					450

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4. PUMPING STATION A1 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>COLLECTION</u>				
	<u>Pages</u>				
	K6/4-41.....				187800
	K6/4-42.....				56475
	K6/4-43.....				7040
	K6/4-44.....				1760
	K6/4-45.....				2210
	K6/4-46.....				6800
	K6/4-47.....				11250
	K6/4-48.....				4200
	K6/4-49.....				2055
	K6/4-50.....				2780
	K6/4-51.....				450
	TOTAL CARRIED TO SUMMARY				282820
K6/4-52					

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PUMPING STATION A1-SOUTH

SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNT \$</u>
Earthwork	K6/4-2	45911
Concrete Work	K6/4-7	255608
Blockwork	K6/4-8	7410
Waterproofing and Roofing	K6/4-11	39666
Drainage and Plumbing	K6/4-15	1252
Doors, Windows and Louvers	K6/4-18	3500
Metal Work	K6/4-21	11894
Sanitary Fixtures and Accessories	K6/4-23	1355
Floor, Wall and Ceiling Finishings	K6/4-27	14588
Mechanical Work	K6/4-40	1020258
Electrical Work	K6/4-52	282860

TOTAL CARRIED TO MAIN SUMMARY

1684262

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PUMPING STATION A2-SOUTH

INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Earthwork	K6/5-2
Concrete Work	K6/5-3
Blockwork	K6/5-8
Waterproofing and Roofing.....	K6/5-9
Drainage and Plumbing	K6/5-12
Doors, Windows and Louvers	K6/5-16
Metal Work	K6/5-19
Sanitary Fixtures and Accessories	K6/5-22
Floor, Wall and Ceiling Finishings.....	K6/5-24
Mechanical Work.....	K6/5-28
Electrical work	K6/5-43
Summary	K6/5-55

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
	<u>EARTHWORK</u>					
A	Excavation for basement.					
	Per Cubic Meter U.S. Dollars	C.M	4560	7	31920	
B	Spread and compact in layers selected imported fill material to make up levels and to fill concrete voids					
	Per Cubic Meter U.S. Dollars	C.M	829	12	9948	
K6/5-2					CARRIED TO SUMMARY	41868

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S	
	<u>CONCRETE WORK</u>					
A	Sulphate resistant lean concrete class C in 50 mm blinding bed.					
	Per Square Meter U.S. Dollars	S.M	627	3	1881	
B	Ditto 30mm thick over waterproofing membrane					
	Per Square Meter U.S. Dollars	S.M	627	2	1254	
C	Cyclopean concrete in filling to structures					
	Per Cubic Meter U.S. Dollars	C.M	70	60	4200	
D	Sulphate resistant reinforced concrete class A in Raft foundation					
	Per Cubic Meter U.S. Dollars	C.M	744	80	59520	
E	Ditto in ground slabs					
	Per Cubic Meter U.S. Dollars	C.M	34	80	2720	
F	Ditto in sloping ground slabs					
	Per Cubic Meter U.S. Dollars	C.M	9	82	738	
K6/5-3					CARRIED TO COLLECTION	70313

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
A	Sulphate resistant reinforced concrete class A in 200mm thick walls					
	Per Square Meter U.S. Dollars	S.M	12	32	384	
B	Ditto in 300mm thick walls					
	Per Square Meter U.S. Dollars	S.M	12	48	576	
C	Ditto in 600 mm thick walls					
	Per Square Meter U.S. Dollars	S.M	468	96	44928	
D	Ditto in 800 mm thick walls					
	Per Square Meter U.S. Dollars	S.M	482	128	61696	
E	Ditto in 200 mm solid suspended slabs					
	Per Square Meter U.S. Dollars	S.M	88	21	1848	
F	Ditto in 250 mm solid suspended slabs					
	Per Square Meter U.S. Dollars	S.M	41	26	1066	
G	Reinforced concrete class A in 200mm thick solid suspended slabs					
	Per Square Meter U.S. Dollars	S.M	72	20	1440	
K6/5-4					CARRIED TO COLLECTION	111 938

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
A	Reinforced concrete class A in 250mm thick solid suspended slabs					
	Per Square Meter U.S. Dollars	S.M	540	25	13500	
B	Ditto in columns					
	Per Cubic Meter U.S. Dollars	C.M	27	120	3240	
C	Ditto in 150 mm thick parapets					
	Per Square Meter U.S. Dollars	S.M	50	24	1200	
D	Ditto in beams					
	Per Cubic Meter U.S. Dollars	C.M	92	120	11040	
E	Ditto in stairs and landings					
	Per Cubic Meter U.S. Dollars	C.M	1	100	100	
F	Extra over reinforced concrete parapet wall for forming gargoyle					
	Per Number U.S. Dollars	No.	8	5	40	
K6/5-5					CARRIED TO COLLECTION	29120

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	<u>Steel reinforcement bent, hooked and fixed in position with and including laps, spacers, tying wires all as described.</u> Plain mild steel bars. Per Kilogram U.S. Dollars	Kg	37136	.45	16711
B	High tensile deformed steel bars Per Kilogram U.S. Dollars	Kg	148542	.45	66844
K6/5-6 CARRIED TO COLLECTION					83555

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>BLOCKWORK</u>				
A	Precast concrete hollow blocks in 100mm thick walls				
	Per Square Meter U.S. Dollars	S.M	35	7	245
B	Ditto in 200 mm thick walls				
	Per Square Meter U.S. Dollars	S.M	727	10	7270
C	Precast concrete hollow blocks in 100mm thick wall as protection to waterproofing membrane				
	Per Square Meter U.S. Dollars	S.M	776	7	5432
K6/5-8		CARRIED TO SUMMARY			12947

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
<u>WATERPROOFING AND ROOFING</u>					
<u>Waterproofing</u>					
A	Waterproofing membrane to base slabs consisting of polymer modified bitumen membrane minimum 5 mm thick applied over blinding bed with all necessary surface preparation, priming and bitumen coatings, all as described.				
	Per Square Meter U.S. Dollars	S.M	627	20	12540
B	Waterproofing membrane to underground wall consisting of polymer modified bitumen membrane minimum 5 mm thick including turning edge of membrane at top into notch and sealing with mastic, surface preparation, priming and bitumen coatings, all as described.				
	Per Square Meter U.S. Dollars	S.M	640	20	12800
<u>Roofing</u>					
C	Lightweight concrete, minimum 50 mm thick, laid to falls and cross-falls.				
	Per Square Meter U.S. Dollars	S.M	444	6	2664
D	Cement screed (1:5) 30mm thick, laid over lightweight concrete.				
	Per Square Meter U.S. Dollars	S.M	444	2	888
K6/5-9 CARRIED TO COLLECTION					28892

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	Waterproofing membrane consisting of two layers of roofing felt embedded solidly in bitumen compound and protected with well-graded limestone chippings Per Square Meter U.S. Dollars	S.M	444	30	13320
B	Forming waterproofing skirting by bending and tucking into reglets the roofing felt and fixing aluminium flashings, including fixing the plastic reglet in concrete and filling it with sealant Per Linear Meter U.S. Dollars	L.M	123	22	2706
C	Extra over for rainwater outlet in waterproofing membrane system Per Number U.S. Dollars	No.	8	10	80
K6/5-10 CARRIED TO COLLECTION					16106

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>COLLECTION</u>				
	<u>Page</u>				
	K6/5-9.....				28892
	K6/5-10.....				16106
	TOTAL CARRIED TO SUMMARY				<hr/> 44998 <hr/>
K6/5-11					

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
<u>DRAINAGE AND PLUMBING</u>					
<u>Drainage</u>					
A	Cast iron drain pipe 100 mm diameter Per Linear Meter U.S. Dollars	L.M	4	45	180
B	Ditto 80 mm diameter Per Linear Meter U.S. Dollars	L.M	4	40	160
C	Galvanized steel drain pipe 65 mm diameter Per Linear Meter U.S. Dollars	L.M	2	25	50
D	Ditto vent pipe 50 mm diameter Per Linear Meter U.S. Dollars	L.M	14	23	322
E	Clean out box with chrome-plated brass frame and cover. Per Number U.S. Dollars	No.	2	80	160
K6/5-12 CARRIED TO COLLECTION					872

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S	
A	15 x 15 cm chrome-plated frame and strainer at floor drain					
	Per Number U.S. Dollars	No.	2	65	130	
	<u>Plumbing</u>					
B	Seamless galvanized steel water pipes 50 mm diameter					
	Per Linear Meter U.S. Dollars	L.M	12	24	288	
C	Ditto 25mm diameter					
	Per Linear Meter U.S. Dollars	L.M	50	16	800	
D	Ditto 20mm diameter					
	Per Linear Meter U.S. Dollars	L.M	18	12	216	
E	Ditto 15mm diameter					
	Per Linear Meter U.S. Dollars	L.M	4	7	28	
	<u>Plumbing accessories</u>					
F	Gate valve 50mm diameter					
	Per Number U.S. Dollars	No.	1	85	85	
K6/5-13					CARRIED TO COLLECTION	1547

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	Hose faucet 20mm diameter Per Number U.S. Dollars	No.	2	6	12

K6/5-14

CARRIED TO COLLECTION

12

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>COLLECTION</u>				
	<u>Page</u>				
	K6/5-12.....				872
	K6/5-13.....				1547
	K6/5-14.....				12
	TOTAL CARRIED TO SUMMARY				<hr/> 2431 <hr/>
	K6/5-15				

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>DOORS, WINDOWS AND LOUVERS</u>				
	<u>Doors</u>				
	<u>Metal doors and frames</u>				
A	Metal door for structural opening 80 x 220 cm.				
	Per Number U.S. Dollars	No	1		180
B	Metal double door for structural opening 150 x 220 cm.				
	Per Number U.S. Dollars	No	1		340
C	Ditto for structural opening 200 x 220 cm				
	Per Number U.S. Dollars	No.	1		420
	<u>Aluminium Doors and frames</u>				
D	Aluminium door for structural opening 90 x 220 cm				
	Per Number U.S. Dollars	No	1		240
E	Ditto for structural opening 100 x 220 cm				
	Per Number U.S. Dollars	No.	2	260	520
	K6/5-16	CARRIED TO COLLECTION			1700

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Rolling shutter door for structural opening 240 x 320cm Per Number U.S. Dollars	No	1		470
B	Ditto for structural opening 250 x 320cm Per Number U.S. Dollars	No	1		490
C	Ditto for structural opening 250 x 340cm Per Number U.S. Dollars <u>Louvers</u>	No.	1		520
D	Aluminium louvers for structural opening 200 x 210 cm. Per Number U.S. Dollars <u>Aluminium windows and frames</u>	No.	1		350
E	Aluminium windows for structural opening 560 x 80 cm, comprising 2no. fixed lights and 3no opening lights Per Number U.S. Dollars	No.	1		360
K6/5-17 CARRIED TO COLLECTION					2190

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	Aluminium windows for structural opening 580 x 80 cm, comprising 2no. fixed lights and 3no. opening lights Per Number U.S. Dollars	No.	1		360
B	Ditto for structural opening 590 x 80 cm, ditto Per Number U.S. Dollars	No	1		380
CARRIED TO COLLECTION					740
<u>COLLECTION</u>					
<u>Page</u>					
K6/5-16.....					1700
K6/5-17.....					2190
K6/5-18.....					740
TOTAL CARRIED TO SUMMARY					4630
K6/5-18					

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>METAL WORK</u>				
A	Galvanised mild steel balustrade 1100 mm high consisting of handrails, intermediate rails and posts, fixed to concrete or steelwork including all necessary fixing accessories				
	Per Linear Meter U.S. Dollars	L.M	49	90	4410
B	Ditto, raking to staircases				
	Per Linear Meter U.S. Dollars	L.M	20	90	1800
C	Steel grills and frames to channels and pits				
	Per Square Meter U.S. Dollars	S.M	19	80	1520
D	Steel ladder with safety cage, 4.5 m high				
	Per Number U.S. Dollars	No.	1		250
E	Galvanized steel staircase comprising 2no. flights of steps and 1no. intermediate landing overall size 1.0m wide x 2.9 m vertical height				
	Per Number U.S. Dollars	No.	1		200
K6/5-19 CARRIED TO COLLECTION					8180

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	Galvanized steel staircase comprising 2no. flights of steps and 1no intermediate landing, overall size 1.0 m wide x 4.2 m vertical height Per Number U.S Dollars	No.	1		280
B	Ditto comprising 1no. flight of steps overall size 1.2 m wide x 3.20 m vertical height Per Number U.S Dollars	No.	1		260
K6/5-20 CARRIED TO COLLECTION					540

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
<u>SANITARY FIXTURES AND ACCESSORIES</u>					
<u>Sanitary Fixtures</u>					
A	Lavatory basin, white vitreous china 560 x 405 mm for wall fixing, complete with all accessories				
	Per Number U.S. Dollars	No.	1		200
B	European water closets, white vitreous china siphonic action, ditto				
	Per Number U.S. Dollars	No.	1		250
C	Shower tray of white ceramic glazed fireclay 760 x 760mm, ditto				
	Per Number U.S. Dollars	No.	1		300
D	Fiber reinforced water tank 2m ³ net capacity, complete with gate valves, float valves and all accessories				
	Per Number U.S. Dollars	No.	1		360
E	Electric water heater 80Lt/5KW complete with all valves and accessories				
	Per Number U.S. Dollars	No.	1		250
K6/5-22 CARRIED TO COLLECTION					1310

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>Accessories</u>				
A	Toilet paper holder				
	Per Number U.S. Dollars	No.	1		10
				
				
B	Towel rail				
	Per Number U.S. Dollars	No.	1		10
				
				
C	Wall Mirror 450 x 450mm				
	Per Number U.S. Dollars	No.	1		25
				
				
	CARRIED TO COLLECTION				<hr/> 45
	<u>COLLECTION</u>				
	<u>Page</u>				
	K6/5-22				1310
	K6/5-23				45
	TOTAL CARRIED TO SUMMARY				<hr/> 1355
K6/5-23					

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>FLOOR, WALL AND CEILING FINISHINGS</u>				
	<u>Floors</u>				
A	Cement/sand screed bed (1:4), laid to falls and cross falls 50mm thick	S.M	307	6	1842
	Per Square Meter U.S. Dollars				
B	Prepare and apply anti-corrosive epoxy resin coating to internal concrete surfaces	S.M	329	16	5264
	Per Square Meter U.S. Dollars				
C	PVC liner as coating to internal concrete surfaces	S.M	155	24	3720
	Per Square Meter U.S. Dollars				
D	Ceramic tiles 100 x 100 x 10 mm thick laid to falls on sand and mortar bed 90 mm thick	S.M	14	15	210
	Per Square Meter U.S. Dollars				
E	Ceramic skirting 100 mm high x10mm thick	L.M	21	4	84
	Per Linear Meter U.S. Dollars				
K6/5-24 CARRIED TO COLLECTION					11120

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S	
A	Marble threshold, cut to fit between door frames					
	Per Linear Meter U.S. Dollars	L.M	6	10	60	
					
					
	<u>Walls - Internally</u>					
B	Plasterwork to all kind of wall surfaces					
	Per Square Meter U.S. Dollars	S.M	593	4	2372	
					
					
C	Glazed ceramic wall tiles 150 x 150 mm					
	Per Square Meter U.S. Dollars	S.M	87	16	1392	
					
					
D	PVC Liner as coating to internal concrete surfaces of wet well					
	Per Square Meter U.S. Dollars	S.M	329	24	7896	
					
					
E	Prepare and apply resin base paint to plastered walls					
	Per Square Meter U.S. Dollars	S.M	506	4	2024	
					
					
F	Ditto to fair faced concrete surfaces					
	Per Square Meter U.S. Dollars	S.M	553	4	2212	
					
					
K6/5-25					CARRIED TO COLLECTION	15956

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$				
A	<u>Ceilings</u>								
	Plasterwork to all soffits of horizontal and sloping slabs								
	Per Square Meter U.S. Dollars					S.M	64	4	256
								
	Prepare and apply emulsion paint of polyvinyl acetate (PVA) type to plastered and fair faced concrete ceilings								
	Per Square Meter U.S. Dollars					S.M	521	4	2084
C	PVC Liner as coating to internal concrete surfaces								
	Per Square Meter U.S. Dollars					S.M	41	24	984
D	<u>Walls Externally</u>								
	Prepare and apply cement and sand render to walls								
	Per Square Meter U.S. Dollars					S.M	662	8	5296
E	Prepare and apply white paint to rendered finish								
	Per Square Meter U.S. Dollars					S.M	662	5	3310
K6/5-26 CARRIED TO COLLECTION					11930				

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Prepare and apply silicone clear paint to exposed concrete finish Per Square Meter U.S. Dollars CARRIED TO COLLECTION <u>COLLECTION</u> <u>Page</u> K6/5-24..... K6/5-25..... K6/5-26..... K6/5-27..... TOTAL CARRIED TO SUMMARY	S M	238	4	952 <hr/> 952 11120 15956 11930 952 <hr/> 39958
K6/5-27					

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S	
	<u>MECHANICAL WORKS</u>					
	<u>Overhead travelling crane, installed complete and tested, including all I beam supports, rails, main travelling bridge, drive unit, hoist unit, chains, pulleys, anchors and all accessories, all as specified and shown on drawings.</u>					
A	Crane capacity 1 1/2 ton, 5.50m span and 18.00m travel					
	Per Number U.S. Dollars	No.	1		35600	
B	Ditto capacity 2 ton, 11.50 m span and 18.00m travel					
	Per Number U.S. Dollars	No.	1		36650	
	<u>Mechanical bar screen, installed and tested, including bars, raking mechanism, beaching pan, motor, anchors, 1/2 ton movable screening dumpster and all accessories, all as specified and shown on drawings</u>					
C	Mechanical bar screen, 1.8 m wide with 3HP motor					
	Per Number U.S. Dollars	No.	1		75000	
K6/5-28					CARRIED TO COLLECTION	147250

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>Hand-raked bar screen, installed and tested, complete including bars, hand rake to suit bar screens, beaching pan, anchors and all accessories, all as specified and shown on drawings</u></p> <p>Hand-raked bar screen 1.5 m wide</p> <p>Per Number U.S. Dollars</p>	No.	1		17000
B	<p><u>Channel mounted Penstocks, installed and tested, complete including metal frame, reinforced composite door, sealers, fasteners, motor and all accessories as specified and shown on drawings</u></p> <p>Penstock, 1.50 m wide</p> <p>Per Number U.S. Dollars</p>	No.	4	13260	53040
C	<p>Ditto but 1.80 m wide</p> <p>Per Number U.S. Dollars</p>	No.	2	17675	35350
K6/5-29 CARRIED TO COLLECTION					105390

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>Adjustable weirs for level control, manual adjustment, installed and tested including all accessories as specified and shown on drawings</u></p> <p>Adjustable weir, 6.20 m long</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p>	No.	1		15000
B	<p><u>Grit removal unit, or detritor installed and tested, complete including, electric motor and connections and controls, deflectors, grit scraping mechanism, appropriate channeling to grit pump, overpass and rails and all necessary accessories, all as specified and shown on drawings</u></p> <p>Detritor of 6.50m diameter and 2 Kw motor</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p>	No.	1		220950
K6/5-30 CARRIED TO COLLECTION					235950

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>Ductile iron pipes, installed and tested complete with all fittings and accessories, jointing and jointing materials, supports and hangers, all as described</u>				
A	Ductile iron pipe, 80 mm diameter				
	Per Linear Meter U.S. Dollars	L.M	6	85	510
B	Ditto but 100 mm diameter				
	Per Linear Meter U.S. Dollars.	L.M	30	100	3000
C	Ditto but 150 mm diameter				
	Per Linear Meter U.S. Dollars.	L.M	4	150	600
D	Ditto but 300 mm diameter				
	Per Linear Meter U.S. Dollars.	L.M	15	350	5250
E	Ditto but 350 mm diameter				
	Per Linear Meter U.S. Dollars.	L.M	20	375	7500
K6/5-31		CARRIED TO COLLECTION			16860

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>Ductile iron pipes, installed ... (cont'd)</u> Ductile iron pipe, 400 mm diameter Per Linear Meter U.S. Dollars.	L M	45	400	18000
B	<u>Valves, installed, connected and tested, complete including all accessories as specified and shown on drawings</u> Gate valve, 15 mm diameter Per Number U.S. Dollars	No	6	75	450
C	Ditto but 20 mm diameter Per Number U.S. Dollars	No.	2	100	200
D	Ditto but 40 mm diameter Per Number U.S. Dollars	No.	3	250	750
K6/5-32		CARRIED TO COLLECTION			19400

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>Valves installed, connected ... (cont'd)</u>				
A	Gate Valve, 150 mm diameter				
	Per Number U.S. Dollars.	No.	2	750	1500
F	Ditto but 300 mm diameter				
	Per Number U.S. Dollars.	No.	5	3500	17500
C	Ditto but 350 mm diameter				
	Per Number U.S. Dollars.	No.	5	4000	20000
D	Ditto but 400 mm diameter				
	Per Number U.S. Dollars.	No.	4	4500	18000
E	Check valve, 300 mm diameter				
	Per Number U.S. Dollars.	No.	5	2500	12500
F	Ditto but 400mm diameter				
	Per Number U.S. Dollars.	No.	2	3000	6000
K6/5-33 CARRIED TO COLLECTION					75500

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>PVC pipe for wasted vent, jointed and tested complete with fittings and all accessories as specified and shown on drawings</u> 32 mm diameter pipe Per Linear Meter U.S. Dollars.	L.M	7	5	35
B	40 mm ditto Per Linear Meter U.S. Dollars.	L.M	3	6	18
C	50 mm ditto Per Linear Meter U.S. Dollars.	L.M	3	7	21
D	75 mm ditto Per Linear Meter U.S. Dollars.	L.M	3	10	30
E	110 mm ditto Per Linear Meter U.S. Dollars.	L.M	20	12	240
K6/5-34		CARRIED TO COLLECTION			344

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>Fire extinguisher, dry chemical portable type, wall-mounted complete including hose and nozzle, trigger, safety pin and all accessories as specified</u></p> <p>Portable, dry chemical fire extinguisher, minimum 6 Kg capacity.</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p>	No.	7	75	525
B	<p><u>Fire extinguisher, dry chemical, cart-mounted, complete with safety valve, pressure gauge hose with appropriate length, trigger, complete with all accessories as specified</u></p> <p>Wheeled dry chemical fire extinguisher with 50 Kg capacity</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p>	No.	2	500	1000
C	<p><u>EQUIPMENT</u></p> <p><u>Sewage pumps, vertical, centrifugal, non-clog type, installed and tested as per project's specific characteristic curve, complete with all controls and connections, gauges, motors, couplings and all accessories as specified and shown on drawings</u></p> <p>300 mm diameter pump of 290 LPS at 20 m head and 150 HP motor</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p>	No.	5	20600	103000
K6/5-35 CARRIED TO COLLECTION					104525

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	<p><u>Grit pump, submersible type, installed and tested, complete with motor, all connections and accessories as specified and shown on drawings</u></p> <p>Grit pump, 10 LPS capacity at 8 m head of 3.75 KW motor</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p>	No.	1		8885
B	<p>Ditto but 12 LPS capacity at 10m head of 3.75 KW Motor</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p>	No.	1		9270
C	<p><u>Sump pump, submersible type, installed and tested, complete with motor, all connections and accessories as specified</u></p> <p>Sump pump 14 LPS capacity at 10m head of 3.75 KW motor</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p>	No.	1		6530
K6/5-36 CARRIED TO COLLECTION					24685

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>Mercury switch level control units, installed connected and tested complete with all connections, relays, and all accessories as specified and/or shown on drawings</u></p> <p>Level control unit</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p>	No.	1		15000
B	<p><u>Electromagnetic flowmeter, installed, connected and tested, complete with sensors, transmitter, display, body and all accessories as specified</u></p> <p>Electromagnetic flowmeter, 400 mm diameter</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p>	No.	2	10405	20810
K6/5-37 CARRIED TO COLLECTION					35810

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>DUCT-WORK</u>				
	<u>Supply and Exhaust air ducts, installed and tested, complete, including hangers, supports, seams, stiffeners, volume dampers, extractors, fittings and accessories, all as specified (unit weight given is net duct weight. Rate to include all additional accessories)</u>				
A	0.6 mm metal thickness of low velocity galvanized steel duct-work				
	Per Kilogram U.S. Dollars.	Kg	900	7	6300
				
				
B	0.7 mm metal thickness of low velocity galvanized steel duct-work				
	Per Kilogram U.S. Dollars.	Kg	400	7	2800
				
				
	<u>AIR TERMINALS</u>				
	<u>Air terminals, installed, connected and tested complete with all accessories, all as specified.</u>				
C	Exhaust grille 250 x 150 mm				
	Per Number U.S. Dollars.	No.	4	50	200
				
				
K6/5-38		CARRIED TO COLLECTION			9300

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>Air terminals, installed. ... (cont'd)</u>				
A	Exhaust grille 450 x 200 mm Per Number U.S. Dollars.	No.	6	75	450
B	Supply grille 350 x 300 mm Per Number U.S. Dollars.	No	10	200	2000
	<u>FANS</u>				
	<u>Fan, exhaust and filtered supply, installed and tested, complete with all accessories and fittings, connections and controls all as specified and shown on drawings</u>				
C	Exhaust wall fan of 0.10 Kw motor Per Number U.S. Dollars	No	1		1500
D	Exhaust roof fan of 3 HP motor Per Number U.S. Dollars.	No.	1		2000
K6/5-39 CARRIED TO COLLECTION					5950

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
	<u>Fan, exhaust and filtered supply....(cont'd)</u>				
A	Exhaust roof fan 10 HP motor Per Number U.S. Dollars.	No.	1		5000
B	Filtered supply roof fan of 5 HP motor Per Number U.S. Dollars.	No.	1		3000
C	Ditto but 7 1/2 HP motor Per Number U.S. Dollars	No.	1		4000
D	<u>Odor control, activated carbon filter, installed and tested, complete with galvanized steel casing, dust filters, plastic removable media panels and all accessories as specified and shown on drawings</u> Activated carbon filter to treat 30,000 m ³ /HR of air Per Number U.S. Dollars.	No.	1		400,000
E *	Ditto to treat 47,500 m ³ /HR of air	No.	1		650,000
K6/5-40 CARRIED TO COLLECTION					1062000

* Ref. Addendum issued by Charles Dailey.

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5. PUMPING STATION A2-SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<p><u>Split-System, direct expansion, heat pump air conditioner, installed, connected tested complete with all connections and controls, outdoor unit with compressor, condenser and fan and enclosure, indoor unit with evaporator and fan, enclosure, grilles and all accessories as specified.</u></p> <p>Split-System heat pump of 2-ton refrigeration capacity</p> <p>Per Number U.S. Dollars.</p> <p>.....</p> <p>.....</p>	No	1		2200
K6/5-41 CARRIED TO COLLECTION					2200

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5. PUMPING STATION A2 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
	<u>ELECTRICAL WORKS</u> <u>Incoming Supply Substation</u>				
A	Package substation as described				
	Per Number U.S. Dollars	No.	1		30 000
	<u>Generator and Control Panel</u>				
B	800KVA generator ABGSM rating 'B' category 2 load acceptance, grade 1 voltage regulation complete with GCP/NA2 control panel, protection, battery charger and accessories all as described.				
	Per Number U.S. Dollars	No	1		150 000
	<u>Subpanel Board</u>				
C	SPB/SA2 as described				
	Per Number U.S. Dollars	No	1		300
	<u>Earthing</u>				
D	Earth electrodes & pits as described				
	Per Number U.S. Dollars	No.	2	300	600
E	Earthing conductors & bonding of equipment as described				
	Per Lump Sum U.S. Dollars	L.S	1		6000
K6/5-43		CARRIED TO COLLECTION			186900

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5. PUMPING STATION A2 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	<u>Motor Control Centers</u> MCC/SA2 as described Per Number U.S. Dollars	No.	1		20000
B	<u>Data Aquisition System</u> Complete system including SCP/SA2 Per Number U.S. Dollars	No	1		10000
C	<u>Cables</u> 3½ C 240mm²+120mm² ECC XLPE /SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	60	180	10800
D	3½ C-95mm² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	200	80	16000
E	4C-16mm² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	15	15	225
K6/5-44 CARRIED TO COLLECTION					57025

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5. PUMPING STATION A2 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	4 C 10 mm ² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	20	13	260
B	4C 6 mm ² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	25	10	250
C	3C 6 mm ² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	160	9	1440
D	4C 4 mm ² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars	L.M	70	8	560
E	3C 2.5 mm ² PVC/SWA/PVC as described Per Linear Meter U.S. Dollars <u>Control System Cabling & Connections to Equipment & Devices</u>	L.M	40	3.5	140
F	Complete System as described Per Lump Sum U.S. Dollars	L.S	1		2000
K6/5-45 CARRIED TO COLLECTION					4650

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5. PUMPING STATION A2 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	<u>LIGHTING POINTS</u> Lighting point, weatherproof IP54 as described Per Number U.S. Dollars	L.S	31	50	1550
B	Ditto but for hazardous zone 2 as described Per Number U.S. Dollars	No.	17	80	1360
C	Ditto but for hazardous zone 0 (Zero) as described Per Number U.S. Dollars <u>Accessories</u>	No.	27	80	2160
D	One gang, one way lighting switch 15 A, 220 V, weatherproof IP54.as described Per Number U.S. Dollars	No.	3	30	90
E	Ditto but for hazardous zone 2 as described Per Number U.S. Dollars	No.	1	80	80
K6/5-46		CARRIED TO COLLECTION			5240

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5. PUMPING STATION A2 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
A	One gang, one way lighting switch 15 A, 220 V, weatherproof IP54. for hazardous zone 0 (Zero) as described					
	Per Number U.S. Dollars	No	1	80	80	
B	One gang, two way lighting switch 15 A, 220 V, weatherproof IP54.as described					
	Per Number U.S. Dollars	No	4	80	320	
C	Ditto but for hazardous zone 2 as described					
	Per Number U.S. Dollars	No	1	80	80	
D	Ditto but for hazardous zone 0 (Zero) as described					
	Per Number U.S. Dollars	No.	2	80	160	
E	Single phase single socket outlet 15A, 220V, 3 pin,weatherproof IP54 as described					
	Per Number U.S. Dollars	No.	7	50	350	
F	Fire alarm breakglass station, weatherproof IP54 as described					
	Per Number U.S. Dollars	No.	2	300	600	
K6/5-47					CARRIED TO COLLECTION	1590

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5. PUMPING STATION A2 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Fire alarm breakglass station, weatherproof IP54 hazardous zone 2 as described Per Number U.S. Dollars	No	1		400
B	Ditto but hazardous zone 0(Zero) as described Per Number U.S. Dollars	No	2	400	800
C	Fire alarm siren, weatherproof IP54 as described Per Number U.S. Dollars	No.	1		300
D	Ditto but, for hazardous zone 2 as described Per Number U.S. Dollars	No	7	400	2800
E	Fire detector as described Per Number U.S. Dollars	No.	2	150	300
F	Smoke detector as described Per Number U.S. Dollars	No.	2	150	300
K6/5-48 CARRIED TO COLLECTION					4900

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5. PUMPING STATION A2 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$	
	<u>Lighting Fittings</u>					
A	Lighting fitting type K1 as described					
	Per Number U.S. Dollars	No.	25	150	3750	
B	Lighting fitting type K7as described					
	Per Number U.S. Dollars	No.	5	200	1000	
C	Lighting fitting type K8 as described					
	Per Number U.S. Dollars	No	1	200	200	
D	Lighting fitting type K10 as described					
	Per Number U.S. Dollars	No	2	700	1400	
E	Lighting fitting type K20as described					
	Per Number U.S. Dollars	No.	17	400	6800	
F	Lighting fitting type K22 as described					
	Per Number U.S. Dollars	No.	3	300	900	
G	Lighting fitting type K32 as described					
	Per Number U.S. Dollars	No.	12	400	4800	
K6/5-49					CARRIED TO COLLECTION	18850

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5. PUMPING STATION A2 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S	
A	Lighting fitting type K40 as described Per Number U.S. Dollars	No.	1		350	
B	Lighting fitting type K72 as described Per Number U.S. Dollars	No.	3	300	900	
C	Lighting fitting type K90 as described Per Number U.S. Dollars	No.	5	450	2250	
	<u>Disconnect Switches With Auxiliary Contacts</u>					
D	40 A six pole and N weather proof IP54 as described Per Number U.S. Dollars	No.	1		250	
E	30 A TP& N weather proof IP54 as described Per Number U.S. Dollars	No.	1		100	
F	20 A TP& N, weatherproof IP54 as described Per Number U.S. Dollars	No.	1		80	
K6/5-50					CARRIED TO COLLECTION	3880

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**VOLUME III BILLS OF QUANTITIES
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5. PUMPING STATION A2 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	20 A TP& N, weatherproof IP54hazardous zone 2 as described Per Number U.S. Dollars	No.	3	120	360
B	15 A TP&N, weather proof IP54 as described Per Number U.S. Dollars	No	4	50	200
C	Ditto but hazardous zone 2 as described Per Number U.S. Dollars	No	2	80	160
D	15 A DP, weatherproof IP54 as described Per Number U.S. Dollars <u>Telephone System</u>	No	4	40	160
E	Telephone point,as described Per Number U.S. Dollars	No	1		35
F	Desk type telephone hand-set, as described Per Number U.S. Dollars	No	1		70
K6/5-51 CARRIED TO COLLECTION					985

**NORTH BEIRUT OUTFALL HEADWORKS
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**VOLUME III BILLS OF QUANTITIES
SECTION 6 PUMPING & LIFT STATIONS**

5. PUMPING STATION A2 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE \$	TOTAL PRICE \$
A	Telephone Terminal cabinet for 10 pairs, IP54 as described Per Number U.S. Dollars	No	1		100
B	100mm dia PVC duct laid in trenches as described Per Linear Meter U.S Dollars	LM	60	15	900
C	Connection to SCP/NA2 as described Per Lump Sum U.S. Dollars	L.S	1		200
D	<u>Lock-off Switches</u> Lock-off switches, for hazardous zone 2 as described Per Number U.S. Dollars	No	5	150	750
E	<u>Equipment Connections Supplied By MCC/NA2</u> Circuit references 1,2,3,4, 5 hazardous zone 2 installation as described Per Number U.S. Dollars	No	5	400	2000
K6/5-52 CARRIED TO COLLECTION					3950

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**VOLUME III BILLS OF QUANTITIES
SECTION 6 PUMPING & LIFT STATIONS**

5. PUMPING STATION A2 - SOUTH

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE S	TOTAL PRICE S
A	Circuit references 6,7 .8 hazardous zone 2 as described				
	Per Number U.S. Dollars	No	3	100	300
B	Circuit references 9,10 hazardous zone 2 as described				
	Per Number U.S. Dollars	No	2	80	160
C	Circuit references 11, IP54 as described				
	Per Number U.S. Dollars	No	1		80
D	Circuit references 14 IP54 as described				
	Per Number U.S. Dollars	No	1		80
E	Circuit references 15 IP54 as described				
	Per Number U.S. Dollars	No	1		80
F	Circuit references 16 IP54 as described				
	Per Number U.S. Dollars	No	1		80
G	Circuit references 17 IP54 as described				
	Per Number U.S. Dollars	No	1		80
K6/5-53 CARRIED TO COLLECTION					860

NORTH BEIRUT OUTFALL HEADWORKS
NORTH AND WEST - SOUTH COASTAL COLLECTORS
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PUMPING STATION A2-SOUTH
SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNT \$</u>
Earthwork	K6/5-2	41 868
Concrete Work	K6/5-7	294 926
Blockwork	K6/5-8	12 947
Waterproofing and Roofing	K6/5-11	44 998
Drainage and Plumbing	K6/5-15	2431
Doors, Windows and Louvers	K6/5-18	4630
Metal Work	K6/5-21	8720
Sanitary Fixtures and Accessories	K6/5-23	1355
Floor, Wall and Ceiling Finishings	K6/5-27	39958
Mechanical Work	K6/5- 42	1 845 164
Electrical work	K6/5-54	288 830

TOTAL CARRIED TO MAIN SUMMARY

2,585,827

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الجمهورية اللبنانية
مكتب وزير الدولة لشؤون التنمية الإدارية
مركز مشاريع ودراسات القطاع العام

SECTION 6

PUMPING AND LIFT STATIONS

MAIN SUMMARY

<u>DESCRIPTION</u>	<u>PAGE</u>	<u>AMOUNT \$</u>
1. Pumping Station A1-North	K6/1-20	263 939
2. Lift Station A2-North	K6/2-27	842 881
3. Lift Station A3-North	K6/3-26	988 776
4. Pumping Station A1-South	K6/4-53	1684 262
5. Pumping Station A2-South	K6/5-55	2585 827
TOTAL CARRIED TO GENERAL SUMMARY		6,365,685

Republic of Lebanon
Office of the Minister of State for Administrative Reform
Center for Public Sector Projects and Studies
(C.P.S.P.S.)