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

CONTRACT FOR CONSULTANT SERVICES
FOR
SURAKARTA WATER SYSTEM
NO. 01/WS-S/I/AID/78
AID LOAN 497-U-044

MONTHLY PROGRESS

REPORT NO. 14
NOVEMBER 1979

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

USAID/Indonesia
Information Center



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BURNS & McDONNELL Engineering Co.

Architect - Engineers

A JOINT VENTURE

Consultants - Planners

TRANS - ASIA Engineering Associates, Inc.

Please Reply to : Kotak Pos 105
Surakarta

No. 272/BM/TAE/SKA/79
3 December 1979

Mr. Soesanto Mertodiningrat
Director of Directorate of Sanitary Engineering
Directorate General Cipta Karya
Jl. Pattimura No: 20
Jakarta Selatan

Subject : Contract for Consultant Services for
Surakarta Water System, No. 01/WS-S/I/AID/78
dated 26 October 1978.

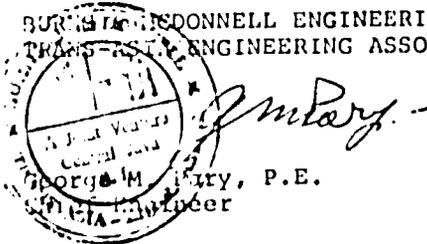
Dear Sir,

In accordance with Section 4.12 and Appendix I of the
subject Contract, we are pleased to submit fifteen
copies of Monthly Report No. 14 for the month of
November 1979.

We hope, that the report will meet with your approval.

Very truly yours,

BURNS & McDONNELL ENGINEERING CO.
TRANS-ASIA ENGINEERING ASSOC, INC.



c/c :	CJWSP	Semarang	(10 copies)
	USAID	Jakarta	(8 ")
	BM/TAE	Jakarta	(2 ")
	Burns & McDonnell	Kansas City	(1 copy)
	CJWSP	Surakarta	(1 ")
	SWE	Surakarta	(1 ")
	Mayor of Surakarta	Surakarta	(1 ")
	File		

GMP/sh

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14

LIST OF ABBREVIATIONS

a.m.	Before noon
App	Appendix
AWWA	American Water Works Association
BM/TAE	Burns & McDonnell/Trans-Asia Engineering Associates
°C	Degrees Celcius (Centigrade)
CIF	Cost-insurance-freight
CJWS	Central Java Water Supply (Management)
CK	Cipta Karya
FOB	Free-on-board
kg	Kilogram (s)
L/C	Letter of Credit
lpcd	Liters per capita day
lps	Liters per second
m	Meters (lineal)
m³	Cubic meters (Note: due to negligible difference in case of water M³ and MT are used interchangeably)
Mfg	Manufacturer
M/M	Man/month (s)
msl	mean sea level
MT	Metric tons
MTD	Metric tons per day
mm	Millimeter
No.	Number
O & M	Operation and Maintenance
p.m.	After noon (afternoon)
Rp	Rupiah
SWE	Surakarta Water Enterprise
SWS	Surakarta Water System Project
TAE	Trans-Asia Engineering Associates, Inc.
US	United States (Government)
USA	United States of America
USAID	United States Agency for International Developmnet

SECTION 1
NARRATIVE SUMMARY

1A GENERAL

The transportation contractor has satisfactorily completed the transportation of the last shipment of pipe from Semarang to the laydown area in Surakarta.

The Ministry has added the transportation of other off-shore purchased materials (from Rohan Corp., Clow Corp. and Colcorindo Raya) to the same contract, as a change order. The total weight of all three shipments being less than fifty tons, the additional cost should be well below the permissible ten percent surcharge permitted on the original contract.

The construction of the pipeline is progressing satisfactorily. Although the contractors are still behind schedule, however part of the work deficit from previous month had been made up. It is expected that, if the effort continues undiminished, the job should be on schedule within the next few weeks.

Groundwater exploration report has been completed and distributed. Specifications and drawings for tendering are being finalized and well locations have been staked out. Sketches showing well locations have been completed.

New assumptions for Management Assistance Program have been incorporated into financial projections for Surakarta Water Enterprise. The results will be discussed during special meeting on 3 December 1979.

Preparatory work for O & M Assistance Program is continuing. No comments on the schedule have been received as yet from Cipta Karya.

Meter Repair specialist is ready to start instruction, however the meter repair shop at the Water Enterprise has not as yet been outfitted with necessary benches and equipment.

1B MAJOR PROBLEMS

Acquisition of right of way in Phase I area of the pipeline being built should be authorized as soon as possible, otherwise the pipeline work may have to stop.

Approval for construction along the highway from Bina Marga has not as yet been received.

SECTION 2
ADMINISTRATION

2A SUBMISSIONS/APPROVALS

Consultant's Invoice No. 13 for October, 1979 U.S. Dollar reimbursible expenses was submitted to Cipta Karya on November 9, 1979 and was approved by CK on November 22, 1979. Consultant's Rupiah Invoice No.7 was submitted to Cipta Karya on November 9, 1979 but has not been approved as yet. This is in accordance with the Contract, Appendix II, page 11 - 15.

2B PERSONNEL

The Surakarta office personnel in November were as follows :

E x p a t r i a t e s

- George M. Pary, P.E., Chief Engineer
arrived 17 August 1979

- Thomas G. Fodor, O & M Specialist
arrived 25 December 1978, with spouse

- James F. Baucom, Pipeline Engineer
arrived 26 September 1979

- Bernardo B. Bayongan, Management Specialist
arrived 5 November 1978

- George R. Pike, Meter Specialist
arrived 26 September 1979

I n d o n e s i a n

Professional and Technical :

- A.F. Dengah, Counterpart Chief Engineer
arrived 8 November 1978
- Djoko Imbarno, Construction Supervisor
arrived 3 September 1979
- Suyatno Yuwono, Counterpart Hydrogeologist
arrived 5 January 1979
- Mohamad Khalil, Material Coordinator
arrived 2 October 1978
- Abdul Kadir, Senior Inspector
arrived 9 October 1979
- Bambang Agus Salam, Inspector
arrived 1 May 1979
- Mohamad Syarif Lembah, Inspector
arrived 1 May 1979
- Gatot Bramono, Inspector
arrived 19 November 1979
- Akhmad Aries, Draftsman
arrived 13 April 1979
- Hendradi, Translator
arrived 3 September 1979
- Yonathan Jowie, Accountant
arrived 2 December 1978

Administrative :

- Dradjat Atmardjo, Office Manager
arrived 2 October 1978
- Sri Hartati, Secretary
hired 1 June 1979
- Dewi Yuliati, Typist
hired 7 February 1979
- Rubiyo, Clerk
hired 1 November 1978
- Chaiz Hidayati, Administrative Clerk
hired 8 October 1979
- Gatot Bramono, Clerk
hired 1 November 1979
(Note : starting 19 November 1979 promoted Inspector,
see Technical Staff)
- Pamudji Rahardjo, Driver
hired 2 October 1978
- Budi Dwi Putranto, Driver
hired 4 January 1979
- Djoni Santosa, Driver
hired 1 May 1979
- Sutrisno, Driver
hired 2 April 1979
- Ermita Taher, Supply Clerk/Labor
hired 19 March 1979

- Arum Munawar, Copy Machine Operator/Labor
hired 8 March 1979
- Djumhan Hardi, Expeditor/Labor
hired 2 January 1979
- Endang Tri Siwi D.M., Receptionist/Labor
hired 1 October 1979
- Suwarno Hadi, Office Boy/Labor
hired 1 November 1978
- Mulyatmono, Watchman/Labor
hired 9 October 1978
- Sri Sadono, Office Assistant/Labor
hired 20 November 1979
- E.M. Suprpto, Field Assistant/Labor
hired 23 November 1979

70 CONTRACT STATUS

Appendix I shows the contract status in man/months expended versus man/months authorized for the project. As can be seen the Materials Coordinator's time has already been expended, although his work is necessary for the duration of the construction. The Consultant will request Cipta Karya at the next monthly meeting for the permission to extend his time.

Appendix II shows billings and balances of approved expenditures on the contract to date. As can be seen, the vehicle/gasoline/maintenance costs have run over the allotted amount. The reason for this overexpenditure is, that soon after the allotments on the contract were

made, the devaluation of Rupiah has been announced. Therefore the original costs of the vehicles was much higher than expected. There was no adjustment made to compensate for the additional costs. The Consultant will request Cipta Karya at the next monthly meeting to increase the allowance for local transportation. According to the recent experience the following figures are requested :

Sedan (1 ea) @ 75,000/mo	6 months	Rp 450,000
Jeep (3 ea) @ 100,000/mo =		
300,000/mo	6 months	1,800,000
Motorcycle (3 ea)		
25,000/mo = 75,000/mo	6 months	<u>450,000</u>
Total of		Rp 2,700,000

SECTION 3
SCHEDULES

3A PROGRESS

3A1 TRANSPORTING OFF-SHORE PURCHASED MATERIALS

AMERICAN CAST IRON PIPE COMPANY :

Contract for transporting the third and last shipment of 2107 MT of pipes and fittings from Semarang Harbor to Surakarta Storage Area, awarded to P.T. EMKL INTRAVEEM of Semarang on October 6, 1979, has been satisfactorily completed. Some lengths of the pipe, which were damaged during the sea transportation will have to be reported.

THE ROHAN COMPANY :

The following shipment has arrived from the U.S. to port of Semarang on August 7, 1979

Flush Model Hydrants
Self Closing Hydrants
Ford Meter Box Test Bench
Misc. tools and portable pump equipment

However, due to the fact, that several informalities were discovered in the shipping papers, the materials cannot be processed through the customs, until the errors have been corrected.

CLOW CORPORATION :

47.141 MT of misc. size valves have arrived to port of Semarang on August 6, 1979. The contract for transportation has been awarded to P.T. V.T.P. All these materials have been transported from Semarang to the Surakarta storage area.

COLCORINDO RAYA :

36.32 kg of materials consisting of 4 annubar and flow meter were arrived to port of Semarang on June 20, 1979. P.T. V.T.P. is scheduled to deliver these materials to Surakarta on 3 December, 1979.

3A2 CONSTRUCTION OF THE TRANSMISSION PIPELINE, PHASE I, SECTIONS A & B

P.T. Tukad Mas responsible for Section A of the pipeline and P.T. Lepen Kencana responsible for Section B, continue their work on the pipeline. Both contractors are a little behind the schedule, however they are attempting to bring the work up to date. As of 30 November 1979, approximately 20% of Phase I has been completed.

3A3 GROUNDWATER EXPLORATION PROGRAM

Hydrogeological data taking and resistivity survey work is 100% complete. The Consultant has submitted the final Groundwater and Well Development Report for the Ministry's and USAID's approval.

3A4 WELL DRILLING PROGRAM

The Consultant has prepared the draft of bidding documents for well drilling. In the first few days of December, the draft will be delivered to Cipta Karya and USAID for approval and/or comments.

Ten locations for prospective wells have been staked out by the Consultant. At the present time the Consultant is preparing location surveys in order to tie down the wells to the national grid.

3A5 MANAGEMENT ASSISTANCE PROGRAM

Work is on schedule and is 81% complete.

3A6 O & M ASSISTANCE PROGRAM

Preparatory work for Classroom Training Program is continuing, and is on schedule. Due to the construction delay the remainder of Program is two months behind schedule. Estimated starting date has been postponed to January 1980.

3A7 METER REPAIR PROGRAM

Advisory work is on schedule and is 12% complete. Requirements for additional shop equipment to be acquired locally, have been submitted to SWE.

3B WORK SCHEDULED FOR NEXT MONTH

Continue coordination of loading, transporting and unloading the off-shore purchased materials.

Continue supervise the Transmission Pipeline Construction Sections A & B.

Continue working on the drilling program and all related documentation.

Continue Management Advisory services to the Surakarta Water Enterprise, supervise General Accounting and assist implementing the Organization Manual.

Preco-ordinate the Classroom and On-site Training Program. Assist and supervise the 2nd phase O & M building construction.

Continue Meter Repair Advisory services to Surakarta Water Enterprise.

SECTION 4
ENGINEERING AND MANAGEMENT

4A TRANSPORTING OFF-SHORE PURCHASED MATERIALS

Transportation of off-shore purchased materials has considerably improved. The construction contractors have, at the present time, all the needed materials. The problem remains with the Rohan Company's informal documentation. Their shipment contains pressure testing equipment for the pipeline. The contractors are ready to start testing, however they themselves do not own such equipment.

4B CONSTRUCTION OF THE TRANSMISSION PIPELINE

Appendix III shows the PERT diagram of the pipeline construction, updated. Appendix III-A gives a full report on construction status, quality and any problems encountered or expected. In general, the Consultant is satisfied with the status of construction...

4C GROUNDWATER EXPLORATION AND WELL DEVELOPMENT PROGRAM

Appendix IV shows the planned program which is up to date. Narrative report of the activities during the month and plans for December is attached in Appendix IV-A.

4D MANAGEMENT ASSISTANCE PROGRAM

Management Assistance Program is shown on chart Appendix V. Appendix V-A provides narrative report and plans for December 1979.

4E O & M ASSISTANCE PROGRAM

The Training Supervisor from Cipta Karya, who was supposed to visit Surakarta and discuss the training program proposed by the Consultant did not arrive. Therefore the approval and/or modifications of the proposal must be postponed until December. Appendix VI shows planned performance for O & M Program. This diagram will have to be modified next month.

4F METER REPAIR TRAINING PROGRAM

Meter repair training program has been delayed due to the lack of repair equipment. In the meantime the Meter Repair Specialist has prepared a brochure on meter repair in English and Bahasa Indonesia and requested additional visual presentation materials from the Manufacturer in the United States.

4G STATUS OF WORK ON THE PROJECT

Bar chart shown in Appendix VII shows the status of work up to date. Due to the fact that several work items extend beyond theoretical end of the Consultant's contract, it is expected, that a time extension will be granted by Cipta Karya.

4H CONFERENCES

Four conferences were held in November for discussions on project matters. Reports on the conferences with list of attendees are attached in Appendices VIII through XI.

SURAKARTA WATER PROJECT
 REPORT OF MAN-MONTHS EXPENDED BY CONSULTANT
 BURNS & McDONNELL / TRANS-ASIA ENGINEERING ASSOCIATES

CONTRACT NUMBER 01/75-S/AID/78 AID LOAN 497-U-044	MAN - MONTHS			
	FOR	CUMULATIVE	% OF TOTAL	TOTAL IN
	November 1979	THROUGH 30 November	SCHEDULE	CONTRACT SCHEDULE
EXPATRIATES				
Principal	0.15	0.45	22.5	2
Liaison Engineer	0.09	1.07	69	3
Procurement Engineer	0	6.5	100	6.5
Chief Engineer	1	10.5	52.5	20
Pipeline Engineer	1	2.1	13.1	16
Hydrogeologist	0	5.7	47.5	17
Drilling Specialist	0	2.8	23.3	12
Management Specialist	1	17.6	78.7	16
O & M Specialist	1	11.4	54.2	21
Meter Specialist	1	2.1	26.2	8
EXPATRIATE TOTAL	5.24	56.72	48.1	116.5
INDONESIAN PROFESSIONAL & TECHNICAL				
Counterpart Chief Engineer	1	17.6	63	20
Construction Supervisor	1	2.9	20.7	14
Hydrogeologist	1	10.8	72	15
Materials Coordinator	1	14	100	14
Inspectors	3.2	15.8	32.9	48
Craftsman	1	9	56.2	16
Translator	1	9.7	80.8	12
Accountant	1	12	54.5	22
INDON. PROF. & TECH.	10.2	55.9	53.3	161
INDONESIAN ADMINISTRATIVE				
Office Manager	1	14	70	0
Secretary	1	13	65	20
Typist	1	9.6	43.6	22
Clerks	4.5	39	88.6	44
Drivers	4	42	52.5	40
Laborers	5.6	50.9	31.8	160
ADMINISTRATIVE TOTAL	17.1	168.5	48.6	346

SURAKARTA WATER PROJECT
 REPORT OF ENGINEERING COSTS
 BURNS & MCDONNELL/TRANS-ASIA ENGINEERING AS

CONTRACT NO. 01/WS-S/AID/73 SIGNED 26 OCT. 1978 START 1 JAN. 1978 END 31 JAN. 1981	COSTS FOR November 1979	CUMULATIVE COSTS THROUGH November 1979		CUMULATIVE
		AMOUNT	% OF TOTAL BUDGET ESTIMATE	AMOUNT RECEIVED IN November
REIMBURSABLE EXPENDITURES	November 1979			
U S DOLLARS				
Salaries and Related Costs	31,706.28	320,679.70	52.3	28,592.84
Transportation	1,220	16,916.17	27.8	-
Equipment	-	-	-	-
Miscellaneous	-	30,678.32	92.4	-
Training	-	-	-	-
Contingencies	-	-	-	-
TOTAL DOLLARS	32,926.28	368,274.19	44.2	28,592.84
INDONESIAN RUPIAH				
Salaries	8,294,500	36,846,166	51.7	7,230,000
Transportation	2,889,014	16,801,047	59.5	1,591,914
Housing	1,400,000	24,600,000	76.9	-
Vehicle Costs	812,276	25,909,770	103.4	670,000
Equipment Costs	3,863,800	9,672,010	73.5	59,900
Miscellaneous	2,860,105	15,117,235	61.2	1,819,725
Contingencies	2,166,750	8,805,825	45.3	-
TOTAL RUPIAH	22,286,445	137,752,053	64.4	11,371,539

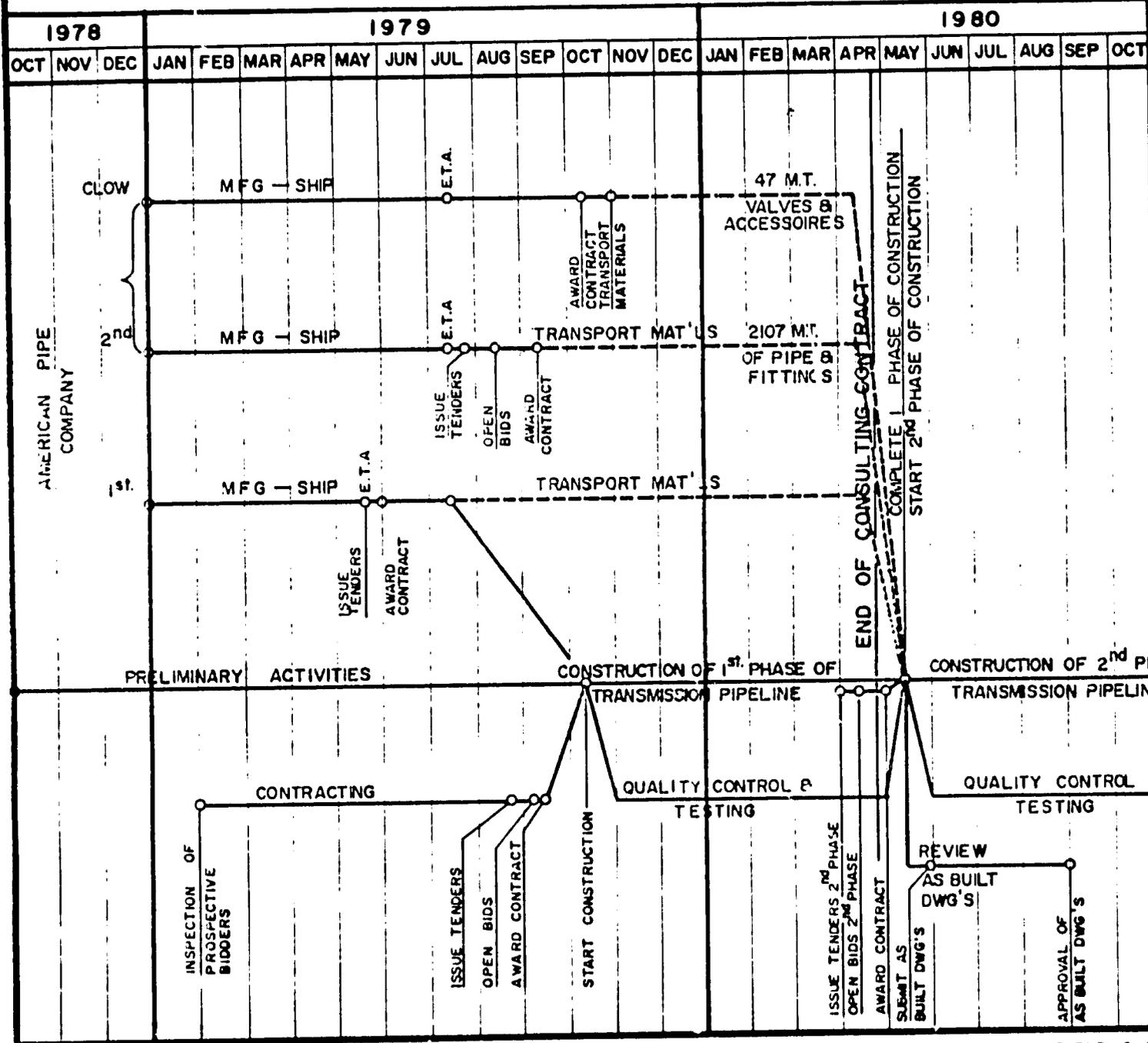
SURABAYA WATER PROJECT
 REPORT OF ENGINEERING COSTS
 BURNS & MCDONNELL/TRANS-ASIA ENGINEERING ASSOC.

	COSTS FOR	CUMULATIVE COSTS THROUGH		CUMULATIVE PAYMENTS THROUGH		
		November 1979		November 1979		
	November 1979	AMOUNT	% OF TOTAL BUDGET ESTIMATE	AMOUNT RECEIVED IN November	TOTAL AMOUNT RECEIVED THROUGH November	% OF TOTAL BUDGET ESTIMATE
U.S. DOLLARS						
15	31,706.28	340,679.70	52.3	28,592.84	288,973.42	47.1
	1,100	16,916.17	27.8	-	15,696.17	25.8
	-	-	-	-	-	-
	-	30,678.33	92.1	-	30,678.33	92.4
	-	-	-	-	-	-
	-	-	-	-	-	-
	32,806.28	368,744.19	41.7	28,592.84	335,347.91	10.3
INDONESIAN RUPIAH						
	8,224,500	36,246,266	41.7	7,230,600	8,551,666	40.1
	2,850,014	16,501,047	50.5	1,591,914	13,912,933	49.3
	1,480,000	31,600,000	71.9	-	23,290,600	71.6
	812,276	25,909,770	100.0	670,000	25,827,494	103.1
	3,263,800	9,672,010	23.5	59,900	5,808,210	44.1
	2,860,105	15,117,335	61.2	1,819,725	12,257,130	49.6
	2,266,750	8,805,325	45.3	-	6,639,075	34.1
	22,786,445	137,752,053	64.4	11,371,539	116,195,608	54.4

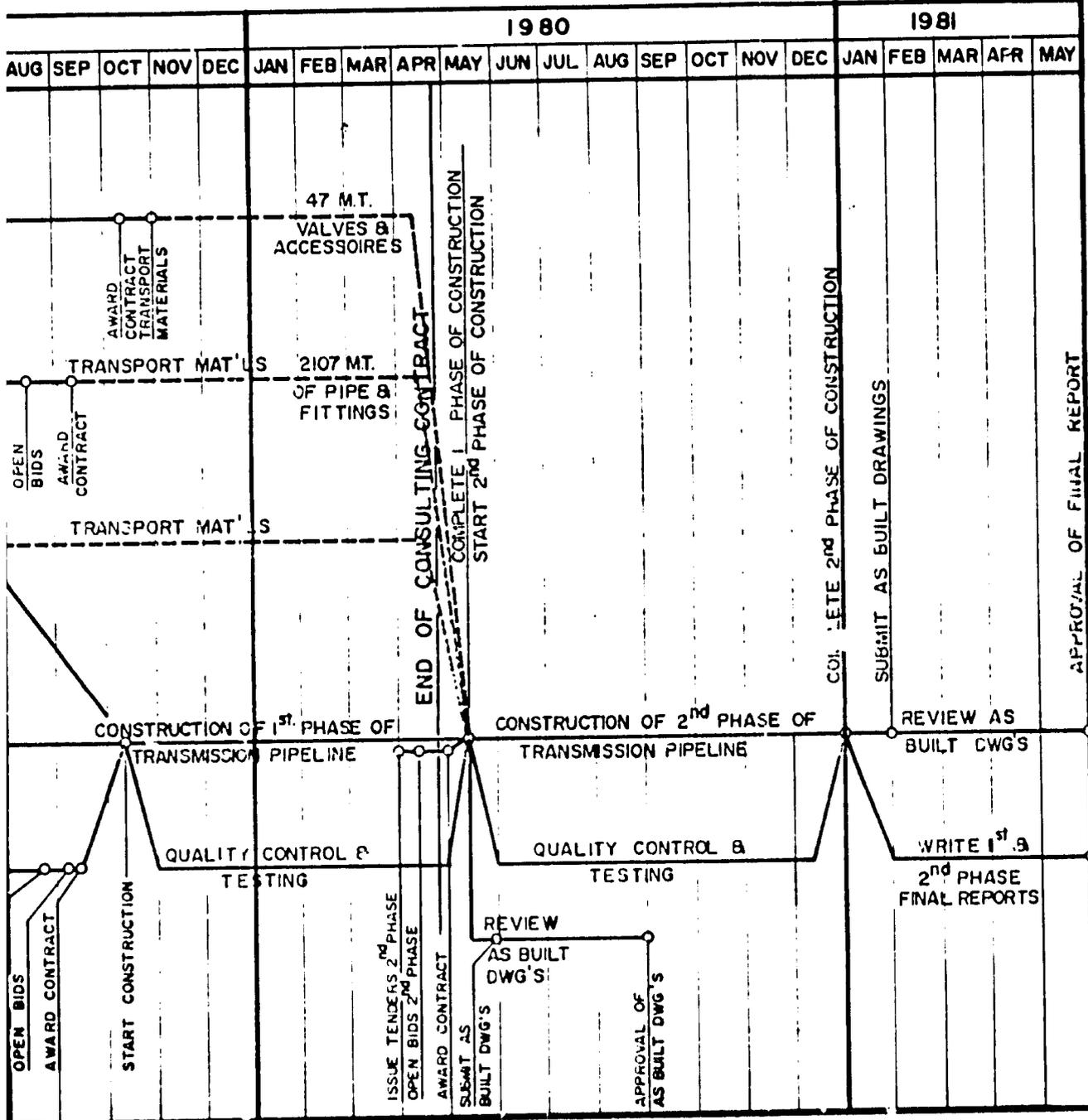
RTA WATER PROJECT
 OF ENGINEERING COSTS
 TRANS-ASIA ENGINEERING ASSOC.

MONTH	CUMLLATIVE PAYMENTS THROUGH November 1979			TOTAL BUDGET ESTIMATE FOR CONTRACT
	AMOUNT RECEIVED IN November	TOTAL AMOUNT RECEIVED THROUGH November	% OF TOTAL BUDGET ESTIMATE	
DOLLARS				
	28,592.84	288,973.42	47.1	5612,922
	-	15,696.17	25.8	60,638
	-	-	-	35,000
	-	30,678.32	92.4	33,131
	-	-	-	14,544
	-	-	-	75,729
	28,592.84	335,347.91	40.2	5333,014
INDONESIAN RUPIAH				
	7,230,000	28,551,666	40.1	71,150,000
	1,591,914	13,912,033	49.3	28,195,000
	-	23,200,000	72.6	31,950,000
	670,000	25,827,494	103.1	25,050,000
	59,900	5,808,210	44.1	13,153,000
	1,819,725	12,257,130	49.6	24,670,000
	-	6,639,075	34.1	19,416,960
	11,371,539	116,195,608	54.4	213,586,560

SURAKARTA WATER PROJECT ACTIVITY FLOW DIAGRAM (PERT) CONSTRUCTION OF TRANSMISSION PIPELINE



**SURAKARTA WATER PROJECT
 PERT
 CONSTRUCTION OF TRANSMISSION PIPELINE**



BURNS & McDONNELL ENGINEERING CO
 TRANS ASIA ENGINEERING ASSOCIATES, INC

17

SURAKARTA WATER PROJECT
TRANSMISSION MAIN
PROGRESS REPORT NO. 2
30 NOVEMBER 1979

I. GENERAL :

On 02 November 1979 the Pipeline Construction Specialist and Counterpart Chief Engineer representing the Consultant met with the Manager in charge of the Central Java Water Supply Project and the heads of the Design Division and Section of Bina Marga to discuss centerline dimension of the transmission main from centerline of highways. Information received was that no utility could be placed under or within six and one-half (6½) meters of the centerline of highways. An official decision had been handed down to govern such a directive and a copy of same was provided to the Consultant and CJWSP. Said decision will increase the ultimate cost of Phase I construction based upon (i) a change order will have to be issued to the contractor in order to bridge across the irrigation canal at Station 83 + 20, (ii) span the same canal to return to a line parallel and adjacent to the highway at approximately Station 88 + 70 and, (iii) the purchase of private property in between the named stations.

The transportation contractor began moving balance of ductile iron pipe and fittings from Semarang Port to Surakarta on 10 November 1979. He was awarded a change to his contract to include shipment of valves and specials then in storage and accepted by Cipta Karya. The valves and specials began to move to Surakarta on 28 November 1979.

Ships docked at Semarang on 11 and 12 November 1979 with the balance of goods procured through Rohan except for one (1) crate which includes the pipe drill and tapping machine and other miscellaneous items. The crate is scheduled to ship December 1979.

The Consultant was advised of the following by the Head of the Sub Directorate of Construction of the Directorate of Sanitary Engineering, Cipta Karya on 16 November 1979 as applicable only to the construction of the transmission main :

- A. Ford Meter Box Co. has been approved and awarded the procurement contract for all off-shore materials included under "List H".
- B. Easement will be finalized very quickly on all of Phase I contracts.
- C. Cost for real estate is not limited by the construction budget in obtaining easements.
- D. Location of main south of highway and parallel small roadway between Station 167 + 10 and Surakarta City Limits (Station 190 + 50 ±) would be discussed by the respective interested Directorates.

During the same meeting it was stated USD3.783 million had been spent to date on materials (part of which are for future stock and installation outside of transmission main).

On 20 December 1979 the Consultant's Counterpart Chief Engineer attended a meeting in Jakarta relative to "D" above and learned the transmission main could be placed closer than six and one-half (6½) meters of the centerline of a highway and/or an adjacent and parallel roadway provided the specifics of each case were presented

in writing to the various Directorates within the Ministry of Public Works for their approval of the variance and the minimum cover over the pipe to finished grade was 1.25 meters.

The 21st and 22nd of November were observed as holidays by the Consultant whereas the Contractor's people began to leave the project at 1200 on the 20th in order to be home for the 21st of November. Both Contractors were working on the 22nd of November and the Consultant had inspectors on the job that day.

II. WORK IN PROGRESS :

A. Contractor Tukad Mas has worked seven days per week except for holidays since he began his activities last month. He has increased his work force to include two pipe laying crews for the main between Station 50 + 00 and Station 73 + 15 which at the close of business this date had placed 1,430.70 linear meters of Ø 450 pipe. The Contractor is working simultaneously the Wonosobo, Brambang and Tempel river crossings. Other work has included transporting materiel, submittal of shop drawings and samples for approval, and construction of a field office at the Kartosura Reservoir. As of the close business this date, Tukad Mas has attained 22.395% completion of his total contract which is approximately 63.5% of his planned schedule. He has submitted his billing for 20.108% completion which was approved by the Consultant and forwarded to CJWSP for payment on 29 November 1979.

B. Contractor Lepen Kencana Utama has concentrated his efforts in the Cokrotulung Springs area toward completing excavation of tunnels and trenches through

extremely rocky terrain. He increased his work force and began installation of the Ø 450 transmission main from Station 50 + 00 back towards Cokrotulung Springs. The Consultant stopped installation of the Ø 450 main at approximately Station 48 + 00 pending a hydrostatic test due to deflected joints installed under an irrigation canal almost three meters in depth. Late arrival of necessary piping materials from the Port of Semarang has caused a delay in performing said test. The Contractor has been requested to furnish a test pump due to item No. 1 of List "J" (Off-shore Purchases) arriving at the Port of Semarang on 11-12 November and the anticipation of not receiving the goods in Surakarta until January 1980. Other work has included preliminary sandbag placement and partial excavation for Pusur River crossing, installation of Ø 500 pipe either side of tunnel No. 1, submittal of shop drawings for approval, transporting material and construction of a field office in the vicinity of the public swimming pool, Station 2 + 50. As of the close business this date, Lepen Kencana Utama has attained 18.966% completion of his total contract which is approximately 51.9% of his planned schedule. No request for payment has been received by the Consultant from Lepen Kencana Utama.

III. PROBLEMS :

- A. With reference to "I" above, Contract Drawings A-10 through and including A-22 will have to be modified (among others) to relocate the transmission main a minimum of 6.5 meters from the centerline of the Yogyakarta - Surakarta Highway.

A change order will be required to authorize contractor Tukad Mas to bridge across the irrigation canal at Station 83 + 00 in lieu of support of the elevated pipe at Station 83 + 20 as shown on Contract Drawings A-11 and ADD.12. Also, additional land for easement \pm 550 LM must be procured.

- B. Work at the Division Chamber, Cokrotulung Springs and Kartosura Reservoir will have to be rescheduled after materials (the most recent shipments) are received in Surakarta early 1980. Also refer to Paragraph III.A of Report No. 1, 30 October 1979.
- C. Hydrostatic testing will be hampered for the same reason as stated in the preceding Paragraph "B".
- D. An error was found in the quantity of mechanical joint baskets of various sizes which at this writing is being corrected by the shipper via air freight at no additional cost.

IV. FUTURE PLANNING :

Present construction contracts will proceed through private property where prices have been agreed upon by the land owners and GOI. Work along the Yogyakarta - Surakarta highway will begin early December 1979 from the Wonosobo River northward. The Consultant has been requested by CJWSP to prepare tender documents for the balance of the transmission main construction to begin early February 1980 and be completed as soon as possible thereafter.

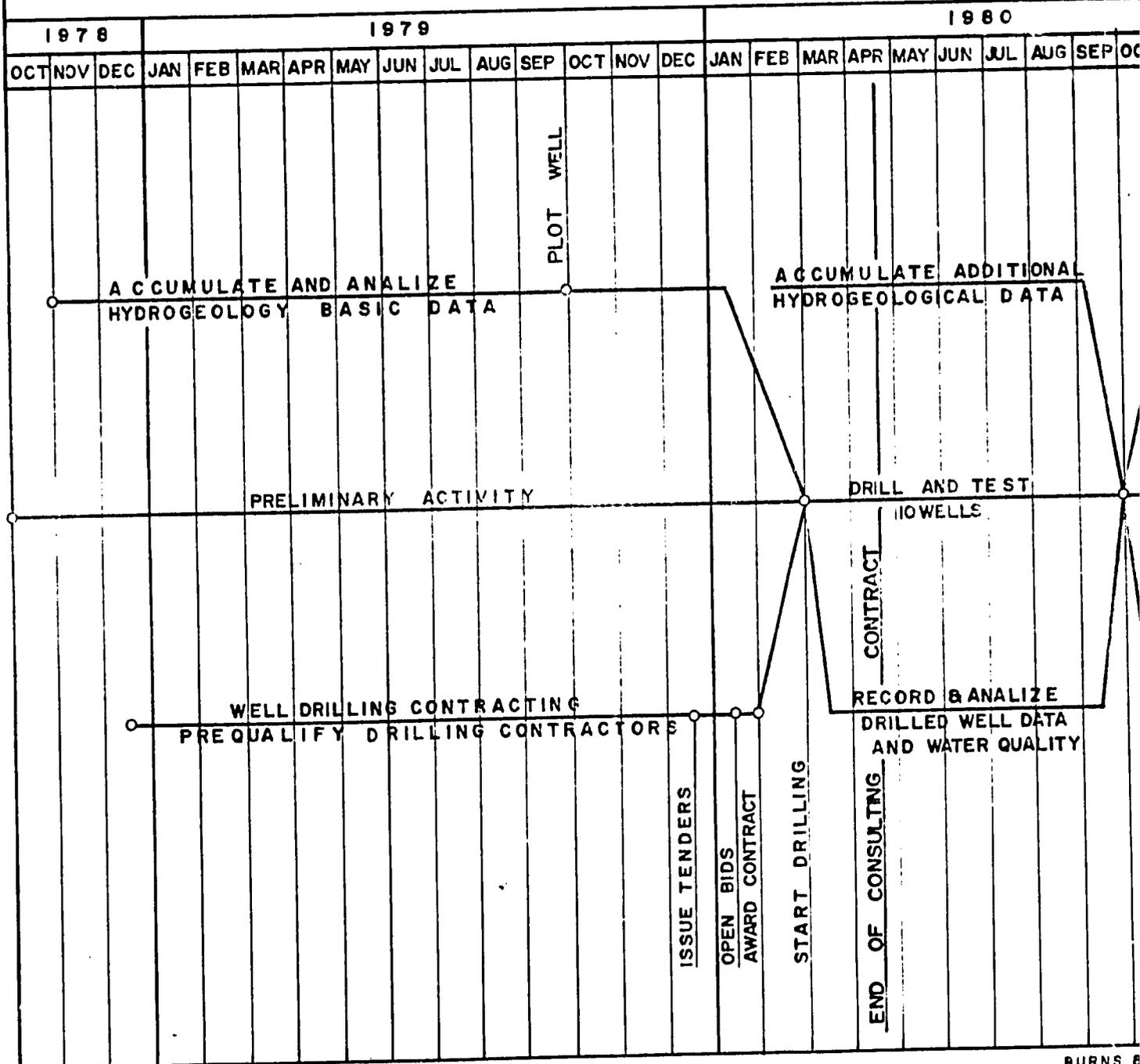
V. PIPELINE CONSTRUCTION SPECIALIST COMMENTS :

After almost eight weeks since notice to proceed was given to contractors in Phase I of the transmission

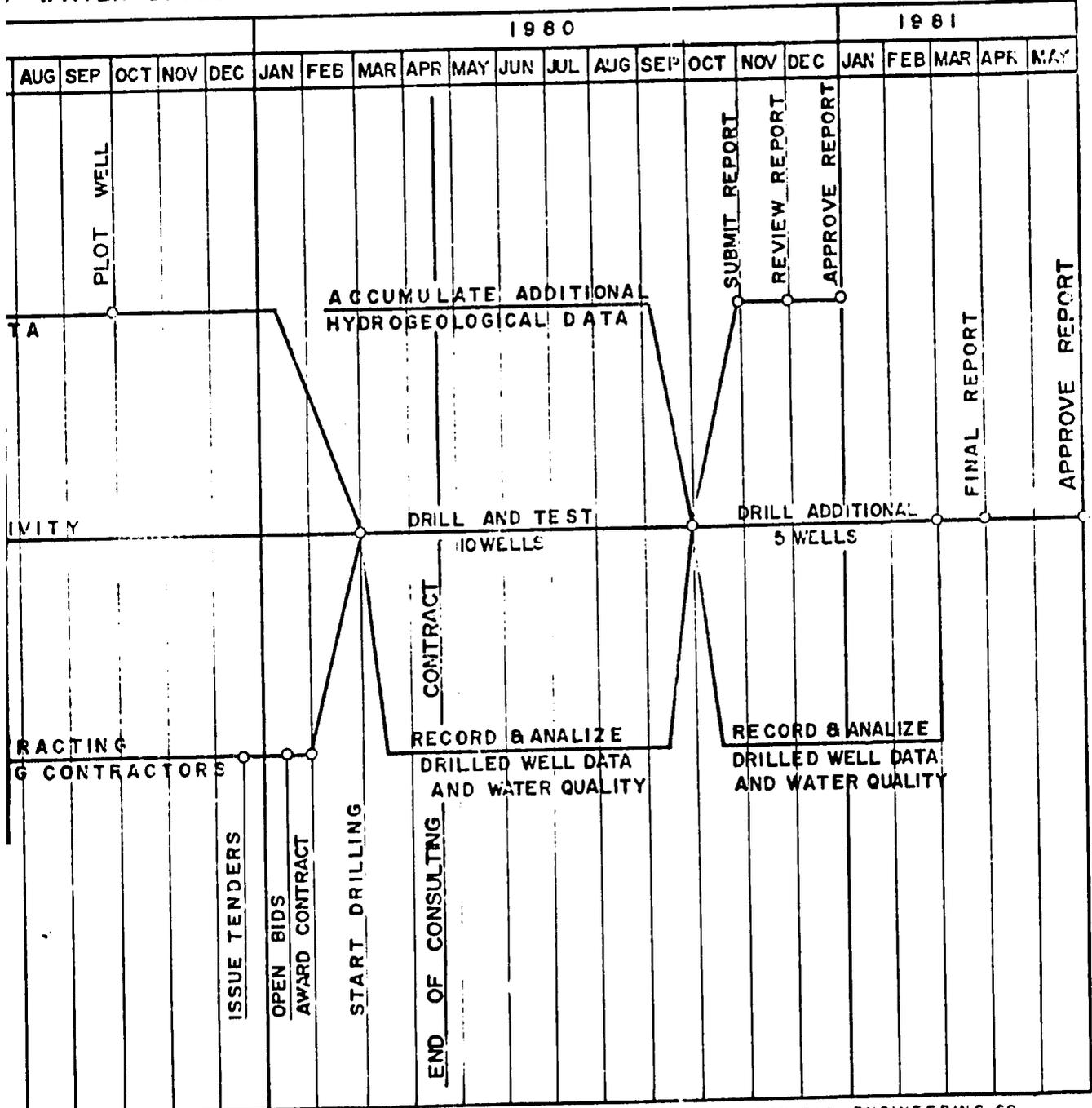
main construction, they have completed a combined total of 20.5% of the work. This is very close to a straight line from -0- to 210 days which is their contract period. As they are accomplishing the more difficult tasks first, it would be reasonable to assume their future progress will take a sharp turn upward. Doing so could allow the shippage from their respective planned effort to be overcome. Some changes have been made in the staff assigned to the Pipeline Construction Specialist to make the inspection team effort more efficient and flexible due to the long hours per day, seven days per week operation. Due to start of the construction being set back for various reasons stated in earlier reports, an accumulation of inspector man months has been acquired which will allow the addition of up to three more men during the Consultant's contract period. It is the opinion of the Pipeline Construction Specialist that these additional people will adequately satisfy the requirement. Should Phase II Construction be started in February 1980, there will be less than four months of concurrent activity of Phases I and II. The Phase I contractors will have attained a proficiency so that such close supervision as now being done will not be required. It is assumed that at least one of the present contractors will be successful in bidding on Phase II contracts. Every effort should be made by all parties to the CJWSP so that time is reduced in clearing shipments from the Port of Semarang and delivery made to the storage areas in Surakarta. The quicker all material is available to the construction contractors the better the chance will be to shorten the construction time. ----- END OF REPORT -----

4
V

SURAKARTA WATER PROJECT ACTIVITY FLOW DIAGRAM (PERT) GROUND WATER EXPLORATION AND DEVELOPMENT



**SURAKARTA WATER PROJECT
ACTIVITY FLOW DIAGRAM (PERT)
WATER EXPLORATION AND DEVELOPMENT**



GROUNDWATER INVESTIGATION AND
WELL DRILLING DEVELOPMENT

Monthly Progress Report

This report covers the work performed during the month of November 1979.

I. TASKS ACCOMPLISHED

1. Continuing to assist in the preparation of Drilling Specifications.
2. Attending Conferences.
3. Locating drilling sites.

II. COMMENTS AND DISCUSSION

A. Locating Drilling Sites

At the Special Meeting for Groundwater Investigation and Well Drilling Development that was held on October 16 and 17, 1979 in Jakarta, an agreement was reached that Cipta Karya would locate the ten drilling sites. However at the last Monthly Progress Meeting held on November 16, 1979 in the Consultant's office, Cipta Karya requested the Consultant to do it, with the stipulation, that should it become necessary, final revisions of the locations may be done at the Pre-bid Conference.

On November 24, 1979 a limited meeting was held in the Consultant's office, attended by Mr. George M. Pary and Mr. Suyatno Yuwono of the BM/TAE, Mr. Harsono of the Central Java Water Project, Mr. Soedarto

and Mr. Soelarno of Surakarta Water Enterprise, for discussions on the locations of 10 drilling sites. The necessity was stressed, of the connection of the new wells to the transmission system, distribution system, accessibility, land easement, expanding area population etc.

At the meeting, the participants agreed to propose four drilling locations north of Surakarta area and six drilling locations south-west of Surakarta. The reasons were :

1. For the northerly expansion of the city 4 wells will be drilled in order to provide at least 4,000 dwellings. Each well was assumed to have a 30 l/s production rate and operating 12 hours per day, 4 wells will produce $4 \times 30 \times 60 \times 60 \times 12 = 5.184.000$ l/day. Using the value of 100 lpcd, each family consisting of 6 persons, that amount of water can provide 8460 house connections. It should be noted that according to the recent survey, the population of the city wish to consume more than 200 lpcd. Therefore, if the proposed wells are in low efficiency condition, 4 wells were a reasonable number to be placed near the north expansion area. These wells are symbolized with TW 1 up to TW 4 at the map attached.
2. The remaining 6 wells will be placed south of Kartosuro, situated on the west side of the highway. This will simplify the construction of the transmission pipeline to the Kartosuro reservoir. These wells are symbolized TW 5 to TW 10 at the map attached.

B. Estimating Cost and Time for Drilling and Development of Wells

Drilling 10 Test-Production Wells can be done by one, two, three or four drilling rigs simultaneously. For example, if only one drilling rig will be employed, it will need longer time and only a little less of the drilling cost than two or more drilling rigs working simultaneously.

The drilling cost was estimated based upon the information available to date from the drilling contractors, and the Consultant came to the conclusion that for completing 10 Test-Production Wells the cost is about Rp 270,000,000.00 (Two hundred seventy million rupiahs) or \$432,000 (Four hundred thirty two thousand U.S. dollars). It should be noted, that this price is estimated using one drilling rig. A table is presented below for comparison of the drilling cost and time needed.

TABLE 1

Comparison between cost and time needed for drilling and developing 10 test-production wells

Number of drilling rig to be employed	Estimated cost in million rupiahs	Time needed in months
1	270	26.4
2	274	13.4
3	278	10.7
4	282	8.0

Preparation of the final report needs an additional 3 months, so the time needed for the completion of the whole program can be seen in the table above by adding 3 months to each estimate.

Since some of the previous work has been delayed due to non-technical problems, it will be better to employ 4 drilling rigs simultaneously. However additional personnel must be hired by the Consultant for inspection and supervision of the work. At least one geotechnical inspector must possess a Bachelor's Degree in Geology.

III. RECOMMENDATION

1. For the well drilling, employ 4 drilling rigs simultaneously.
2. Hire one geotechnical inspector at the start of work. The inspector should possess a Bachelor's Degree in Geology.

IV. PROGRAM FOR NEXT MONTH

1. To assist in the completion of Drilling Specification.
2. To survey the location and elevation of well sites.

17 42



Majatogi

BANYUDONO

KARTOSURO

Selahean

Tewong

Gombong

Manjung

Tibong

Tagatondo

Sanggung
Brambang River

Pusur River

DELANGGU

TW 10

Karangsuren

TW 5

TW 9

Tempoi

TW 6

Jabung

TW 7

Luwang Trangung

Pakis

110° 40'

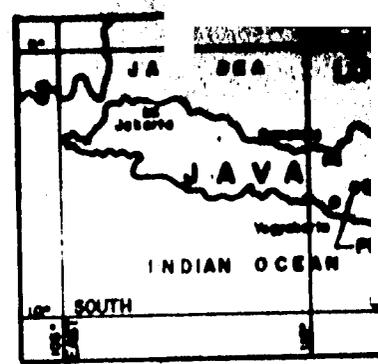
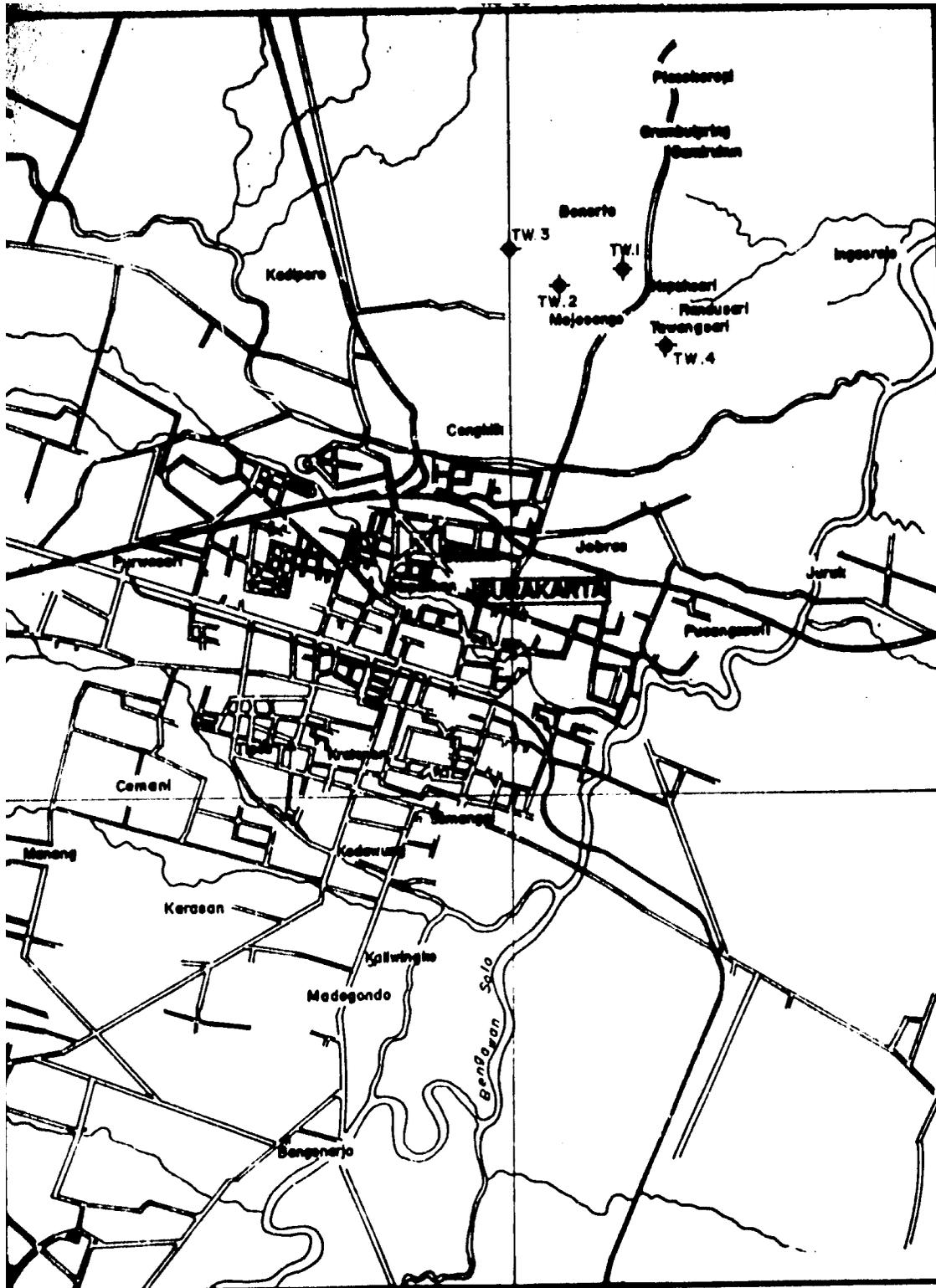
80°

112° 45'



112° 45'

NO



LEGEND

-  : RA
-  : R
-  : R

-  : PR
- TW.I
- (T

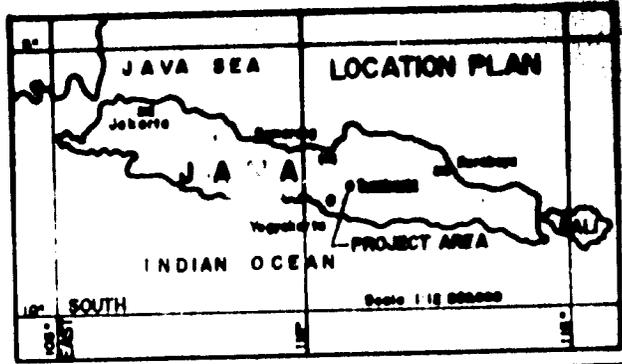
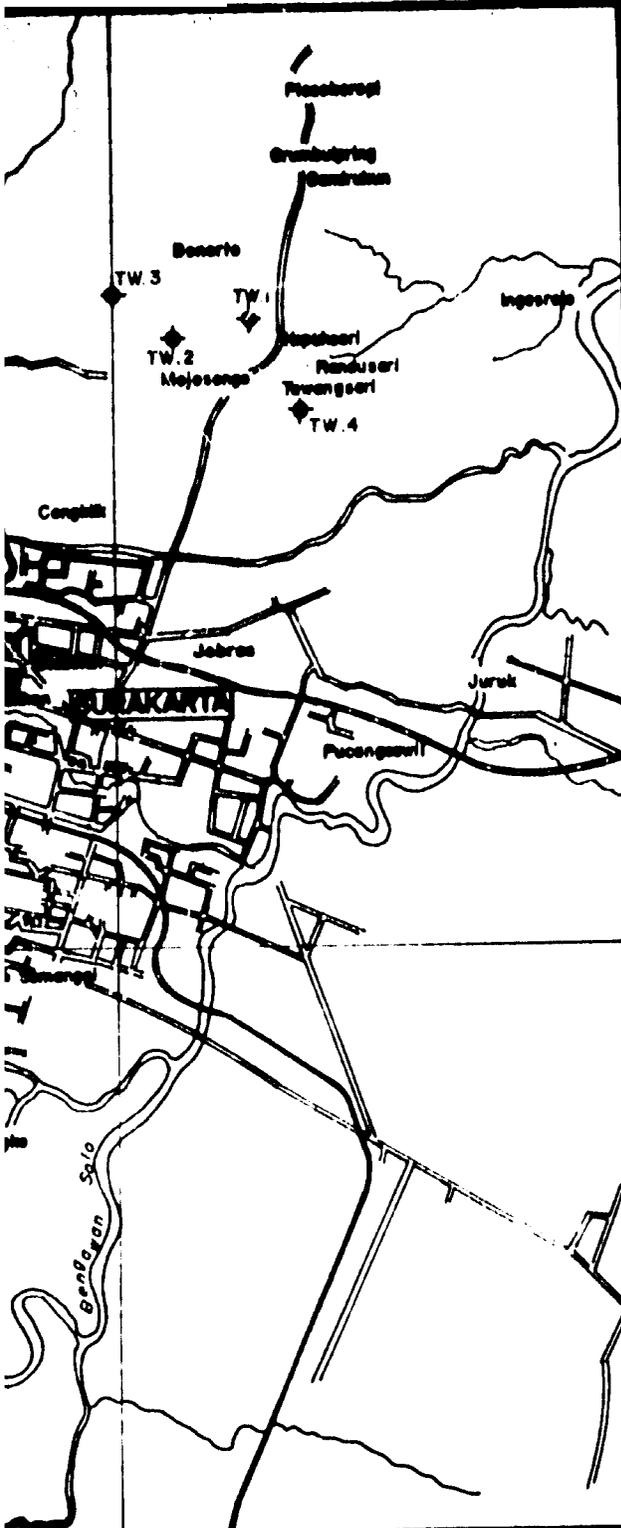


Scale 1:50,000

BURNS & McDONNELL ENGINEERS
TRANS-ASIA ENGINEERING
A JOINT VENTURE

SURAKARTA WATER SUPPLY

PROPOSED DRILLING



LEGEND

-  : RAIL ROAD
-  : ROAD
-  : RIVER

 : PROPOSED DRILLING SITES (Third revision)



Scale 1:50,000

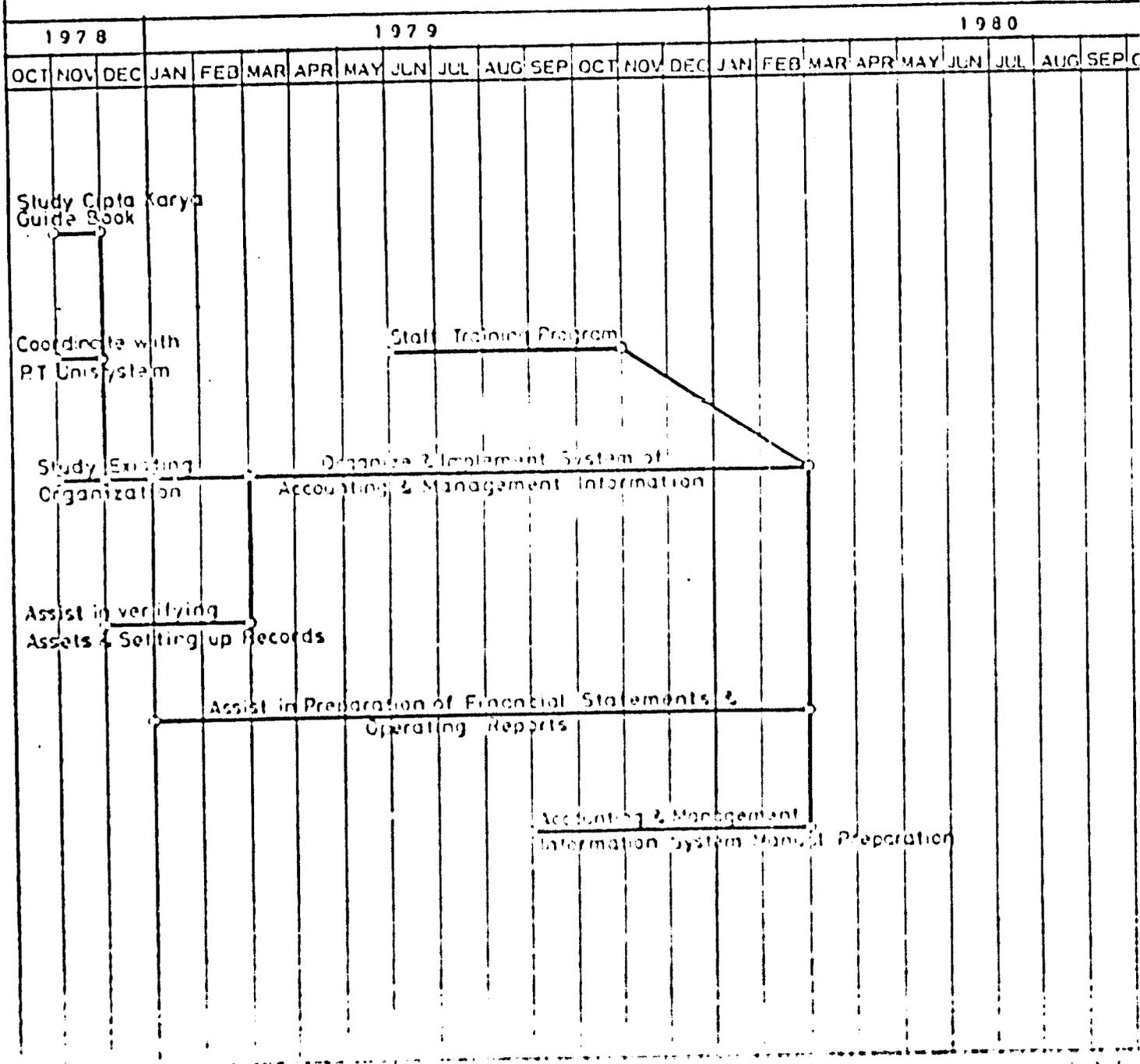
BURNS & McDONNELL ENGINEERING COMPANY INC
 TRANS-ASIA ENGINEERING ASSOCIATES INC.
 A JOINT VENTURE .

SURAKARTA WATER PROJECT

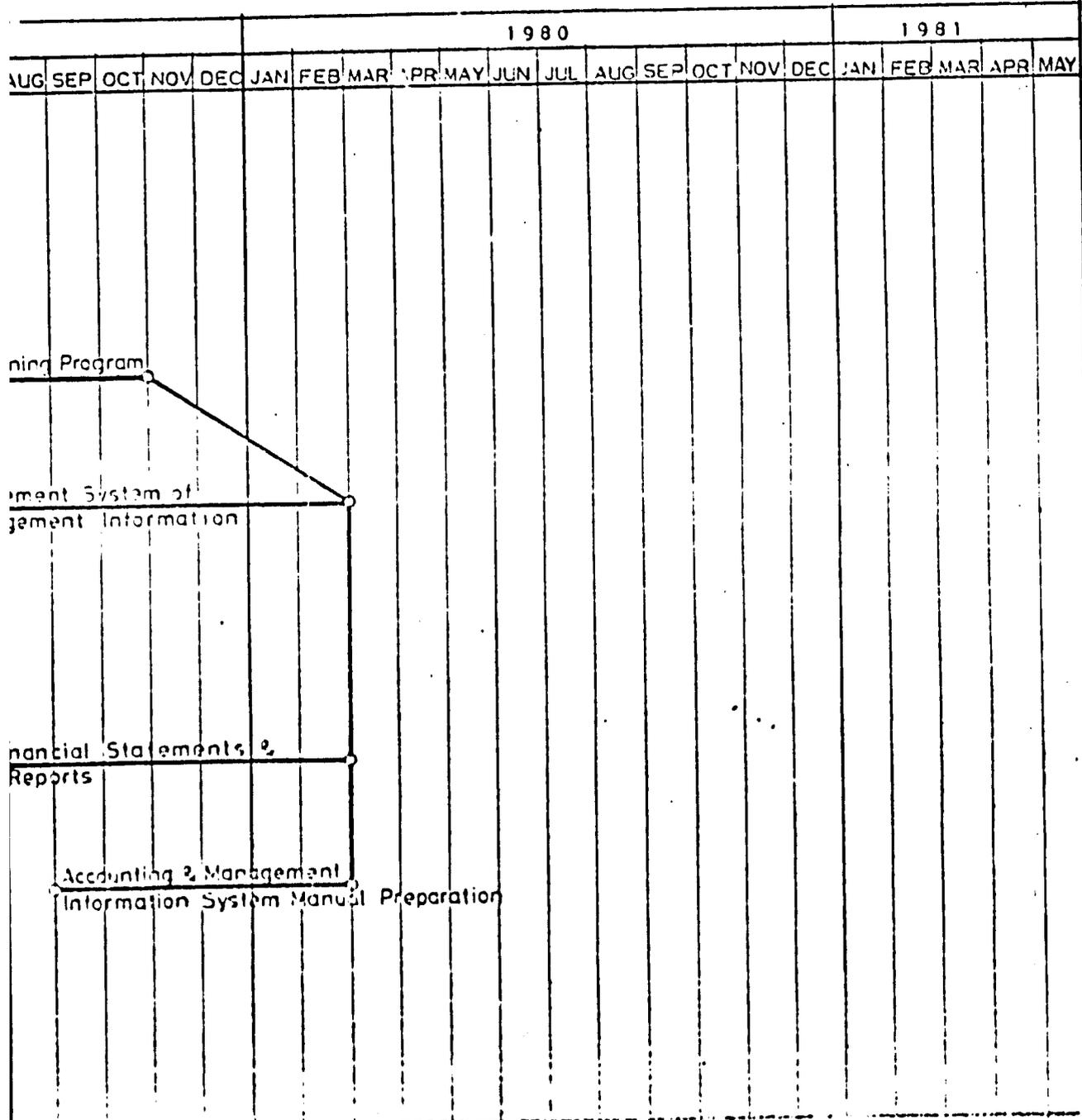
PROPOSED DRILLING SITES MAP

10° 50'

SURAKARTA WATER PROJECT
A C T I V I T Y F L O W D I A G R A M (P E R T)
M A N A G E M E N T A S S I S T A N C E T O S U R A K A R T A W A T E R E N T E R P R I S E



SURAKARTA WATER PROJECT
 TYPE FLOW DIAGRAM (PERT)
 ASSISTANCE TO SURAKARTA WATER ENTERPRISE



FOR THE WATER SUPPLY AND SEWERAGE DEPARTMENT
 SURAKARTA WATER SUPPLY AND SEWERAGE BOARD

SURAKARTA WATER ENTERPRISE
MANAGEMENT ASSISTANCE PROGRAM
PROGRESS REPORT NO. 14

I. PERIOD COVERED

This report covers the period from November 1 to 30, 1979.

II. WORK DONE

A. General Accounting and Management Information System

Continued the monitoring and giving advice in the preparation of the monthly financial and other operating reports. The financial and other operating reports for the month of October 1979 were distributed to the various recipients on November 22, 1979. A significant change in the financial condition of the Enterprise as of October 31, 1979 concerns the writing off of accounts receivable amounting to Rp. 12,940,682. This represents portion of the receivable billed in 1976 and prior years which are already doubtful of collection, and was approved for write-off by the Supervisory Board of the Water Enterprise on May 31, 1978.

B. Financial Projection

Prepared an eight year financial projection of the Surakarta Water Enterprise to determine the financial viability of the project for the expansion of the transmission system and

distribution network and rehabilitation of the existing system. The project is being financed jointly by the United States Agency for International Development (USAID) and the Government of Indonesia (GOI) through the Directorate General Cipta Karya. The project cost consists of funding from the USAID amounting to \$6,795,000, and from GOI estimated at Rp. 2,361,000,000.

As it appears in the financial projection the Water Enterprise can operate profitably from 1980 to 1987 the period covered in the projection. It can generate enough cash to pay for operating and maintenance expenses, debt service requirements and maintain cash balance to finance project expansion. It is also projected that the population served by the system will increase from 9% in 1979 to 35% in 1984. Among the assumptions used in the financial projection are the following :

1. Increase in the production from the Cokrotulung Spring from the present 150 liters per second to no less than 300 liters per second in February 1981.
2. Increase in water rate in 1981 and every two years thereafter to generate enough revenue to pay for anticipated cash requirements. Although the water rate will be increased the poor people who will be served through public hydrants will not pay more than Rp.300 per family per month until 1987.

3. Out of the total project cost the Water Enterprise will pay only the US \$ loan of not more than \$ 6,281,000. This shall be paid in 48 equal installment starting 1983. Interest is computed at 9% of the outstanding balance. The projected semi-annual payment of the loan is Rp. 172,027,000 (principal Rp.81,784,000 plus interest, Rp. 90,243,000).

The details of the assumptions used are shown in the final financial projection, copies of which were sent to the following on November 28, 1979 :

1. Mr. Soesanto, Director
Directorate of Sanitary Engineering ,
Cipta Karya
2. Mr. Azis, Head of the Subdirectorate of
Construction, DSE, Cipta Karya
3. Mr. Oemarsidik, Head of the Subdirec -
torate of Development, DSE, Cipta Karya
4. Mr. Paul Thorn, USAID, Jakarta
5. Chairman of the Board of the Surakarta
Water Enterprise
6. Director of the Surakarta Water Enter-
prise
7. BM/TAE, Jakarta
8. BM/TAE, Surakarta file

The financial projection was discussed in the meeting held in the conference room of the municipality of Surakarta on November 15, 1979 attended by, among others, the following :
Engr. Hidayat, Engr. Soesanto, Engr. Azis ,
and Engr. Oemarsidik of the Directorate Ge -
neral Cipta Karya; representative from the

Ministry of Home Affairs; representatives from the USAID; Chairman and members of the Supervisory Board of the Water Enterprise; Director of the Surakarta Water Enterprise; representatives from Central Java Water Project; members of the Regional Council of Surakarta; and the Consultants.

During the meeting on November 15, 1979, and in subsequent meetings on November 16, 1979 (Consultant's office in Surakarta) and November 20, 1979 (in the office of Mr. Oemarsidik at Jakarta), some revisions were made in the assumptions used in the projection. These revisions were taken into consideration in the preparation of the final financial projection.

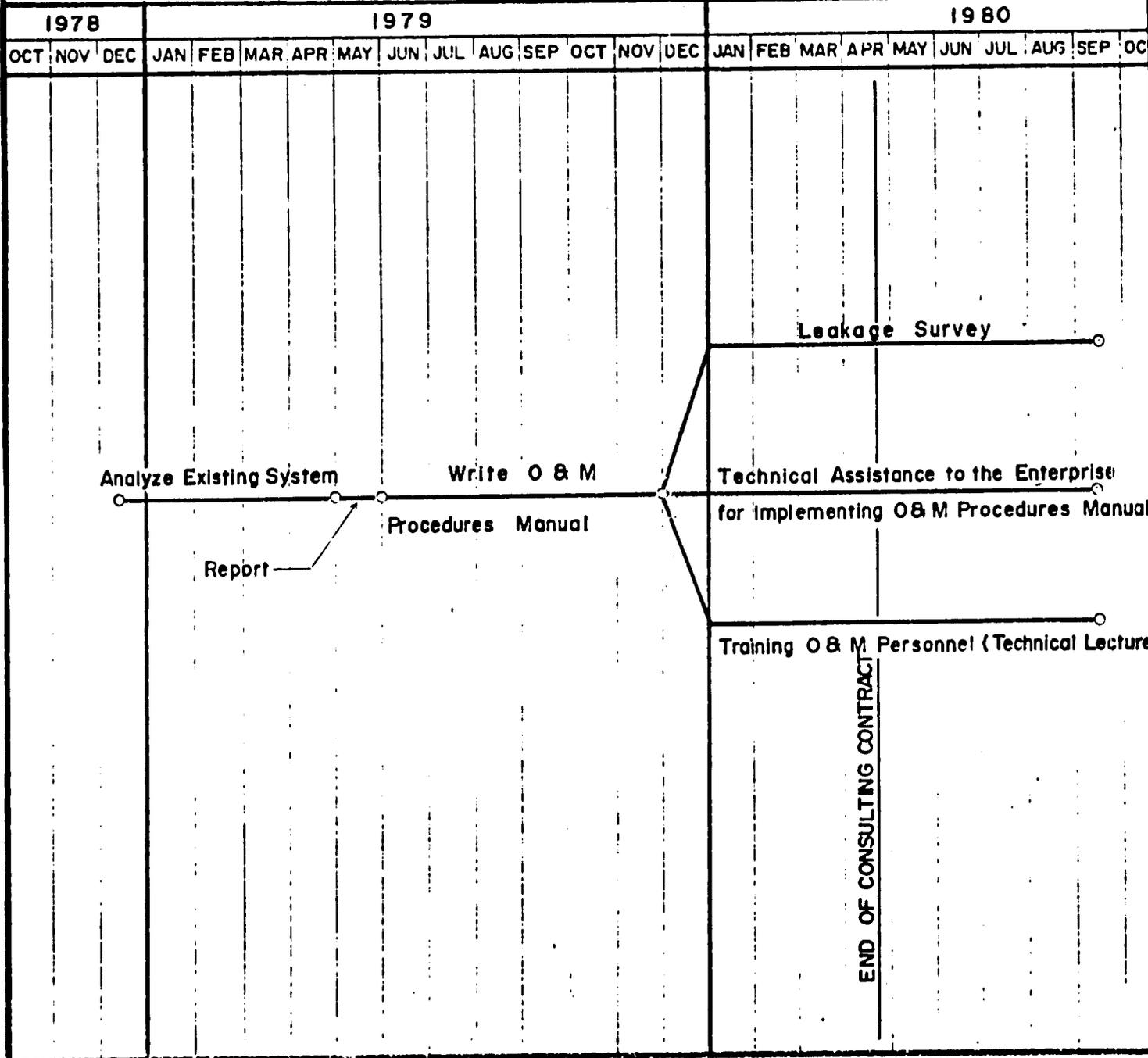
C. Operating and Administrative Policies

Started compiling the operating and administrative policies for guide and reference of the officials and staff of the Water Enterprise.

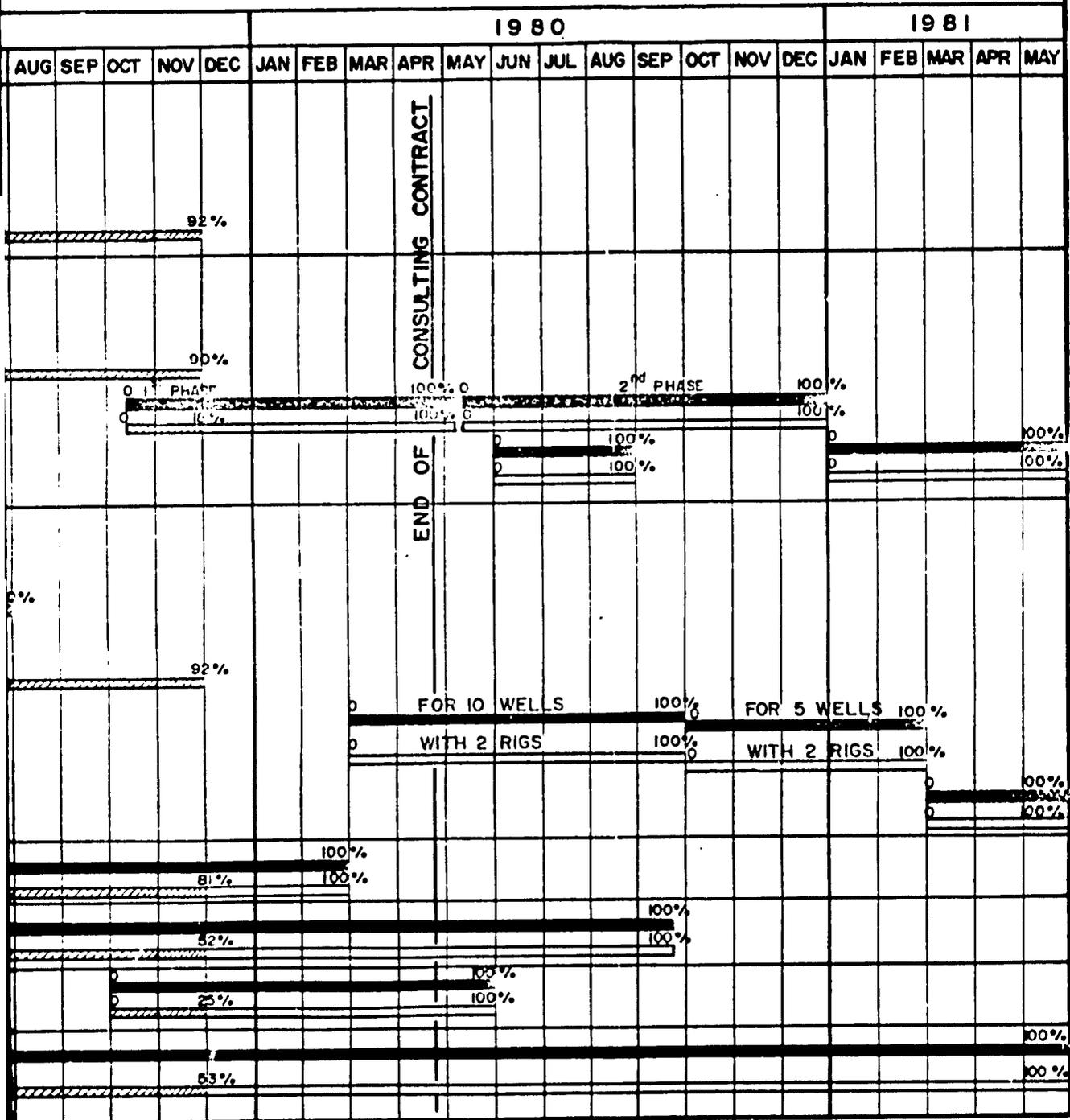
III. PROGRAM FOR NEXT MONTH

- A. Continue assistance in the preparation of the monthly financial and other operating reports.
- B. Continue compilation of the operating and administrative policies of the Water Enterprise.

**SURAKARTA WATER PROJECT
ACTIVITY FLOW DIAGRAM (PERT)
OPERATION AND MAINTENANCE ASSISTANCE PROGRAM**



RTA WATER PROJECT
ENGINEERING ACTIVITIES
COMPLETED AT END OF NOVEMBER 1979



Memorandum of meeting

Subject : Final decision on transmission right-of-way along Yogya - Solo highway

Place : Central Java Public Works Office, Semarang

Date : November 2, 1979

Hour : 10.00 - 11.00 A.M.

Participants :

- | | |
|--------------------------------|------------|
| 1. Mr. Sardjono Hardjidarsono, | Bina Marga |
| 2. Mr. Isom Widodo, | Bina Marga |
| 3. Mr. Iing Parvanaraya, | CJWSP |
| 4. Mr. J.F. Baucom, | BM/TAE |
| 5. Mr. A.F. Dengah, | BM/TAE |

Results :

1. Bina Marga regulation said that within 10.00 meters from the centre line of the existing highway pavement no new utilities should be placed.
2. Exception is given for the Transmission Main to be placed not less than 6,50 meters from the centre line of the existing highway pavement along the Yogya - Solo highway.
3. River crossing of the Transmission Main should be placed not less than 10.00 meters from the centre line of the existing bridge, paralel with bridge and at least for the same length of the bridge.
4. Crossing the highway is permitted at necessary places.

5. BM/TAE to redesign right-of-way of
pipe :

- from Sta. 83 + 00 forward at least
up to Sta. 88 + 90
- from Sta. 111 + 00 forward

MEMORANDUM OF MEETING.

Subject : Revision of the Financial Projection
Analysis of Surakarta Water Enterprise.

Place : Directorate of Sanitary Engineering
Office, Jakarta.

Date : Thursday, November 8, 1979
08.30 AM - 12.00 PM
02.00 PM - 03.30 PM

Attended by : 1. Mr. Oemarsidik - D.S.E
2. Mr. Suwandi Sanudi - D.S.E
3. Mr. Sudirman - D.S.E
4. Mr. Robinson - C.K
5. Mr. B.B.Bayongan - BM/TAE
6. Mr. A.F.Dengah - BM/TAE

Results : 1. Financial Projection A based on production of water from the spring only (300 LPS), as intended in the loan proposal to supply water to the most needed areas.
Additional water from wells is intended for future expansion and even the distribution network for future expansion areas (North of the Anyar river) is not included in the proposed scope of design.

2. Increase of water rate to be every two (2) years.

3. Yard hydrants to be classified as lowest residential customer, installed to speed up number of connections. Guarantee deposit to be applied as first payment and connection charge

to be paid in five (5) years monthly installments; to be calculated as revenue.

4. Public hydrants, Public latrines and Bath-houses billed at 80% of residential customer (social rate billing).
5. Tax to the Central Government only corporation tax to be included according to the regulations.
6. Insurance premium to be included.
7. To be prepared a schedule indicating month and year showing data about :
 - a. Increase in production of water.
 - b. Increase in capacity of transmission main.
 - c. Increase in capacity of distribution net work.
 - d. Increase of public hydrants, yard hydrants, public bathhouses, public latrines and house connections.
8. Unaccounted water (loss to leakage) to be assumed between 15-20%.
9. Final revised draft (at least hand written) to be ready to presentation on meeting at Surakarta on November 15, 1979.
10. All changes decided on November 15 meeting to be ready as final before November 30, 1979.

MEMORANDUM OF THE MONTHLY PROGRESS MEETING

Held at : Consultant's Office, Surakarta

Date : November 16, 1979.

Hour : 8.50 AM - 12.50 PM.

Participants :

1. Mr. Azis	- Cipta Karya, Jakarta
2. Mr. Harsono	- SWSP., Surakarta
3. Mr. Soelarno	- SWE, Surakarta
4. Mr. Grayson	- USAID, Jakarta
5. Mr. Thorn	- USAID, Jakarta
6. Mr. Kristiawan	- USAID, Jakarta
7. Mr. Hughes	- USAID, Jakarta
8. Mr. Goff	- USAID, Jakarta
9. Mr. Robinson	- CK., Jakarta
10. Mr. Midgett	- BM/TAE, Jakarta
11. Mr. Pary	- BM/TAE, Surakarta
12. Mr. Fodor	- BM/TAE, Surakarta
13. Mr. Baucem	- BM/TAE, Surakarta
14. Mr. Pike	- BM/TAE, Surakarta
15. Mr. Bayongan	- BM/TAE, Surakarta
16. Mr. Dengah	- BM/TAE, Surakarta
17. Mr. Suyatno	- BM/TAE, Surakarta

Results :

1. Division Chamber to be constructed to increase discharge to 400 l/sec.
2. Off-shore purchase material :
 - List H : BM/TAE Jakarta to telex USA to award contract to Ford Meter Box Company .
 - Clow, Colcorindo and Rohan Shipments at Semarang harbour to be transported as additional work by forwarding agent.
3. O & M equipment and tools, material for tertiary distribution net, additional meters, to be purchased using the excess of the USAID 10 an And SWE source of revenue.

4. SWE to improve supervisory mechanism.
5. Consultant to calculate the exact amount of money to be set aside monthly by the SWE for depreciations.
6. CK. will consider consultant's proposal to update existing distribution system (estimated US \$ 150,000).
7. Consultant to prepare a basic design of the priorities of proposed areas to supply water, with a possibility of providing one (1) yard hydrant for more than one (1) house.
8. Construction of Transmission Main :
 - Land easements not to obstruct the progress of installation. Contractor is allowed to pay temporary easement first, and the excess of payments can be arranged with the Project.
 - Consultant is allowed to add three (3) more inspectors.
 - Consultant to estimate easements of the right of way from Kartosura to Surakarta border.
9. O & M training program :
CK. to answer Consultant's proposal soonest.
10. Well drilling program :
Consultant to stake out bore-holes together with the SWE and SWSP.
11. Meter repair shop :
Furnishing budget from SWE and Project.
12. Special meeting to be held, inviting the officials from the KIP program, in Surakarta approximately December 3, 1979.

REPORT ON DISCUSSION AT JAKARTA (DIR. SANITARY ENGR.)
NOVEMBER 20, 1979

1. With Mr. Oemarsidik, Head of Sub Directorate De -
velopment :
 - Project cost calculation in "Analysis" (see
exhibit 3) : include all costs within this pro-
ject, also Groundwater and Impact Study.
 - Include 50% escalation factor to GOI Rupiah
Currency Part.
 - Show that 60% of Total Project Cost is more than
U.S. \$ 6.281.000.
 - Consultant's proposal in letter dated November 19,
1979 is acceptable.

2. With Mrs. Kusniati, Training programmer :
 - Draft of letter will be reviewed by Mr. Oemar-
sidik.
 - Scheduled to discuss training program : end of
this month.

3. With Mr. Noer Burhanuddin, Transportation Section
of Sub Directorate of
Logistics
 - Clow Shipment Transportation has been awarded
to P.T. V.T.P.
 - Other documents has not yet been received from
Bank of Indonesia.

4. With Mr. Sorta Hutagalung, Off-Shore Purchase Sec-
tion of Sub Directorate
of Logistics
and representative of nominated importer, Pantja
Niaga.

- All Rohan Shipment's Documents are not in accordance with the regulations, has to be changed first before the Bank of Indonesia can accept it.
- Rohan is asking for extension of his L.C., because they are not able to ship part of the purchase before December 1979.
- ACIPCO shipments can not be accepted as final, before the conditions of material has been inspected by the Consultant. Last shipment is being transported to Surakarta, so final acceptance will not be able to be issued before all materials arrived at Surakarta; 90% of the payment has been released after the Bank of Indonesia received all Shipping Documents.

5. With Mr. Azis, Head of Sub Directorate of Construction :

- Transmission Pipeline Right of Way along the Highway :
 Consultant to prepare a drawing of the existing buildings, ditch, trees and poles from Gem-bongan to City Border
 Consultant to survey an alternative design without passing along the highway.
- Meeting to be held on Tuesday, December 4, 1979.
 Monday Mr. Azis to be picked up at Semarang airport to go to the Central Java Public Works.