

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

NORTH SINAI DEVELOPMENT ORGANIZATION
MINISTRY OF WATER RESOURCES AND IRRIGATION
THE ARAB REPUBLIC OF EGYPT

THE NORTH SINAI INTEGRATED RURAL DEVELOPMENT PROJECT
(PHASE III)

(DETAILED DESIGN STUDY)

VOLUME V : TENDER DOCUMENT OF PACKAGE 4
(MAIN POWER SUBSTATION)

(VOL. V-1 : INSTRUCTIONS TO TENDERERS, CONDITIONS OF CONTRACT.
BILL OF QUANTITIES AND TECHNICAL SPECIFICATIONS)

OCTOBER, 2000

SANYU CONSULTANTS INC.
PACIFIC CONSULTANTS INTERNATIONAL

A F A
J R
00-40

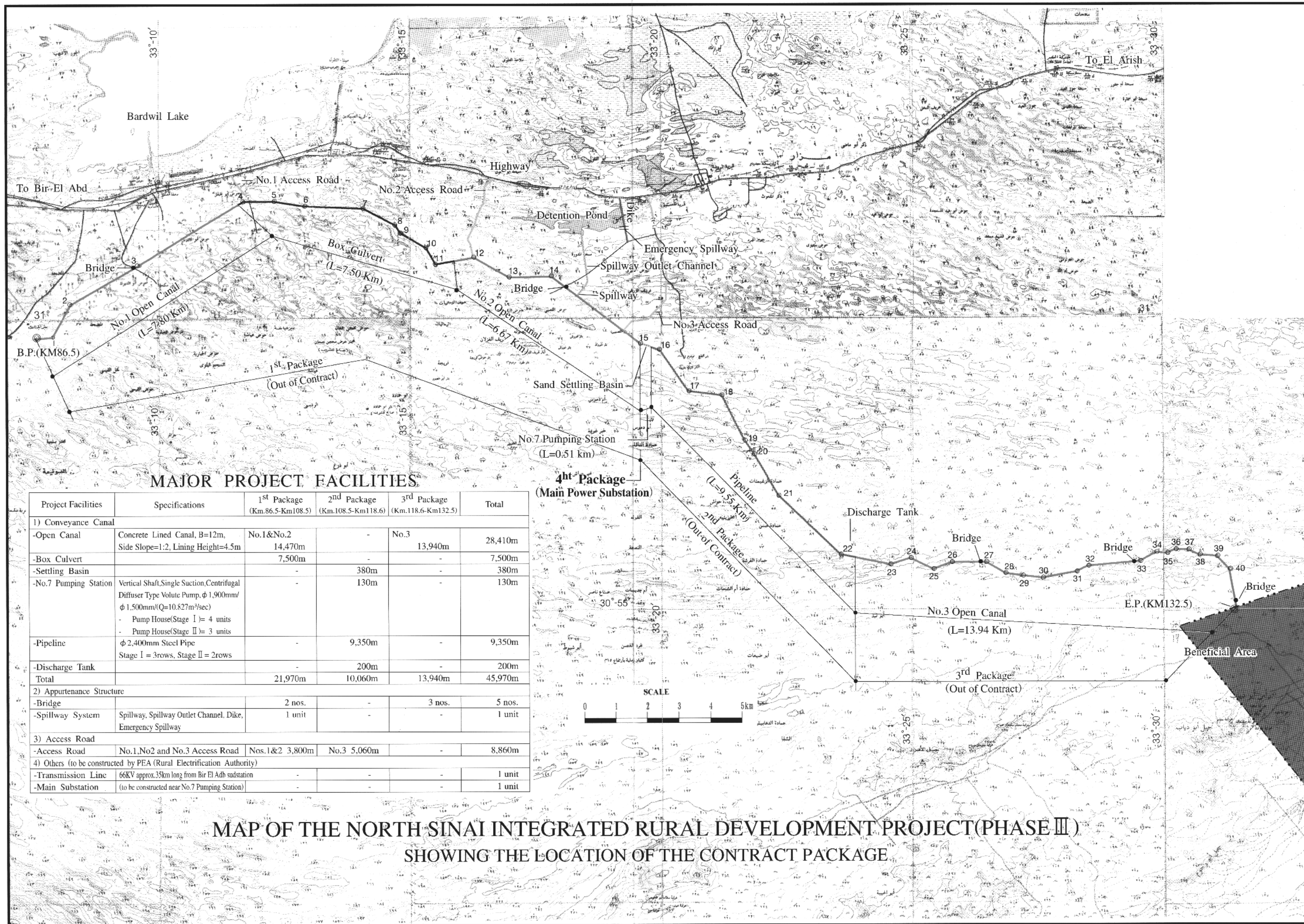
ARAB REPUBLIC OF EGYPT
MINISTRY OF ELECTRICITY
RURAL ELECTRIFICATION AUTHORITY
ON BEHALF OF
NORTH SINAI DEVELOPMENT ORGANIZATION OF
MINISTRY OF WATER RESOURCES AND IRRIGATION

NORTH SINAI DEVELOPMENT PROJECT

CONVEYANCE SYSTEM OF
EL SHEIKH GABER EL SABBAAH CANAL
MAIN POWER STATION

TENDER DOCUMENTS

(month) 200x



MAJOR PROJECT FACILITIES

Project Facilities	Specifications	1 st Package (Km.86.5-Km108.5)	2 nd Package (Km.108.5-Km118.6)	3 rd Package (Km.118.6-Km132.5)	Total
1) Conveyance Canal					
-Open Canal	Concrete Lined Canal, B=12m, Side Slope=1:2, Lining Height=4.5m	No.1&No.2 14,470m	-	No.3 13,940m	28,410m
-Box Culvert		7,500m	-	-	7,500m
-Settling Basin		-	380m	-	380m
-No.7 Pumping Station	Vertical Shaft, Single Suction, Centrifugal Diffuser Type Volute Pump, ϕ 1,900mm/ ϕ 1,500mm (Q=10.827m ³ /sec) - Pump House (Stage I) = 4 units - Pump House (Stage II) = 3 units	-	130m	-	130m
-Pipeline	ϕ 2,400mm Steel Pipe Stage I = 3rows, Stage II = 2rows	-	9,350m	-	9,350m
-Discharge Tank		-	200m	-	200m
Total		21,970m	10,060m	13,940m	45,970m
2) Appurtenance Structure					
-Bridge		2 nos.	-	3 nos.	5 nos.
-Spillway System	Spillway, Spillway Outlet Channel, Dike, Emergency Spillway	1 unit	-	-	1 unit
3) Access Road					
-Access Road	No.1, No.2 and No.3 Access Road	Nos.1&2 3,800m	No.3 5,060m	-	8,860m
4) Others (to be constructed by PEA (Rural Electrification Authority))					
-Transmission Line	66KV approx.35km long from Bir El Adh substation	-	-	-	1 unit
-Main Substation	(to be constructed near No.7 Pumping Station)	-	-	-	1 unit

**MAP OF THE NORTH SINAI INTEGRATED RURAL DEVELOPMENT PROJECT (PHASE III)
SHOWING THE LOCATION OF THE CONTRACT PACKAGE**

Contents

PART 1: INSTRUCTION TO TENDERER

	PAGE
1-01 Introduction	1-1
1-02 Object of Tender	1-1
1-03 Tender Documents	1-1
1-04 Application for Tender Documents	1-1
1-05 Interpretation of Document, Addenda	1-1
1-06 Bidding Documents Confidential	1-1
1-07 Form of Tender and Method of Bidding	1-2
1-08 Submission of Bids	1-4
1-09 Bid Bond	1-4
1-10 Alteration and Clarification of Bid	1-4
1-11 Modification of Bidding Documents	1-5
1-12 Commitment on Signing Form of Bidding	1-5
1-13 Information to be submitted with Bid	1-5
1-14 Evidence of Capability	1-6
1-15 Validity of Bids	1-6
1-16 Cost and Expense of Bidding	1-6
1-17 Pricing	1-7
1-18 Payments	1-7
1-19 Financing	1-8
1-20 A - Latest Date for Reception of Tender	1-8
B - Period during which Tender is irrevocable	1-8
C - Opening of Tender (Envelope 2: Price Proposal)	1-8
1-21 Tender Selection Criteria	1-9
1-22 Evaluation Criteria of Tenders	1-10
1-23 Evaluation of Transformer Losses	1-10
1-24 Post Bid Qualification	1-11
1-25 Award of Contracts	1-11
1-26 Taxes Dues	1-12
1-27 Preference for Egyptian Manufactured Goods	1-12
1-28 Acceptance of Tender	1-12
1-29 Language of Tender	1-12
1-30 Fees Paid of Agents	1-13
1-31 Performance Guarantee	1-13

PART 2: FORMS OF TENDER AND APPENDICES

	PAGE
1-32 Form of Tender and Appendices Form of Tender	2-1
Appendix A Special Stipulations	2-3
Appendix B Bill of Quantities and Prices	2-B-1
Appendix C Delivery Schedule	2-C-1

Appendix D	Guarantee Tables	2-D-1
Appendix E	Form of Qualification	2-E-1
Appendix F	Form of Tender Bond	2-F-1

PART 3: CONTRACT AND FORM OF PERFORMANCE BOND

	PAGE
Contract	3-1
Form of Performance Bond	3-5
Form of Advance Payment L/G	3-6

PART 4: GENERAL CONDITIONS

	PAGE
4-01 Definitions	4-1
4-02 Interpretation of Contract Documents	4-1
4-03 Successors and Assigns	4-1
4-04 Assignment of Contract	4-1
4-05 Subcontracting by Contractor	4-2
4-06 Publicity	4-2
4-07 Specification and Drawings	4-2
4-08 Extension of Time	4-3
4-09 Additions, Deductions and Alterations	4-3
4-10 Material, Plant and Labour	4-4
4-11 Test Certificates	4-4
4-12 Quality Control, Inspection and Testing	4-5
4-13 Faulty or Defective Equipment	4-5
4-14 Relations of Contractor and Sub-Contractors	4-6
4-15 Contractor's Liability	4-6
4-16 Insurance	4-6
4-17 Suspension of Work	4-7
4-18 Cancellation of Contract	4-7
4-19 Termination	4-7
4-20 Patents	4-8
4-21 Liens	4-9
4-22 Warranty	4-9
4-23 Arbitration	4-9
4-24 Notices	4-10
4-25 Force Majeure	4-10
4-26 Bribery	4-11
4-27 Fraud	4-11
4-28 Engineer's Right Stop Work	4-11
4-29 Laws and Regulations	4-11

PART 5: SPECIAL CONDITIONS

	PAGE
5-01 Scope of Contract	5-1
5-02 Delivery, Completion and Liquidated Damages	5-1
5-03 Progress Report	5-1
5-04 Standards	5-1
5-05 Preparation for Shipment	5-2
5-06 Shipment	5-2
5-07 Price Adjustment	5-3
5-08 Inspection and Testing before Shipment	5-3
5-09 Guarantee	5-4
5-10 Training	5-4
5-11 Language	5-5
5-12 Effective Date of Contract	5-5
5-13 Bid's Deviation of Exception	5-5

PART 6: TECHNICAL CONDITIONS

	PAGE
Section 6-1 General Technical Conditions	
6-1-01 General Description	6-1-1
6-1-02 Substation Equipment	6-1-1
6-1-03 Fully Detailed Specifications Essential	6-1-3
6-1-04 Scheme of Connections	6-1-3
6-1-05 Buildings	6-1-3
6-1-06 Climatic Conditions	6-1-4
6-1-07 Information to be Verified	6-1-5
6-1-08 Units	6-1-5
6-1-09 Documents to be submitted with Tender	6-1-6
6-1-10 Drawings to be submitted for Approval	6-1-6
6-1-11 Copies of Contract Documents	6-1-7
6-1-12 Service of Guarantee Technician	6-1-7
6-1-13 Design of the Plant	6-1-7
6-1-14 Labeling	6-1-8

	PAGE
Section 6-2 Tests	
6-2-01 General	6-2-1
6-2-02 Expenses	6-2-1
6-2-03 Time at which Tests are Made	6-2-1
6-2-04 Calibration of Instruments	6-2-2
6-2-05 Guarantee Figures	6-2-2
6-2-06 Tests at Works	6-2-2
6-2-07 Tests at Site	6-2-7

Section 6-3	Penalty and Rejection	PAGE
6-3-1	Rejection of Material	6-3-1
6-3-2	Penalty and Rejection for increased Temperature Rise	6-3-1
6-3-3	Penalty and Rejection for Decreased Efficiency	6-3-1
6-3-4	Replacement of Rejected Material and Equipment	6-3-2
Section 6-4	66 kV Switchgear	PAGE
6-4-1	Layout	6-4-1
6-4-2	Bus-bars and Connections	6-4-1
6-4-3	Insulators, Fittings and Wall Bushings	6-4-2
6-4-4	Isolating Switched	6-4-2
6-4-5	66 kV Circuit Breakers	6-4-3
6-4-6	Current Transformers	6-4-5
6-4-7	Potential Transformers	6-4-5
6-4-8	66 kV Lightning Arresters	6-4-6
6-4-9	Controlling Panels	6-4-7
Section 6-5	Main Transformer	PAGE
6-5-01	Type	6-5-1
6-5-02	Standard Specification	6-5-1
6-5-03	Ratings	6-5-1
6-5-04	Maximum Continuous Power Rating	6-5-1
6-5-05	Short Time Rating	6-5-1
6-5-06	Capability of Withstanding Short Circuits	6-5-2
6-5-07	Limits of Temperature Rise	6-5-2
6-5-08	Impedance Voltage	6-5-2
6-5-09	Transformer Losses	6-5-2
6-5-10	Harmonics	6-5-2
6-5-11	Vibration and Noise Level	6-5-3
6-5-12	Connection	6-5-3
6-5-13	Neutral Point Earthing	6-5-3
6-5-14	Tap Changing Gear	6-5-4
6-5-15	Transformer Parallel Operation	6-5-4
6-5-16	Auxiliary Voltages	6-5-4
6-5-17	Transformer Construction	6-5-4
6-5-18	Terminals	6-5-5
6-5-19	Core	6-5-5
6-5-20	Winding	6-5-5
6-5-21	Transformer Cooling	6-5-5
6-5-22	Oil for Transformers	6-5-6
6-5-23	Drying of Transformers	6-5-6
6-5-24	Tank, Accessories and Fittings	6-5-6
6-5-25	Oil Expansion Vessel	6-5-7
6-5-26	Terminal Cabinet	6-5-7

6-5-27	Painting	6-5-7
6-5-28	Remote Temperature Indicator and Alarm Devices	6-5-7
6-5-29	Buchholz Protection	6-5-7

Section 6-6	11 kV Switchgear	PAGE
6-6-1	General Description	6-6-1
6-6-2	Type and Arrangement	6-6-1
6-6-3	Cubicle Construction	6-6-1
6-6-4	Bus Bars	6-6-3
6-6-5	Circuit Breakers	6-6-3
6-6-6	Instrument Transformers	6-6-4

Section 6-7	Control, Metering and Protection Equipment	PAGE
6-7-1	66 kV Circuits	6-7-1
6-7-2	66 kV Measuring and Control Instruments	6-7-1
6-7-3	11 kV Circuits	6-7-2
6-7-4	11 kV Measuring and Control Instruments	6-7-2
6-7-5	Protective Equipment	6-7-2
6-7-6	Type of Protection for 66 kV Circuits	6-7-3
6-7-7	Type of Protection for 11 kV Circuits	6-7-6

Section 6-8	Auxiliary Equipment	PAGE
6-8-1	Auxiliary Transformers	6-8-1
6-8-2	0.4 kV Switchgear	6-8-2
6-8-3	Earthing System	6-8-3
6-8-4	Direct Current System	6-8-3
6-8-5	Substation Lighting System	6-8-5
6-8-6	Ventilation of the Substation Building	6-8-6
6-8-7	Fire Fighting	6-8-6

Section 6-9	Cables	PAGE
		6-9-1

Section 6-10	Spare Parts and Maintenance Tools	PAGE
6-10-1	Spare Parts	6-10-1
6-10-2	Maintenance Tools	6-10-3
6-10-3	Common Spare Parts for the Substation	6-10-3

Section 6-11	Civil Works	PAGE
6-11-1	General	6-11-1
6-11-2	Earth Works	6-11-1
6-11-3	Concrete	6-11-3

PART 7: BILL OF QUANTITIES