

4970262 (6)
PD-AAD-901-E1

4970262005303



REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL CIPTA KARYA
DIRECTORATE OF SANITARY ENGINEERING

23p.

CONTRACT FOR CONSULTANT SERVICES
FOR
SURAKARTA WATER SYSTEM
NO. 01/WS-S/1/AID/78

MONTHLY PROGRESS

**REPORT NO. 2
NOVEMBER 1978**

BURNS & McDONNELL ENGINEERING COMPANY, INC.
AND
TRANS-ASIA ENGINEERING ASSOCIATES, INC.
A JOINT VENTURE

REPORT NO. 2

SURAKARTA WATER SYSTEM
CONSULTING ENGINEERING SERVICES

FOR THE MONTH OF NOVEMBER

1978

SUBMITTED BY :



Donald Dewart

DONALD DEWART
Chief Engineer

PREPARED BY :

BURNS & MCDONNELL ENGINEERING CO., INC
TRANS - ASIA ENGINEERING ASSOCIATES, INC
A Joint Venture
KOTAK POS 105
SURAKARTA, INDONESIA

TABLE OF CONTENTS

| TITLE | PAGE |
|------------------------------------|------|
| NARRATIVE REPORT FOR NOVEMBER 1978 | 1 |
| VISITORS TO THE PROJECT | 4 |
| LETTERS RECEIVED | 5 |
| LETTERS SENT | 7 |
| ACTIVITIES REPORT IN MAN-MONTHS | 8 |
| REPORT ON MAN-MONTHS BY SKILLS | 9 |
| SURAKARTA OFFICE STAFF | 11 |
| WORK SCHEDULE FOR NEXT MONTH | 12 |
| LOCATION MAP | 13 |
| APPENDIX | |

SURAKARTA WATER SYSTEM
NARRATIVE REPORT FOR NOVEMBER 1978

6 November. Mr. B.B. Bayongan started the program of providing assistance to the Surakarta Water Enterprise to organize their management and accounting system in accordance with the Unisystem being used by the Government. His proposed work program is included in the Appendix.

6 November. Mr. J.T. Beirn started working on the underground water exploration program.

8 November. Conference in Surakarta office. Those present :

| | |
|---------------------|----------------|
| Mr. Fred Midgett, | BM/TAE |
| Mr. Don Dewart, | BM/TAE |
| Mr. A.F. Dengah, | BM/TAE |
| Mr. Paul Thorn, | USAID Jakarta |
| Mr. F.E. Okada, | USAID Jakarta |
| Mr. Karl K. Kindel, | US Bur, Census |
| Mr. Michael Hartz, | US Bur, Census |

The program to study the social effects of providing an ample quantity of potable water to Surakarta was discussed. Minutes of the meeting are in the Appendix II.

8 November. Conference in Surakarta office. Those present :

| | |
|---------------------|----------------------------|
| Mr. Suwandi Sanudi, | Cipta Karya |
| Mr. Harsono, | Cipta Karya |
| Mr. Yoso Soedarto, | Surakarta Water Enterprise |
| Mr. Paul Thorn, | USAID |
| Mr. Fred Midgett, | BM/TAE |
| Mr. Donald Dewart, | BM/TAE |
| Mr. A.F. Dengah, | BM/TAE |

Minutes of the meeting are in Appendix III

13 November. Five signed copies of Contract No. 01/WS-S/1/AID/78 for consulting engineering services were delivered to Cipta Karya office in Semarang.

14 November. Revised Assignment Schedules for Expatriate and Indonesian personnel (charts No. 3 & 4 in Appendix III of the contract) were mailed to the Jakarta office.

14 November. Five copies of Sheets 1, 2, 3, and 4 of the Surakarta Water Distribution System contract drawings (also of the 1 : 10,000 plan of the system) were sent to Jakarta office delivery to Paul Thorn at USAID.

14 & 15 November. J.T. Beirn and M. Khalil visited Directorate Geology at Bandung to compile groundwater data from their files. A list of the data is included in the Appendix.

15 November. Value of the Indonesian rupiah officially declared free to fluctuate on the open market today. Quoted next day at 625 rupiahs per U.S. dollar, up from the former fixed rate of 415 rupiah per U.S. dollar.

23 November. Ir. Suwandi Sanudi requested Consultant review requirements for locating the transmission pipeline under railroad tracks at Colomadu east of Kartasura. The response from the owner, Perusahaan Negara Perkebunan XVI to Cipta Karya is included in the Appendix.

23 November. A.F. Dengah and J.T. Beirn visited the Faculty of geology at Gajahmada University, Yogyakarta to look for an Indonesian counterpart hydrogeologist.

24 November. A list of approved drilling contractors was received by A.F. Dengah at the Directorate Of Sanitary Engineering in Jakarta.

29 November. A.F. Dengah visited Gajahmada University in Yogyakarta to confirm an Indonesian counterpart hydrologist can not be found there, and to receive a report by the faculty on a geohydrology survey for the site of the proposed Ngringo village at Jaten, near Surakarta (see Appendix 1)

5 - 19 November. Bernado Bayongan studied the existing organization structure, staffing pattern, and job descriptions at the Surakarta Water Enterprise, as well as a report by Unisystem Utama on compliance with the Cipta Karya Guide Book ("Blue Book") on administration of a water supply enterprise.

20 - 29 November. Bernardo Bayongan was an observer while P.T. Unisystem conducted a survey of the extent of compliance of the Water Enterprise with the management and accounting system prescribed in the "Blue Book".

29 - 30 November. Bernardo Bayongan conferred with the Development Subdirector of the Directorate of Sanitary Engineering (Mr. Oemarsidik and staff) about the purpose and objectives of the advisory service by the Consultant to the Water Enterprise.

VISITORS TO THE PROJECT

1 November.

Mr. Ed. Evanson, Pres. Trans-Asia Eng. Left on plane to Jakarta.

6, 7, 8 November.

Mr. Fred Midgett, Liaison Engineer BM/TAE.

8, & 9 November.

Mr. Paul Thorn, USAID Engineer.

8, 9, 10 November.

Dr. E.F. Okada, USAID.

Mr. Karl K. Kindel and Mr. Michael Hartz, U.S. Bureau of the Census.

23 & 24 November.

Mr. Fred Midgett, Liaison Engineer, BM/TAE.

LETTERS RECEIVED DURING NOVEMBER 1978

| NO. /DATE OF LETTER | TO | FROM | SUBJECT |
|--|--|--|--|
| 1111/PAM I/XI/78 HL 01 01 00 5 November 1978 | To whom it may concern. (copy to BM/TAE) Director General of Immigration Jakarta (copy to BM/TAE) | Cipta Karya, Surakarta Public Works Dept. Jakarta | Temporary license for Toyota Jeep Request for visa conversion for Donald Dewart |
| HL 01 01 50 5 November 1978 1185/BM/TAE/ 78 4 November 1978 | Director General of Immigration Jakarta (copy to BM/TAE) Cipta Karya Semarang (copy to BM/TAE Surakarta) | Public Works Dept. Jakarta BM/TAE Jakarta | Request for semi permanent visa for Mr& Mrs. T.G. Fodor Request for first payment on Surakarta contract |
| 1186/BM/TAE/78 4 November 1189/BM/TAE/78 6 November 1978 | BM/TAE Surakarta BM/TAE Surakarta | BM/TAE Jakarta BM/TAE Jakarta | Contract payment. Personnel per diem payments Finances |
| 498/PAM/JT/XI/78 1205/BM/TAE/78 16 November 1978 | Central Java Immigration, Semarang (copy to BM/TAE) BM/TAE Surakarta | Cipta Karya Semarang BM/TAE Jakarta | Request for work Permits for Beirn & Bayongan Invoice No. 1 for rupiah costs to 31 October 1978 |
| AP 02 01 05 20 November 1978 536/PAM/JT/XI/78 | Surakarta Water Enterprise (copy to BM/TAE) Burns & McDonnell Tran's-Asia Surakarta | Cipta Karya Jakarta Cipta Karya Semarang | Designates BM/TAE as advisor on management of the Water Enterprise Computation of Transmission pipe-line & Distribution system for Surakarta City |

LETTERS RECEIVED DURING NOVEMBER 1978

(continued)

| NO./DATE OF LETTER | TO | FROM | SUBJECT |
|---------------------------------------|--|--|--|
| HL 01 02 II 25 November 1978 | USAID Jakarta (copy to BM/TAE) | Cipta Karya Jakarta | Request for letter of comitment of funds for Surakarta Water Prject |
| EE - INSIP/78.177 29 November 1978 | Cipta Karya Surakarta (copy to BM/TAE) | Perusahaan Negara Perkebunan XVI, Colomadu | Crossing under railroad right-of- way for transmission pipeline |
| 404/K-LC/B.V/1978 30 November 1978 | Minister of Public Works Dept. Jakarta (copy to BM/TAE) | BAPPENAS Jakarta | Aproval for contract between Public Works Dept. c.q. Directorate Cipta Karya & Burns & McDonnell/ Trans-Asia Engr. Assoc. Inc., A Joint Venture. |

LETTERS SENT DURING NOVEMBER 1978

| NO./DATE OF LETTER | TO | FROM | SUBJECT |
|---------------------------------------|--|---------------------|---|
| 04/BM/TAE/SKA/78 7 November 1978 | BM/TAE Jakarta | BM/TAE Surakarta | Groundwater study |
| 05/BM/TAE/SKA/78 14 November 1978 | Tax Department Semarang | BM/TAE Surakarta | Request for free on Sales tax |
| 06/BM/TAE/SKA/78 14 November 1978 | Tax Department Semarang | BM/TAE Surakarta | Request for free on M.P.O. Tax |
| 07/bm/TAE/SKA/78 16 November 1978 | Cipta Karya Jakarta | BM/TAE Surakarta | Request for list of approved drilling contractors |
| 08/ BM/TAE/SKA/78 21 November 1978 | Cipta Karya Semarang | BM/TAE Surakarta | Request for letters of introduction |
| 09/BM/TAE/SKA/78 22 November 1978 | Postmaster Surakarta | BM/TAE Surakarta | Request for post office box |
| 10/BM/TAE/SKA/78 23 November 1978 | Immigration Semarang | BM/TAE Surakarta | Exit/Re-entry visas |
| 11/BM/TAE/SKA/78 30 November 1978 | Bina Marga Provincial Public Work, Surakarta | BM/TAE Surakarta | Suggestion to discuss pavement replacement after pipe laying |
| 12/BM/TAE/SKA/78 30 November 1978 | P.T. Waskita Karya, Drilling Division Surabaya | BM/TAE Surakarta | Request for a copy of report on groundwater in Central Java |
| 13/BM/TAE/SKA/78 30 November 1978 | Ministry of Public Work Groundwater Development Office, Jakarta | BM/TAE Surakarta | Request for copies of groundwater data |

SURAKARTA WATER PROJECT
 ACTIVITIES REPORT IN MAN - MONTHS
 FOR THE MONTH OF NOVEMBER 1978
 Burns & McDonnell/Trans-Asia Engineering Associates

| CONTRACT NUMBER 01/WS-S/I/AID/78 SIGNED 26 Oct. 1978 START 1 OTB. 1978 END 31 JAN. 1981 | NUMBER OF MAN-MONTHS | | | | | | | | | |
|---|-----------------------------|-------|----------------|-----------------------|----------------|--|-------|----------------|-----------------------|----------------|
| | THIS MONTH NOVEMBER 1978 | | | | | CUMULATIVE (a) THROUGH 30 NOVEMBER 1978 | | | | |
| | PROFESSIONAL & TECHNICAL | | | Local Sup- port | Total 3 + 4 | PROFESSIONAL & TECHNICAL | | | Local Sup- port | Total 8 + 9 |
| | For- eign | Local | Total 1 + 2 | | | For- eign | Local | Total 6 + 7 | | |
| ACTIVITY | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| ASSISTANCE DURING TENDERING | - | - | - | - | - | 6.5 | - | 6.5 | - | 6.5 |
| SUPERVISION OF PIPELINE CONTRACTION | 0.4 | 0.2 | 0.7 | 2.0 | 2.7 | 0.8 | 0.3 | 1.1 | 3.6 | 4.7 |
| WATER SYSTEM MANAGEMENT ASSISTANCE | 0.8 | - | 0.8 | 2.0 | 2.8 | 0.9 | - | 0.9 | 2.5 | 3.4 |
| OPERATION AND MAINTENANCE ASSISTANCE | - | - | - | - | - | 0.1 | - | 0.1 | 0.5 | 0.6 |
| WATER METER ASSISTANCE | - | - | - | - | - | 0.1 | - | 0.1 | 0.5 | 0.6 |
| GROUNDWATER INVESTIGATION AND DEVELOPMENT | 1.2 | 0.5 | 1.7 | 2.0 | 3.7 | 1.5 | 0.5 | 2.0 | 3.5 | 5.5 |
| TOTAL | 2.4 | 0.8 | 3.2 | 6.0 | 9.2 | 9.9 | 0.8 | 10.7 | 10.6 | 21.3 |

(a) 6.5 man-months of assistance during off-shore contracting for manufacture of pipe and equipment for water system, during first half of 1978.

SURAKARTA WATER SYSTEM
REPORT OF MAN - MONTHS BY SKILLS
 Burns & McDonnell/Trans-Asia Engineering Associates

| CONTRACT NUMBER 01/WS-S/1/AID/78 SIGNED 26 October 1978 START 1 October 1978 END 31 January 1981 TYPE OF SKILL | NUMBER OF MAN-MONTHS | | | | | |
|---|--------------------------------|------------|------------------|---------------------------------------|------------|------------------|
| | FOR THE MONTH NOVEMBER 1978 | | | CUMULATIVE THROUGH 30 NOVEMBER '78 | | |
| | PROFESSIONAL & TECHNICAL | | Local Support | PROFESSIONAL & TECHNICAL | | Local Support |
| | Foreign | Local | | Foreign | Local | |
| ENGINEERING & MANAGEMENT | | | | | | |
| Procurement Engineer | - | - | - | 6.5 | - | - |
| Chief Engineer | 1 | 0.8 | - | 2 | 0.8 | - |
| Pipeline Supervision | - | - | - | - | - | - |
| Pipeline Inspection | - | - | - | - | - | - |
| Technical Translator | - | - | - | - | - | - |
| Hydrogeologist | 0.7 | - | - | 0.7 | - | - |
| Well Drilling Specialist | - | - | - | - | - | - |
| Management Specialist | 0.7 | - | - | 0.7 | - | - |
| O & M Specialist | - | - | - | - | - | - |
| Mater Repair Specialist | - | - | - | - | - | - |
| Draftsman | - | - | - | - | - | - |
| TOTAL ENG. & MGMT. | 2.4 | 0.8 | - | 9.9 | 0.8 | - |
| ADMINISTRATION | | | | | | |
| Office Manager | - | - | 1 | - | - | 2 |
| Secretary | - | - | 1 | - | - | 2 |

Cont'd....

SURAKARTA WATER SYSTEM
 REPORT OF MAN-MONTHS BY SKILLS
 Burns & McDonnell/Trans-Asia Engineering Associates
 (continued)

| CONTRACT NUMBER 01/WS-S/1/AID/78 SIGNED 26 OCTOBER 1978 START 1 OCTOBER 1978 END 31 January 1981 TYPE OF SKILL | NUMBER OF MAN-MONTHS | | | | | |
|---|--------------------------------|-------|------------------|---------------------------------------|-------|------------------|
| | FOR THE MONTH NOVEMBER 1978 | | | CUMULATIVE THROUGH 30 NOVEMBER '78 | | |
| | PROFESSIONAL & TECHNICAL | | Local Support | PROFESSIONAL & TECHNICAL | | Local Support |
| | Foreign | Local | | Foreign | Local | |
| Accountant | - | - | - | - | - | - |
| Typist | - | - | - | - | - | - |
| Clerk | - | - | 1 | - | - | 1 |
| Driver | - | - | 1 | - | - | 1 |
| Laborer | - | - | 2 | - | - | 3.6 |
| TOTAL ADMINISTRATION | - | - | 6.0 | - | - | 10.6 |
| TOTAL | 2.4 | 0.8 | 6.0 | 9.9 | 0.8 | 10.6 |

SURAKARTA OFFICE STAFF

Donald Dewart, Chief Engineer

arrived 29 September 1978

Lee Clark, Operation & Maintenance Specialist arrived 2 November 1979

departed 5 November 1978

Bernardo B. Bayongan, Management Specialist

arrived 5 November 1978

James T. Beirn, Hydrologist

arrived 5 November 1978

A.F. Dengah, Counterpart Chief Engineer

arrived 8 November 1978

Dradjat Atmardjo, Office Manager

arrived 2 October 1978

Mohammad Khalil, Materials Coordinator

arrived 2 October 1978

Hermani Guntur, Secretary

hired 2 October 1978

Rubiyo, Clerk

hired 1 November 1978

Pamoedji Rahardjo, Driver

hired 2 October 1978

Mulyatmono, Watchman/Labour

hired 9 October 1978

Soewarno, Office Boy

hired 1 November 1978

WORK SCHEDULED FOR NEXT MONTH

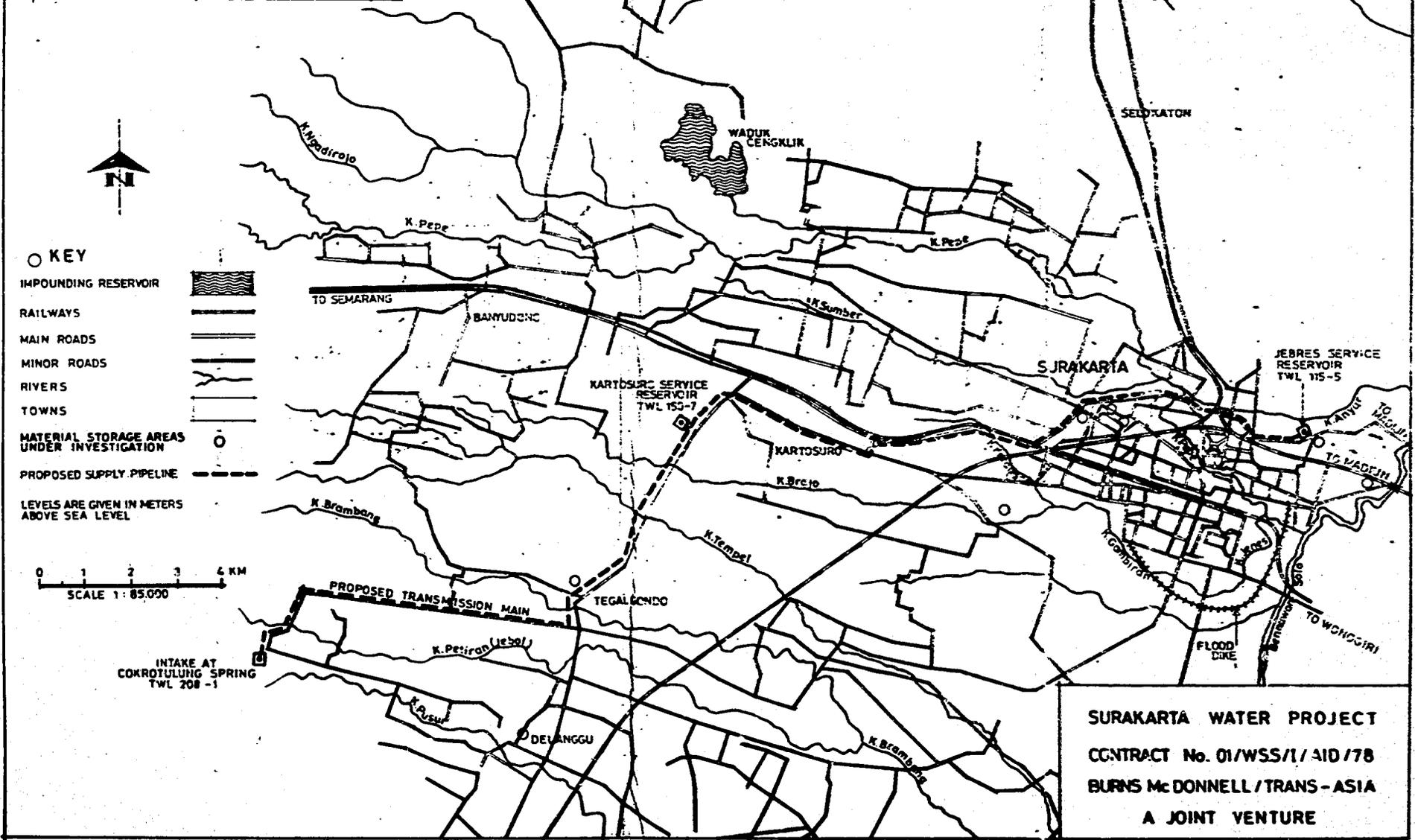
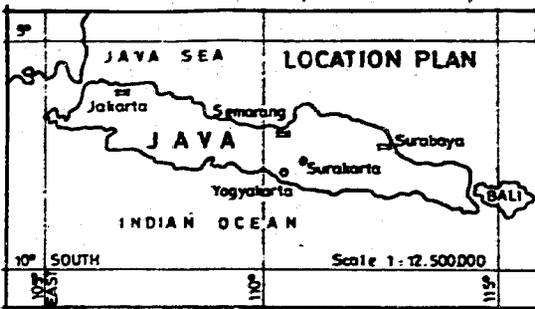
Submit estimate of area of street and highway pavement to be replaced after laying transmission pipeline.

Submit plan of Manahan athletic field in Surakarta showing proposed layout of storage area for transmission pipeline materials.

Continue advisory services to the Surakarta Water Enterprise during annual inventory and preparation of fixed assets and financial statement. at the end of the calendar year.

Field reconnaissance and exploration by the hydrogeologist in the area north of Surakarta.

Complete our estimate of pipe, fittings, and appurtenances, and of concrete volume required for construction of the proposed transmission pipeline. Then compare it with the off-shore purchase materials contracts to ensure adequate supplies.



SURAKARTA WATER PROJECT
CONTRACT No. 01/WSS/1/AID/78
BURNS Mc DONNELL/TRANS-ASIA
A JOINT VENTURE

APPENDIX I
GROUNDWATER DATA

Groundwater data obtained from Directorate Geology at Bandung,
14 & 15 November :

I. Geologic Reference Material (Xerox copies)

a. Geology of Indonesia - 1949 by R.W. Benmelen

1. Chapter I Physiography
Pages 1-15, 28-29

2. Chapter II Stratigraphy
Pages 79, 96-98, 106-107

3. Chapter III Volcanism
Pages 191-224, 230

4. Chapter IV Geophysics
Pages 257, 260

5. Chapter V Geological Evolution of the Physiographic Units
Pages 560, 565-571, 614-616

b. Groundwater investigation and utilization in Indonesia

c. The discovery of a "Hominid Skull" at Sangiran Central Java

d. Geothermics in Indonesia

e. Groundwater in Indonesia

f. Groundwater potential of areas underlined by volcaniclastic
rocks - examples from Indonesia.

Groundwater potential of limestone terranes - examples from
Indonesia.

g. The water resources of Indonesia their potentials and their utilization at present

h. The status of Engineering Geology in Indonesia

i. Expanatory note of the general geological map of Surakarta

II. List of Publications Available at Library G.S.I.

Recent publications of geological survey of Indonesia

III. Geologic Bulletins

a. Bulletin of the volcanological survey of Indonesia

b. No. 100 - 1950 - 1957

c. No. 101 - 1958

d. No. 102 - 1959

e. Gravity and geological studies in Java, Indonesia

f. Geology of Indonesia; publications 1958-1975 and a few earliest publications

IV. Geologic Maps

a. Geologic map of Surakarta

b. Geologic map of Java and Madura sheer; Central Java -
1 : 500.000

c. Volcanic hazard map

Merapi volcano, Central Java - 1 : 100.000

d. Tentative groundwater map of Java and Madura - 1 : 100.000

e. Geologic map of Indonesia - 1 : 2.000.000 to a set.

V. Maps Topographic

a. (2) - Surakarta 1 : 100.000

- b. (I) - Surakarta I : 50.000
- c. (I) - Boyolali I : 50.000
- d. (I) - Scale I :100.000

Groundwater data obtained from University of Gajah Mada in Yogyakarta on 29 November :

Report on Geohydrology Survey at Proposed Housing Complex, Ngringo village, Jaten, Karanganyar ", prepared by the faculty, 4 August 1976

APPENDIX II
MINUTES OF THE MEETING

Conference at the Consultant's Surakarta office on 8 December 1978.

Those present were :

| | |
|------------------|------------------------------|
| Fred Midgett, | Burns & McDonnell/Trans-Asia |
| Donald Dewart, | Burns & McDonnell/Trans-Asia |
| A.F. Dengah, | Burns & McDonnell/Trans-Asia |
| Paul Thorn, | USAID |
| Ferdinand Okada, | USAID |
| Karl K. Kindel, | U.S. Bureau of Census |
| Michael Hartz, | U.S. Bureau of Census |

Karl Kindel outlined the procedure used by his Evaluative Studies Branch of the International Statistical Programs Center at the U.S Bureau of the Census. Essentially, the procedure is to make a social study of typical areas, or neighborhoods, of the City before and after the installation of an adequate public water system.

APPENDIX III
MINUTES OF THE MEETING

Meeting at the Consultant's office in Surakarta on 8 November 1978.

Those present were :

| | |
|-----------------|------------------------------|
| Suwandi Sanudi, | Cipta Karya |
| Harsono, | Cipta Karya |
| Yoso Soedarto, | Surakarta Water Enterprise |
| Paul Thorn, | USAID |
| Fred Midgett, | Burns & McDonnell/Trans-Asia |
| Donald Dewart, | Burns & McDonnell/Trans-Asia |
| A.F. Dengah, | Burns & McDonnell/Trans-Asia |

Transmission pipeline right-of-way easements. After some discussion it was agreed that Consultant will submit to Cipta Karya a description of the locations and dimensions of required areas where the pipeline will be located under private property. Consultant stated their opinion that the pipeline can be laid under the surface of the road from sta. 4 + 60 to sta. 73 + 40 within the existing right-of-way limits, provided that the Contractor will be permitted to close off the short length of road required for his actual pipe laying operation.

Pavement replacement after construction. Consultant agreed to furnish an estimate of the total area of road pavement that will be removed during trench excavation for the transmission pipeline.

Storage of materials for transmission pipeline. After some discussion Mr. Suwandi decided to use part of the Manahan athletic field. Mr. Soedarto agreed to obtain authority for this from the Mayor. Consultant will estimate the area required and report to Cipta Karya.

APPENDIX.IV
TRANSLATION OF LETTER

PNP XVI
Sugar Factory "Colomadu"

Colomadu 29 Nov. 1978

No. EE-IINSIP/78.1979

To :

Head of Dir. I Water System Project Central Java

Tunneling water transmission line under the railroad at Pabelan, owned by PNP XVI S.F. Colomadu.

Reffering to your letter No. 122/PAM I/XI/78 dated 24-XI-78 we hereby let you know that :

In principle PNP XVI S.F. Colomadu has no objections at the execution of mentioned above transmission line.

But we need to transfer to you, to take needed attention in executing the work at following considerations :

- the railroad to be tunnelled happen to be a busy traffic for transportation of sugar canes owned by the factory and intensificated Public Sugar Canes of the whole area of Kabupaten Sukoharjo.
- the execution of milling will be around May up to October 1979
- load of loco on this railroad has axis load of 15 ton.

Based on those considerations, we hereby transfer to you the specification you should take attention to :

- 1. Executions of work should be ready before the milling starts, so the transportation of sugar canes will not be disturbed.

Cont'd....

2. As shown in your design, we ask technical specifications as follows :
 - a. pipes to be placed minimum 1.50 m below the railroad.
 - b. waterpipes to be build through a steel or concrete pipe.
 - c. to avoid sinking of railroad, we wish it to be backfilled with sand.

3. We hope before you start mentioned work, you will contact us PNP XVI S.F. Colomadu.

PNP XVI
S.F. Colomadu

cc. : - Head of Central Java
Water Project
- Mayor of Surakarta
- Surakarta Water Enterprise
- Director PNP XVI Sala

Ir. Moeljadi Lebdosastro
Administrator

**SURAKARTA WATER ENTERPRISE
GENERAL WORK PROGRAM
ACCOUNTING AND MANAGEMENT INFORMATION SYSTEM**

| ACTIVITY | MONTHS | | | | | | | | | | | | |
|--|--------|---|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| Introduction with Officers and Staff of the Surakarta Water Enterprise | — | | | | | | | | | | | | |
| Visit of existing pumps and wells and ongoing project | — | | | | | | | | | | | | |
| Familiarisation with the policies and directives of the Directorate of Sanitary Engineering; previous systems work by Unisystem; previous administrative studies by Burns and McDonnell and Trans-Asia Eng. Assn. Inc. | — | | | | | | | | | | | | |
| Assist in the formulation, approval, implementation, and monitoring of operating policies | | — | — | — | — | — | — | — | — | — | — | — | — |
| Assist in reviewing existing organization | — | | | | | | | | | | | | |
| Assist in developing a suitable organization | | — | — | — | — | — | — | — | — | — | — | — | — |
| Assist in conducting job evaluation survey, recommending qualifications guide and appropriate salary structure | | — | — | — | — | — | — | — | — | — | — | — | — |
| Develop basic organization manual | | — | — | — | — | — | — | — | — | — | — | — | — |
| Review of the existing system | — | | | | | | | | | | | | |
| Assist in verifying of existing assets and setting up records | | | — | — | — | — | — | — | — | — | — | — | — |
| Design and implement accounting and management information system along the following areas: 1. General Accounting 2. Fixed Asset Accounting 3. Meter Reading, Billing and Collection 4. Payroll 5. Purchasing 6. Inventory Control 7. Disbursements 8. Work Order and Construction 9. Budgeting 10. Reporting to outside agencies | | 1 2 3 4 5 6 7 8 9 10 | — | — | — | — | — | — | — | — | — | — | — |
| Assist preparation and analysis of financial statements and operating reports | | | | | | — | — | — | — | — | — | — | — |
| Review and revision of the accounting and management information system | | | | | | — | — | — | — | — | — | — | — |
| Completion of draft of accounting and management information system manual | | | | | | — | — | — | — | — | — | — | — |
| | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | |
| | 1978 | | 1979 | | | | | | | | | | |