

FINAL REPORT

AN ASSESSMENT OF

HELMAND VALLEY WATER CONTROL SYSTEMS

PREPARED FOR

The Office of A.I.D. Representative
for Afghanistan
U.S. Embassy, Islamabad Pakistan

BY

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Consultant

November 1991

Mr. Curt Wolters
Program Officer
O/AID/REP for Afghansitan Affairs
American Embassy Islamabad

November 25, 1991

SUBJECT: An Assessment of Helmand Valley
Water Control System

Dear Mr. Wolters:

In response to your Fax dated November 12, 1991, I am submitting two copies of the Final Report entitled: " An Assessment of Helmand Valley Water Control System ".

Earlier, on July 17, 1991, I had submitted two copies of a rough draft of the same report to Mrs. Nancy Hardy of your office in Islamabad.

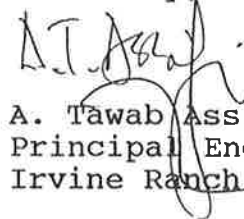
In the Final Report I have polished some of the typos, organized the report into five parts, and have added the following:

- o Description of the Report and the Mission in Part I.
- o Part V, General Observations and Recommendations.
- o Appendix A. Condition of Marja canal structures, irrigation system, and agriculture.
- o Appendix H. Gabions: Specifications and Examples.

I have also provided color prints of the photographs in the Appendix K of the report.

If there are any further questions I can be contacted at, telephone numbers (714)476-7632 office, (714)771-0161 home, and fax number (714)833-9132.

Sincerely,



A. Tawab Assifi, P.E.
Principal Engineer
Irvine Ranch Water District

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3. HELMAND RIVER CHARACTERISTICS

The Helmand River has changed its course many times during its past history. The Helmand river bed shows innumerable oxbows if studied from the air. Some of these changes were of a major character such as Helmand changes at Rudbar, Band-i-Kamal Khan and Kohak. The last was due to a man made cause. This occurred after the construction of the Iranian Diversion Dam at Kohak.

The shift of Helmand River channel periodically occurs during and after big floods. However, the continued process of sediment deposition and river bed erosion builds up to an incipient unstable river channel which can eventually result in drastic changes in the river channel during and after floods. Continued surveillance and maintenance of the river bed can keep the river in a stable course. This also requires proper operation of the storage and diversion dams on the river. Conversely, without proper maintenance and operation of the river channel and the dams, the river channel will be subject to drastic changes.

Any change in the river course subjects the adjacent agricultural lands and canal diversion dams and intakes to severe damage. Many times this requires relocation of long stretches of the canals and extensive repair work to the diversion dams and intake structures.

Man made causes, such as wars, and indiscriminate bombardments, which cause the destruction of water conveyance structures. Human resources, operation and maintenance, and plant facilities can further exacerbate the destructive process of nature to a state that continued irrigated agriculture becomes impossible.

Chengis Khan's invading hordes totally eliminated their enemies by destroying their irrigation headworks and canal maintenance labor forces. The remaining population could not survive. The ruins of old towns, cities and large and complex canal and irrigation systems in the Nimroz and Dasht-i-Amiran area are witness to these facts.

PART III

1. THE PRESENT SITUATION IN HELMAND VALLEY

The present condition of the Helmand Valley water control system is very serious. The Consultant visited canal headworks, canals, drains, roadway bridges, and peoples villages from Lashkari Canal Headworks at Nimroz in lower Helmand to Boghra Canal and Nadi Ali in mid Helmand.

It is apparant that during the invasion of Soviet Forces and the events following it, many villages, canal headworks, canals, canal structures, drops, gates, lifting mechanisms, turnouts, roads, roadway bridges, etc., were severely destroyed. These events forced the local population to abandon their homes and lands and take refuge in the neighboring countries of Pakistan and Iran. It is generally estimated that about 20% to 30% of the population remained after these events. A diary of Consultant's trip to Afghanistan and to the Helmand Valley is included in the Appendix.

2. THE 1991 FLOODS IN HELMAND

The Helmand Valley this year was inundated by what appears to be in the range of a 100 year flood. The severity of this flood has altered the course of the River channel in many places, washing out canal headworks, canals, agricultural lands, villages and their food supplies. This has left the area in a disaster situation, subjecting the remaining population to migrate from their homes.

Therefore, immediate measures to repair or reconstruct the damaged water control and conveyance systems is desperately needed.

As was said before, the Consultant roughly estimates that the magnitude of this year's flood in the lower Helmand was in the range of a hundred year flood. This, somewhat, compares to a previous flood in 1886, which was estimated by the British Surveyors from high water marks in lower Helmand. The difference between the 1886 flood and this year's flood is the presence of two storage dams, Kajakai Dam on the Helmand, and Arghandab Dam on the Arghandab River. These have considerable effect on the reduction of flood peaks in lower Helmand.

3. RECOMMENDATION ON RIVER FLOW MEASUREMENT:

The Consultant recommends that hydrological surveys of Helmand and Arghandab rivers be made. This will provide a closer estimate of the magnitude of 1991 floods.

It is also recommended that UNOCA/UN allocate some funds for the repair of hydrological measuring stations on the Helmand and Arghandab rivers. The absence of river flow data for this period will be irreplaceable in the future years.

In the past, most of the hydrological stations on Helmand and Arghandab rivers were built with US Geological Survey assistance.

PART IV

FIELD OBSERVATIONS AND RECOMMENDATIONS:

Consultant's observations and recommendations are based on visits to the site; information and material provided by others.

The order of observations in this report are based on the order visits to the sites.

The Consultant has attempted to convey the relative magnitude of damage/repair work involved at the sites he visited. It should be understood that indicated quantities are based on visual estimates at the site. In some instances, the consultant had the opportunity to walk the area. Areas such as Deshu, Khanishin, Khwaja Ali, and Rudbar in the Lower Helmand were not visited.

A. THE LOWER HELMAND AREA:

1. LASHKARI CANAL

OBSERVATIONS:

The river channel has not changed its course at the intake of Lashkari Canal. The selection of this site for the intake was sound. This site is one of the most stable sites in the lower Helmand. The canal intake up to the flood control (about 300 meters from the intake) has some silt deposit. See photos (16,17,18).

The flood dike concrete gate structures have been removed and piled on location. The lower part of the canal from this place on looks relatively clean. The lower sections of the canal were not visited. However, since the canal passes through an area which has moving sand, it may need cleaning in that area. All work can be done by hand labor and local materials. Finding the necessary labor force may be a problem for this work. It is estimated that about 4,000 man days of labor with the use local materials for the upper section and about four times that much for the lower sections of the canal will be needed. The use of equipment, such as dozers, may be required if sufficient labor could not be found in the area.

RECOMMENDATION:

The Consultant recommends the food for work (WFP) program allotment for this work. The river dike can be made of local materials, such as tripods made of tree branches, bushes and kaela (a mat woven from tamarisk branches). This is a traditional and local method of constructing low diversions in this area. Food for work can be allotted for this purpose.

2. GANDO CANAL

OBSERVATIONS:

The river channel has changed some. It has washed some work that was done earlier by WFP (photo 19). It is estimated that about 200 man days of work will be needed to fix this problem.

RECOMMENDATION:

Recommend WFP allotment for this work.

3. BANDAR CANAL

OBSERVATIONS:

The river channel has changed and has moved closer to the southern hill (photo 20). It is estimated that about a kilometer of the canal may be needed to be repaired and relocated. WFP program is applicable to this project. It is estimated that about 2,500 man days may be required for this job. River bank protection can be provided by constructing a series of spur dikes made from tree branch tripods and kaela mats (tamarisk mats).

RECOMMENDATION:

Recommend WFP allotment for Bandar Canal work.

4. CHARBURJAK CANAL

OBSERVATIONS:

The river channel has changed drastically and cut about 1.3 KM of the canal (photo 21). A new canal for a length of about 1.5 KM will be needed. A sketch of the wash out is provided at the end of Appendix B. There are about 500 families still left after the war in Charburajak out of a population of about 2,500 families before the war. Through WFP a labor force of about 200 men can be mobilized. It is estimated that about 5,000 man days of work will be needed. It will take about a month to fix this job. At this stage of work no river bank stabilization is recommended. Work can be done for food. This will prevent the remaining population to leave their lands.

5. PALALAK CANAL

OBSERVATIONS

The Consultant did not visit this site. However, he has learned that, work is needed for the whole 45 KM length of the canal. There, also, appears to be labor shortage in the area served by this canal which might necessitate the use of equipment. One of the local NGOS by the name of NRO (related to Commandant Abdul Ghani, who escorted us from Dalbandin to the Darweshan), could be good candidate for this job. NRO has been trying to register with UNOCA for some time now. Ghani claims that he can bring some equipment from Iran for this work.

B. THE MID HELMAND AREA:

1. DARWESHAN CANAL

OBSERVATIONS ON THE CANAL:

There was water in the lowermost jui (a small irrigation canal) of Darweshan, called the Binadir. This was a good sight for Mission's sore eyes who had not seen water in any canal since they came to the lower Helmand Valley (photo 24). From here on upstream, water was flowing in all Darweshan canals. There were a lot of silt in canals and drains, broken gates in canal structures and turn outs. However, the Darweshan agriculture in general appeared to be healthier than any area we had visited during our stay in Helmand.

The Darweshan Canal Sta 30+, drop structure in Mian Pushta, has been totally destroyed. The Consultant heard that somebody had built a grist mill, blocking the canal water to get more power to the mill. This blockage of the canal, together with large quantities of water which flowed into the Canal intake during this years floods, caused the canal berm to wash out. All these factors resulted in destroying the canal and the concrete structure. See photo (25) in Appendix K. Many of the canal structures and turn outs have suffered from the war, and lack of maintenance. Generally, there is much damage to structural concrete and mechanical devices in the structures, see photo (26).

OBSERVATIONS ON THE CANAL HEADWORKS:

The Darweshan Canal Headworks Structure: A section of the canal for a distance of 260 meters, has washed out. The river has cut behind the intake structure forming a pool about 70 meters wide and 260 meters long. See the sketch in Appendix C. and photos (27,28,29,30) in Appendix K. At present, the river flows directly into the canal without any control structure. This condition is dangerous because high water from a flood can get into the canal without control. Eventually, the canal may become a river bed.

The Darweshan Canal has a capacity of about 1,500 cfs. The designers of Darweshan canal had thought of this possibility and provided a flood control dike and control structure downstream from the intake. In fact, this control dike has saved the canal from destruction during the year 1991 floods. Also, without the benefit of the canal intake structure and diversion weir, water can not flow into the canal during low water in the river. Therefore, the immediate repair of the Darweshan Canal Intake is of utmost importance.

The repair of the Darweshan Canal Intake and the Boghra Canal Intake and diversion dam, are both very urgent. Repair work on these headworks needs to be done about the same time and before next year's floods.

The Consultant has looked into the existing problems of access, security, availability of construction equipment, technical manpower and labor force. These limitations influence construction methods applicable to each area under consideration.

RECOMMENDATION ON METHOD OF REPAIR

The consultant is recommending the use of gabions, hand labor, and agricultural tractors for hauling larger size rock and dirt which fortunately is available in the vicinity.

The Consultant has included photo copies, specifications, and examples of gabion works in Appendix H of this report.

This method of construction is, fortunately, applicable to all heavy repair work in Helmand. The exception being, the areas close to the Hamuns at the end of Helmand. Both manpower and transport could be hired through WFP food for work program.

The material input, such as gabions, may be funded from funds available to UNDRO \$15,000, WFP \$45,000, UNOCA \$100,000, and UNDP-OPS, money available for infrastructure repair. UN Drug Control Program has also \$200,000 available to them. (Source, Donini Appendix B)

Since the repair of these structures are of utmost importance to the farmers and people living under these canals, it is quite possible that they will sign contracts not to plant poppies in the areas benefiting from these material inputs. Thus, making contributions by donors such as US possibly available for this work.

The repair of Darweshan Canal Intake is a big job by any standard.

Phase 1 of the repair is roughly estimated to require the following:

1. 260 long, 18 base, 4 top, 7 meter high dirt main, and 200 meter spur dike.
2. 14,000 cubic meters of gabions requiring 7,000(2x1x1m) gabions.
3. Purchase of 2x1x1 meter gabions at 850Rs per gabion (Aini/VITA).
4. Transport of gabions to the site at 250Rs per gabion (Aini/VITA).
5. 30,000 man days unskilled labor.
6. 20,000 tractor loads at 1.5 cubic meters and 300-500 meters haul.

Engineering: The construction of gabion works does not require preparation of complex engineering designs, plans and specifications. Simple plans, with horizontal and vertical controls to match the existing Canal alignment and elevations, needs to be prepared. The Consultant has included a sheet as a guide for the engineers who will be responsible for this work.

Gabion works can best be done by trained personnel, such as, masons or brick layers who have done this type of work before.

Phase 2 of the Darweshan Canal and Headworks will require continued maintenance in the future. Reconstruction of the intake described in

RECOMMENDATIONS:

The Consultant recommends that VITA be hired for the reconstruction of the Darwasha Canal Headworks. VITA has personnel with previous experience in gabion work. VITA also has experience in the acquisition and transportation of gabions.

VITA should be also hired to repair the station 30+ (Mian Pushta), and the Darwasha (Hazarjuft) Bridge repair jobs.

Organization of Local NGOS:

The organization and approval of local NGOs for the repair of canal structures, mechanical and lifting devices, is recommended. These local/mechanical NGOS need not be very big or sophisticated. For instance, some former mechanics, equipment operators, or drivers living in the area could be encouraged and assisted to form their local mechanical NGO. They can repair canal gates, lifting mechanisms and other mechanical works related to canal structures. In the absence of such local NGOS it will be difficult to do this type of small, detailed work, from a long distance by NGO personnel residing in Quetta or Peshawar. NGOS centered on Quetta or Peshawar could go into joint-venture with the local ones and provide the necessary material and technical inputs.

2. DARWESHAN BRIDGE

OBSERVATIONS:

The north abutment of the bridge and the approach road to it, are badly washed by the 1991 floods. This wash out and some of the repair by WFP to make the passage of some vehicles possible, can be seen in the photographs (31,32,33) included in Appendix K.

RECOMMENDATION ON METHOD OF REPAIR

The Consultant earlier in Quetta, had studied copies of a plan for the repair of this bridge by Engineer Waziri of UNDP.

The Consultant believes that instead of the masonry and a reinforced concrete structure for the roadway's retaining walls proposed by Waziri, a rock gabion retaining wall structure be constructed for this job. This concept was discussed with Engineer Waziri during the review of his plan in Quetta. Engineer Waziri, or whoever is assigned for the engineering of this work, could modify the plan for the gabion approach. If VITA is hired for this job, it can revise Waziri's plan for the gabion concept. Waziri's plan is otherwise satisfactory with respect to alignment and elevations.

The Consultant recommends the alternative, which allows an overflow section in the approach roadway instead of the alternative which provides pipe culverts under the road. See sketch in Appendix D.

The repair of the Bridge is roughly estimated to require the following:

1. A roadway 5 m. wide with of 10 m. base at 8 m. depth tapering to 2 m. depth at 50 m. from the bridge and continuing this depth for a distance of another 150 m., then rising to 3 m. in another 20 meters.
2. This will involve a rock and dirt fill of 4,000 cubic meters.
3. 2,000 (2x1x1) gabions will be needed for this volume.
4. 10,000 man days of unskilled labor
5. 2,000 tractor loads at 1.5 cubic meters per load will be needed.

RECOMMENDATIONS:

As can be seen from the rough estimates, this repair job is also a big job requiring the services of a strong NGO. The Consultant recommends that VITA be hired for this job also. If VITA could not handle both Darweshan canal intake and bridge jobs, it may be advantageous to hire another NGO such as ARR, who may chose to go into a joint venture with VITA on the bridge job.

3. THE BOGHRA CANAL SYSTEM

OBSERVATIONS:

The Boghra Canal Intake is about 10 KMS upstream from the town of Girishk through which the Kandahar-Herat roadway passes.

The Boghra Canal has a capacity of 3,700 cfs, and its length to West Marja Branch is about 75 KMS. The Boghra serves the Nadi Ali, Marja, and Shamalan areas. Nadi Ali is served from turnouts and laterals from the Boghra. Marja is served from two Branch Canals and several laterals. The Shamalan is served by the Shamalan Canal which has a capacity of 750 cfs. and length of 65 kilometers.

The Boghra diversion dam was washed out by floods in recent years. This year's 100 year flood has further destroyed the headworks of the Boghra Canal, requiring immediate repair. The Boghra diversion's sluice gates, and the canal intake's control gates have all been broken from tank cannon and rocket fire. During the recent fighting (3 weeks ago), rocket fire by Kabul Regime forces destroyed the sluice gate crane structure. See photos (39,40).

The Consultant was not able to visit this site. The study of some pictures and a map prepared by an HVA engineer is used to recommend a method of repair.

4. BOGHRA DIVERSION DAM REPAIR

The repair of Boghra diversion may best be done by a similar method proposed for the Darweshan Canal headworks. This method will involve the use of gabions filled with rock to reconstruct the rock weir section. A sketch of the wash out and repair method is included in the Appendix E of this report. A three phased approach is recommended for the repair as follows:

1. Open the diversion sluice gates by either repairing the crane support or lifting the gates by come alongs or hydraulic jacks.
2. Build a coffer dam in front of the washed out gap in the rock weir. This work will be a replacement for the old dike Sections (A-A, C-C, K-K, D-D) shown on the plan 505-10-4. Push the river bed material by bull dozers from two sides to close the gap. The gabions or heavy rip rap can be laid after the gap is closed.
3. Reconstruct the rock weir sections shown above and on the (F-F) section shown on the same plan, with rock filled gabions or large size (2+ cubic meter) rip rap.

The following quantities are estimated for this work:

1. 28,000 cubic meters of rock and dirt.
2. 14,000 (2x1x1 m.) gabions.
3. 36,000 man days labor for loading gabions.
4. Hauling 28,000 cubic meters rock and dirt by available equipment.

Originally, these dikes were constructed by the use of heavy rip rap (2+ cubic meters). The rip rap was quarried from the adjacent hills, loaded on to 30 ton dump trucks by shovels, transported and dumped on the site. The HVA may choose to do the work by the same method. Which ever method is used, the job is big and will require sufficient funds.

5. NADI ALI AREA

OBSERVATIONS

The agriculture in this area was somewhat better than the Marja area. However, canal turnouts, wasteways, drops and siphon structures are in bad condition. Mechanical devices for the lifting of gates are almost all broken or disappeared. The canal system is virtually running by itself. A program of repair and reconstruction is badly needed. Desilting of the canals and drains can be done by WFP food for work program. However, for the repair of mechanical devices special funds and the creation of local mechanical NGOs are needed. The condition of the canal structures are very much similar to the Marja area. To get a better picture, please see the detailed list for the Marja area in Appendix A.

During his stay in Nadi Ali, the Consultant met some old acquaintances

such as, former mechanics, equipment operators, drivers, and clerks living in the area (photos 11,22,36,38). These people could be encouraged and assisted to form local Non Governmental Organizations (NGOS), or employed by existing NGOs. These people could do a lot of detailed civil or mechanical work on canals, canal structures, gates, turnouts, lifting mechanisms, etc. (photos 35,37). The Consultant believes the value of this resource should not be overlooked.

RECOMMENDATIONS:

UNOCA should enact policies which will encourage the establishment of local NGOs and seek methods to speed up the process of approval of these NGOs. UN, UNOCA, WFP, should allot funds and food for repair and reconstruction works.

6. MARJA AREA

OBSERVATIONS

The Marja area, being in the lower stretches of the Boghra, is worse off than the rest of the system. When the Consultant visited the site most of the canal laterals were out of water. Marja showed the stresses of water shortage. The Marja Outlet Drain was dry. This showed that Marja is chronically short of water (photos 34,35). Like Nadi Ali, all canal structures and their mechanical devices were either broken, lost, or in disrepair. Similar action such as discussed for the Nadi Ali area is also needed for the Marja area. A detailed list of necessary repairs in Marja is included in Appendix A.

7. THE SHAMALAN AREA

OBSERVATIONS

The Shamalan Canal was also dry when the Consultant visited the site. It was learned that this problem was due to river erosion at the by-pass intake constructed near Qala Bist few years ago. The Consultant could not visit this site. However, knowing something about the area, he believes that the decision to construct a canal intake at that location was a mistake. This will be a continuous problem for the Shamalan Canal. The Shamalan Canal turnouts and water control structures are in the same condition as Darweshan, Nadi Ali, and Marja areas.

RECOMMENDATIONS:

The encouragement and speedy formation of local NGOs for the Shamalan area similar to Darweshan, Nadi Ali, and Marja, is strongly recommended. The allotment of necessary funds for the purpose of repairs and reconstruction by related agencies is also recommended.

PART IV

GENERAL OBSERVATIONS AND RECOMMENDATIONS:

1. The Consultant recommends that immediate remedial measures to counter the present disaster situation in the Helmand should be undertaken by UN, UNOCA, WFP, UNDP, WHO, ANDRO, and various NGOS stationed in Quetta and Peshawar. Furthermore, these organizations should seek and acquire the assistance and help of friendly countries of the World for the implementation of the recommendations in this report.
2. The Consultant believes that speedy input of sufficient quantities of food into the Helmand areas devastated by war and floods is needed to avert impending famine and further migration of the people of the afflicted areas from their homes.
3. The Consultant believes that the repair and reconstruction of the water control and irrigation works in the Helmand Valley are of urgent, nature. Any delay in taking necessary and immediate action could result in irreparable consequences.
4. The Consultant believes the consequences of the present situation may result in renewed migration from the afflicted areas, further aggravating the situation.
5. The Consultant has attempted to objectively show the seriousness of the condition of the sites he has visited. The contents of this report demonstrate the urgency and relative magnitude of proposed remedial measures.
6. The Consultant believes that the rapid organization of local and outside human resources and non governmental organizations (NGO) will enhance the implementation of the needed reconstruction and repair works.
7. Immediate action by UN and its related organizations for seeking acquisition and allotment of necessary resources and funds is recommended.
8. It is further recommended, that UN/UNOCA should seriously seek funding from other sources including other friendly countries and possibly the US.

**CONDITION OF
MARJA CANALS AND IRRIGATION SYSTEM**

The following is a general description of the condition of canal structures and turn outs in the Marja area. The list was prepared with the help of Ghulam Ghous Khan Chief Water Master in Marja and his Assistant Juma M. Khan, during Consultant's trip to the site on July 4, 1991.

THE FOLLOWING FACILITIES NEED TO BE REPLACED:

FACILITY AND LOCATION	DESCRIPTION OF WORK
1. Boghra Canal Sta 71+ West Marja Branch Canal 1 x Turn out	2x1.5m. Radial gates 2 x Lifting mechanisms, gear box and hand wheels. The turn out with all its frame and lifting mechanism.
2. Sta 71+ Wasteway Gates	Lifting mechanism, gear box, cables and hand wheels.
3. Boghra Canal Sta 73+ 36" Gates	Lifting mechanism, gear box needs rods, plates and bushings.
4. Boghra Canal concrete siphon	Siphon inlet structure is damaged and broken by bombs needs new inlet structure.
5. Boghra Canal Sta 75+ Three Canal Gates	Lifting mechanisms need to be replaced.
6. Shah Nazar Turnout	Lifting mechanism, gear box needs rods, bushings, plates and wheels.
7. Shinkai Turnout	Needs the same as Item 6.
8. Marja Block 5 Lateral #2 3 Gates	Two Gates are missing. Existing gate needs lifting mechanism which are missing.
9. Marja Block 6 Lateral #5 3 Gates	Needs lifting mechanisms, 3 (rods, steel frames, bushings plates and wheels.
10. Marja Block 7 Lateral #9 3 Gates	Needs the same as Item 9.
11. Marja Block 7 Lateral #10 1 Gate	Needs lifting mechanism and complete gate assembly.

- | | | |
|---|-------------|--|
| 12. Block 7 | Lateral #11 | Needs frame, plate and bushing. |
| 13. Block 7 | Lateral #13 | Needs frame, plate, rod and bushings. |
| 14. Blocks 10A, 10B and 10C,
Blocks 8 and 9, and Sta 14 | | Needs plate, rod and bushings. |
| 15. Shin Ghazak | Lateral #8 | Needs plate, rod and bushings. |
| 16. Lateral of Block 9
3 Gates | | Lifting mechanisms need repair, plates, rods and bushings. |
| 17. Block 11B, Wasteway
2 Gates | | Both need new gates and lifting mechanisms. |
| 18. End of Wasteway
2 Gates | | Needs repair and lifting mechanisms. |
| 19. Block #11, Diversion | | needs cables, and lifting mechanisms and bushings. |
| 20. Most of the canals in Marja and the Boghra Canal have silted very badly. A section of Boghra from Sta 5 to Sta 10 (5Kms) were desilted by a KNX Excavator, loaned by HVA/WFP. | | |

NOTES ON AGRICULTURE AND SETTLERS IN THE MARJA AREA:

Before the war, there were about 75,000 jiribs of land cultivated in the Marja area.

Last year (1990), about 5% of the land was cultivated into vegetables and 30% into wheat. All burnt due to lack of water except for some crops of wheat.

This year (1991), about 10% is cultivated into vegetables and 30% into wheat. Without water they are all in danger of being burnt.

All trees that were planted in the 7,000 jiribs of greenbelt and jungle area have dried up and disappeared, due to lack of water.

Before the war, there were about 3,730 settler families living in the Marja area. Now there are about 200 families in the project area, and about 400 families in out of project lands (turnouts, 60, 62, 57 Shin Ghazak, Big 11, Small 11 and 60 Siestani Desert).

TRIP TO HELMAND
CONSULTANT'S DIARY

THURSDAY, JUNE 27, 1991

TRIP FROM QUETTA TO DALBANDIN BALUCHISTAN

- o Left Hotel Lourdes 9:00 a.m. Mujahid commandant Ghani and Zia Mujadadi came to the Hotel. Went to UNOCA's office with them. Met Marilee Kane. Copied these notes up to June 26th. Marilee promised to type the notes and give the Engineer the disk (Word Perfect) for future editing. Went to Ghani's house at 11:00 a.m. to embark on our trip to Dalbandin. All UN/UNOCA trip members to meet at Ghani's house. UNOCA team is late.
- o Had lunch at Ghani's.
- o Left Ghani's at 1:00 p.m., from Quetta travelled (10KM), then stopped. UNOCA needed to change car without radio to another one with a radio.
- o Left this location at 3:00 (61152). Another car was sent which had a radio. Note that figures in parenthesis () are the odometer reading of the car the Engineer (Consultant) was riding.
- o Arrived at Dalbandin arrived 9:00 p.m. (61491).
- o Spent the night at Dalbandin at UNHCR guest house which has beds and bathroom (common).
- o The Engineer slept outside in the moonlite. The rooms were too hot.
- o Met Shah Mahmood Sanjarain from Charburjak Nimroz. He is a good friend of Baqi.
- o Next morning paid 50 Rs. rent, bought food and fruits for the trip.

THE TEAM

- A. Tawab Assifi (Engineer)	USAID/UNOCA	
- Noor Rehman Liwal	WHO	
- Abdul Baqi	WFP/UNHCR	
- Mohamad Yosuf Saba	WFP	
- Mohammad Kabir	MCI	
- Abdul Wahid, (from Helmand)	WFP	(driver)
- Dr. Mujeeb Rehman	WHO	
- Adan Adar	WFP	
- Mamo	UNOCA	
- Bayis Wok-Waya	UNOCA	

- Ghani Commandant Escort, Team Leader.
- Dr. Noor Ahmad Sherzad, Health Officer at Qalai Afzal Khan who works with the Swedish NGO.
- Ghani's Assistant who is also his brother.

FRIDAY, JUNE 28, 1991

- o 8:00 a.m. Bought diesel, food, fruits, drinking water bottles at Dalbandin.
- o Left 10:00 a.m. (614911) Dalbandin
- o Arrived 12:45 p.m. (61551) Posti Commandant Ghani's house.
- o Met his father (Mujahid).
- o Had lunch at Posti. Rested till 5:00
- o Left Posti about 6:00 p.m. (61551) towards the Afghan border.
- o At 6:30 arrived at Pakistan militia border post. Due to Dr. Noor's medical supplies the borderman (possibly a Wazir) delayed departure, called his headquarters? Went up with Ghani to his office. In the meantime we cleaned, washed and prayed.
- o Left the Post about 7:20 p.m. Met Ghani's Assistant with about 20 armed Mujahideen on a Toyota pickup truck at about 7:30 p.m. This group was our escort and security guard. The security guard also prepared and served us food from here on till we got to Darweshan on July 2nd.
- o At 8:50 (61586) crossed the Afghan Border
- o 9:01 (61601) arrived CHOT. Rested, had tea, at Ghani's field Post (Mujahid commandant).
- o Left Choto 10:00 p.m.
- o 12:45 a.m. (61667) Passed Malik Dokohan (Dokoh) mountains which are Alabaster mountains/mines. Had car trouble with Mujahid pickup (tire problem).
- o Left 2:20 had tire problem again at 2:45 p.m. (61683).
- o At 3:55 a.m. moved again.

SATURDAY, JUNE 29, 1991

- o Got stuck in the big sands in the big wash, tried many times and failed, all cruisers had problems. The Mujahideens Black (BTC) Toyota land cruiser pickup saw the Engineer's car, waited after seeing it could not make the dune. Attempted to cross and it too got stuck across a big sand mountain from

the first car. Could hear the engine. Finally they managed to make it with Mujahid power and a good driver to pull through, and then came to our rescue. The Mujahideen were using their sleeping bags (quilts) under the tires. They did the same to our cruiser as well as pushing with Mujahid power. Their driver, who is an expert in sand, drove our cruiser across the dune.

o Passed the big sand about 5:36 (61714). Other cruisers had stopped across the dunes. Mujahid's red Toyota 2 seater (RT2) cruiser had a flat. The RT2 driver is an expert in everything to do with cruisers. He can, if needed, take the whole thing apart and put it together right there in the desert (photo 12). He did take BTC's carburetor apart (it was giving a lot of trouble before) and put it together. From there on they had no problem.

o At 7:00 left the dunes.

o At 8:45 had tire problem (61743).

o Arrived at Qala Afzal Khan (photo 14) at 9:45 a.m. (81824). Ghani's Head quarters in Nimroz is called Kilmo. Everybody slept exhaustedly.

o Woke up 1:30 p.m. It was very hot. Thorn house was barely effective. Our escort brought water from the river, sprayed it on the thorn. Was relatively cool for about 15 minutes. We preferred the heat to having our Mujahid escort handling water in buckets from the river to keep us cool.

o Served us food.

o The Engineer had an upset stomach had to go out to the Helmand River, had a swim, washed himself and his clothes, felt wonderful.

TEAM MEETING, 3:00 p.m.

A.TAWAB ASSIFI, BAYISA, MAMO, ADAN, BAQI, DR. REHMAN, KABIR, SABA, NOOR REHMAN AND COMMANDANT GHANI.

The team needed to organize in three areas of interest:

1. Food for Work WFP (Adan, Baqi, Saba)

Assisting two canals, one is close to this place, one is farther.

2. Health Care WHO (Dr. Rehman and Noor Rehman, and Mamo)

Health Care, one clinic close to Qala Fazel one near Charburjak.

3. Assessment of damage to canals systems (Assifi, Bayisa, Kabir).

Assessment of damages

It was decided to join group 1 and 3, since food for work would be involved in all future repairs to damages in canal systems. Group 2 will move separately. Each group will have their own escort.

- o Group 1 & 3 will cover:
 - a. Bandi Kamal Khan
 - b. WFP canal, Gandu
 - c. Charburjak canal, Qala Fateh canal, Lashkari canal at Khwabgah. Bandar Canal, Gandu Canal.
- o Leave Kala Fazil tomorrow early morning to cover the above.
- o Group 2 will start today and join groups 1 & 3 tomorrow to cover their facilities together in Charburjak.

SUNDAY, JUNE 30, 1991

- o 5:30 a.m. Wake up call. Washed and prayed.
- o 6:30 a.m. had breakfast.
- o 7:15 a.m. (61835) move out of (Kilmo).
- o 7:30 a.m. (61835) left Qala Afzal Khan.
- o 8:20 a.m. (61862) Khijo (Jamiat) met commandant M. Fateh Khan Baluch (photo 14), quite a good old man.
- o 8:55 a.m. (61873) Guljan Padagi. Jui Bandar has been washed several places. The village Padagi in the lower ground close to the wheat fields was washed away by floods. They have built a new village on higher ground.
- o 9:15 a.m. (61886) Qarar Gah Aame in front of Charburjak village. Shola (Maoist) command post.
- o 9:25 a.m. (61886) Nasir Clinic. Dr. Rehman and Mamo will stay behind with one Mujahid (Ghani) escort and pickup truck.
- o 9:50 a.m. (61895) arrived at Bandar.
- o 10:06 a.m. (61895) leave Bandar. Sholais are tagging along. They have included their men in the party. Gold Qara Kul Hat is the only Baluch among the Sholais. The Engineer changed cars here. The car he was riding was given to Dr. Rehman's party.

0 10:20 a.m. (9440 Ambulance) contact Moallim Karim. Refused to meet because of Sholais.

0 11:30 a.m. (9468) Dikadila. Met Nijat Milli, Ghulam Hazrat Mujadadi, and Haji Ayub commandant, in front of Qala Fateh lands.

0 11:50 a.m. left Dikadila

0 1:26 p.m. (Afg. time) went to river crossing Lashkari Canal Intake. Saw Lashkari canal:

1. River cross section is stable. It is unaffected by the recent 100 yr. flood. The Engineer had designed this canal in 1970.
2. The flood protection dike in the canal was very effective. No flood damage is sustained, high water marks can be seen. See photos (16,17,18).
3. Gates at the Flood Dike are broken (by man), need new gates or repair and reinstallation of old gates.

0 3:00 p.m. (Pak time) Recrossed Helmand River from Lashkari Intake.

0 3:35 p.m. Left Lashkari Canal Intake (9487).

0 4:35 p.m. (9514) arrived at Gandu. The Intake for the pump needs about 750m³ excavation work.

0 5:00 p.m. met Moallim Karim at Bandi Kamal Khan construction Camp (9520). Discussed possible projects. Photos (22,23).

0 6:00 p.m. left Kamal Khan

7:10 p.m. (9503) arrived at Kan Diker.

0 7:30 p.m. arrived at Bander (9542) Korkati.

0 7:55 p.m. arrived at Bandar canal washout (photo 20). The canal needs to be realigned for about a kilometer to serve the lands. This canal has about 50 cfs capacity.

0 9:00 p.m. Guljan Padagi (Ghani's Field Base). Had supper/tea on top of the hill. All were tired and wanted to sleep the night there. Commandant Ghani decided that we move on to Kilmo/Qala Afzal Khan.

0 11:20 p.m. arrived at Qala Afzal Khan. It was decided to survey the Charburjak Canal next morning.

0 12:45 p.m. Kilmo (9604).

MONDAY, JULY 1, 1991

- o 8:15 a.m. (61959) leave Kilmo/Qalail Afzal Khan
- o 8:45 a.m. arrive at Qalail Moderi Padshah (photo 15) (61970). Crossed the Helmand river in a rubber boat, floated down. Saw the Charburjak canal wash out. About 1,500 meters need a new canal (120 cfs). Walked all the area. Walked the two sides of the Charburjak canal. The wash out (see sketch at the end of Appendix B and photo 21) has occurred due to river channel shift. This is a good project for WFP. Haji Fateh Khan is an elder village chief. Eid Mohammad is the Mirab. He used to be Mirab before the war also. The party had Sholombi (diluted yogurt) on the other side, good people. Agha Mohammad Tarakhel whose mother is Baluch told me to tell Ghani about some attention towards him. Recrossed the river. Haji Fateh had sheep kabab prepared at the old Qalail Motheri Padshah. Had kabab with Mujahidin (photo 15). Left this place towards Kilmo.
- o 12:40 p.m. (9604) (61971) arrived at Kilmo. Rested at Khilmo, talked to Abdul Rahim Lalzed (good intelligent commandant speaks Pushto, Baluchi, Farsi).
- o 8:00 p.m. (61983) left Kilmo towards Darweshan. It was decided to drive to the big sand, rest the night, then go forward early in the morning.
- o 11:20 p.m. (62095) stopped before the big sand. Slept on the ground on a small hill. There was a good breeze all night.

TUESDAY, JULY 2, 1991

- o 5:35 a.m. wakeup call.
- o 6:00 a.m. (62095) left about .
- o 7:15 a.m. (62149) crossed Khan Nishin Mountains (see photos).
- o 7:30 a.m. (62187) at Bagat, stuck in sand.
- o 9:00 a.m. unstuck.
- o 9:30 a.m. (92196) Binadir stopped, bought grapes, washed, flow of water from Darweshan Canal's lowest lateral.
- o 10:30 a.m. (62205) had flat tire. Fixed tire, moved again.
- o 11:00 a.m. (62224) we were at Safar. Drank Sholombey at Kizhdis (nomads) (Mom Suny Baloch)
- o 11:35 a.m. (63737) arrived at Laki, The Darweshan drain and lateral both functioning, Drain needs cleaning. Water is

flowing full in the ditches (photo 24) . The Darweshan Canal System is delivering water to its lower laterals. The area looks prosperous, agriculture is flourishing.

- o 12:40 p.m. (62254) arrived at the broken drop. See Photos (6)
- o 12:45 Mian Pushta drop at station 30+. Some body built a Grist Mill. Blocked the flow of the canal to raise water level for the mill. High water flow in the canal washed out the berm. Drop is totally broken (photo 25). Berm is fixed by UNOCA/WFP wheat for work program. Needs much more work on location upto 1 Kms upstream and some distance down.
- o 1:30 p.m. (62269) canal station 18+350. Met Eddy, UNOCAs field officer at Lashkargah. Also met Mr. Harith and Mr. Sherjan, both UNOCA officers at Lashkargah. Had food at Mowlawi Mohammad Khan's guest house. Met Mowlawi Mohammad Khan (photo 10). UNOCA Reps. discussed previous ruling of Mowlawi, regarding Adan's (WFP) non travel status in their area. This item was agreed and the ruling lifted. I asked Mowlawi about our travel into Shamalan, Marja, Nadi Ali then to Kajakai. He suggested we discuss this matter with Akhtar Mohd Akhund and/or Haji Sidiqi and Mullah Rasul Akhundzada. He indicated certain limitations regarding movement into Boghra Diversion and to Kajakai. He said we do not need escort in these areas and can move freely to do our work. Started to depart towards Darweshan intake, our escort provided by commandant Ghani, took a receipt for our delivery from Mowlawi Mohammad Khan. Ghani escort, Sher Mohammad Driver, Mohammad Aiwaz Mujahid from Qalai Best. (He is the son of Enaitullah of Kariz) left us to go back to their base at Posti. Visited Darweshan intake took pictures, it is in critical condition, big work for a strong NGO. See plans marked for this purpose.
- o 6:30 p.m. arrived at the clinic at Hazar Asp Block # 3 (photo 11). The foreign component of UNOCA team is going to Lashkarga with Sherjan and Eddy. Some others will also go with them. The Engineer will stay at Mujahid Command Post with Noor Ahmad and Kabir and driver Haji Surgul. The group is the guest of Commander Ustaz Baridad and Khaliqdad his younger brother, Mulla Baz Mohammad of (Jamiat), and Akhund Baz Mohammad Mujahid (Popalzai), who personally accompanied the Engineer for the next several days.

WEDNESDAY, JULY 3, 1991

Hazar Asp: Block # 3 Mujahidin Command Post (Jamiat)

- o 5:30 a.m. wake up call wash, pray, breakfast. Research information about project condition:

Shamalan canal is dry, water does not come from the intake. Boghra Diversion is washed out. The secondary diversion from Helmand to shamalan canal is washed out. Crops (wheat) has ripened, some places it is cut, some not. Labor shortage is critical. Rust has spoiled a lot of wheat, it is not worth cutting because 80% of wheat grains are destroyed. Some places (rarely) corn, okra, alfalfa can be seen. The continuance of water shortage will hurt.

There is struggle for power between Mula Mohammad Rasul and his opponents, Haji Ata Mohammad and Hizbis. This has affected Nowzad Moosa Qala and Sangin. Looks like our party may not be able to cross through there to Kajakai Dam.

The commission of Mr. Antony Donini will come this morning at about 9:00 a.m. by plane from Kabul to Lashkargah and join the Quetta group in the field clinic at Hazar Asp. Blk # 3. At about 10:30 a.m. we will have a general meeting of the Mission.

11:00 A.M. MISSION/TEAM MEETING, SHURA/UNOCA AT SHAMALAN HAZAR ASP BLOCK # 3, HEALTH CENTER

Attended by: Anthony Donini, the Engineer (A.Tawab Assifi), commandant Khaliq Dad and team members, Engineer Fazel M. from Harith and Sherjan. Ghulam Siddiq Harith (former HVA Agriculture officer) stayed with our group last night, (He wanted to know our plans), Commandant Khaliqdad, Ustad Baridad/Commandant's brother who is now in Dari Jangal near the border (photo 11).

Anthony Donini said:

1. Decide about the input from different sources.
2. People with different backgrounds e.g. commandant, and a Mission from Afghanistan came in February 22nd to assess flood damages. Emergency repairs were needed, canal repairs needed, Shamalan canal had washed in 3 places, many places silt had blocked the canals. The condition is bad.

Boghra canal is worse hit, some work is done by WFP. We would like to see both inputs from Kabul and Quetta. We operate with the understanding of both sides. We got machinery from HVA; will give it diesel, lubricants etc. HVA has constraints, cannot get lubricants. We need their help in moving freely, we haven't had difficulty so far. Need commandants to allow HVA machinery to move to work on the irrigation systems, e.g. did it in Boghra canal. Afghanistan is one it belongs to all the Afghans.

Commandant Khaliqdad said:

We can guarantee this up to some time in the Nawa Area.

Donini said:

" We have one Afghanistan one UN. We do not take sides, we do not take part in politics."

The Engineer commented:

1. Asked Engineer Fazil about the 1991 flood peak estimate. Fazil said: It was estimated about 5800 m³/sec = 205,000 cfs at the Lashkargah Bridge.
2. Regarding the comment by Donini, "one Afghanistan one UN". The Engineer said that: This is not correct, because UNOCA is divided, for example, UNOCA Islamabad, and UNOCA Kabul. The country is also divided, the people in Afghanistan versus the Regime in Kabul.
3. Regarding the comment that, "UNOCA doesn't take part in politics.". The Engineer commented that: At present your office is in Lashkargah, which is a relatively small area controlled by the Kabul Regime. For UNOCA's impartiality, you need to have offices in Mujahidin controlled or liberated areas which comprises the whole of upper, middle and lower areas in Helmand.

Donini, introduced the UNOCA Mission who came from Kabul, as follows:

1. Anthony Donini - Chief, UNOCA office Kabul introduced his party that came from Kabul:
2. Barkers Summer, Deputy
3. Steve Lyons (ANDRO) UN Disaster Relief Organization based in Gevena. Which has been established after the Earthquake in the north and floods in the south for emergency purposes.
4. Chantal Le Baton, UNOCA office Kabul, has worked in Quetta/Kabul, will carry on in Anthony's absence.

Fazel Ahmad Engineer, your old colleague, is a key man, can travel in and out. He is a UN employee has been playing an important role in the next step in Helmand?

"Donini said that the following resources are available for work in this area:"

WFP

2000 tons available in Mazari Shareef
500 tons wheat in Quetta
100 tons sugar
25 tons oil

UNDRO

Money available

\$150,000 cash - WFP/ITSH. (Internal Transport Moving and Handling)

\$45,000 cash spare parts Kamatsu tractors to be repaired. HVA will use it UN will decide where they will use 3 DT-71, tractor dozers.

UNOCA

Funds for renovation of Staff House in Lashkargah
80 million Afghanis = \$100,000
Soviets promised heavy bulldozers T-17 2 dozers and one grader.

UNDP OPS QUETTA

Money available for infrastructure repair

UNDP Kabul

Feasibility study for the whole scheme.

Donini further continued: Will your report enhance USAID and other donors to participate?

UNOCA welcomes contribution from other donors, e.g. World Bank.

It is hoped that UN can stop further deterioration of the facilities, until with more attention and further negotiations more resources are made available to this area.

WHO Quetta and Kabul

UNOCAS: Considerations

1. Sustainability of efforts
2. Movement freely in province
3. Benefits to go to the people who need assistance
4. Committed to build up economically which will help reduce the drug problem (which the US is equally interested).

"Poppy has been cropped by now. My contention is that for the present we can not tell people not to grow poppy".

UN drug control program

Has \$200,000 funds. The question is, what are the conditions attached to it? They do community infrastructure work.

The Engineer commented:

A. Tawab Assifi commented that during our trip so far, we have observed large scale devastation to villages and displacement of a large percentage of the population. Also, destroyed are agricultural lands, diversion dams, canals, irrigation and drainage systems.

These are due to:

1. Soviet Forces and bombardment.
2. Lack of maintenance due to war and destruction of human resources, proper management and organization, equipment and repair facilities.
3. Natural causes such as the recent heavy floods. For example: The Helmand River has changed its course in many areas destroying diversion dams canal intakes, canals and irrigation systems and peoples villages and agricultural lands.

At present an extreme emergency situation exists:

- a) Those people who survived the war, were forced to leave their lands and migrate to other areas or, other countries.
- b) Their water systems further deteriorated. Generally about 20% of the population remain in some areas. The devastating floods of 1991 have put the remaining 20% in a disastrous and critical position. If emergency and urgent measures are not taken to repair the water systems in the middle and lower Helmand we visited, the remaining people cannot survive and will be forced to leave their lands. This will result in more migration of refugees into neighboring countries of Pakistan and Iran. A large scale effort is needed to prevent further large scale destruction.

The Engineer recommends that, we use simple and effective engineering concepts for designs and plans for reconstruction works. Time does not permit otherwise. The methods of reconstruction should not rely on the use of heavy equipment. More labor intensive methods are recommended. The use of gabions for Darweshan canal intake, Dawershan Bridge and Boghra Diversion is recommended. The use of food for work (WFP) for these and other canal work is recommended. The import of food to these areas will avert the impending famine, and help the people to reconstruct their water control and irrigation systems.

At the end of the meeting, the Engineer took pictures (photo 11) with the Mission, before they went back to Lashkargah

12:30 p.m. Some members of the mission went to Lashkargah. Kabir went with them to take pictures of the Boghra diversion. The Engineer, couldn't go there because the Kabul Regime has invaded that area a few days ago. It was not considered safe for some of the mission. The Engineer explained the plans and where to take pictures to Kabir, Bayisa and Adan, who would be visiting the site.

Other members of the mission, the Engineer, Baqi, Fazel Ahmed, Engineer Saba, Noor Rehman stayed at the clinic. The plan was to visit Darweshan Intake. Eddy was supposed to bring Darweshan Diversion plans. Engineer Fazel says the plans are not available? Eddy told me earlier that he has plans in his office (did Eddy know what he had? or somebody did not allow the plans).

Trip to Darweshan Canal Intake to survey and plan the repair work.

- o 6:35 p.m. (62395) Darweshan Canal Intake (photos 27,28,29,30).
- o 7:35 p.m. Surveyed, (see Appendix C for the sketch)
- o 9:50 p.m. returned to Hazar Asp clinic/camp. Baz Mohammad s/o Fahim of Nawa village (Popalzai) went with us. Baz Mohammad served the Engineer during two nights of his stay at Hazar Asp. He was a bodyguard also. The commandant here is Ustaz Baridad, his brother Commandant Khaliqdad s/o Haji Fateh Khan took care of us. He is organized, clean and gentlemanly (A Barakzai). Mullah Baz Mohammad Akhund is also our host. Engineer Fazel Ahmed stayed the night with Engineer's group. He also went around Marja and Nadi Ali Projects with this group. He left after the survey of Nadi Ali was finished.

THURSDAY, JULY 4, 1991

- o 8:20 a.m. (62448) left Hazar Asp (camp/clinic) towards Marja. Baz Mohammad accompanied the Engineer as a guide/escort.
- o 9:55 a.m. (62485) Arrived at Marja at Block B, at the High School Building which is Haji Sidiq's Head quarters (photo 36). Haji is in Pakistan. Akhunzada Abdul Qayum is in charge. He took care of the group. Had lunch and prayed. Moved around Marja. Marja has been dry. Marja collector drain is dry showing, lack of irrigation water in Marja for a long period. Canals and drains have sand silt and tullies (photo 34). As the party moved to West Marja Branch Canal, about 5cfs water came. As the party moved to East Marja Branch Canal more water, about (8 cfs), was flowing in Boghra. This section of Boghra Canal West to East Marja laterals has been cleaned by an excavator under a WFP program. The Engineer visited the Grist Mill site which was designed by him

many years ago. Three of the four mills were operating. The structure is in good shape. Somebody has bought this public facility?! This is preposterous. It shows somebody with a lot of pull with the authorities.

Two thirds of the people who lived in Marja, have left the area. If water can not be brought, the remaining will be forced to leave.

An Afghan Planning Agency Engineer, Amir Mohammad, had made a survey of the Marja irrigation system and took sample gates, and the list of mechanical repair needs in Marja. But, nothing has been heard of this person yet. Engineer recommends that: People who don't follow their work and promises, should not be allowed to go to these critical areas. Empty promises are disappointing to the people who have suffered a lot. It will also be damaging to future work by others.

- o 12:00 noon, the party left the Marja Mujahidin camp to see the Marja project. We were at Seistani about 1:00 p.m. (62508). All canals in West Marja are dry. At Station 75+00 Seistaini, there was about 20 cfs of water. Small amounts of water has been delivered from the Boghra Intake to Nadi Ali and Marja. People in Marja don't even have drinking water. The Marja Main Drain was dry, meaning that, Marja as whole is in a dry spell. There were sporadic wheat crops evidenced. People grow some crops whenever water becomes available.
- o 1:15 p.m. (62513) arrived at East Marja Lateral canal. Mowlawi Hafizullah (Nijat) [Wasefi's relative]. Showed one of the villages (Ali Kozai) close to this turn-out. At this time the Boghra East Marja Lateral had about 100 cfs water. Coming by East Marja lateral we saw the grist mills as explained before. The Engineers party was back at Mujahid Haji Sidiqi's Head Quarters at about 2:00 p.m. In Marja Many people, learning the Engineer was there, came to visit. Ustad Mowladad (Kamal Tarzi's former driver) now a Mujahid commmandant, is taking care of the Marja court. We also saw the following Mowlawi M. Zareef (Nijat) member and chief of the Marja Committee of Justices/court Amin Gul of irrigation system. Ghulam Ghous Khan Chief Water Master in Marja (These are some Guys the Engineer had trained years ago), Juma M. Khan, his assistant also one of the old ditch riders the Engineer had trained. These two guys have kept the irrigation system alive with all its problems. See a list of the problems, in Marja section of the main report.
- o 3:45 p.m. (62525), leave Marja to Nadi Ali
- o 5:25 p.m. (62544), the party is in Nadi Ali

NADI ALI

The Boghra Canal and its lateral and irrigation/drainage system in Nadi Ali is as bad as Marja. However, Nadi-Ali has not suffered the water shortages Marja has been suffering for several years (photo 37). The water supply in Nadi Ali is in short supply. Only wheat and okra in some areas and alfalfa is rarely observed. Fruits and vegetables have not been planted, if planted they were burnt.

BOGHRA CANAL AND HEADWORKS:

The Boghra has siltation and vegetation growth problem. The capacity is reduced to about 50%. The Boghra Headworks wash out is critical.

The Government seized the intake about a week ago. The Engineer could not visit the site. However, the UNOCA team Bayisa, Adan, Mamo, and Eddy were sent to the intake with Kabir the photographer (MCI) to observe the conditions (photos 39,40). Will look at the pictures and analyze their report. Few years ago HVA repaired the central part of the diversion Dike with concrete slabs, (stupid idea), it has washed out again (no wonder!).

The Engineer instructed Engineer Fazel on how the diversion can be repaired by the use of gabions. In the latest attack by Government Forces the frame holding the sluice gate lifting mechanism (crane) has been hit by Government rockets (40 barrel launcher). Told Fazel how sluice gates could be lifted by "come-alongs" or hydraulic jacks. The repair of Boghra Diversion is critical for all the downstream areas of Malgeer, Nadi Ali, Marja, Shamalan. The Mujahidin strategy should be to wait and see if the HVA is going to repair the intake.

REPAIR STRATEGY:

The repair of diversion dikes and canal berms, could be made by hand labor, agricultural tractors and gabions. For a detail of the repair of Darweshan Diversion intake, Darweshan Hazarjuft Bridge, and Boghra Diversion/Intake see separate plans and sketches provided in the Appendix E of this report.

The recommended method of repair is independent of who holds the facility at the time, the Mujahidin or the Kabul Regime. The gabion/hand labor, agricultural tractor combinations is flexible enough and can be implemented by the Muj or Government. On the contrary, the equipment intensive method, may only be implemented by the Government if they can find sufficient equipment. Therefore, it will be totally dependent on something unknown and, if the facility changed hands the repair can not be implemented any more.

KAJAKAI DAM:

On the basis of consultation with Akhundzada Abdul Kayum and Akhundzada Farahi, the responsible personages for Harakat at Marja and Nadi Ali and Mula Mohammad Rasul's emissaries in this area. It was decided that, the Kajakai trip via either Sangeen or Musa Qala/Nowzad is not safe for the Mission. Therefore, the Mission decided to move out of Afghanistan via Darweshan, Binadir, Dalbandin to Quetta, instead of Kajkai and Arghandab dams, Kandahar, Chaman to Quetta.

The Mission split into two groups with destination to meet again at 6:00 p.m., on July 5th at the Darweshan Court House.

1. The Engineer, Noor, Kabir, Baqi, with Haji Soorguls car who will go to the Said Abad Health Clinic, proceed to Marja, stay the night of July 4th at Marja then proceed the next day to Darweshan.
2. Bayisa, Mamo, Adan, Dr. Rehman, and Engineer Saba will proceed with two cars to Lashkargah then next day to Darweshan.

Engineer's Party Left Nadi Ali Zarghoon Qalai towards the village of Sayed Abad.

7:30 p.m. arrived at Sayed Abad. Noor Rehman saw the clinic took its records, we prayed. Akhundzada Abdul Kayum (AAK) is no where to be seen. Sayed Mahmood Tajdar/Assistant commandant of Sayed Abad Village's Mujahideen post advised the group to stay the night under his protection. Because, the Kabul Regime's defensive line posts were about 3 Kms. away. They or theives might hold up the road at night. The Engineer requested that he talk by radio to AAK because the party was under his protection at the time. Tajdar consulted with AAK. AAK had motorcycle problem, he said that Tajdar should go ahead prepare food for the night, he will join the group later.

This Mujahid Post is unique (photo 38). It is composed of Hazara/Jaghuri Mujahideen of Shiaa Sect. These young men under the leadership of Sayed Mohammad Tajdar who is also, the village medical person, tending to the health clinic. The commandant is Abdul Ghani Kazimi, quite and impressive young man. These people are devoted to Jihad. Ayatullah Sayed Muhsini is their leader who is one of the Ayatullahs not under the influence of Iranian Ayatullahs.

AAK joined the group during supper. After supper Sayed Mahmood Tajdar whose father was a religious Sayed in Helmand, suggested we stay for the night and convinced AAK to accept this idea.

Beds were stretched on the top of the post's roof. A nice cool nights breeze under the stars, made it memorable.

At about 3:30 a.m. machine gun fire from outside, and response to it from the post woke the group. In a short time Tajdar while commanding his post efficiently, and talking by radio to adjacent posts was handling the situation quite well. They were preparing for a Government attack. In the morning they found out somebody had shot at jackals who were preying on farm animals. (So, we were told!).

FRIDAY, JULY 5, 1991

After prayer call at 5:30 a.m. breakfast at 8:00 a.m. the group started to move to Marja. AAKs motor cycle couldn't be fixed. He rode with us to his command post at Marja.

Some old friends of the Engineer had learnt the Engineer was there, they joined him at breakfast at Nadi Ali, and later others at lunch in Marja (photos 10,22,36). People were overjoyed to see the Engineer. He seemed to convey the memories of an era of peace. They remembered the good old times with tears in their eyes. They all seemed very happy to see the Engineer; remarked about his grey beard which showed his age. They made jokes about this fact. They believed, now that the Engineer was there, their problems would be solved. The Engineer kept telling the people that he was there on an engineering mission regarding their water supply problems, not on a political mission. When asked how the problem of Afghanistan will be solved, he told them his own solution to the problem was through an Afghan representative government.








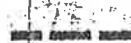





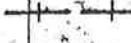
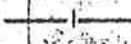
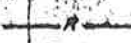
The group left Nadi Ali at 9:15 a.m. (62588) arrived at Marja 10:20 a.m. (62612). Went to a Juma Bazar in Marja where people were selling and buying things. Bought cucumbers at 50Afs per, and melons at 2,000Afs per, for the road. Went to the Marja camp, had lunch with AAK. Left Marja 5:00 p.m. (62612), with a motor cycle escort. Got stuck at the Darweshan bridge (62650). The rest of the Mission's two cars joined the first car at the bridge. They got stuck too (photos 31,32,33).

Finally found a way to mount the bridge by passing the big truck stuck on the roadway ramp to the bridge.

Moved to Hazarjuft, then to Mahkame, arrived 7:30 p.m. at Mowlawi, Mohammad Khan's Post. Rented a pickup for the night's trip with a Mujahid escort to Pakistan border. Had supper with Moulawi Mohammad Khan (Commandant's) assistant. After a big political discussion about the future of Afghanistan, left for Binadir at 11:00 p.m. Travelled all night arrived at Choto at 7:15 a.m. on the 6th.

Left Choto 7:45 (62882), arrived at Dalbandin about 11:40 a.m. (62984). Left Dalbandin 12:35 p.m. arrived at Quetta 7:15 p.m. (63337) on July 6, 1991.

LEGEND

- 
 VERTICAL DROP
- 
 BRIDGE
- 
 CHECK
- 
 WASTEWAY STRUCTURE
- 
 TURNOUT
- 
 EXISTING VILLAGE
- 
 MAIN CANAL
- 
 WASTEWAY CHANNEL
- 
 LATERAL
- 
 SUBLATERAL
- 
 DRAIN, OUTLET (DEEP)
- 
 DRAIN, ACCUMULATOR
- 
 DRAIN, PICKUP
- 
 DRAIN, WASH
- 
 ROAD, PRIMARY, SURFACED
- 
 DIKE

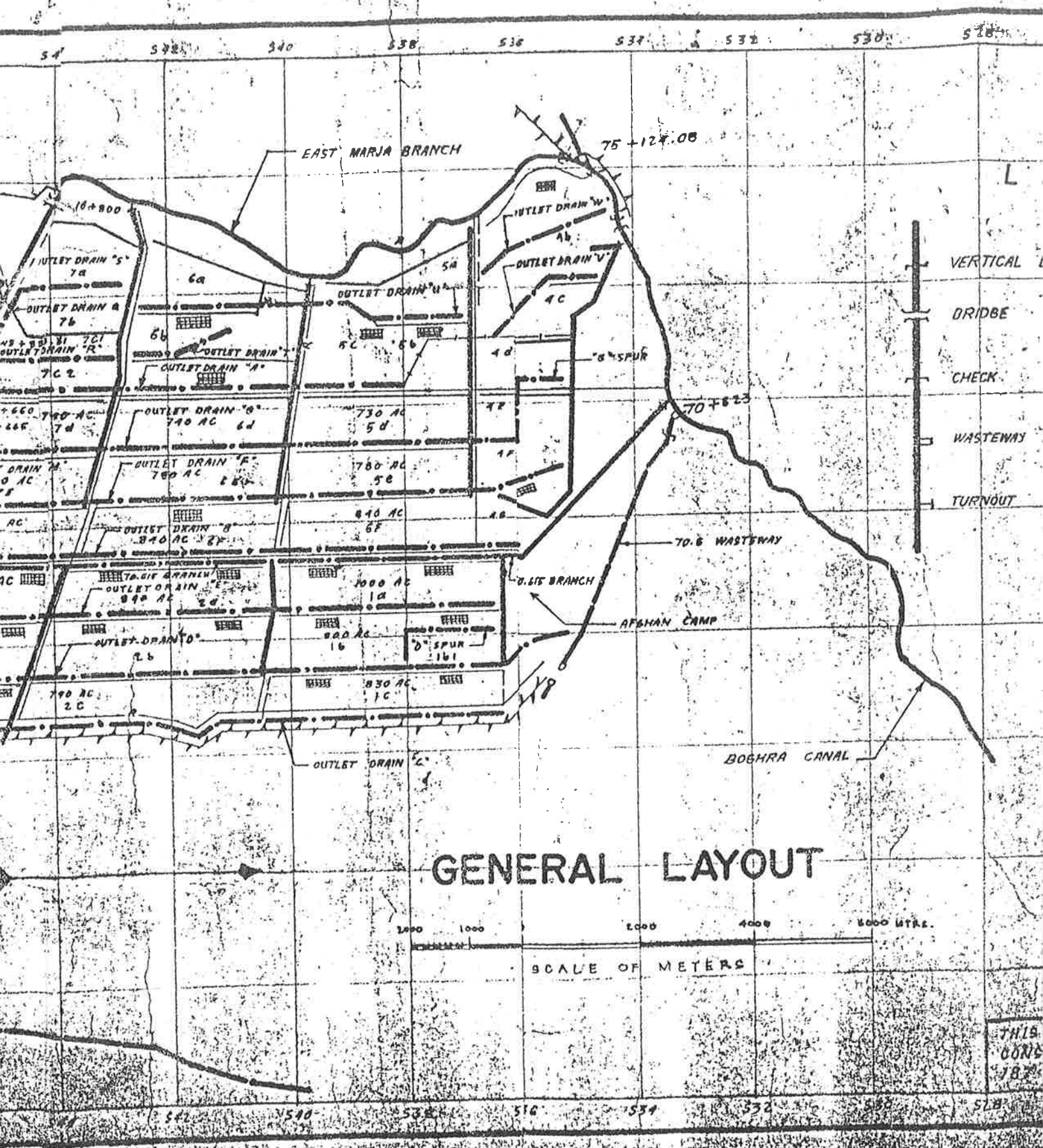
0 METRE.

THIS DRAWING COPIED FROM AFGHAN
CONSTRUCTION UNIT, DWG. NO. 704
187, DATED NOV. 21, 1963

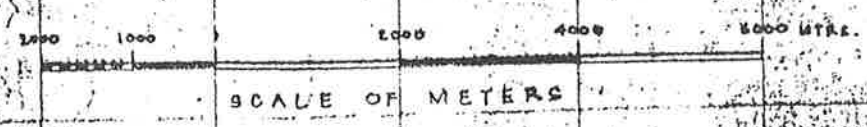
THE ROYAL GOVERNMENT OF AFGHANISTAN
HELMAND-ARGHANDAB VALLEY AUTHORITY
ENGINEERING & TECHNICAL DEPT. - ENGRS. DIV.
EAST MARJA LAND DEVELOPMENT
GENERAL LAYOUT

DRAWN: A.H.J. SUBMITTED: _____
TRACED: A.H.J. RECOMMENDED: _____
CHECKED: _____ APPROVED: _____

LASHKAR ABAD, AFGHANISTAN, 1963

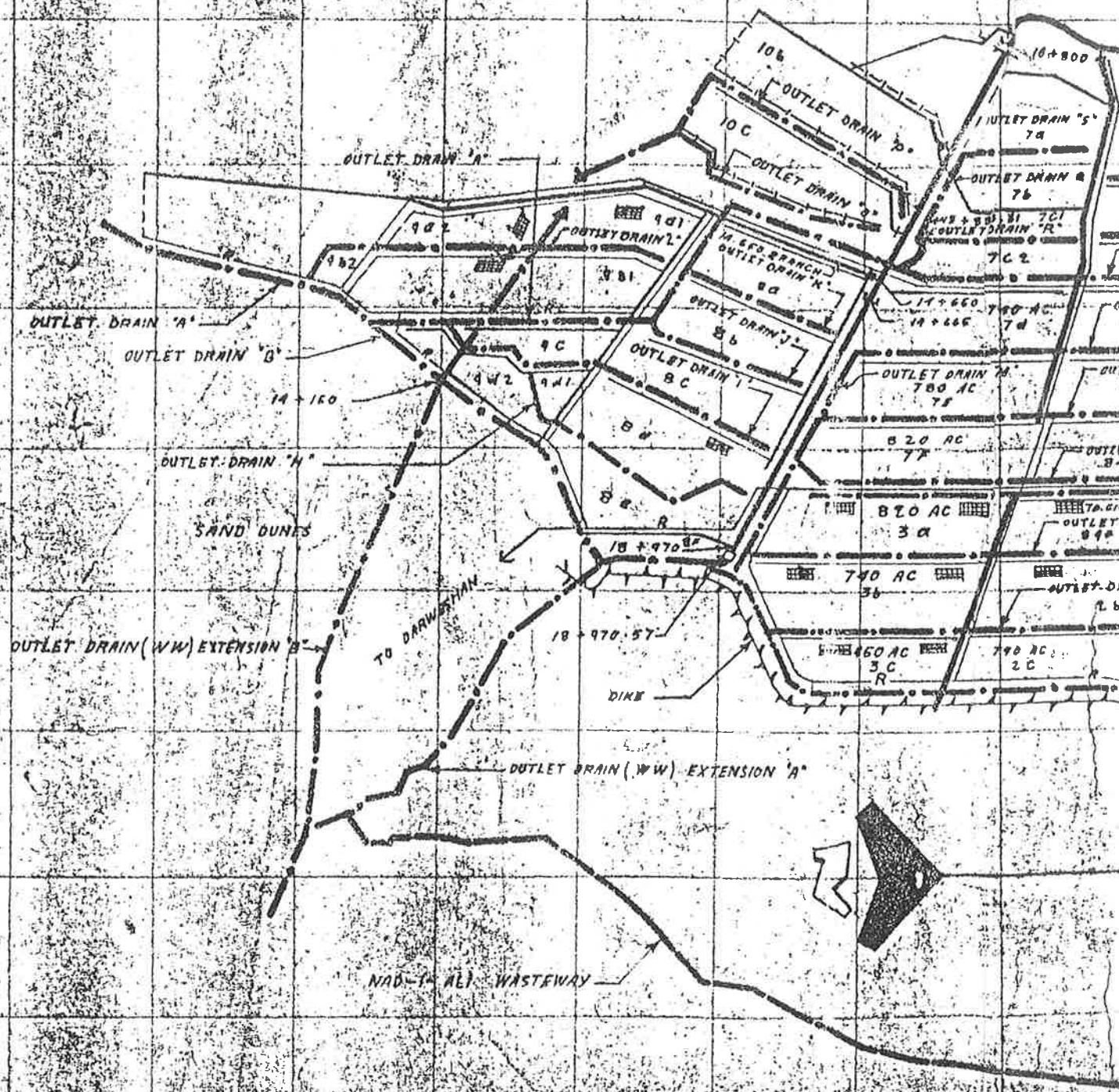


GENERAL LAYOUT










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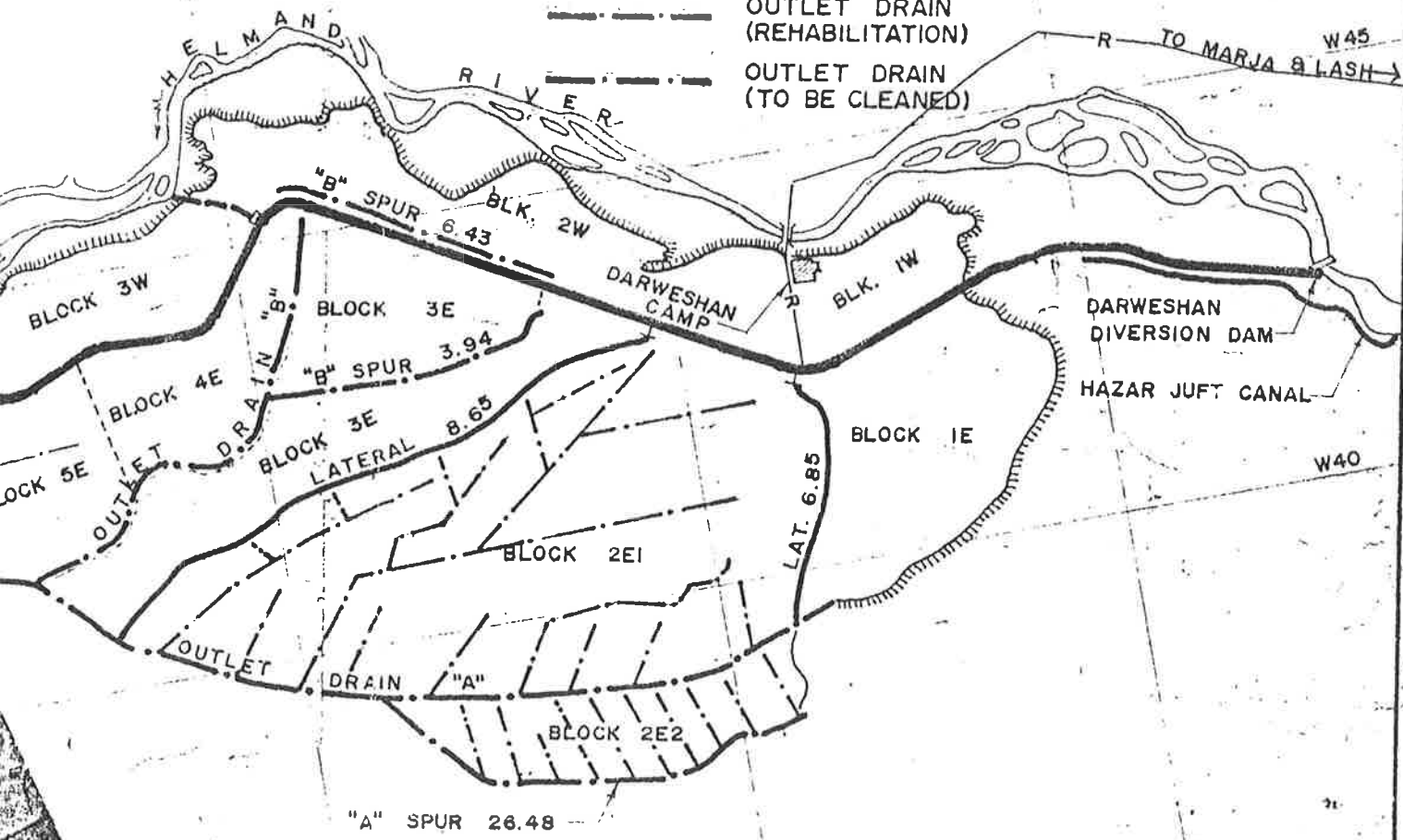
560 558 556 554 552 550 548 546 544



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LEGEND

-  MAIN CANAL
-  WASTEWAY CHANNEL
-  OUTLET DRAIN
-  LATERAL
-  PROPOSED DRAIN
-  OUTLET DRAIN (REHABILITATION)
-  OUTLET DRAIN (TO BE CLEANED)

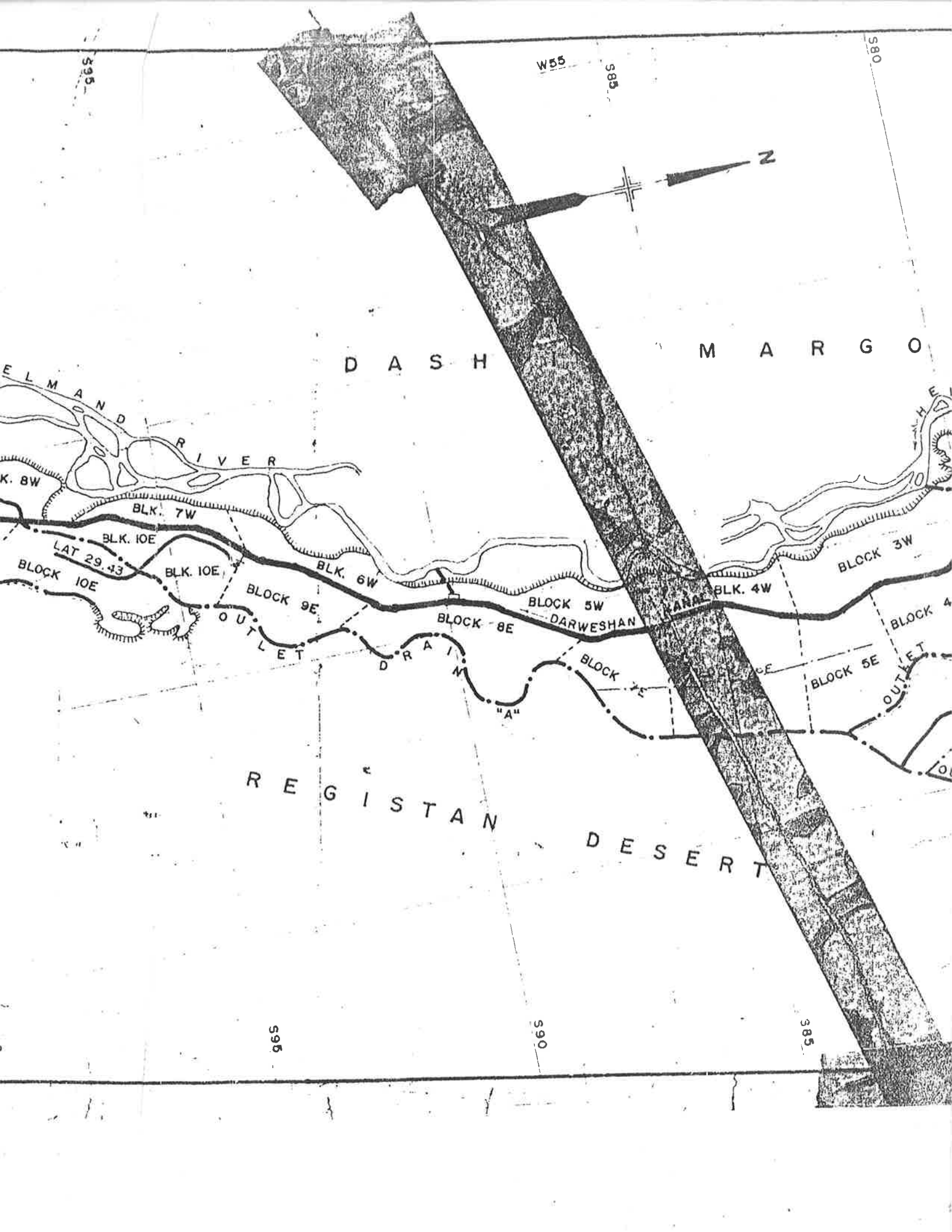


DARWESHAN PROJECT AREA

SCALE 1:80,000

MARCH 11, 1971

504-5



W55

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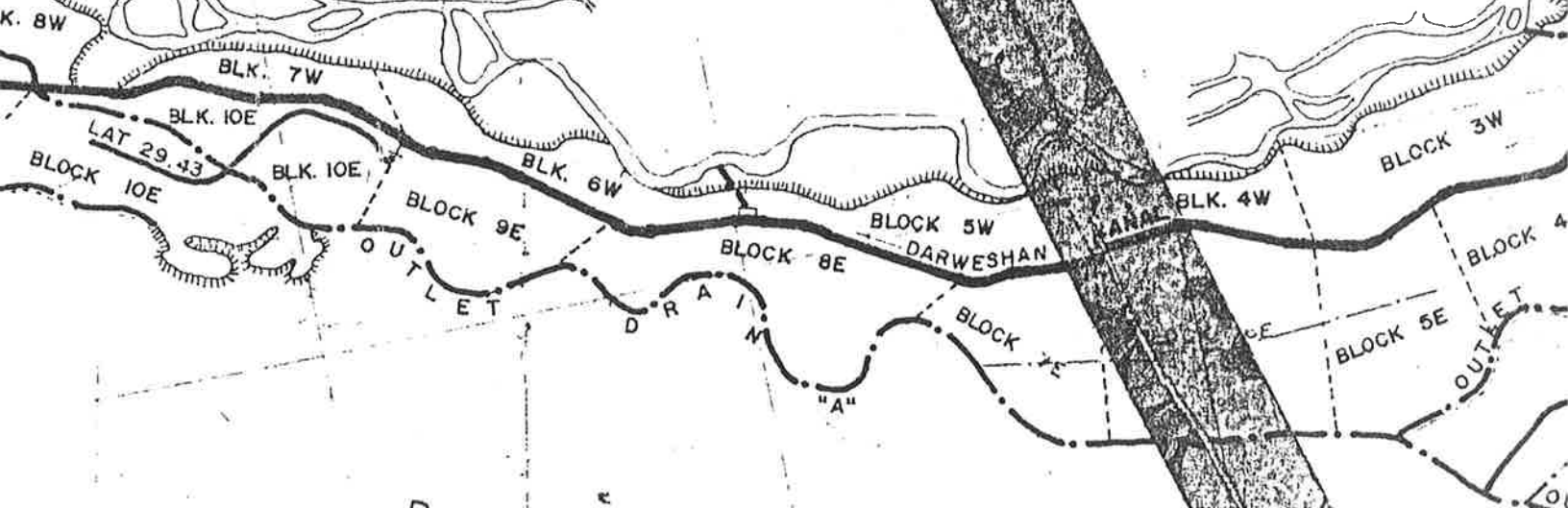
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D A S H

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R I V E R



LAT 29.43

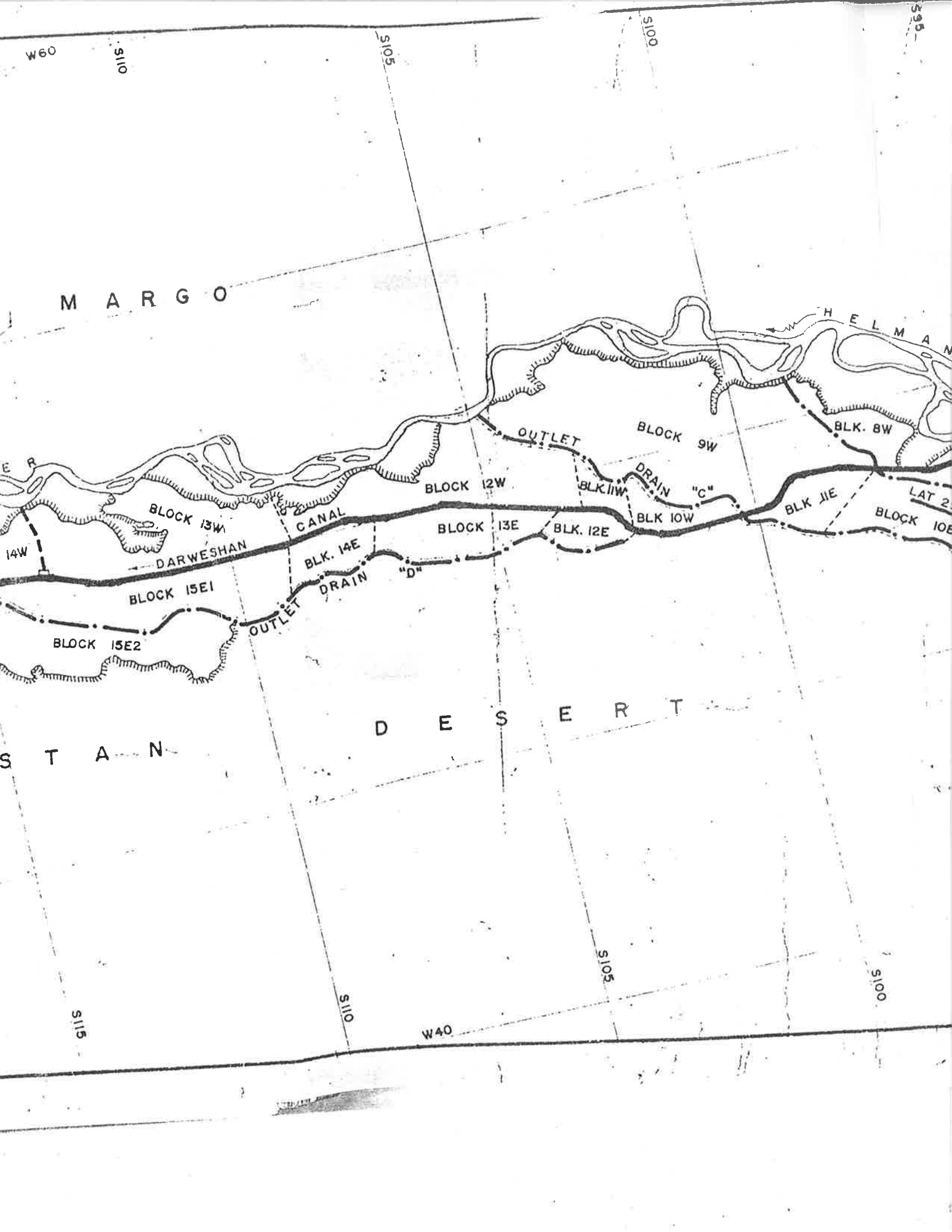
R E G I S T A N

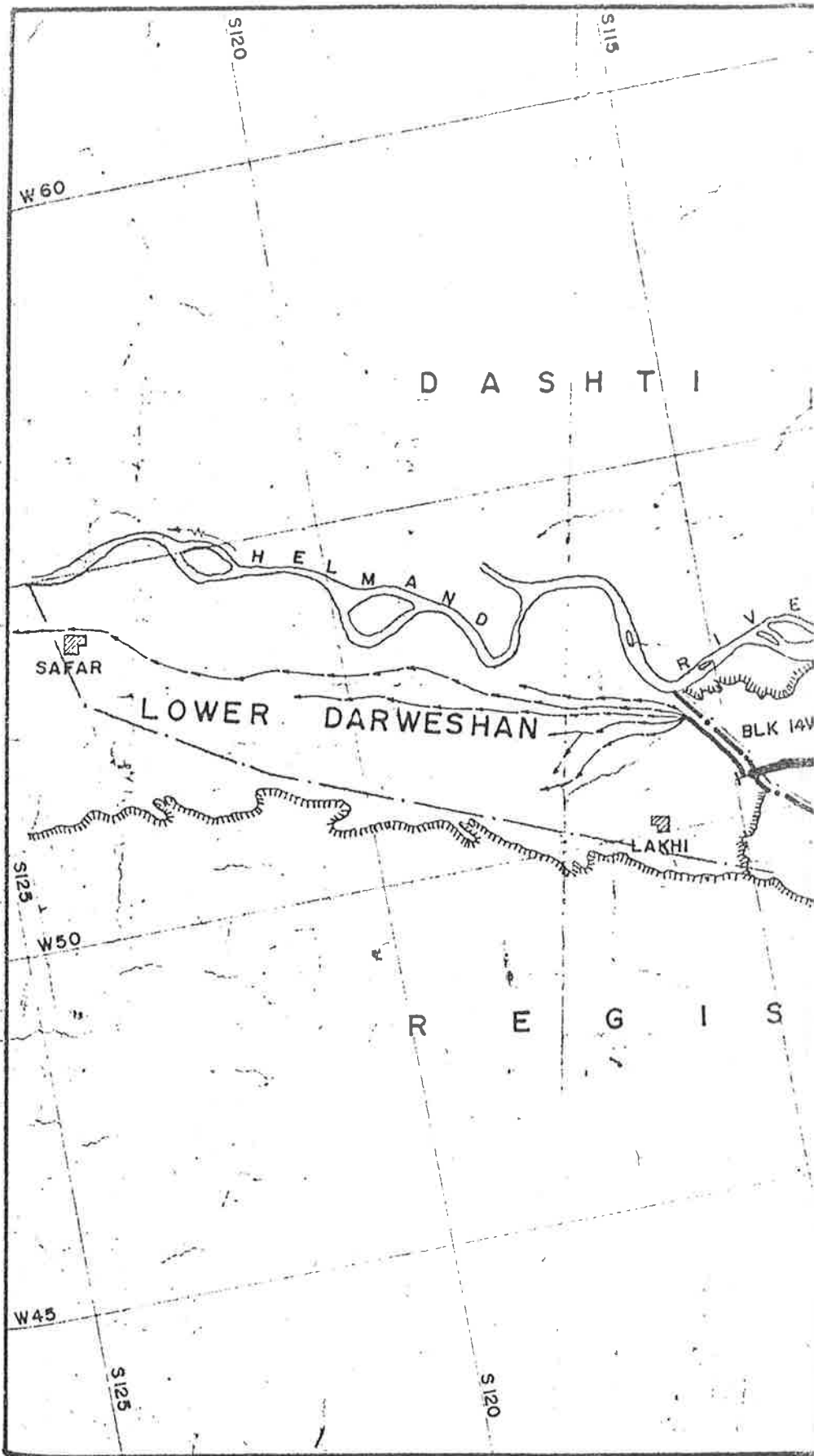
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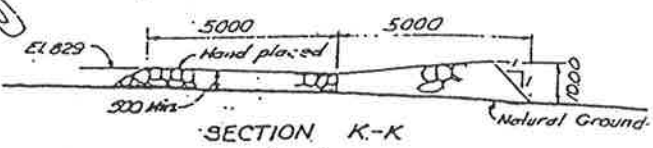
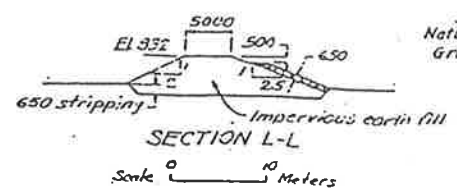
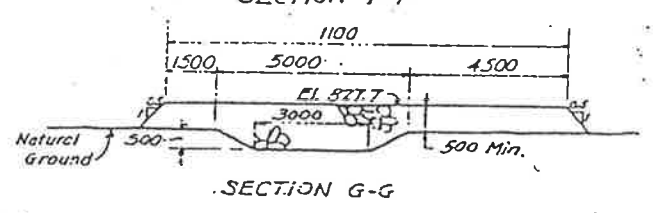
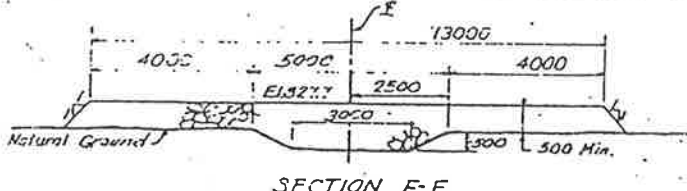
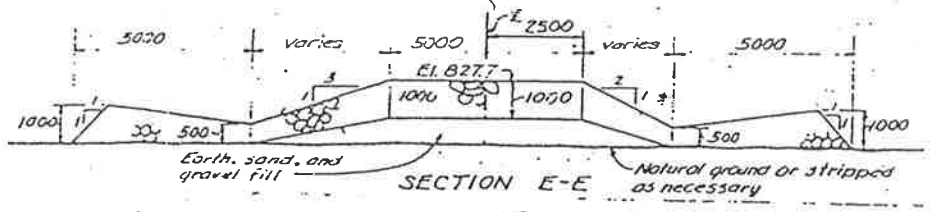
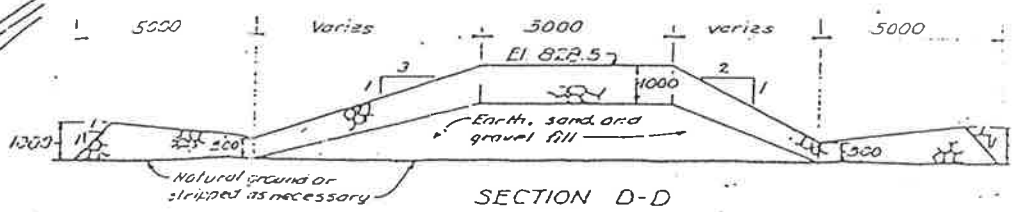
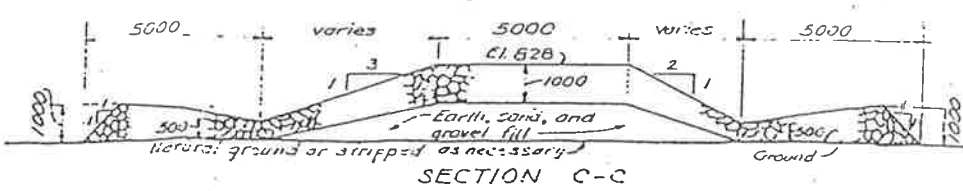
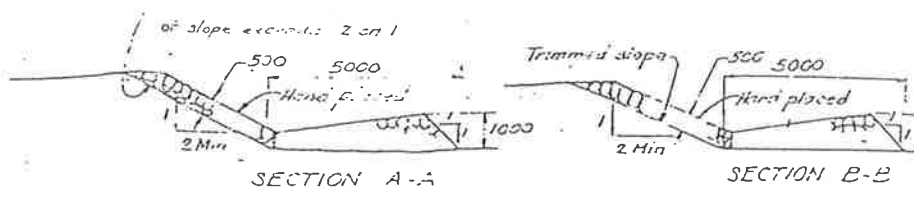
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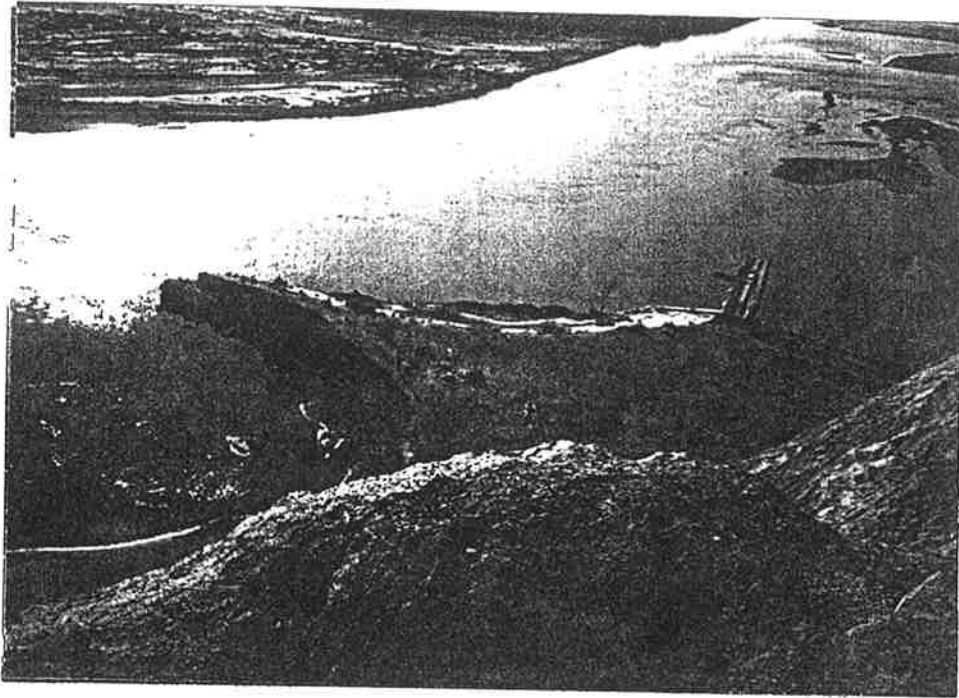


REFERENCE DRAWINGS:
 505-10-2----Diversion Dam & Intake
 505-10-3----Boghra Canal-General Layout

NOTES:
 Dumped riprap except as noted.
 At least 70% of riprap to consist of stones weighing 100 lb. or more.
 Embankment fill areas in old channel to be stripped as necessary to firm foundation for Sections C-C, D-D, & E-E.
 Abrasive treatment of ends of embankments-determined in field.

Scale 0 1 2 3 4 5 Meters - Sections
 Scale 0 100 200 Meters - Plan

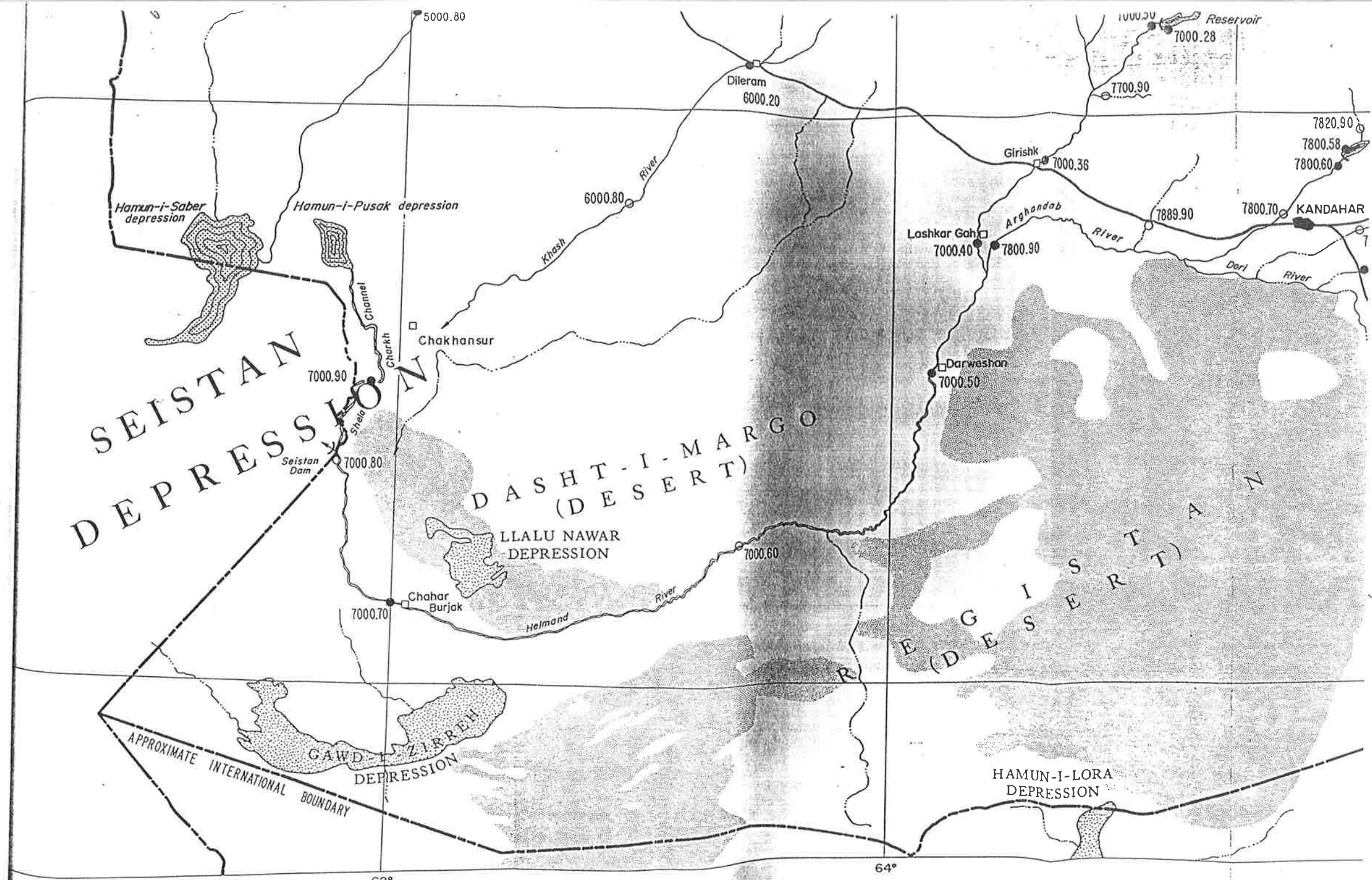
MORRISON-KNUDSEN AFGHANISTAN, INC.	HELMAND RIVER PROJECT DURISH-SHAMALAN IRRIGATION SYSTEM	
BOGHRA CANAL HEADWORKS DIKES AND REVETMENT:		
INTERNATIONAL ENGINEERING CO., INC.		
DESIGN W.A.H. DRAWN S.H.L.	CHECKED <i>[Signature]</i> REVISED <i>[Signature]</i> Normant Land	SUBMITTED <i>[Signature]</i> RECOMMENDED APPROVED <i>[Signature]</i>
KINGDOM OF AFGHANISTAN MINISTRY OF PUBLIC WORKS		DENVER, COLO. DATE APR. 23, 1948
		505-10



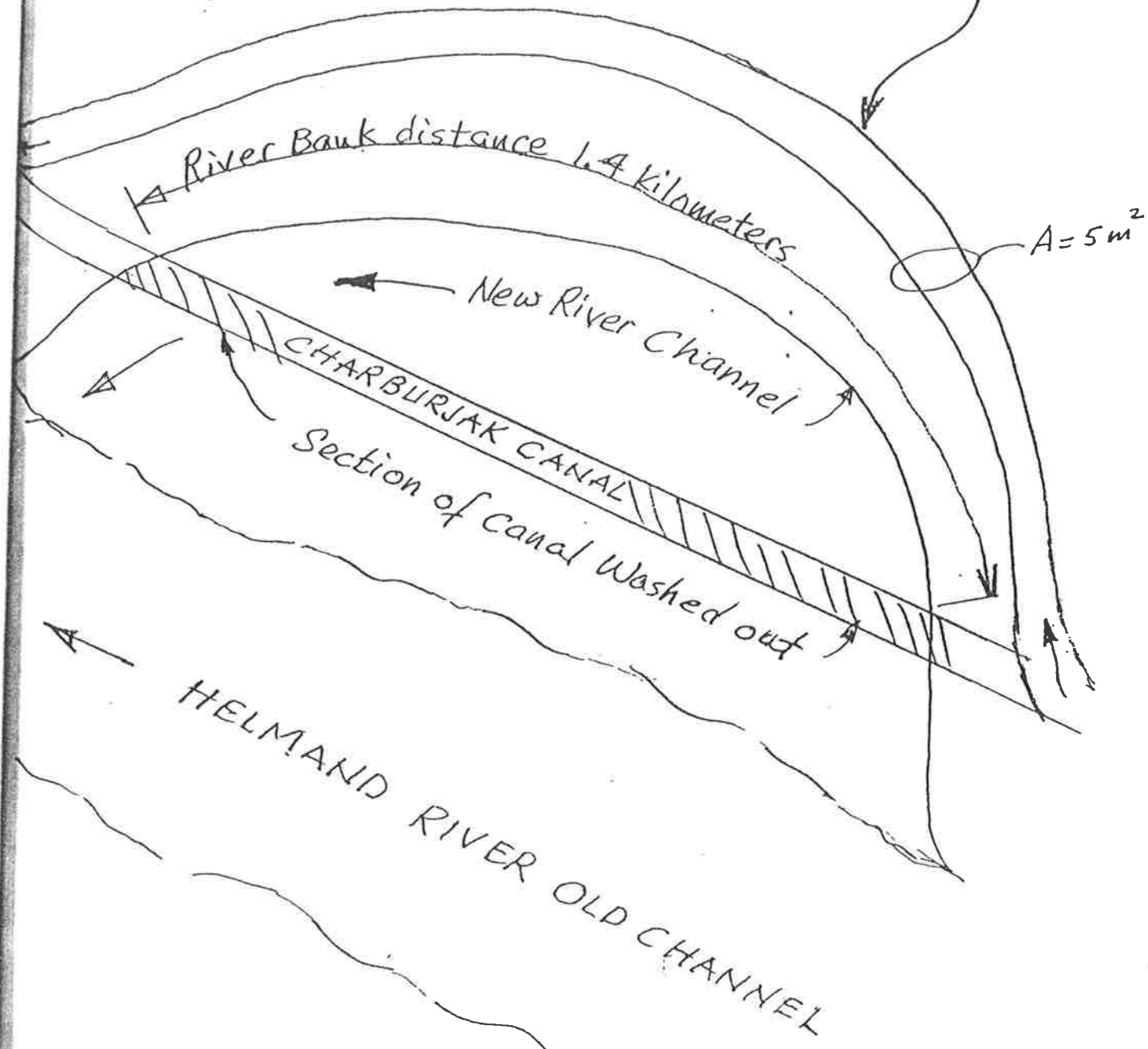
Darweshan Headworks.



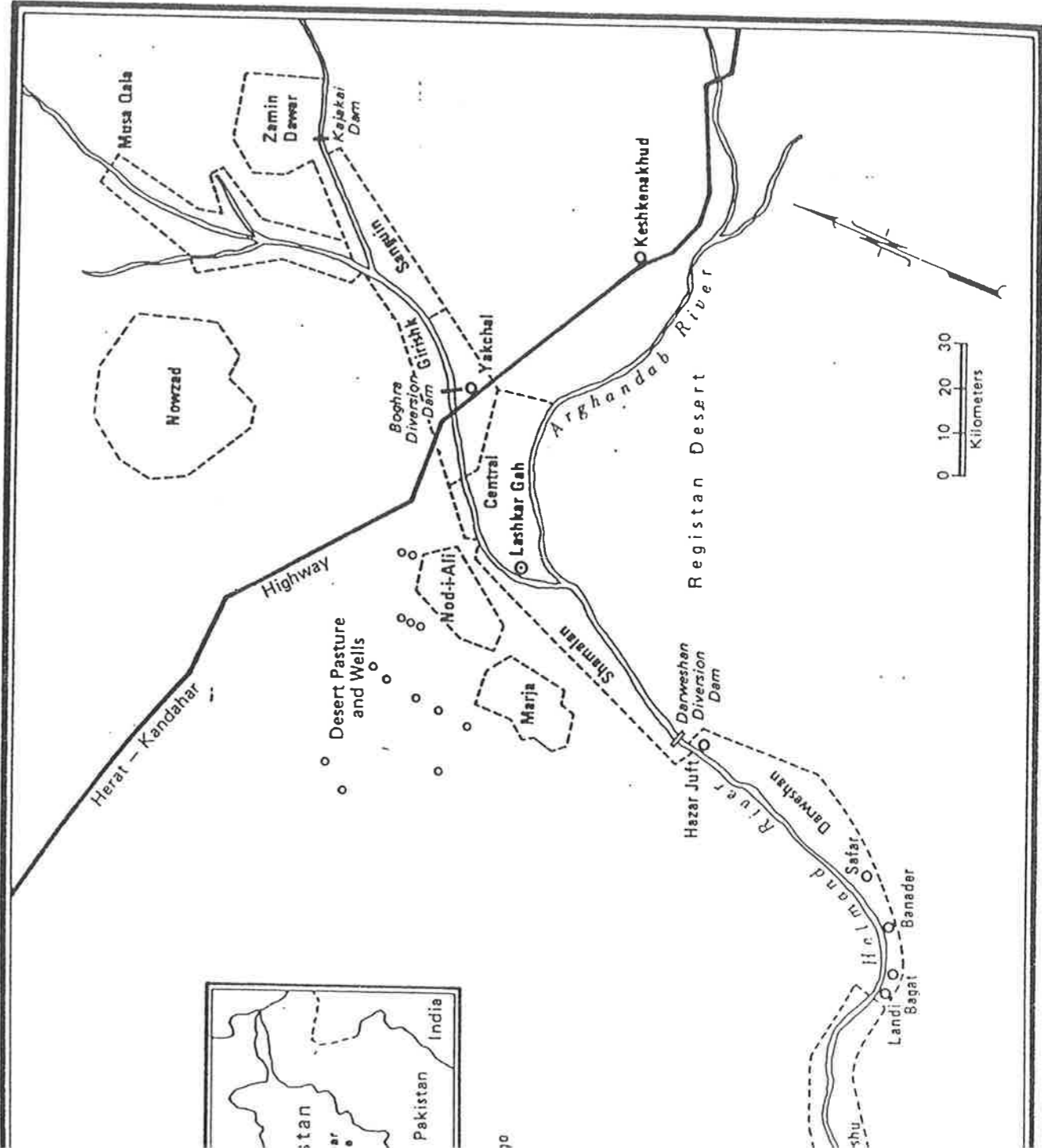
Darweshan Headworks.



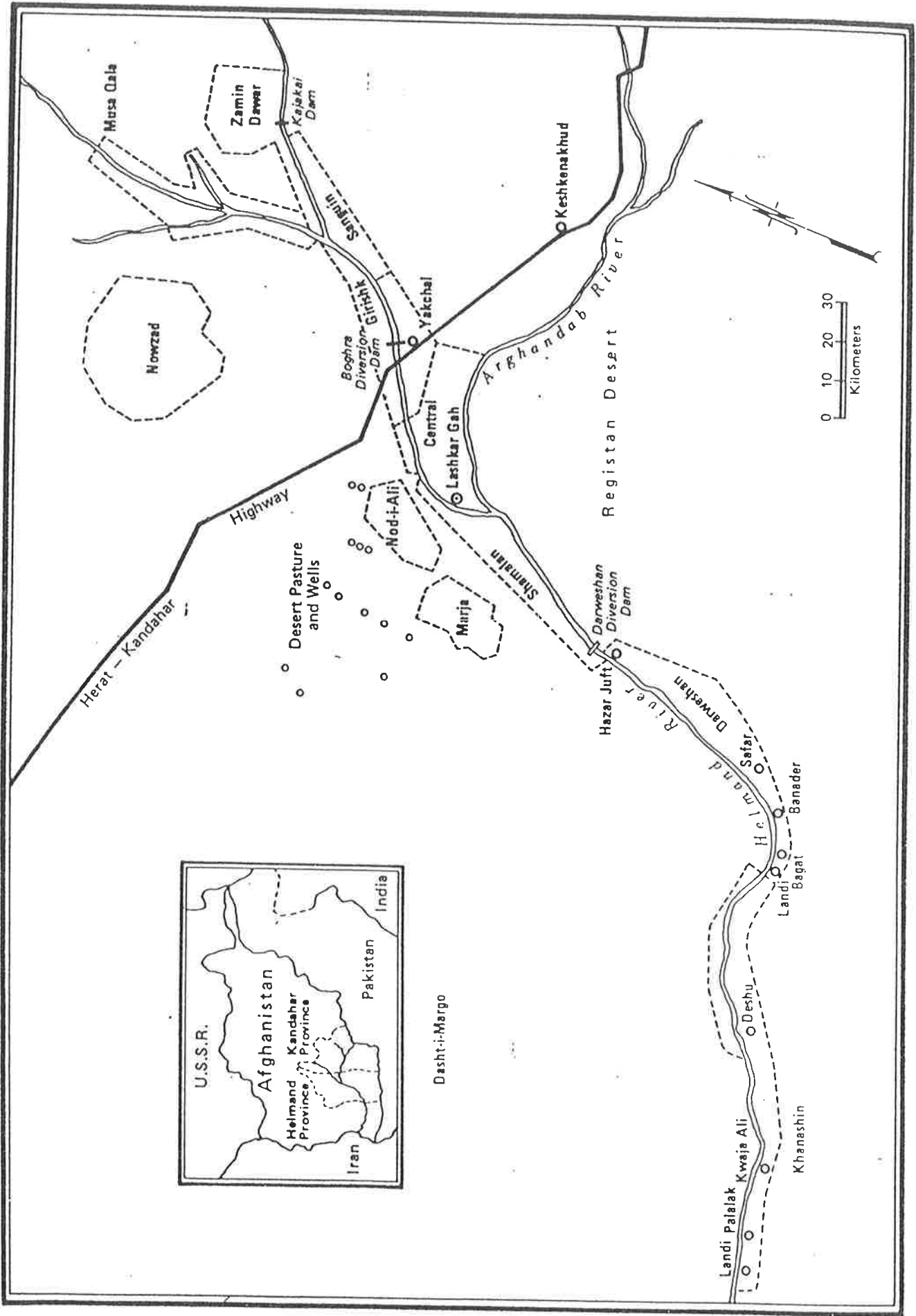
Proposed
New Charburjak Canal Location



Project Areas



Helmand Valley Project Areas



DARWESHAN BRIDGE SKETCH
 ABUTMENT AND ROADWAY
 GABION WORKS, Sketched by
 A.T. ASSIFI, 1991

