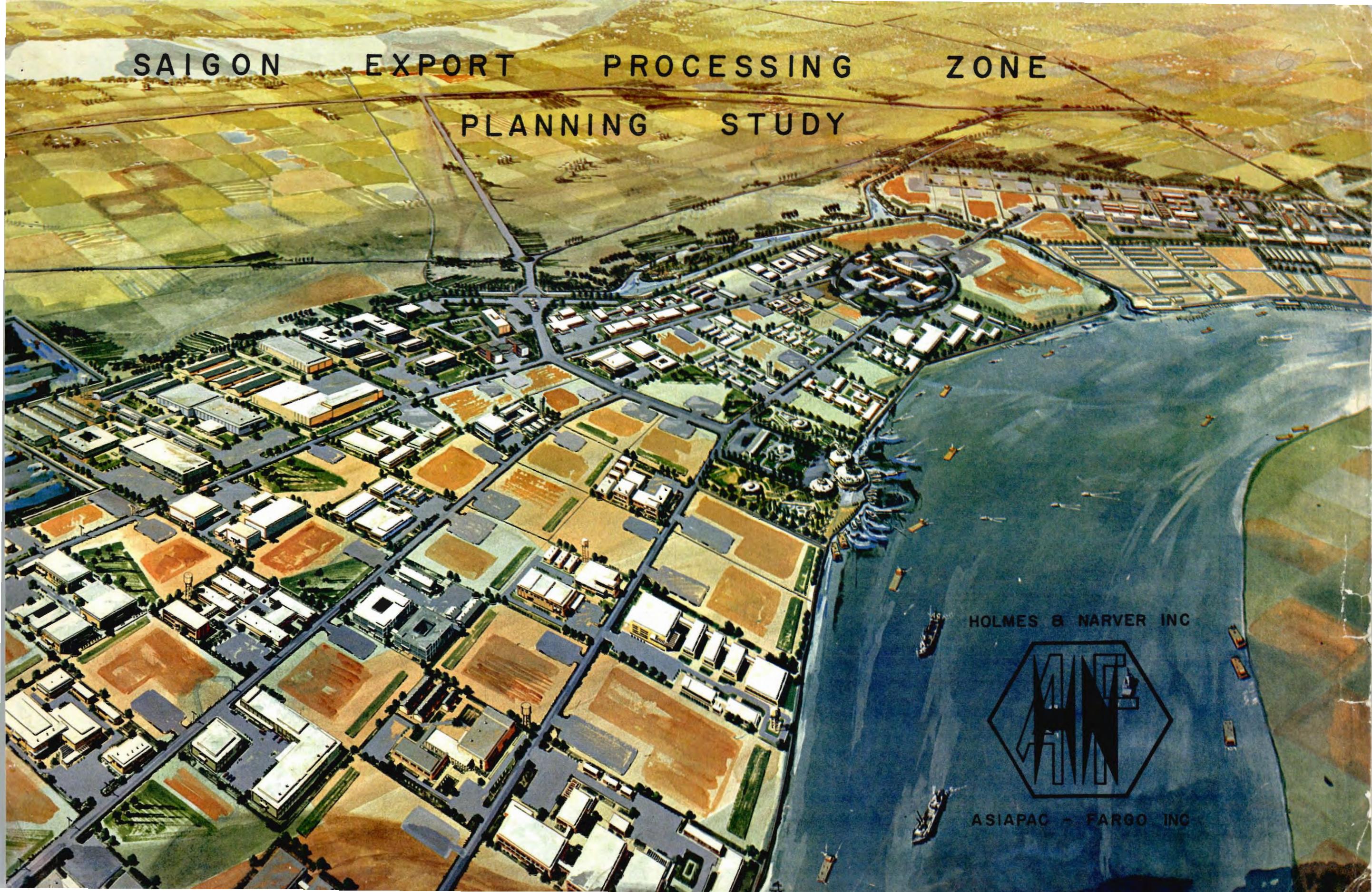


SAIGON EXPORT PROCESSING ZONE
PLANNING STUDY



HOLMES & NARVER INC



ASIAPAC - FARGO INC

SAIGON EXPORT PROCESSING ZONE PLANNING STUDY

USAID CONTRACT AID 730-3602



HOLMES & NARVER INC.

400 East Orangethorpe Ave.
Anaheim, California

BEST AVAILABLE

ASIAPAC-FARGO INC.

94 Mac Dinh Chi
Saigon, Republic of VN

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1. INTRODUCTION

1.1. PROJECT OBJECTIVES

The primary objective of this project is to develop a plan for implementation of accelerated installation of necessary infrastructure, including roads, utilities and drainage by labor intensive methods for an Export Processing Zone to be located adjacent to the Port of Saigon.

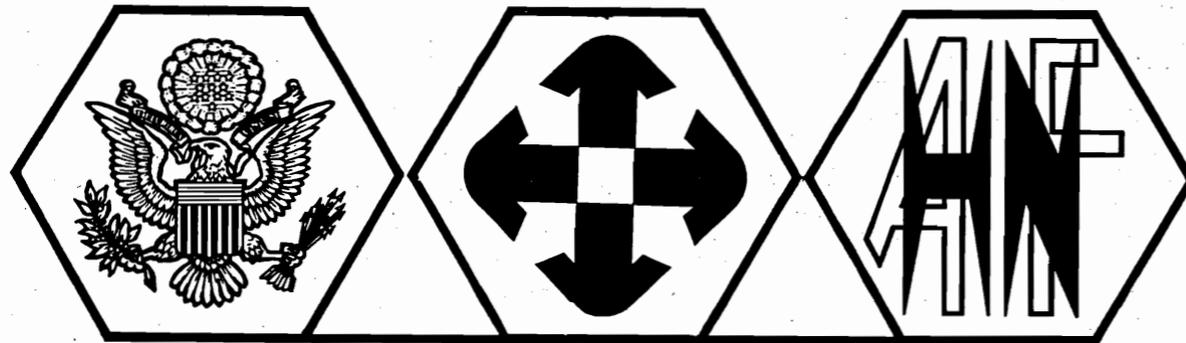
1.2. SCOPE OF WORK

The scope of this study is in accordance with requirements of the United States Agency for International Development, USAID Contract No. AID 730-3602 and is quoted in part below:

" This engineering study is required for the accelerated installation of the necessary infrastructure required for an Export Processing Zone (EPZ) on an area of about 30 hectares at Camp Davies located just downstream from the existing Port of Saigon. (Editor Note: An additional part of reclaimed land is also included in this EPZ making the total gross area approximately 150 hectares for this study).

The contractor shall provide a technical engineering study and evaluation of the existing services, the existing infrastructure and the additional improvements and costs of the addition and improvements required to create an Export Processing Zone (EPZ) on the Saigon River near the existing Port of Saigon.

The plans are to be definitive in nature and the report will present sufficient detail for attracting, promoting, and expanding industry into this proposed EPZ. "



1.3. PROJECT HISTORY

The proposed Export Processing Zone is to be located in the vicinity of the Saigon Port at a site that was formerly utilized by U.S. forces known as Camp Davies and a portion of the Saigon River Peninsula approximately 1/2 kilometer wide and 2.5 kilometers long. The proposed Export Processing Zone will consist of approximately 150 hectares of which some 119 hectares is reclaimed farm land. The Saigon Port facility has been in existence since the French Colonial period and several warehouse buildings were constructed during the Japanese occupation in WWII. The port was expanded into area presently known as Camp Davies during the mid-1960s with most construction completed by 1968. With the cessation of hostilities in January, 1973, the Camp Davies area was turned over to the Army of the Republic of Vietnam (ARVN).

On March 1, 1971, the Government of Vietnam issued Decree No.016-SL/TH. T/PCI by the Prime Minister that established the expansion area for the Port of Saigon which is made up in part by the proposed Export Processing Zone in this study. The ARVN, who are presently responsible for the security in the area, are expected to initiate removal of temporary structures and vacate the area during the last half of calendar year 1974.

On 23 December 1972, the Republic of Vietnam issued Decree D43/TT/SLU which established the requirement for the Export Processing Zones in Vietnam. On February 8, 1974, Proclamation 027/SL/TMKN placed the administrative responsibility of the EPZs under the Ministry of Trade and Industry where it remains at the present time. The Saigon Export Processing Zone Authority (SEPZA) has been organized to initiate the development of the port area and former Camp Davies facility into the first EPZ in Vietnam.

1.4. PROJECT ENVIRONMENT AND CLIMATOLOGY

The Republic of Vietnam is situated between the 17th parallel on the

north, the 8th parallel on the south and is bounded by Laos and Cambodia on the West and the South China Sea on the east. The climate is essentially subtropical. The 150 hectares proposed for the Export Processing Zone in this study lies directly adjacent and east of the City of Saigon along the Saigon River.

The temperature ranges from a yearly average maximum of 32°C (90°F) to a minimum of 23°C (73°F) during the day with a mean relative humidity of 80%. Monthly precipitation ranges between 5 and 51 millimeters (0.2 and 2 inches) during December through April and between 116 and 334 millimeters (4.5 and 13.1 inches) during the remaining period with the highest 24 hour period recorded in September.

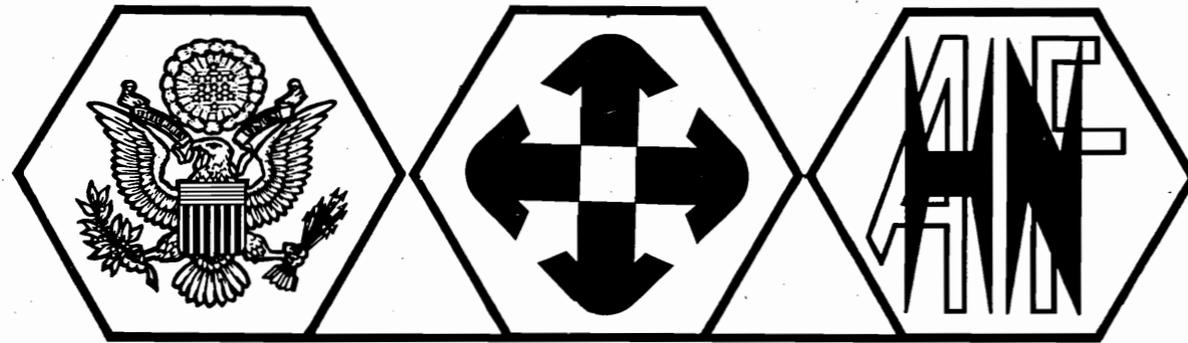
Typical soil strata for the proposed Export Processing Zone area is indicated in Exhibit UT-1. The data presented is based on a boring taken in September 1965 at the port and others taken adjacent to the Tan Thuan bridge site. These borings reflect a relatively unstable soil condition for construction of multi-story facilities and requires careful foundation evaluation on a case by case basis. The strata appears to be a consistent claylike silt layer deposited on top of a somewhat varved clay material which are subject to mud flows and bearing capacity failures. This material is common along the Saigon River and especially in the delta areas of Vietnam.

1.5. ACKNOWLEDGMENT

The preparation of this report was greatly assisted by the cooperation of: Mr. Le Trong Muu, Director of SEPZA and his staff and various Government of Vietnam Ministers and their staffs.

We also would like to acknowledge the valuable assistance given by the following: Mr. Dan F. Miller, Assistant Director for Engineering Technical Assistance and other members of USAID Engineering Branch and Mr. Henry Weigel, USAID Private Industries Branch.

2. SUMMARY AND RECOMMENDATIONS



An Export Processing Zone is a duty free area that has been established by the Government to attract, promote and expand the industrialized process of natural resources by an alliance of manpower with machinery, capital and technology. Given an environment of peace and political stability, development prospects for an Export Processing Zone in Vietnam are excellent. Many of the ingredients required for industrial advancement are present in Vietnam. Natural resources, manpower, institutional framework, and substantial infrastructure are all present in the Republic and would be essential elements in the industrialization process. Elements which are not abundant in Vietnam and must be imported from other countries include technology, machinery, and capital.

A modern 150 hectare duty free Export Processing Zone complex consisting of 120 parcels with a leasable land area of 113 hectares, could be constructed in Saigon. This EPZ would contain the infrastructure and operational systems attractive to labor intensive industries that are successful in Taiwan and Korea.

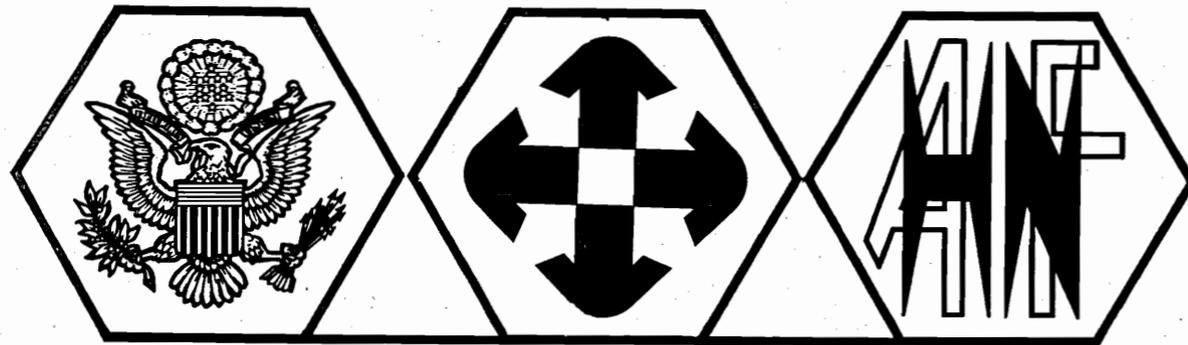
The infrastructure cost of the entire Export Processing Zone proposed for the area along the Saigon River seaport is estimated at U.S. \$7,560,000 in 1974 dollars. Of this amount, U.S. \$4,796,000 is required in piastres with the dollar balance necessary for commodity and engineering fees. All engineering and construction can be completed in a 30-month period on an accelerated basis with a major portion of time attributed to the land-fill required on the east side of the peninsula area. It is recommended that this labor intensive all piastre land reclamation project be initiated as early as possible and well in advance of the rest of the infrastructure.

The location of the Saigon EPZ adjacent to the city and the port area is particularly advantageous. The availability of an instantaneous labor force, a national and international communication system and the expediency in furnishing utilities are all beneficial to this locality. The unstable soil conditions on this delta land and the access highway at LTL-15 and the future traffic congestion anticipated at the Tan Thuan bridge are disadvantages that can be resolved by additional engineering work. While soil conditions are a consideration to be contended with on a case-by-case building basis, pile foundations have been found suitable in the Saigon metropolitan area.

The looped highway system now being studied by the Department of Public Works will ease traffic flow and tend to urbanize the southern portion of Saigon. The additional land available on the peninsula and south of the proposed industrial zone is also desirable for future planned expansion of light manufacturing in the area. An absorption rate for this development is expected to be similar to that projected for the Long Binh Industrial Park.

It is also recommended that the government construct and offer for sale or lease, standard factory type buildings. Although many firms wish to construct their own facilities, experience at other Export Processing Zones have shown that some firms prefer a standard factory type building that can be utilized on an immediate basis.

A financial plan, operational costs and proposed management of this Export Processing Zone are expected to be the subject of other studies for this project.



3. DEVELOPMENT PLAN

3.1. GENERAL

The purpose of this development plan is to establish in sufficient detail the supporting systems necessary for attracting, promoting and expanding industry into this site. It is also intended that certain sections of this development plan, including the artist presentation on the cover, be reprinted by SEPZA for promotional use. These supporting systems and recommended improvements are as follows:

- a. Master Plan for park development.
- b. Accessibility to various national and international transporting systems.
- c. Improved internal road network.
- d. Improved terrain for industrial plant layouts.
- e. Erosion and drainage control.
- f. Water supply and distribution system.
- g. Sanitary treatment facility and collection system.
- h. Power supply and electrical distribution system.
- i. Building infrastructure.
- j. National and international communications systems.

3.2. MASTER PLAN FOR PARK DEVELOPMENT

3.2.1 GENERAL

The Master Plan shown in Exhibit MP-1 has been formulated by utilizing the existing infrastructure at the former Camp Davies facility to the maximum extent possible, by integrating the existing Saigon Port and container storage area now in the development stage, by providing a reclaimed land section for an increased area of development and by taking the entire peninsula and outlining a conceptual scheme of future enlargement for planning pertinent to this export processing zone.

3.2.2 FORMER CAMP DAVIES FACILITY

This area will be the immediate development for the Saigon Port Export Processing Zone and consists of a gross area of approximately 31 hectares (77 acres). The proposed EPZ facility is on level land that was similar in geological make up to the river delta of the 119 hectares to be reclaimed. This former rice paddy which was utilized by U. S. forces and called Camp Davies, has been filled with select material and has resulted in a crusted surface sufficient to support several large warehouses with pile foundations.

The entrance to the processing zone has been planned for an unrestrained flow of traffic from the Saigon - Nha Be Highway and/or port area which leads into the roadway of this new export manufacturing facility. This new EPZ roadway grid has been designed with a labor intensive concept on mind with the initial development taking place in the west side of the compound where much of the existing infrastructure is located and expanding eastward where new facilities and some land fill will be required.

A second gate is planned leading from the east side of the Saigon Port and proposed container storage development to the free zone to eliminate the necessity of hauling duty exempt goods through the streets of Saigon City which are sure to become burdened by the additional port traffic.

3.2.3 EXPANSION AREA

Approximately half of the Saigon River Peninsula will be utilized in

expanding the Export Processing Zone in future years. This reclaimed land development is expected to produce an addition 119 hectares (294 acres) which could employ a labor force in excess of 40,000 personnel. This area has been planned to include a major restaurant facility, exhibit hall and recreational park as well as a road network that can be directed back to the port or to Saigon city proper without encumbering the patterns required in utilizing the existing infrastructure of the former Camp Davies compound. The restaurant and park will be directly accessible to the Saigon River for week-end and holiday recreational activities for the general population and will actually be outside of the EPZ secured area. Only pedestrian traffic will be allowed in this fenced area.

A looped road accessible to the 120 leasable parcels has been provided and the utilities system has been laid out on this grid. Additional bisecting roads can be placed perpendicular to this loop depending on the access needs in plant layouts.

3.2.4 FUTURE DEVELOPMENT

The influx of 40,000 workers will inevitably have a direct affect on the areas surrounding the free port zone. This effect can either result in major traffic hazards in the streets adjacent to the port and EPZ or in urban spawl resulting from people trying to live as close as possible to their work. Other quasi-related industry also tend to spout up in the vicinity. The conceptual outline indicated in the southwest portion of the Master Plan is intended to show this area of future development which must be controlled by adequate planning.

3.3. ACCESSABILITY TO VARIOUS NATIONAL AND INTERNATIONAL TRANSPORTING SYSTEMS

3.3.1 GENERAL

The Proposed Export Processing Zone is bounded on the northwest by the Saigon River and on the west by a major highway that leads to all national and international transportation systems. The Saigon River is a deep water facility and a rail spur exists into the Saigon Port approximately 1/2 kilometer west of the Kinh Te Canal. An international airport is also located in the Saigon metropolitan area. Coordinations have taken place with various agencies concerning their plans for expansion of these transporting systems in the vicinity of the proposed Saigon Export Processing Zone Area.



**PROPOSED RECREATIONAL - RESTAURANT - FACILITY
LOT 62**



SEASONS :
DRY SEASON :
 FROM APRIL TO NOVEMBER
 PREVAILING WIND NORTH & EAST
WET SEASON :
 FROM MAY TO OCTOBER,
 HEAVY RAIN SEASON, FROM JUNE TO SEPTEMBER
 PREVAILING WIND WEST

- LEGEND :**
- EXISTING BUILDING TO REMAIN
 - NEW BUILDING
 - FUTURE BUILDING
 - LOT AREA NOT LEASABLE
 - 120 LEASABLE LOTS AND 113.57 HECTARES AREA
 - FORESTATION
 - 35 LOT NUMBER

3.3.2 HIGHWAY TRANSPORTATION SYSTEMS

A major highway, LTL-15, runs directly adjacent to the development and extends 1/2 kilometer from the Saigon metropolitan area east of the proposed EPZ and southward to Nha Be, a distance 7 kilometers. There is a major petroleum storage facility at Nha Be. This 7.5 meters wide asphalt road and shoulders along with three bridges are scheduled for a US\$500,000 rehabilitation within the next 12 months. Over half of the rehabilitation dollars will be spent on up-dating the bridges to the standard H20 design truck loading.

There is a highway loop master planned around the Saigon metropolitan area. The northern portion of this loop which was constructed by the U.S. military in prior years allows Route 1 to by-pass the city. This loop also includes QL-4 which provides a westerly boundary for Saigon and forms an approximate half circle of highway around the city. The remaining half circle is essentially bisected by LTL-15, some 4 kilometers south of the proposed Export Processing Zone. The south arc which will extend from LTL-15 to QL-4 is scheduled for route surveys and design in the near future. With the completion of this section, LTL-15 would become a major artery into the south portion of Saigon, would provide a direct southern route from the Saigon Port - EPZ area to all provinces of Vietnam and will tend to urbanize the southern area adjacent to the city.

It is clear that LTL-15, with the 25 to 40,000 workers to be employed at the proposed export processing zone and the expected increase in provincial truck traffic, will require a major road widening program to handle this flow. The Tan Thuan bridge that spans the Kinh Te Canal can also be expected to impede traffic into Saigon due to the present 8 meters width. It is recommended that this bridge and LTL-15 be widened (or replaced) to handle the anticipated increase in traffic. A second access into Saigon also exists from LTL-15, under the Tan Thuan bridge and along the east bank of the Kinh Te Canal. This road crosses the canal 4 kilometers up stream at the Y-bridge and provides a westerly access to the city.

There is no scheduled public transportation along these routes at present although there are frequent unscheduled 3-wheeled lambrettas and buses. Commuter traffic between the proposed EPZ and Saigon city is expected to be sufficient to justify a mass transportation system and a scheduled bus service is therefore recommended.

The proposed site has access to highways leading to all areas of Vietnam and is particularly suitable with proximity to other transportation modes such as oceanic, air and railroad facilities.

3.3.3 RAILROAD TRANSPORTATION

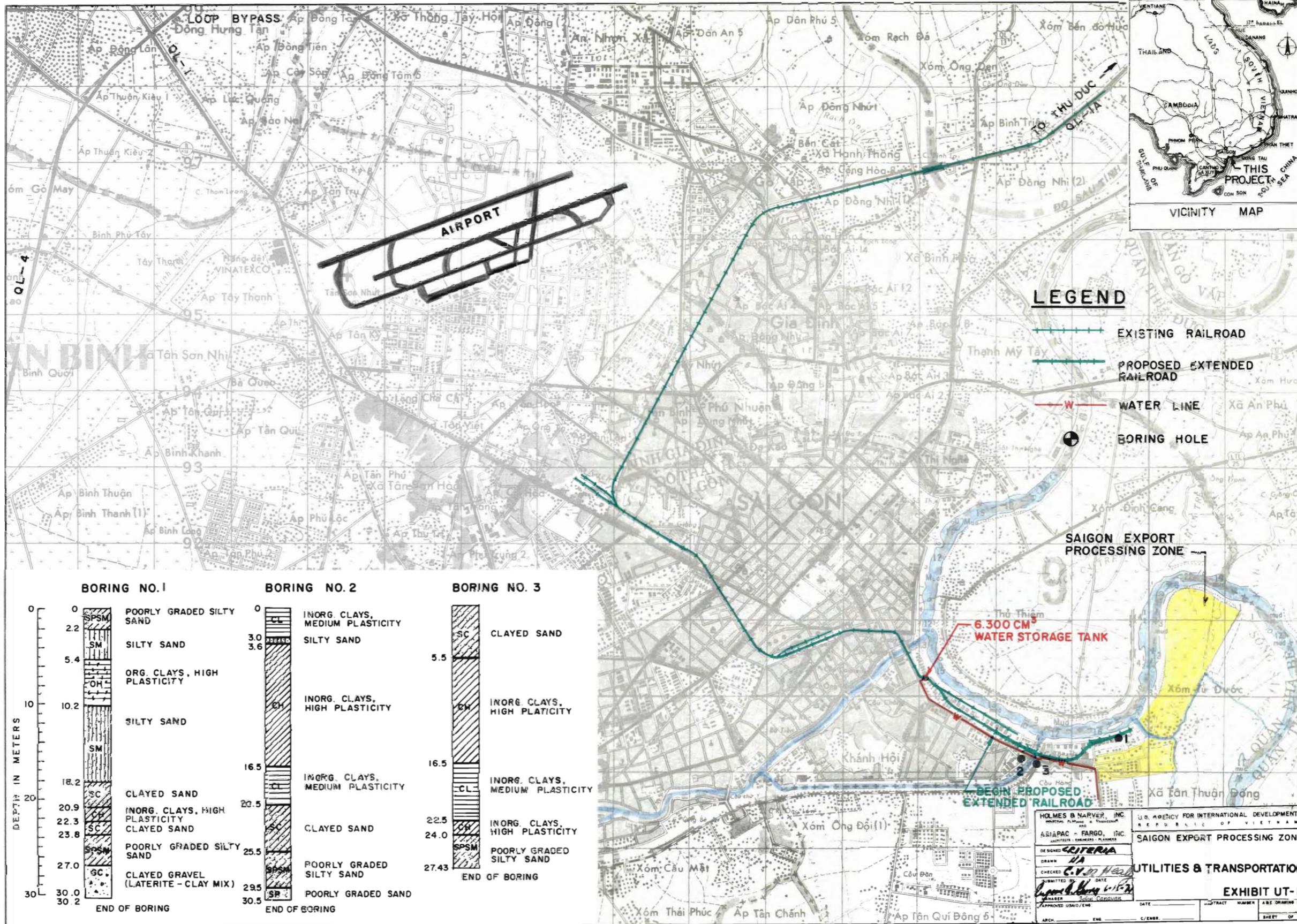
The Vietnam railroad was the primary method of transportation throughout the country up to the early 1960s. A relatively efficient system existed from Saigon along the east coast to Danang, Hue and the northern provinces prior to that time. The recent hostilities have caused major disruptions in the service and has had an extensive effect on the internal transportation network in Vietnam. The Government of Vietnam is rehabilitating this national railroad system on a first priority basis; funds for this purpose are limited and security is still a problem.

The national system extends into the heart of Saigon and now terminates at a spur track at the port section near Tran Van Du and Trinh Minh The Streets. (See Exhibit UT-1). A preponderant problem in extending the railroad deeper into the port area to the former Camp Davies installation is due to a major cost of a river crossing at the Kinh Te Canal and the necessary right-of-way acquisitions this would entail. Real estate value in this area is particularly costly ranging to 7,000 piastres per square meter in the high density section across from the port to 4,000 piastres for unimproved land adjacent to the proposed Export Processing Zone.

The first increment of expansion of this railroad is intended make more of the port area accessible to this nation wide transportation system. This extension will also provide the export processing zone with a means of receiving Vietnamese commerce. The Master Plan (Exhibit MP-1) reflects the desired railroad access into the port. The costs for the mainline rehabilitations along with the Kinh Te railroad bridge and extensions into the port area as follows:

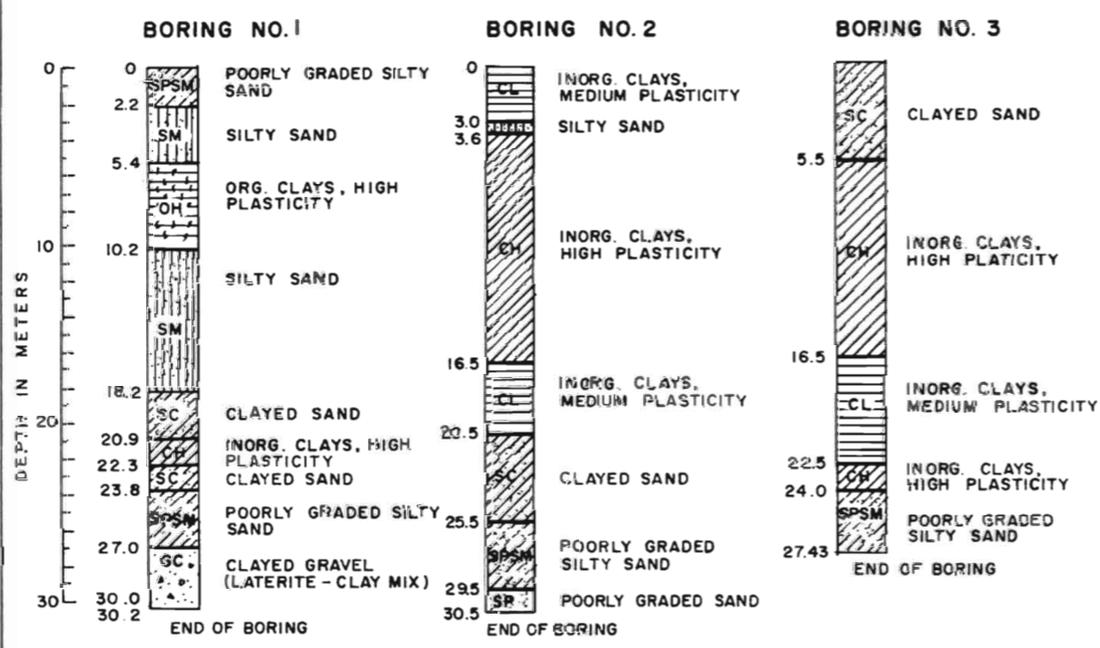
Rehabilitation and extension into port area VN\$5,600million

The Director of Railroads indicated that costs for mainline extensions are normally sponsored from the Vietnam railroad budget; however due to the higher priority rehabilitations required for other facilities throughout the country, no funds are available for this work. It is recommended that the Port Authority take action to have the Director of Railroads place a priority for constructing this extension into the port.



LEGEND

- EXISTING RAILROAD
- PROPOSED EXTENDED RAILROAD
- WATER LINE
- BORING HOLE



6,300 CM³ WATER STORAGE TANK

SAIGON EXPORT PROCESSING ZONE

BEGIN PROPOSED EXTENDED RAILROAD

HOLMES & NARVER, INC. ENGINEERS, ARCHITECTS & PLANNERS	U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT REPUBLIC OF VIETNAM
ASIA-PAC - FARGO, INC. ENGINEERS, ARCHITECTS & PLANNERS	SAIGON EXPORT PROCESSING ZONE
DESIGNED: CRITERIA	UTILITIES & TRANSPORTATION
DRAWN: HA	EXHIBIT UT-1
CHECKED: C.V. H. H.	
DATE: 1/15/68	
APPROVED: [Signature]	
DATE: _____	CONTRACT NUMBER & SHEET NUMBER
ARCH: _____	SHEET OF _____

A railhead adjacent to the proposed zone would be most helpful in bringing Vietnamese raw materials for processing and export to the world and local markets.

3.3.4 AIR TRANSPORTATION

The nearest commercial air terminal is at the Saigon Tan Son Nhut International Airport, a cross town distance of 8 kilometers. This airport is capable of handling the largest commercial aircraft in service today and therefore can be used for priority shipments.

3.3.5 OCEANIC TRANSPORTATION

The Saigon area ranks as the number one commercial port in Vietnam and can receive ships up to 20,000 tons. (In general the limitation is for a C-4 vessel with a 10 meter draft and 210 meters in length.) The Saigon River is punctuated with oceanic installations from the Newport depot which primarily handles military type cargo located on the north side of Saigon to Nha Be on the south. The Nha Be port, 7 kilometers from the proposed EPZ, is a petroleum off-loading and storage area. The Saigon Port has anchorages for 14 ships and berthing facilities also for a similar number. There are 4 docking spaces for coastal type vessels along the Saigon city side of the river for internal raw material and agricultural commerce.

Present port facilities in Saigon handle 200,000 tons per month of general type cargo and Nha Be off-loads some 200,000 tons of commercial petroleum products. The military handles a similar amount. The

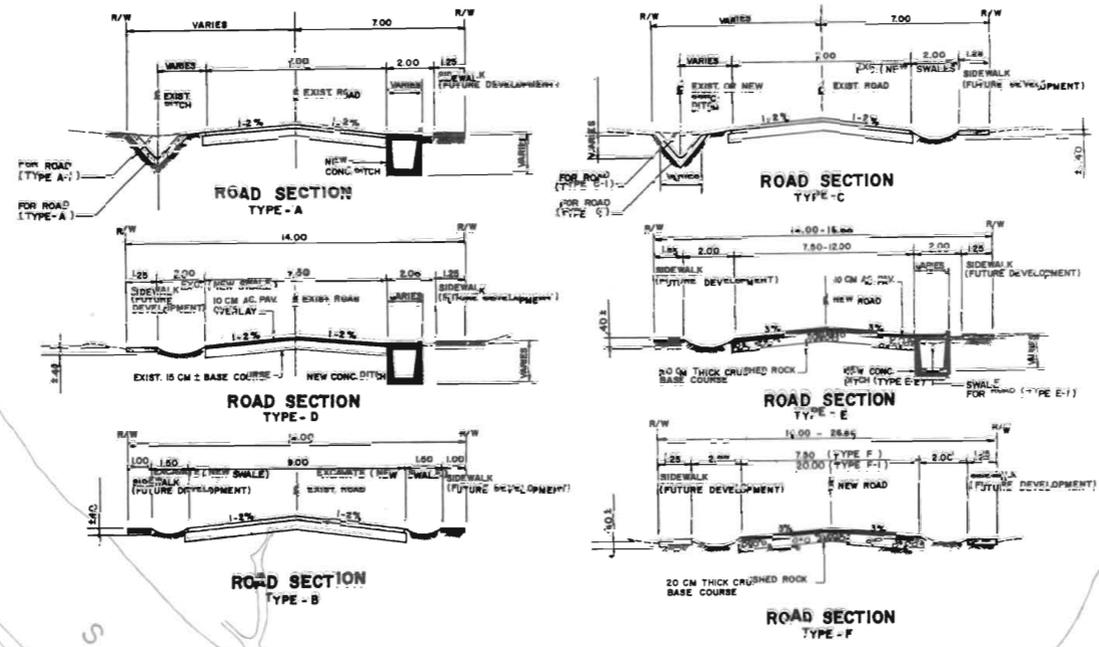
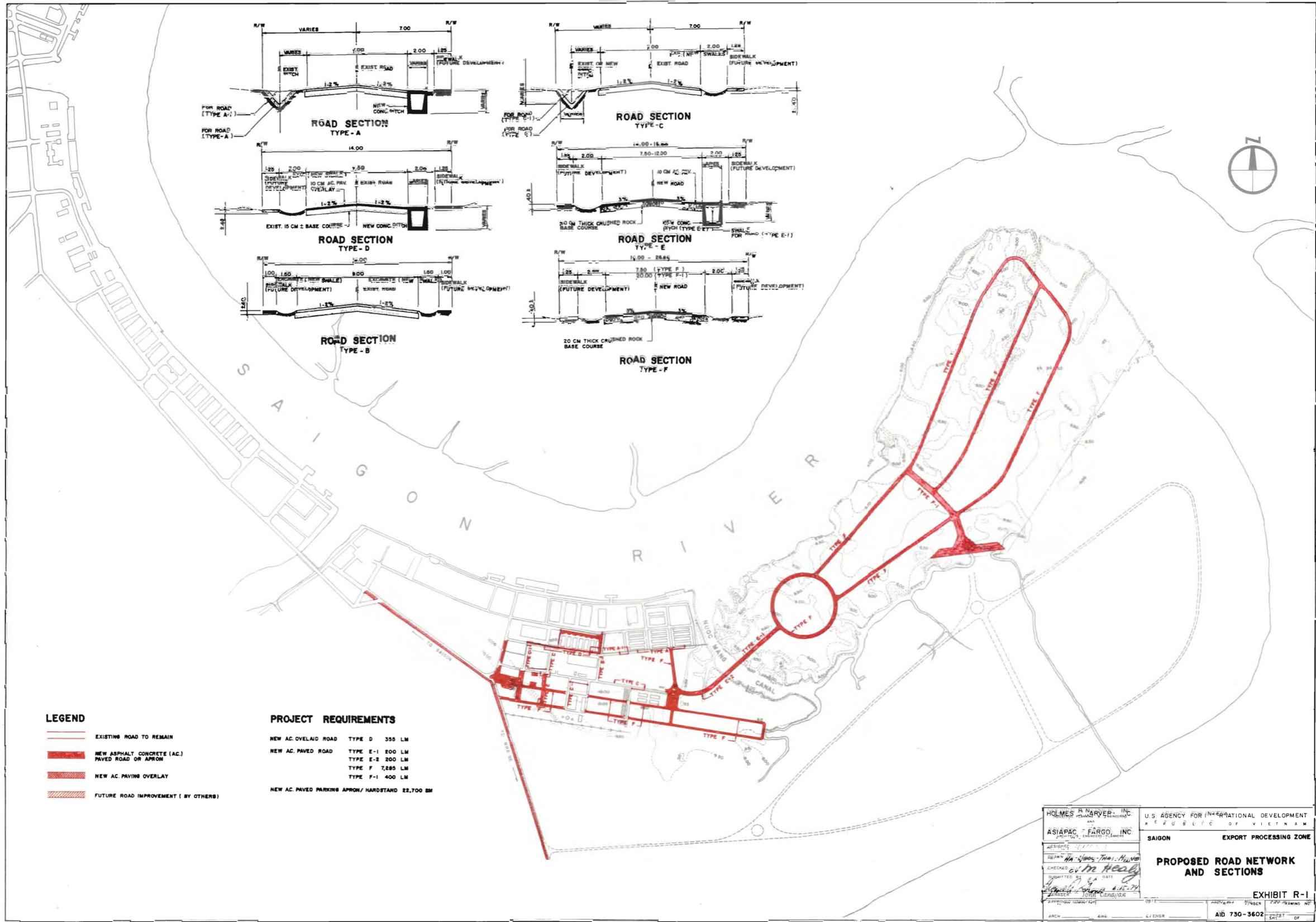
maximum general cargo transferred through Saigon was 320,000 tons in December 1969 and the port operations officer has indicated that 400,000 tons per month is entirely feasible.

The port authority is planning to construct two more piers in the locale of the proposed Export Processing Zone for the 200 container storage area presently available at that location. An additional space for 300 containers is being planned. This 500 containers port capability directly adjacent to the proposed EPZ does not include the Sealand facility across the Tan Thuan bridge which has a capability for storage of 350 containers. A 40 ton scale will also be included in the container port expansion plans.

The proximity of the container storage facility and a major port complex make the location of the proposed EPZ particularly advantageous. Export and import of goods can be handled most expeditiously from port to factory with haul distances of less than one kilometer from the proposed site.

3.3.6 PIPE LINES

There are no petroleum-oil-lubricant (POL) tanks or pipe lines of consequence in the area except those located at Nha Be some 7 kilometers away. With the accessibility to oceanic transportation however it is quite feasible to place an anchoring buoy off-loading capability for several conceivable liquid products that could receive value added processing in this free zone facility. Likewise liquid raw materials from Vietnam could be transported by similar means.



- LEGEND**
- EXISTING ROAD TO REMAIN
 - NEW ASPHALT CONCRETE (AC.) PAVED ROAD OR APRON
 - NEW AC. PAVING OVERLAY
 - FUTURE ROAD IMPROVEMENT (BY OTHERS)

PROJECT REQUIREMENTS

NEW AC. OVERLAID ROAD	TYPE D	355 LM
NEW AC. PAVED ROAD	TYPE E-1	800 LM
	TYPE E-2	200 LM
	TYPE F	7,885 LM
	TYPE F-1	400 LM
NEW AC. PAVED PARKING APRON/HARDSTAND		22,700 SM

HOLMES & ARNER, INC. ENGINEERS	U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT REPUBLIC OF VIETNAM		
ASIAPAC - FARGO, INC. ENGINEERS	SAIGON EXPORT PROCESSING ZONE		
DESIGNED BY: [Signature]	<p>PROPOSED ROAD NETWORK AND SECTIONS</p> <p>EXHIBIT R-1</p> <p>DATE: 8-15-74</p> <p>SCALE: AS SHOWN</p>		
CHECKED BY: [Signature]			
SUBMITTED BY: [Signature]			
APPROVED BY: [Signature]			
ARCH: [Blank]	DATE: [Blank]	NO. [Blank]	REV. [Blank]

3.4. IMPROVEMENTS TO INTERNAL ROAD NETWORK

3.4.1 PRESENT SITUATION

As discussed in Section 3.3.2, the road network external to the site is expected to result in a significant increase in traffic problems particularly leading into the port area and the city of Saigon. The single access to the port area and the export processing zone will result in major congestion at the intersection of highway LTL-15 unless corrected.

The existing road pattern is shown on Exhibit WES-1 and consists of a limited network primarily to serve the former Camp Davies area with access to the port. These asphaltic concrete roads are 7 to 8 meters in width and are in excellent condition. They were constructed under the auspices of the U.S. military, and are considered adequate for industrial use.

There are no existing roads in the 119 hectares area to be reclaimed for the overall 150 hectares proposed site.

3.4.2 PROPOSED IMPROVEMENTS

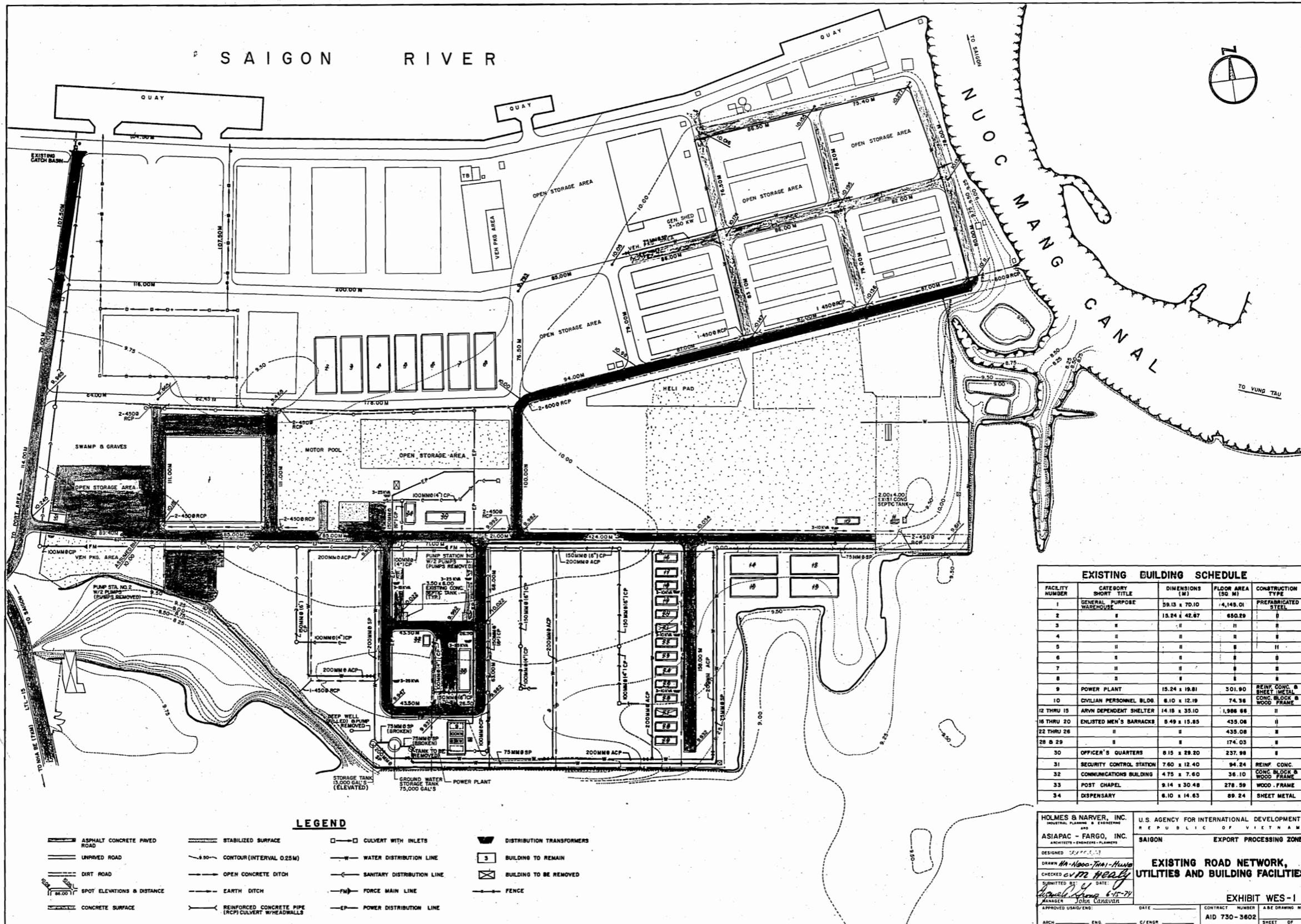
The existing road system of the Camp Davies facility has been integrated into the Master Plan (Exhibit MP-1) for the Export Processing Zone. The larger scale plan of Exhibit WES-2 is intended to show in detail a solution to the expected congestion from the highway into the port and EPZ area. Truck traffic which is expected to be the principal cause of this congestion is taken off of the road, into a paved open area from which disbursement to either the warehouse or factories can be

readily accomplished. The former gate house may serve as a temporary customs or port processing and inspection office for this two-way traffic which in turn will be directed either to the bonded warehouses for future disbursement of odd lot shipments to industry, to the plant itself in case of full shipments or to customs inspection of exports to the international market place.

Other traffic such as employees, smaller two wheel vehicles and pedestrians will be processed off the highway through two main inspection gates to an internal road transportation system without delays.

The road network indicated in the 30 hectare portion is designed for the small sized lots and higher density type manufacturing in this labor intensive facility. Secondary access to the port area is also provided at Gate 2 for direct oceanic import or export processing to the larger 119 hectare area if require in the future. The processing zone in this section requires crossing the Nuoc Mang Canal which is some 40 meters in width and a principal cost item for bridge construction.

One vehicular bridge of 12 meters in width to handle all port and internal commerce of the zone is planned into the proposed adjacent area. This entrance way leads to a looped road which has the flexibility of providing access for businesses of any size or shape. Secondary roads can be constructed as needed by the factories at little additional cost. A second entrance way is planned at the midway point in this looped network for ingress-egress to future developments and for a direct route to LTL-15 and the national road systems of Vietnam thus completely by-passing the anticipated congestion of this area.



EXISTING BUILDING SCHEDULE				
FACILITY NUMBER	CATEGORY SHORT TITLE	DIMENSIONS (M)	FLOOR AREA (SQ. M)	CONSTRUCTION TYPE
1	GENERAL PURPOSE WAREHOUSE	59.15 x 70.10	4,146.01	PREFABRICATED STEEL
2	"	15.24 x 42.87	650.29	"
3	"	"	"	"
4	"	"	"	"
5	"	"	"	"
6	"	"	"	"
7	"	"	"	"
8	"	"	"	"
9	POWER PLANT	15.24 x 19.81	301.90	REINF. CONC. & SHEET METAL
10	CIVILIAN PERSONNEL BLDG.	8.10 x 12.19	74.38	CONC. BLOCK & WOOD FRAME
12 THRU 15	ARVN DEPENDENT SHELTER	14.15 x 35.10	1,986.66	"
16 THRU 20	ENLISTED MEN'S BARRACKS	8.49 x 15.85	435.06	"
22 THRU 26	"	"	435.06	"
28 & 29	"	"	174.03	"
30	OFFICER'S QUARTERS	8.15 x 28.20	237.98	"
31	SECURITY CONTROL STATION	7.60 x 12.40	94.24	REINF. CONC.
32	COMMUNICATIONS BUILDING	4.75 x 7.60	36.10	CONC. BLOCK & WOOD FRAME
33	POST CHAPEL	9.14 x 30.48	278.99	WOOD FRAME
34	DISPENSARY	6.10 x 14.65	89.24	SHEET METAL

LEGEND

- ASPHALT CONCRETE PAVED ROAD
- UNPAVED ROAD
- DIRT ROAD
- SPOT ELEVATIONS & DISTANCE
- CONCRETE SURFACE
- STABILIZED SURFACE
- CONTOUR (INTERVAL 0.25M)
- OPEN CONCRETE DITCH
- EARTH DITCH
- REINFORCED CONCRETE PIPE (RCP) CULVERT WITH HEADWALLS
- CULVERT WITH INLETS
- WATER DISTRIBUTION LINE
- SANITARY DISTRIBUTION LINE
- FORCE MAIN LINE
- POWER DISTRIBUTION LINE
- DISTRIBUTION TRANSFORMERS
- BUILDING TO REMAIN
- BUILDING TO BE REMOVED
- FENCE

HOLMES & NARVER, INC.
INDUSTRIAL PLANNING & ENGINEERING
AND
ASIAPAC - FARGO, INC.
ARCHITECTS - ENGINEERS - PLANNERS

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT
REPUBLIC OF VIETNAM
SAIGON EXPORT PROCESSING ZONE

EXISTING ROAD NETWORK,
UTILITIES AND BUILDING FACILITIES

EXHIBIT WES-1

DESIGNED: [Signature]
DRAWN: [Signature]
CHECKED: [Signature]
SUBMITTED BY: [Signature]
MANAGER: [Signature]

APPROVED USAID/ENG: _____ DATE: _____ CONTRACT NUMBER: AID 730-3602 SHEET OF _____

3.5. IMPROVEMENTS TO TERRAIN FOR INDUSTRIAL PLANT LAYOUTS

3.5.1 PRESENT SITUATION

Approximately 20 hectares of the existing facility of Camp Davies is flat terrain having an elevation of 10 meters and requires no grading. The remaining 10 hectares that lies outside of the existing fence line is rice paddy land which is frequently inundated. This area requires approximately 1.0 meter of new fill. The terrain across the Nuoc Mang Canal is also delta rice farming land and has marsh areas in the north lower end. The ground is level and ranges from 8 to 9 meters in elevation with an average of approximately 8.50 meters. The 150 hectares of land mass included in this study was brought about basically from silt and other deposits once held in suspension by the Saigon River. Technically these deposits are inorganic clays of medium and high plasticity mixed with clayed sand. This material is quite treacherous for structural foundations and additional borings and soil analysis should be accomplished for all new building construction. These problems have been solved in the Saigon metropolitan area at reasonable costs. It is apparent that the Camp Davies has been filled slightly over one meter in depth and has resulted in a stable soils condition for single story warehouse type structures. There are no multi-story facilities existing in the former Davies compound; however with proper soils investigation and analysis there appears to be suitable sub-surface strata for two and three stories.

3.5.2 PROPOSED IMPROVEMENTS

The areas that are to be added to the former Camp Davies compound that will make up the new boundary of the initial construction phase in the EPZ are to be filled to the 10 meters elevation similar to the existing facility. These areas are immediately south of the new entrance and at the west end of the 30 hectares portion of the EPZ.

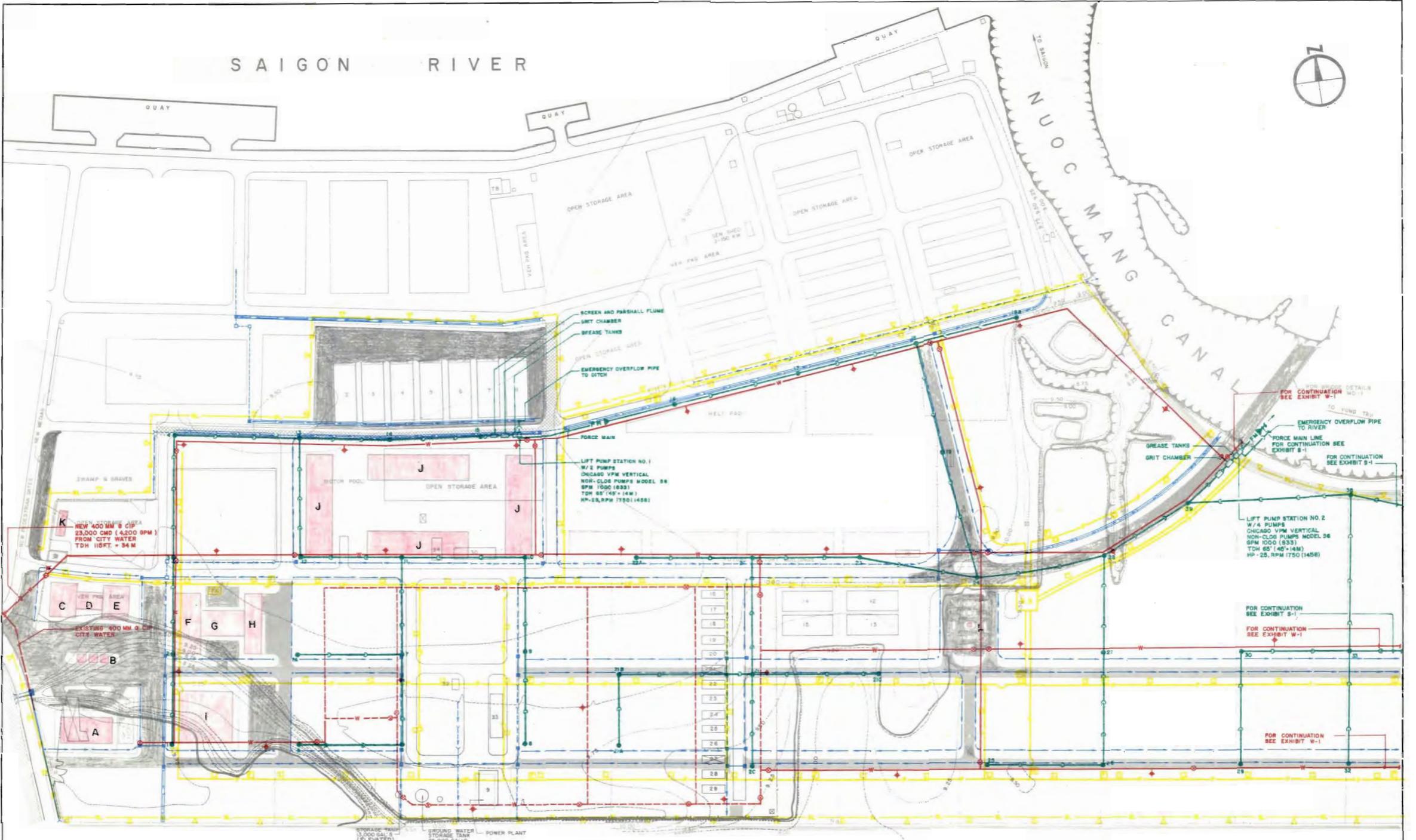
The expansion area consisting of some 119 hectares is also to receive select fill to a 10 meter elevation. The nearest source of this material is in the Nha Be River at the mouth of the Saigon River an over land haul distance of 10 kilometers or slightly less if the fill is barged in by river. The hydraulic fill material in the vicinity of the site is silty and unsatisfactory for foundations. Approximately 1.92 million cubic meters will be required for this land reclamation project. To fill and stabilize will take 2 years and cost approximately US\$2.5 million. The resulting land value however would be worth some US\$12 million and considerable more when basic infrastructure is added.

3.6. EROSION AND DRAINAGE CONTROL

3.6.1 PRESENT SITUATION

The Camp Davies area has good surface drainage as a result of extensive structures placed by the military in prior years. Concrete "V" type ditches are existing and direct surface water to the Saigon River or other drainage channels.

SAIGON RIVER



- EXISTING ROAD TO REMAIN
- NEW ASPHALT CONCRETE (AC) PAVED ROAD OR APRON
- NEW AC PAVING OVERLAY
- FUTURE ROAD IMPROVEMENT (BY OTHERS)

- EXISTING OPEN CONCRETE DITCH TO REMAIN
- NEW OPEN CONCRETE DITCH
- NEW COVERED CONCRETE DITCH
- NEW ROADSIDE SWALE
- EXIST REINFORCED CONCRETE (RC) PIPE CULVERT W/ HEADWALL & INLET TO REMAIN
- NEW RC PIPE CULVERT W/ DROP INLET & ENDWALL

- LEGEND**
- NEW WATER DISTRIBUTION SYSTEM
 - EXISTING WATER DISTRIBUTION TO REMAIN
 - NEW SANITARY DISTRIBUTION
 - OVERHEAD PRIMARY CONDUCTORS
 - UPGRADE PRIMARY DISTRIBUTION
 - 15 KV, 50 CYCLE AUTOMATIC LINE RECLOSERS

- 95 — NEW BRACING CONTOUR
- 2 — EXIST BUILDING TO REMAIN
- 1 — NEW BUILDING
- EXIST FENCE TO REMAIN
- NEW CONCRETE FENCE WITH BARBED WIRE
- DISTRIBUTION LINE SECTIONALIZERS

- SECURITY LIGHTS & CONDUCTORS
- FIRE ALARM STATION
- FIRE ALARM CENTRAL STATION
- STREET LIGHTS
- SWITCHING STATION

NOTE:
FOR BUILDINGS SCHEDULE SEE EXHIBIT LB-1

HOLMES & NARVER, INC. ENGINEERS, ARCHITECTS & SURVEYORS	U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT SAIGON
ASIA PAC - FARGO, INC. MANUFACTURERS ENGINEERS & ARCHITECTS	EXPORT PROCESSING ZONE
DESIGNED: [Signature]	PROPOSED ROAD NETWORK, UTILITIES AND BUILDINGS
DRAWN: [Signature]	
CHECKED: [Signature]	
APPROVED: [Signature]	
MANAGER: JOHN CARLISLE	EXHIBIT WES-2
ARCH: [Blank]	END: [Blank]
C/ENR: [Blank]	DATE: [Blank]
	NO. OF SHEETS: [Blank]
	SHEET NO. [Blank]

The Saigon River makes a bend in the vicinity of the Nuoc Mang Canal and considerable erosion has resulted at this point. The Nuoc Mang Canal has been widened as a result of the river trying to maintain a more direct route to the sea. The existing topography background shown in gray reflects this eroded land condition.

3.6.2 PROPOSED IMPROVEMENTS

Approximately one kilometer of shoreline in the second phase work will require major stabilization to prevent additional erosion. Beautification and realignment of the Nuoc Mang Canal is also anticipated. Minimal slopes will be maintained for land drainage purposes due to the large requirement for land fills. Culverts and swales along the road right-of-way have been placed in accordance with the Master Plan for new street and lot layouts. Roads can eventually be widened into this swale space and a storm sewer network placed in this area along with curbs and gutters. Costs prevent this being accomplished in the immediate construction phase. These structures are shown in Exhibit D-1.

Seeding, shrub plantings and other beautification measures used to control erosion will be incorporated into the landscaping design. Landscaping up-keep within proposed lot boundaries would be the responsibility of leasees while gardening of public areas would be accomplished by SEPZA maintenance crews.

3.7. WATER SUPPLY, STORAGE AND DISTRIBUTION SYSTEM

3.7.1 PRESENT SITUATION

Coordination with the Saigon Metropolitan Water Office (SMWO) indicate that construction is now underway to improve the entire city system^{1/}. A concrete water tank of 6300 cubic meters (1.7 million gallons) has recently been constructed at Trinh Minh The and Hoang Dieu Streets to insure adequate fire needs in the area. Two 500 cubic meter per hour pumps are also planned to bring the water pressure up to 5 kg/sq.cm (70 psi) at this point. A 600 mm (24") main is being placed along Trinh Minh The Street to the Tan Thuan bridge vicinity where it crosses the Kinh Te Canal at the reduced size of 450 mm (18").

^{1/} Saigon Water Supply Expansion (Wilson & Montgomery).

Once across the canal it is again reduced to 400 mm (16") and follows the south side highway LTL-15 past the entrance way of the proposed export processing zone to other parts of the city. A total dynamic head (TDH) of 3.5 kg/sq.cm (50 psi) and 23,000 cubic meters per day (CMD) or 4,200 gallons per minute (GPM) will be made available by SMWO for use by the EPZ.

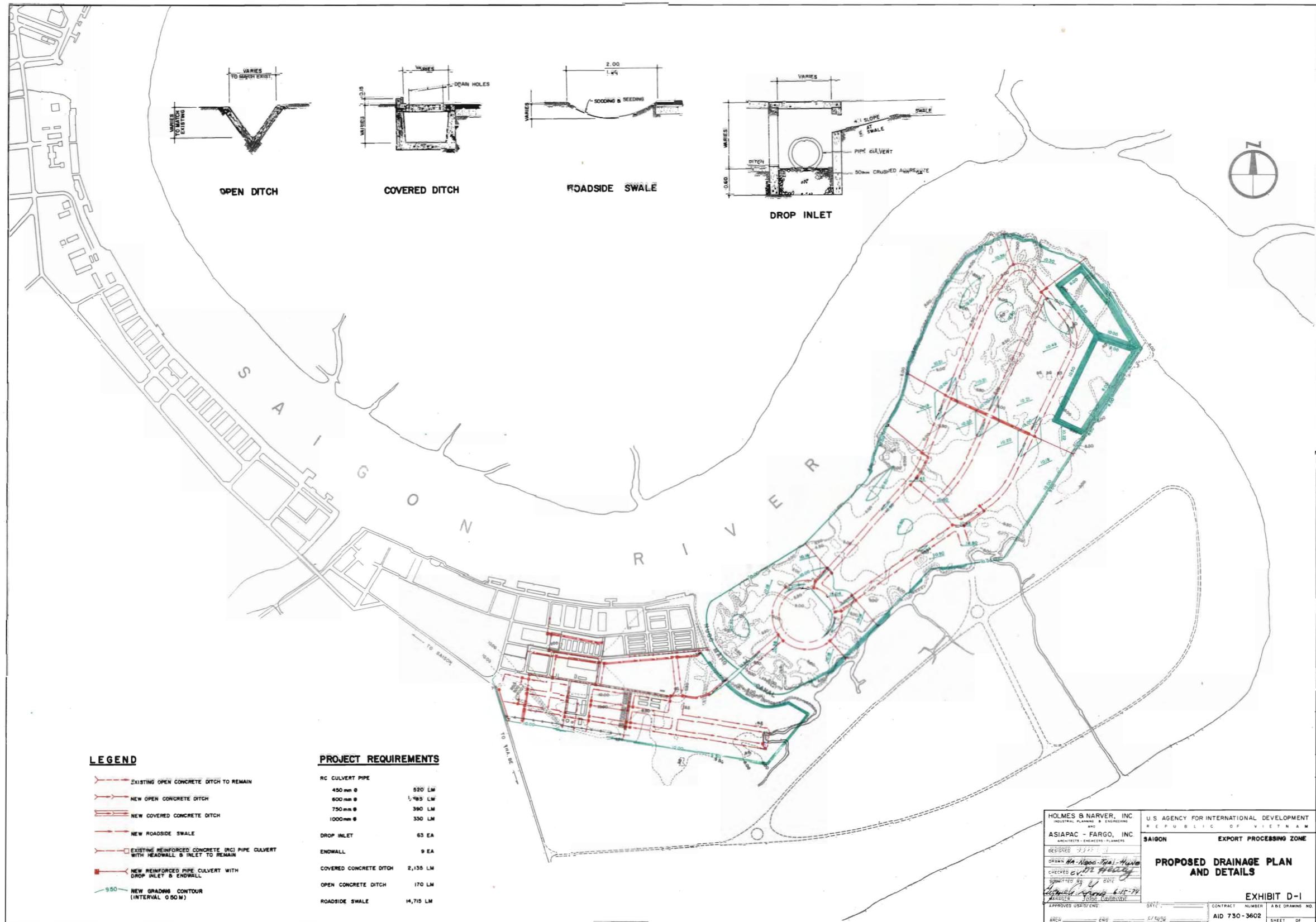
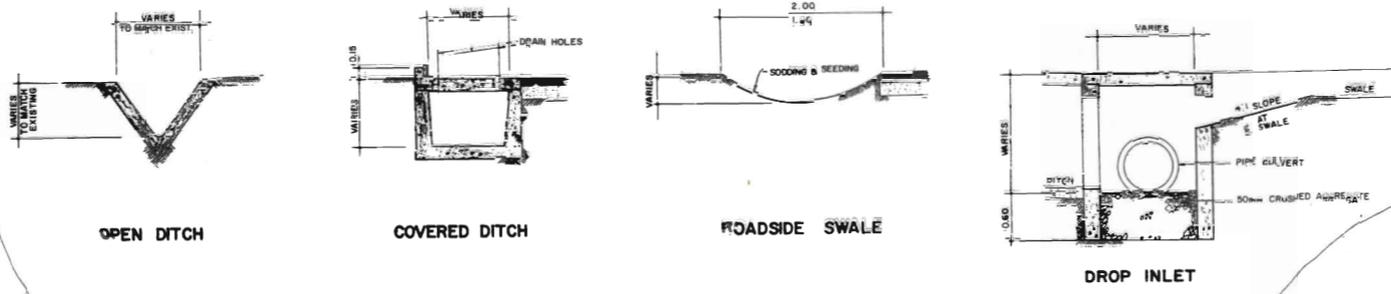
The city water supply, storage and distribution system presently under construction and outside of the site is considered sufficiently reliable to meet domestic, fire flow and industrial demands in the area immediately adjacent to the front portion of the site. An additional storage tank will serve for fire protection.

The only system existing in the proposed site is in the vicinity of the Camp Davies 30 meter high elevated water tank 50 CM (13,000 gallons) shown in Exhibit WES-1. The water source for this area was from a deep well adjacent to this tank which has since been abandoned and filled. A concrete ground level tank of 285 cubic meters capacity (75,000 gallons) was also a part of the existing system and will remain for possible tenant use. It is not necessary in the new infrastructure. There is little data available on the existing infrastructures pipe sizes and the information shown in Exhibit WES-1 was from field investigations. The only portion that appears adequate for industrial use in the 200 mm (8") looped system on the south side of the compound and this has been incorporated into the fire protection system. It is interesting to note that the present domestic source for the army security personnel that now guard the area is brought in by ship and water is pumped to storage through a 75 mm (3") steel pipe which appears to be the only distribution now in use.

3.7.2 PROPOSED IMPROVEMENTS

Prior reports^{2/} indicate that a population of 400 persons per hectare is satisfactory for planning infrastructure requirements in an Export Processing Zone. Assuming the overall water use to be 400 liters per day per person, 23,000 CMD would be required for industrial

^{2/} Holmes & Narver - Asiapac Fargo Inc. Long Binh Industrial Park Study (1973) Section 9.



LEGEND

- EXISTING OPEN CONCRETE DITCH TO REMAIN
- NEW OPEN CONCRETE DITCH
- NEW COVERED CONCRETE DITCH
- NEW ROADSIDE SWALE
- EXISTING REINFORCED CONCRETE (RC) PIPE CULVERT WITH HEADWALL & INLET TO REMAIN
- NEW REINFORCED PIPE CULVERT WITH DROP INLET & ENDWALL
- NEW GRADINGS CONTOUR (INTERVAL 0.50 M)

PROJECT REQUIREMENTS

RC CULVERT PIPE	
450 mm Ø	520 LM
600 mm Ø	1,785 LM
750 mm Ø	390 LM
1000 mm Ø	330 LM
DROP INLET 63 EA	
ENDWALL 9 EA	
COVERED CONCRETE DITCH 2,135 LM	
OPEN CONCRETE DITCH 170 LM	
ROADSIDE SWALE 14,715 LM	

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ASIAPAC - FARGO, INC ARCHITECTS - ENGINEERS - PLANNERS	SAIGON EXPORT PROCESSING ZONE
DESIGNED BY: <i>[Signature]</i>	<p align="center">PROPOSED DRAINAGE PLAN AND DETAILS</p> <p align="right">EXHIBIT D-1</p>
DRAWN BY: <i>[Signature]</i>	
CHECKED BY: <i>[Signature]</i>	
SUBMITTED BY: <i>[Signature]</i>	
APPROVED US/VI ENG: <i>[Signature]</i>	
ARCH: _____	CONTRACT NUMBER: AID 730-3602
ENG: <i>[Signature]</i>	SHEET: 01

use in the proposed facility. This equates to 950 cubic meters per hour (4,200 GPM) and may be considered slightly low in meeting fire flow demands for a principal business district ^{3/}. An additional water storage tank of 3,800 cubic meters capacity (1 million gallons) will be centrally located in the site. This will provide an additional 2,100 GPM for emergency needs and will furnish 6,300 GPM to meet all fire flow demands. (For a population of 40,000 persons, the recommended fire flow is on the order of 6,000 GPM.)

The Saigon Metropolitan Water Office has indicated that 23,000 CMD would be available to the industrial zone at the 400 mm (16") city water main at a total dynamic head of 35 meters (115 feet). A new 400 mm cast iron pipe will be connected to the city system and will convey water through the area to the main EPZ distribution system. It is anticipated that the city will increase the size of the line from the Tan Thuan bridge down to the industrial zone (and future development area) when the need becomes evident in later years. It is understood that an Australian Consulting Engineer team is presently studying future water needs in various areas of Saigon.

The water distribution system for the proposed facility is shown in Exhibit W-1 along with the pressure contours. Fire hydrants are placed such that each lot can receive maximum coverage. An auxiliary fire protection pumping system is planned at the center of the proposed Export Processing Zone to provide an additional 450 CMH (2,000 GPM) in the high density area of the facility. This system will increase water pressures in the entire area from 50 to 70 psi and can be used for periodic flushing of the sanitary system which has been placed at minimum slopes due to the flat terrain.

Individual fire flow requirements for this industrial facility are shown in Table 3-1.

TABLE 3-1					
		Unsprinklered		Sprinklered	
Area S.M. (To)	Height (6m or less)	Fire resistive Masonry and Heavy timber	Frame all metal	Fire resistive Masonry and Heavy timber	Frame all metal
1860	1 story	1000 GPM	1750 GPM	1000 GPM	1000 GPM
7440	2 story	1750 GPM	3000 GPM	1000 GPM	1750 GPM

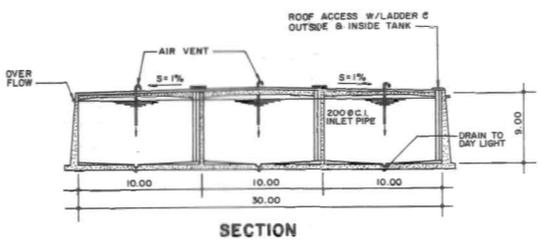
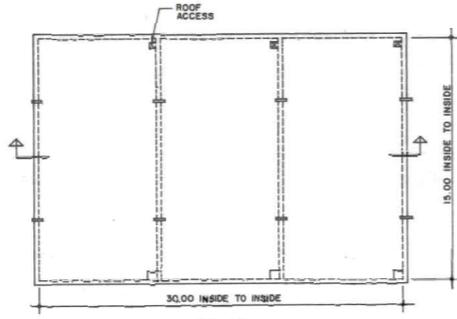
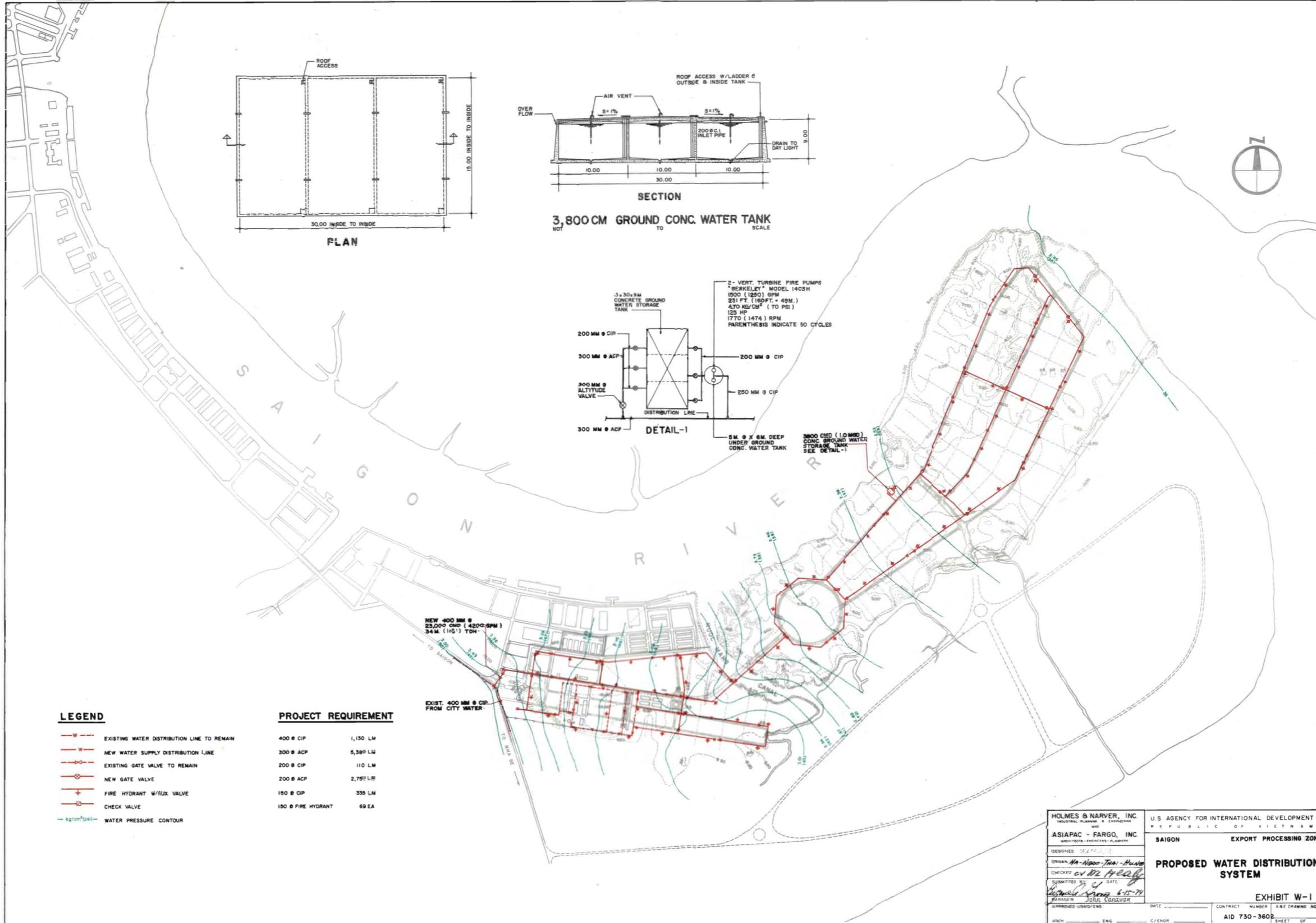
The maximum industrial water demand for any one facility is unknown; however criteria dictates that for the density expected in this Export Processing Zone, one hydrant should be sufficient to cover an average area of 0.65 hectares (1.6 acres). Lot sizes vary and an average parcel which is slightly less than one hectare (2.5 acres) can receive 1750 GPM in fire flow from the adjacent hydrant and distribution system. Likewise, industrial facilities with extensive water usage may require more than one water main connection. The 1750 GPM fire flow is adequate for all hose stream and sprinkler demands for single and multi-story fire resistive and metal frame construction. The 120 meters hydrant spacing will assure adequate area coverage.

The entire water distribution system furnishes 6,300 GPM of treated water from the City of Saigon for 10 hour fire flow coverage and is well within accepted criteria. This 113.57 hectare leasable area contemplates an employment figure of slightly more than 40,000 personnel.

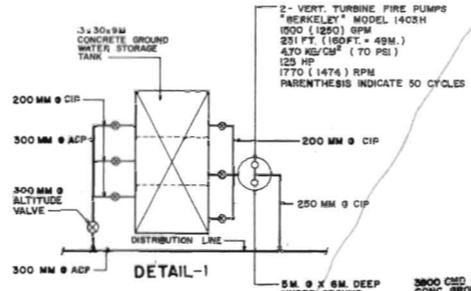
3.8. SANITARY TREATMENT FACILITIES AND COLLECTION SYSTEM

3.8.1 PRESENT SITUATION

The present sanitary collection system consists of a limited number of 100 and 150 mm (4" and 6") gravity mains that terminate at two lift stations, the locations of which are shown in Exhibit WES-1. A 100 mm (4") cast iron force main conveys this raw sewage to a manhole adjacent



3,800 CM GROUND CONC. WATER TANK
NOT TO SCALE



LEGEND

- EXISTING WATER DISTRIBUTION LINE TO REMAIN
- NEW WATER SUPPLY DISTRIBUTION LINE
- EXISTING GATE VALVE TO REMAIN
- NEW GATE VALVE
- FIRE HYDRANT W/FLUX VALVE
- CHECK VALVE
- WATER PRESSURE CONTOUR

PROJECT REQUIREMENT

400 Ø CIP	1,150 LM
300 Ø ACP	5,380 LM
200 Ø CIP	110 LM
200 Ø ACP	2,780 LM
150 Ø CIP	335 LM
150 Ø FIRE HYDRANT	69 EA

NEW 400 MM Ø
23,000 CMØ (4200-SPM)
34 M. (115') TDH

EXIST. 400 MM Ø CIP
FROM CITY WATER

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ASIAPAC - FARGO, INC. ARCHITECTS - ENGINEERS - PLANNERS	SAIGON EXPORT PROCESSING ZONE
DESIGNED: <i>[Signature]</i>	PROPOSED WATER DISTRIBUTION SYSTEM
CHECKED: <i>[Signature]</i>	
SUBMITTED: <i>[Signature]</i> DATE: <i>[Date]</i>	
APPROVED: <i>[Signature]</i>	
ARCH: _____ ENG: _____ C/ENGR: _____	EXHIBIT W-1 CONTRACT NUMBER: _____ SHEET DRAWING NO: _____ AID 730-3602 SHEET 04

to the port where it then flows by gravity to the open channel of the Saigon River. Minimal anaerobic decomposition is accomplished through septic tanks placed adjacent to separate toilet and shower buildings located in the center of sleeping huts. These huts are of wood frame structures and will be displaced with new construction of larger permanent type standard factory buildings.

All lift station pumps have been removed and much of the existing gravity system along with manholes are clogged with debris. The collection lines and lift station holding tanks are too small to be of use in this proposed EPZ and there is insufficient quantity existing to influence the new infrastructure design. Population and industrial sanitary loadings require much larger sizes than those presently available. The existing topography is relatively flat hence the requirement for the existing two lift stations in the 20 hectare compound at Camp Davies.

The new 119 hectare section consists mostly of rice paddy farm land which is also flat with elevations varying from 8 meters at the shoreline to 9 meters in the center of the site. Cross sectional details of existing and filled terrain are shown in Exhibit MD-1.

3.8.2 PROPOSED IMPROVEMENTS

3.8.2.1 GENERAL: The design for the proposed Export Processing Zone sanitary collection and wastewater treatment facility is based on two accepted criteria. The design sizing of the sewerage system is based on Portland Cement Association Manual C10-3 and the lagoon size for the wastewater treatment criteria is from ASCE Manual 36 Sewage Treatment Plant Design.

A review was made of the wastewater treatment concepts in a country known for its labor intensive industrialized environment. While the collection system was of standard criteria and design, there were no treatment facilities of any kind. Untreated wastewaters were being dumped directly into the bay and EPZ personnel were having considerable difficulty due to oceanic pollution and toxic substances in solution that were killing fish and other aquatic organisms. Apparently electroplating and metal finishing industrial wastes from primarily cyanide and chromium plating operations are the number one cause of this pollution. It is expected that initial reduction, ion-exchange and/or precipitation will be accomplished at the industry level for major polluting effluents; however, final dilution and additional oxidation can be accomplished by the use of stabilization ponds.

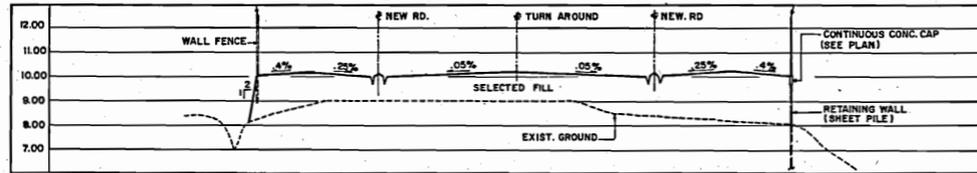
Consideration was also given to the discharge of sewage directly into the river as the City of Saigon now does. While there is some clear visual evidence of stream pollution, more accurate determinations became prohibitive due to the number of unknowns for a realistic analysis.

3.8.2.2 SANITARY COLLECTION SYSTEM: Individual industry wastewater discharge into the EPZ sanitary distribution system are not known at the present time; however, population densities have been based on similar labor intensive industrialized environments found in other countries. The size analysis of the sanitary sewer mains was made using conservative density population figures of 400 persons per hectare (160 persons per acre) and an average maximum rate of flow of 2.5 times the average, with a per capita demand of 400 liters (100 gallons) per person per day. The 113.4 hectare leasable complex would equate to a population of 45,360 personnel with the collection system sized for 113,400 for a full time use network common to a city of similar size. Since the proposed Export Processing Zone will utilize sanitary facilities only (without showers or laundry services) peak flows are expected to be minimal.

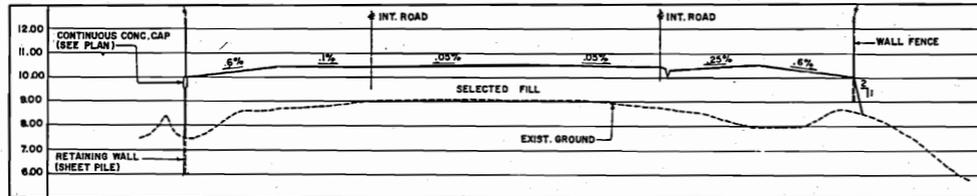
It is interesting to note that three Export Processing Zones in China and the first four export industrial estates in the Republic of Korea^{2/} have an average employee per hectare density figure of 410 persons per hectare. Both of these areas have labor intensive industrialized environments that would be similar to those proposed for the EPZ in Vietnam.

A problem area in the conceptual study of the sanitary collection system both in future design and construction is due to the flatness of the terrain. Fill needs in the reclaimed land area and the long runs to the treatment facility require minimal slopes for the sanitary lines. Two lift stations at a receiving depth 3 meters below grade are needed both in the former Camp Davies West of the Nuoc Mang Canal and in the 119 hectare reclaimed area. This sanitary collection system is shown in Exhibits WES-2 and S-1.

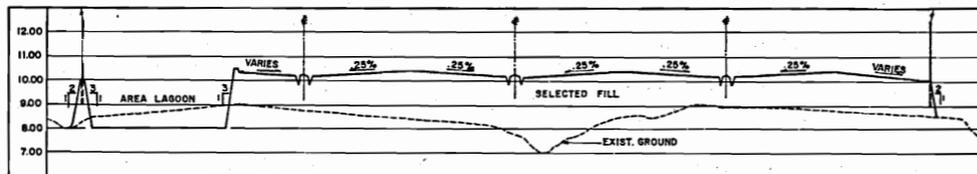
^{2/} Ibid.



SECTION "A"

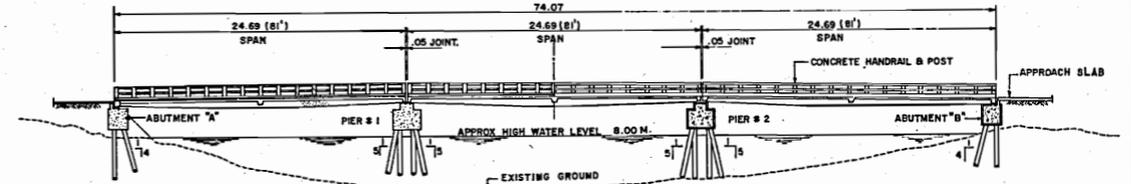


SECTION "B"

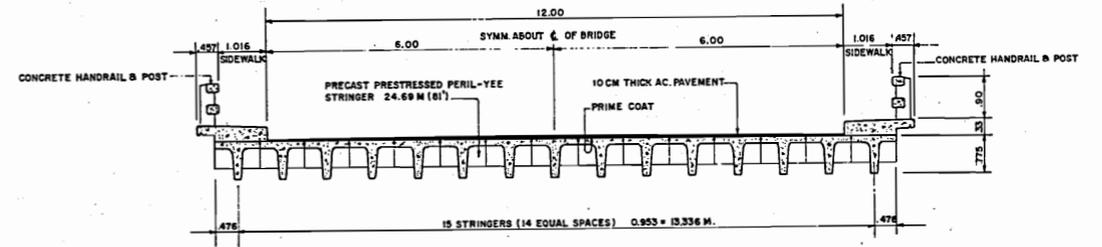


SECTION "C"

GRADING SECTIONS
SCALE HORZ. 1:2000 VERT. 1:100

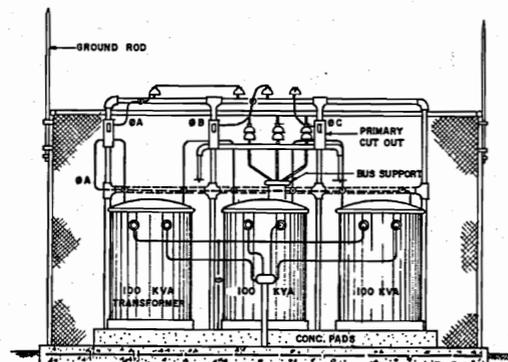


HALF LONGITUDINAL SECTION & ELEVATION
SCALE 1:200

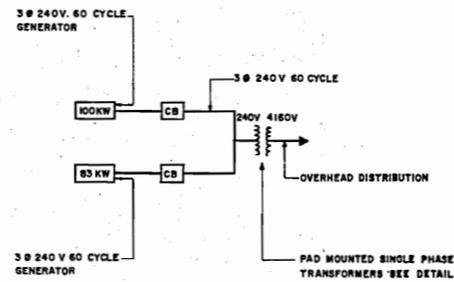


12 M BRIDGE CROSS SECTION AT CENTER SPAN
SCALE 1:50

12 M WIDE BRIDGE
SCALE AS SHOWN

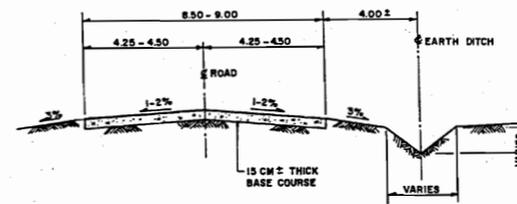


240V-4160V 60 CYCLE STEP UP DISTRIBUTION TRANSFORMERS & SWITCHING STATION

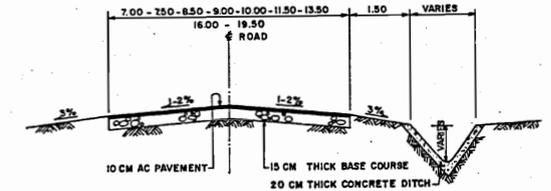


SINGLE LINE OF EXISTING OVERHEAD ELECTRICAL DISTRIBUTION SYSTEM

EXISTING ELECTRICAL DETAILS



ROAD SECTION TYPE "A"



ROAD SECTION TYPE "B"

EXISTING ROAD SECTIONS
NOT TO SCALE

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ASIA PAC FARGO, INC. ARCHITECTS-ENGINEERS-PLANNERS	SAIGON EXPORT PROCESSING ZONE
DESIGNED BY: <i>K.H.H.A.</i>	MISCELLANEOUS DETAILS
DRAWN BY: <i>M.H.</i>	
CHECKED BY: <i>P.H.H.G.</i>	
SUBMITTED BY: <i>P.H.H.G.</i> DATE: <i>6-15-74</i>	
APPROVED USAID/EMB: _____ DATE: _____	CONTRACT NUMBER: AID 730-3602
ARCH: _____ ENG: _____ C/ENGR: _____	SHEET OF: _____

EXHIBIT MD-1

Some additional comment may be desirable in justifying the assumed value of 400 persons per hectare figure. Of 1167 industrial districts surveyed ^{3/} for employee densities in the United States, 65 percent had less than 50 persons per hectare (20 persons per acre). This of course is in a capital intensive environment.

The following Table ^{4/} 3-2 reflects the types of industry as related to the land area per employee as a planning indicator:

TABLE 3-2

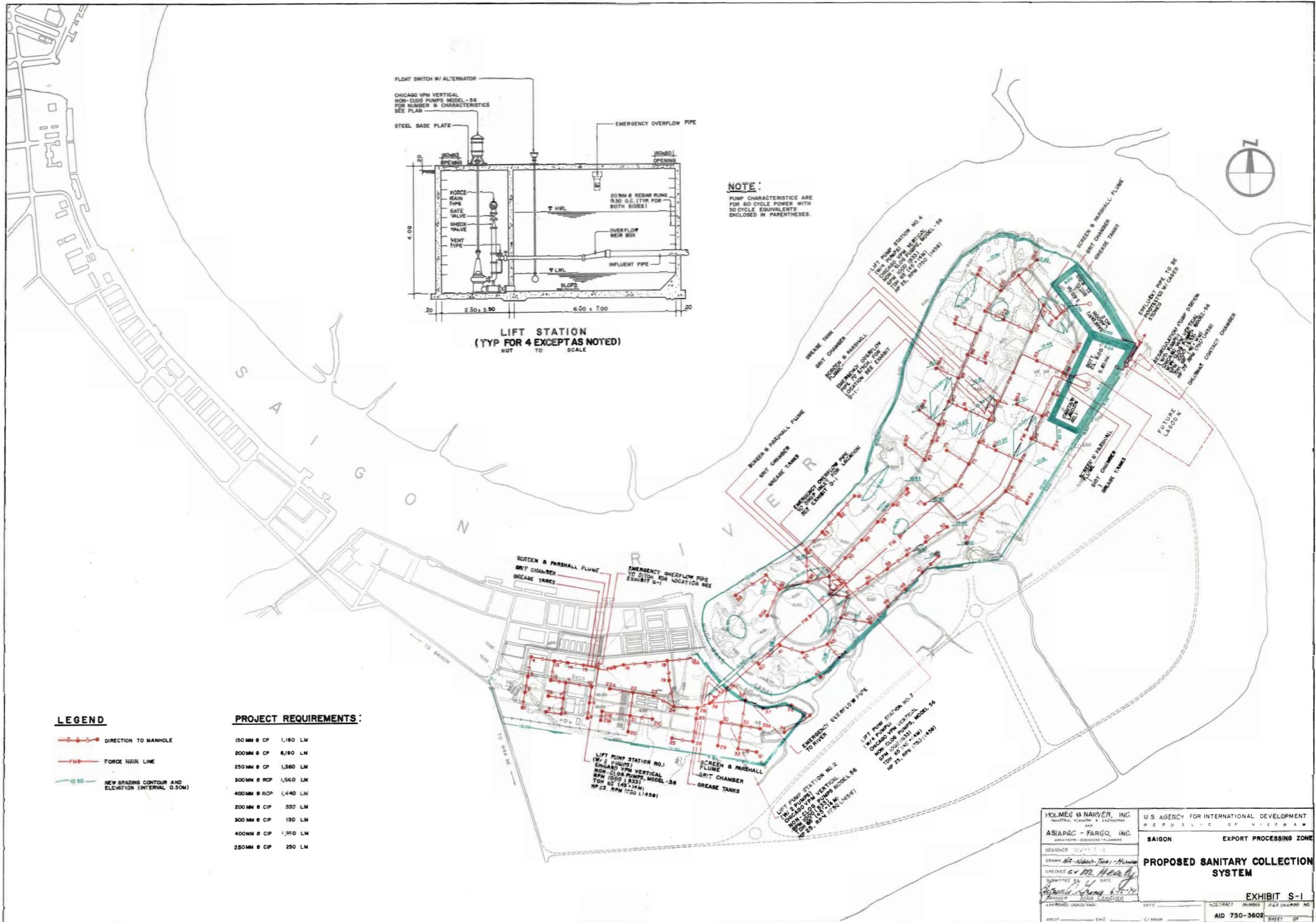
PER CAPITA EMPLOYEE TO TYPE OF INDUSTRY

Categories of Industry	Average S.M. per employee	Employee/hectare
Intensive: Printing, clothing	10 - 20	1,000 to 500
Shoes, rubber products, bicycles, car repair, paper and carton products, cigarets, bakeries, knitting.	20 - 50	500 to 200
Paint, drugs, plywood, cars metal constructions, textile, diary, brewery.	50 - 100	200 to 100
Fine-ceramics, timber products, soap, shipyards, canning, papermaking.	100 - 200	100 to 50
Average of above	71 s.m./person	* 140.8 persons/ha
Extension: Bricks, cement concrete products, fertilizers, basic metals, refineries, electricity.	200	50
Average of Intensive/Extensive	105 s.m./person	95.23 persons/ha

^{3/} Industrial Districts restudied ULI Bulletin 41, Page 47 Table 22.

^{4/} United Nations Asian Institute, Vol. I Development of Industrial Complexes and Estates Dice II 1.1 Page 5.

* In labor intensive industrial parks or export processing zone, the water consumption is considerably less than the 100 gallons per person used in capital intensive industry, generally around 60 gallons per person. Therefore, from an effluent distribution standpoint this figure would equate to 0.6 of the amount or 85.5 persons per hectare and less than that used in the preliminary sizing analysis.



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ASIADPC - FARGO, INC. ARCHITECTS - ENGINEERS - PLANNERS	SAIGON EXPORT PROCESSING ZONE
DESIGNED BY: [Signature]	PROPOSED SANITARY COLLECTION SYSTEM
DRAWN BY: [Signature]	
CHECKED BY: [Signature]	
APPROVED BY: [Signature]	
DATE: [Date]	EXHIBIT S-1
CONTRACT NUMBER: [Number]	AID 730-3602
SHEET: [Number]	SHEET: [Number]

An export processing zone would fall into the first two categories or between 200 and 1000 employees per hectare for the labor intensive facility. Generally a free processing zone of less than 50 hectares would have the larger 1000 persons per hectare while for zones 200 hectares or more the figure would decrease to 200 persons of less per hectare.

3.8.2.3 STABILIZATION LAGOON TREATMENT SYSTEM: A lagoon oxidation facility was selected for sewage treatment in this proposed Export Processing Zone for several reasons: 1) The Biochemical Oxygen Demand (BOD) requirements are expected to be low. There are no medium to heavy type industries contemplated such as breweries, canning companies or paper mills that would tend to burden the facilities. Domestic type sewage and effluents with some toxicity are envisaged. Also peak solids production and BOD can be more evenly regulated. 2) The lagoon will serve as a diluting tank where further oxidation of toxic elements such as cyanide can combine with free chlorine first to cyanate and then to complete destruction to sodium chloride, nitrogen and free carbon dioxide depending on the strength of the discharges. 3) Further precipitation, chemical treatment and ion-exchange is also possible and 4) the operation and maintenance is consistent with labor intensive methods of Vietnam. The Saigon River discharge to the sea also adds to the further dilution and oxidation of impurities from the proposed EPZ.

Discussions with personnel at Export Processing Zones in the Republic of China indicate that factories that produce a high BOD rate discharge are not allowed. Equivalent population requirements and other unknowns are reduced considerably in the more intensive labor environment of the EPZ.

In accordance with criterion set forth in the references of Section 3.8.2.1, a BOD loading factor of 280 kg/hectare (250 lbs/acre) per day is used to arrive at a total allowable lagoon capability of 2576 kilograms (5667 lbs) per day. Therefore the lagoon can serve:

$$\text{Equivalent population} = \frac{2576}{0.0226 *} = 113,980 \text{ persons}$$

A future lagoon area has been shown on the Master Plan for additional development on the Peninsula. The capacity of the proposed lagoons can also be increased by mechanical aeration if future population and industrial waste loadings are above those projected.

The following Table ^{5/} 3-3 are some types and characteristics of industrial wastes based on population equivalents per unit:

A brewery for example, producing 1000 barrels of beer per day would be equal in lagoon industrial waste loadings to 12,000 persons.

There is such a wide variation in the BOD for industrial waste products, from a population equivalent per unit 0.35 for the production of a case of beans to 1,500 for producing 455 kilograms (1,000 lbs) of wool dyeing and scouring that it would be mandatory to reduce high population equivalent BOD wastes by primary treatment prior to entrance into the distribution system. This would be regulated by SEPZA and should be the responsibility of the leaseholder.

* For factories exclusive of industrial and cafeteria wastes the 5-day BOD per person per day allowable is 0.0226 kg (0.05 lbs) as recommended by Smith and Loveless Engineering Data Section 1200 page 19. Assuming that 45,360 persons would be in the area, an equivalent population of 68,620 could be assigned to industrial and cafeteria wastes.

^{5/} Standard Handbook for Civil Engineers, Merritt, Table 22-12.

TABLE 3-3

CHARACTERISTICS OF INDUSTRIAL WASTES

Type of Waste	Unit	Volume, gal per unit	BOD, lb per unit	Suspended solids, lb per unit	Population equivalent per unit
Canning					
Corn products	Ton	12,000	19.5	30.0	186
Beans	Case No. 2 cans	35	200.0	60.0	0.35
Peaches	Ton	2,610	29.2	13.0	280
Tomatoes	Ton	227	8.4	2.9	82
Milk products					
General dairy	1,000 lb raw milk	340	570	540	10
Fermentation					
Brewing	1 barrel beer	204	1.2	0.6	12
Laundry	100 lb dry wash	400±	1,250±	500±	20 - 25
Roofing					
Paperboard	Ton	36,075	18.2	144.0	125
General slaughterhouse	1 animal	360	7.7	3.2	74
Paper mill					
Paperboard	Ton pulp	14,000	121	.....	84
Textile					
Cotton sizing	1,000 lb goods processed	60.0	.....	.....	2
Basic dyeing	1,000 lb goods processed	18,000	.....	.....	90
Rayon viscose	1,000 lb product	140	110	9.6	800
Wool dyeing and scouring	1,000 lb product	240,000	125	.....	1,500
Vegetable oils					
Acidulating waste ...	1 ton oil	385	1	0.5	10

3.9. POWER SUPPLY AND ELECTRICAL DISTRIBUTION

3.9.1 POWER SUPPLY

3.9.1.1 PRESENT SITUATION: The on-site electrical power source for the former U. S. military facility at Camp Davies originates in building 9 shown in Exhibit WES-1 from one General Motors 100 KW and one 83 KW, 60 cycle diesel generator . This building housed four 240 volt generators when utilized by U.S. forces. The output voltage is stepped up to 4,160 by means of three 167.5 KVA pad mounted transformers which are connected to an overhead system. After departure of the U.S. military in 1973, the Vietnamese military took charge of the operation and maintenance of this power plant where it is utilized for night security lighting.

At the present time the off-site generating capacity for the Saigon metropolitan area is 510 megawatts (MW) ^{6/} with a constant load availability of 358 MW. The demand peak load now for this 50 cycle system is 231 MW.

3.9.1.2 PROPOSED IMPROVEMENTS: Improvements of generating facilities for Saigon and the interconnecting power grid are under active consideration. One 125 MW unit at the Nha Be Thermal Plant (7 km South of the proposed EPZ) is scheduled for completion by 1976 with the second unit planned by 1977. The Danhim hydroelectric project extension is also expected to be completed in 1977 and will furnish and additional 106 megawatts. The Vietnam Power Company further states ^{6/} "Although the financing of these projects has not been concluded, many countries and overseas banking institutions have displayed interest in supporting them."

The 50 cycle system now prevailing in Vietnam will prevent any utilization of the present on site (Camp Davies) source. The expected power consumption of the proposed EPZ has been established at 20 MW and is based on an approximate usage of 140 KW per hectare. These figures conform to export processing zones utilizing labor intensive methods now active in the Republic of China.

^{6/} Vietnam Power Company 1973 Current Information.

3.9.2 POWER DISTRIBUTION

3.9.2.1 EXISTING SITUATION: The existing power distribution within the former Camp Davies facility is an overhead 4160 volt 3 wire 3 phase 60 cycle system carried on 12 meter creosoted poles. The system was installed in 1968 by the U.S. military which utilized minimal power requirements. The existing configuration is shown in Exhibit WES-1. Since the departure of U.S. forces, much of the system has been removed and the remaining distribution is badly in need of maintenance.

The Vietnam Power Company (VPC) is accelerating construction of transmission and distribution of systems exterior to the site. The present 250 MW system is being upgraded to a 350 MW level through a loan from the Asian Development Bank. Scheduled completion is year-end 1974. This will be followed by a second phase bringing the level up to 450 MW by 1976. A third phase for upgrading to a 750 MW level is presently under consideration. The VPC has commenced repairs to the Saigon - Danhim 230 KW transmission line which will make an additional 160 MW available by year-end 1974.

3.9.2.2 PROPOSED IMPROVEMENTS: Six 336.4 MCM aluminum steel reinforced overhead feeders originate at an open type switching station and extend throughout the proposed Export Processing Zone. This radial loop network which includes 11,000 meters of new distribution and approximately 1,000 meters of the upgraded system from the former Camp Davies compound, is shown in Exhibit E-1. The ground operated line sectionalizers are installed for alternate load routing with automatic reclosers to distinguish between temporary and permanent faults and to minimize the number and extent of outages. This system is capable of providing power to any location and can be readily expanded to meet future requirements by industry.

3.10 BUILDING INFRASTRUCTURE

3.10.1 PRESENT SITUATION

3.10.1.1 GENERAL: The buildings that presently populate the 20 hectare area of Camp Davies are generally of a temporary type although approximately 20 structures are of block construction with wood truss roofs and could be classified as semipermanent. The temporary buildings are standard military type quonsets or tropical huts which will be removed; they are not shown on the plans. Larger buildings such as the

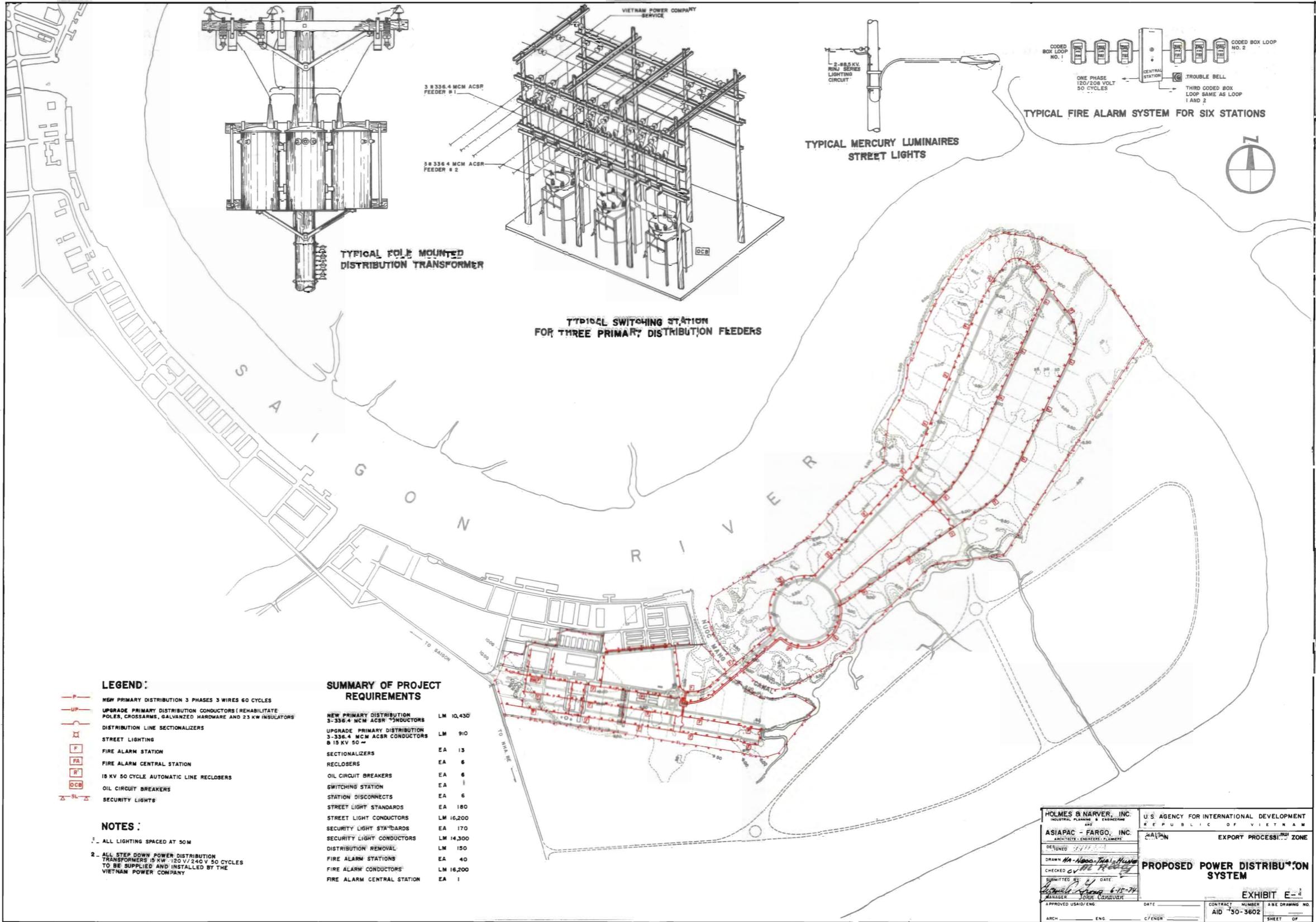
generator facility and the semipermanent structures will remain on a temporary basis until the area is fully absorbed. At that time, these units will be replaced by permanent concrete and block construction. The prefabricated steel warehouse structures of which there are eight will remain as long as they adequately serve the storage needs for import and export of raw and processed materials. It is suggested however that a sinking fund be set up to eventually replace these buildings.

All semipermanent or temporary type structures recommended for utilization in the initial development of the Export Processing Zone are shown in Exhibit WES-1.

3.10.1.2 TEMPORARY STRUCTURES: There are eight prefabricated steel warehouse type structures that are considered temporary facilities and will remain for use by the Export Processing Zone. These buildings (1 through 8) are located in Lots 2 and 10 as shown in the Master Plan, MP-1.

Three other temporary structures are also expected to remain during the transitory phase of the EPZ development. The existing Generator Building (9) has a reinforced concrete frame and is located in Lot 13. It is recommended that this structure be used by maintenance personnel for operational activities or equipment and for material storage while the area is being cleared. The wood frame building (33) that was formerly used as a Chapel in Lot 12 is recommended for rehabilitation and use by the SEPZA administrative component of the Export Processing Zone while the new permanent office facility is being constructed. The Quonset Building (34) in Lot 9 is recommended for use as a dispensary and health center while the construction is in progress. This would also fulfill the legal requirements for provision of medical facilities for organizations having more than 50 employees. This also will be replaced by permanent construction at a later date.

3.10.1.3 SEMIPERMANENT STRUCTURES: The concrete block and wooden roof type buildings have been generally classified as semipermanent structures. These single story buildings (10 through 32) are to remain in the Camp Davies area for use as required by manufacturers. They are to be removed when company facilities are constructed. The only exception to this will be the Gate House Building (31) which will be retained for use by security personnel. The open floor area in the buildings to be removed is less than 90 S.M. (1,000 S.F.) and while suitable for lighter cottage industry such as handicraft or clothing



- LEGEND:**
- NEW PRIMARY DISTRIBUTION 3 PHASES 3 WIRES 60 CYCLES
 - UPGRADE PRIMARY DISTRIBUTION CONDUCTORS (REHABILITATE POLES, CROSSARMS, GALVANIZED HARDWARE AND 23 KW INSULATORS)
 - DISTRIBUTION LINE SECTIONALIZERS
 - STREET LIGHTING
 - FIRE ALARM STATION
 - FIRE ALARM CENTRAL STATION
 - 15 KV 50 CYCLE AUTOMATIC LINE RECLOSERS
 - OIL CIRCUIT BREAKERS
 - SECURITY LIGHTS

- NOTES:**
1. ALL LIGHTING SPACED AT 50M
 2. ALL STEP DOWN POWER DISTRIBUTION TRANSFORMERS 15 KW - 120 V/240 V 50 CYCLES TO BE SUPPLIED AND INSTALLED BY THE VIETNAM POWER COMPANY

SUMMARY OF PROJECT REQUIREMENTS

NEW PRIMARY DISTRIBUTION 3-336.4 MCM ACSR CONDUCTORS	LM 10,430
UPGRADE PRIMARY DISTRIBUTION 3-336.4 MCM ACSR CONDUCTORS @ 15 KV 50	LM 910
SECTIONALIZERS	EA 13
RECLOSERS	EA 6
OIL CIRCUIT BREAKERS	EA 6
SWITCHING STATION	EA 1
STATION DISCONNECTS	EA 6
STREET LIGHT STANDARDS	EA 180
STREET LIGHT CONDUCTORS	LM 16,200
SECURITY LIGHT STANDARDS	EA 170
SECURITY LIGHT CONDUCTORS	LM 14,300
DISTRIBUTION REMOVAL	LM 150
FIRE ALARM STATIONS	EA 40
FIRE ALARM CONDUCTORS	LM 16,200
FIRE ALARM CENTRAL STATION	EA 1

HOLMES & NARVER, INC. INDUSTRIAL PLANNING & ENGINEERING	U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT REPUBLIC OF VIETNAM
ASIAPAC - FARGO, INC. ARCHITECTS - ENGINEERS - PLANNERS	EXPORT PROCESSING ZONE
DESIGNED BY: <i>[Signature]</i>	
DRAWN BY: <i>[Signature]</i>	
CHECKED BY: <i>[Signature]</i>	
SUBMITTED BY: <i>[Signature]</i> DATE: 6-15-74	
MANAGER: JOHN CALDWELL	
APPROVED USAID/ENG: _____ DATE: _____	CONTRACT NUMBER: AID 50-3602
ARCH: _____ ENG: _____ CIVIL/ENGR: _____	EXHIBIT E-1 SHEET OF _____

PROPOSED POWER DISTRIBUTION SYSTEM

manufacture, the land area is considered too valuable for this type of structure. The development plan is intended to reflect a more permanent facility, at least two story or more in height if the soil conditions permit.

3.10.2 BUILDING DEVELOPMENT PLAN

3.10.2.1 GENERAL: Beneficial use can be made of all structures left remaining and shown in grey in Exhibit WES-1. The structures indicated in black in Exhibit WES-2 are considered part of the building development plan although the Prefabricated Warehouses (1 through 8) will one day be replaced by permanent facilities. The overall building development plan is portrayed conceptually on the cover of this report. The Master Plan (Exhibit MP-1) defines this concept in additional detail. The building development plan is actually divided into the following four sections. 1) Existing facilities that will be utilized while the permanent buildings are being developed; 2) Permanent buildings required by the EPZ as part of the initial operational infrastructure; 3) Permanent buildings sponsored for construction by the EPZ but financed by other lending agencies; and 4) Permanent buildings sponsored by the manufacturer for their own use.

3.10.2.2 EXISTING FACILITIES DEVELOPMENT: In order to develop a building concept, the management and operational aspects of the Export Processing Zone should be considered. Four organizational divisions make up these EPZ functional requirements, and while there are some overlapping dominions, they include Administration, Support, Operations and Governmental Services. Typical examples of these services are listed under each of the following four divisions:

<u>Administrative</u>	<u>Support</u>	<u>Operations</u>	<u>Governmental</u>
Management Staff	Banking	Transportation	Customs
Industrial Relations	Communications	Storage	Permits
Investment	Power	Crating	Taxes
Trade	Water	Special handling	Post Office
Labor Affairs	Employment	Maintenance	Security
Finance	Health		
Engineering	Food		
Accounting	Supplies		
Personnel			

Basic startup activities are intended to include all functions to a limited degree and to utilize all existing temporary or semipermanent type structures where possible.

Building No. 1

This is a prefabricated steel structure 59 m x 70m with an approximate floor area of 4,145 S.M. (44,559 S.F.). It is recommended that this facility house all operations activities and the customs office.

Buildings 2 through 30

Warehouses 2 through 8 are prefabricated steel 15 m x 43 m. These seven buildings have a combined area of 4,550 S.M. (48,934 S.F.). It is recommended that they be used for light manufacturing initially. However, the uninsulated steel walls and roof would make working conditions uncomfortable. Rehabilitation of at least one of these building is recommended to provide immediate rentable factory space. These buildings could be utilized by the operations activities at later date. Building 9 is recommended for use by maintenance; buildings 10 through 30 can house support functions and governmental services. Support functions would also include light manufacturing businesses.

Buildings 31 and 32

Building 31 could be used by security personnel as well as a gate house. Building 32 is recommended for a communications center and post facility.

Buildings 33 and 34

Building 33 would have sufficient space for all administrative activities; Building 34 would be the Health Center.

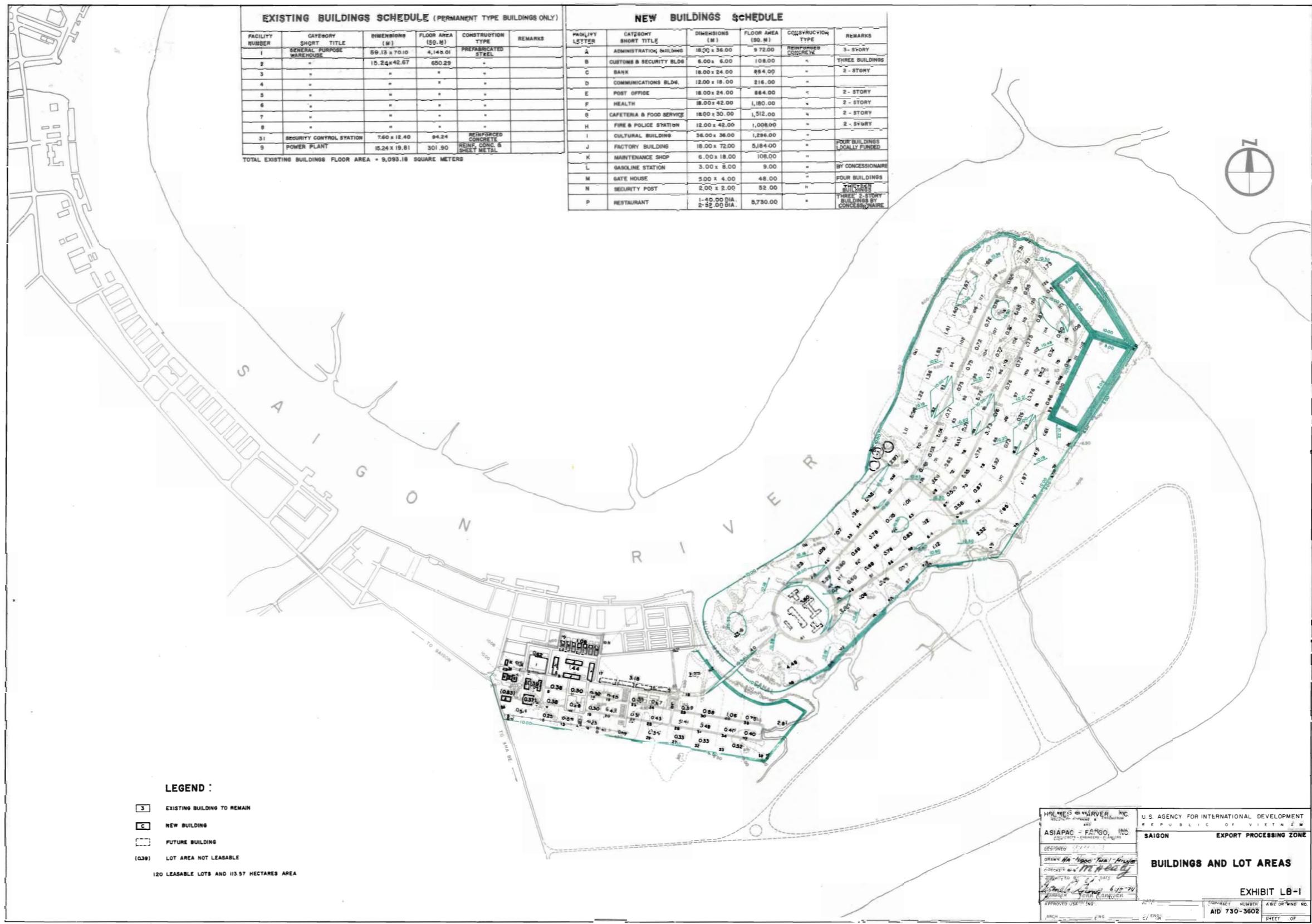
Summary :

Immediate occupation of the former Camp Davies area can be accomplished on a temporary basis by rehabilitating existing structures.

It would be highly desirable to initiate construction on at least one standard type industrial building in the startup phase of this EPZ development. Financing for this structure may be accomplished through

EXISTING BUILDINGS SCHEDULE (PERMANENT TYPE BUILDINGS ONLY)					
FACILITY NUMBER	CATEGORY SHORT TITLE	DIMENSIONS (M)	FLOOR AREA (SQ. M)	CONSTRUCTION TYPE	REMARKS
1	GENERAL PURPOSE WAREHOUSE	59.13 x 70.10	4,148.01	PREFABRICATED STEEL	
2	"	15.24 x 42.67	650.29	"	
3	"	"	"	"	
4	"	"	"	"	
5	"	"	"	"	
6	"	"	"	"	
7	"	"	"	"	
8	"	"	"	"	
31	SECURITY CONTROL STATION	7.60 x 12.40	94.24	REINFORCED CONCRETE	
9	POWER PLANT	15.24 x 19.81	301.90	REINFORCED CONCRETE & SHEET METAL	
TOTAL EXISTING BUILDINGS FLOOR AREA = 9,093.18 SQUARE METERS					

NEW BUILDINGS SCHEDULE					
FACILITY LETTER	CATEGORY SHORT TITLE	DIMENSIONS (M)	FLOOR AREA (SQ. M)	CONSTRUCTION TYPE	REMARKS
A	ADMINISTRATIVE BUILDING	18.00 x 36.00	648.00	REINFORCED CONCRETE	
B	CUSTOMS & SECURITY BLDG	6.00 x 6.00	36.00	"	THREE BUILDINGS
C	BANK	18.00 x 24.00	432.00	"	2 - STORY
D	COMMUNICATIONS BLDG.	12.00 x 18.00	216.00	"	
E	POST OFFICE	18.00 x 24.00	432.00	"	2 - STORY
F	HEALTH	18.00 x 42.00	756.00	"	
G	CAFETERIA & FOOD SERVICE	18.00 x 30.00	540.00	"	2 - STORY
H	FIRE & POLICE STATION	12.00 x 42.00	504.00	"	2 - STORY
I	CULTURAL BUILDING	36.00 x 36.00	1,296.00	"	
J	FACTORY BUILDING	18.00 x 72.00	1,296.00	"	FOUR BUILDINGS LOCALLY FINISHED
K	MAINTENANCE SHOP	6.00 x 18.00	108.00	"	
L	GASOLINE STATION	3.00 x 8.00	24.00	"	BY CONCESSIONAIRE
M	GATE HOUSE	5.00 x 4.00	20.00	"	FOUR BUILDINGS
N	SECURITY POST	2.00 x 2.00	4.00	"	THIRTEEN BUILDINGS BY CONCESSIONAIRE
P	RESTAURANT	1-40.00 DIA. 2-32.00 DIA.	5,730.00	"	THREE 2-STORY BUILDINGS BY CONCESSIONAIRE



LEGEND :

- 3 EXISTING BUILDING TO REMAIN
- E NEW BUILDING
- F FUTURE BUILDING
- (Q39) LOT AREA NOT LEASABLE

120 LEASABLE LOTS AND 115.57 HECTARES AREA

HOLMES & ARNER, INC. ARCHITECTS	U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT REPUBLIC OF VIETNAM
ASIAPAC - FARGO, INC. ENGINEERS	SAIGON EXPORT PROCESSING ZONE
DESIGNED BY: [Signature]	BUILDINGS AND LOT AREAS
DRAWN BY: [Signature]	EXHIBIT LB-1
CHECKED BY: [Signature]	CONTRACT NUMBER: AID 730-3602
APPROVED BY: [Signature]	SHEET OF: []

one of the local banking institutions. There are no existing buildings that are considered desirable for rehabilitation by manufacturers who generally utilize facilities provided within an Export Processing Zone except for the existing warehouse structures. It is recommended that construction loans be processed to build one standard structure for sale or long term lease as early as possible. Permanent construction can be initiated as needed and based on absorption by industry.

3.10.2.3 PERMANENT BUILDINGS (INFRASTRUCTURE)

3.10.2.3.1 General: Buildings to be constructed as a part of the basic EPZ infrastructure are shown in Exhibit LB-1. Also included in this exhibit are lot numbers and areas. Structures shown in this schedule, with the exception of the standard factory buildings, have been included as a part of the basic infrastructure development costs and can be found in Section 4 of this report. These buildings are intended to house all EPZ activities listed in Section 3.10.2.2.

3.10.2.3.2 Administration Building: This administrative facility is located at the entrance to the EPZ to handle all normal administrative functions. This location outside of the secured area allows free access to obtain security passes, process paperwork and to make inquiries prior to entering the restricted area of the Export Processing Zone.

3.10.2.3.3 Bank, Communications, and Post Office: Directly across from the Administration Building and also outside of the secured area are the support activities of Banking, Communications and the Post Office. Additional governmental services or administrative offices could be located on the second floor of this building. Foreign exchange and other financial matters are readily accomplished at this banking location.

3.10.2.3.4 Customs and Security Building: All truck traffic and vehicles other than motor scooters will be checked into the EPZ through the entrance gate, Customs and Security Building (B). This facility will have a drive-in window where passes, bills of lading or other papers can be reviewed with minimal delay.

3.10.2.3.5 Health, Food Service, Fire and Police Station: These facilities will be located in Lot 3. The combined Health Center and Dispensary will replace the legal obligation by industry for medical facilities at each factory. Construction and operational costs can be

amortized by charging a small fee to industry for pre-employment physicals and other medical benefits. The Cafeteria and Food Service Center will serve the former Camp Davies area personnel. An Emergency Center will include; fire and police services, ambulance service for the health center and industry, and will have the capability of meeting any crisis within the EPZ secured area.

3.10.2.3.6 Motor Pool - Maintenance Shop: This facility will be situated directly behind the bank building and will be used for periodic vehicular maintenances and a parking area for EPZ owned conveyances.

3.10.2.3.7 Cultural Building: The Cultural Center will be a multi-use facility for meetings, exhibits, sports and other activities related to entertainment, business and recreation. This facility is planned for Lot 4.

3.10.2.3.8 Park, Restaurant and Recreational Area: This facility is situated in Lot 62 which will be outside of the secured area and will have access from ferries and small boats approaching from the Saigon River. Industrial commodities may also be exhibited at this location. Traffic will be solely pedestrian within this 2.87 hectare (7 acre) recreational park with boating activities available along the river. The artistic type restaurant, park, picnic area and swimming facility will be constructed and operated on a concession long-term lease basis.

3.10.2.3.9 Gasoline Station - Garage: A self-service type gasoline station will be situated between Lots 24 and 29 and will also be concession built and operated. A larger gas station and garage facility is anticipated at the centralized accessway near Lots 58 and 65 in the future years when development of the outside half of the peninsula is undertaken.

3.10.2.3.10 Gate Houses and Security Posts: New Gate Houses are planned at the pedestrian access at Lot 5 and the future port entrance at Lots 17 and 18. Buildings 31 will be rehabilitated and utilized as a Gate House at Lot 1. Elevated security posts will be placed within sight distances along the walled perimeter of the EPZ.

3.10.2.3.11 Other Buildings: There is sufficient flexibility in the Master Plan to allow for construction of other specialized buildings; not necessarily within the limits of the Export Processing Zone. One consideration for future development would be a girl's dormitory.



MAIN ENTRANCE

3.10.2.4 PERMANENT BUILDINGS (SPONSORED): Standard factory buildings are planned for Lots 9, 17, and 18. Four buildings (J) 18 m x 72 m will be constructed in Lot 9 as soon as the demand exists and financing can be arranged. Presently, the EPZs in Taiwan, require the customer to pay 30% of the initial construction cost with the balance financed by a local bank over a 10-year period at a nominal rate of interest. The building space is then owned by the industrialist although he continues to pay for leasing the land. It is doubtful that bonafide manufacturing firms would settle in the Saigon Port EPZ unless they could purchase suitable facilities or construct their own.

3.10.2.5 PERMANENT BUILDINGS (CONSTRUCTED BY OWNERS): It is virtually impossible to list the many variations of industrial buildings that could be constructed in the area designated for the Export Processing Zone. An attempt has been made to depict some of these various concepts on the cover of this report. This report anticipates functional structures of a permanent nature that will be architecturally pleasing and structurally sound. It is important that firm controls be maintained in regard to the type industry that will populate the zone from a standpoint of environment impact; and equally important, that suitable working conditions are maintained for the plant employees.

3.11 NATIONAL AND INTERNATIONAL COMMUNICATION SYSTEMS

3.11.1 PRESENT SITUATION

The former Camp Davies telephone system has been removed, however a trunk line still remains. Discussions with personnel ^{7/} indicated that this trunk line could be utilized for the new Export Processing Zone.

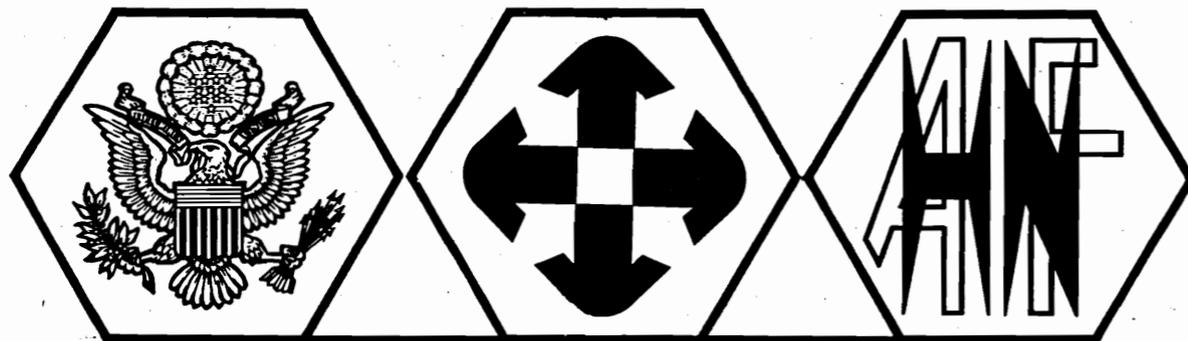
There are 43,000 local exchange dial telephone circuits in the City of Saigon. Adequate circuits could be made available to industries locating at the EPZ in a very short time.

There is an existing troposcatter radio communications systems from Saigon to Danang and to the Cam Ranh Bay - Nha Trang area. All overseas telex communications in Vietnam are routed through Saigon and RCA has a global outlet presently in operation that connects to most major cities throughout the world. An adequate network is therefore available for initial development but requires extension from the City exchange to the EPZ and Saigon Port area.

3.11.2 FUTURE IMPROVEMENTS

Discussions with the newly organized Vietnam Telecommunications Authority (VTA) indicate they intend to provide the Export Processing Zone with national and international communications services as soon as the need justifies the expansion. Space exists for an international telex service facility for direct worldwide communications required by industry. It is recommended that planning be initiated immediately for additional telephone service connection into this worldwide telex network.

^{7/} USAID Telecom Department and Vietnam Telecommunications Authority (VTA).



4. ESTIMATE OF DESIGN AND CONSTRUCTION COSTS

4.1 GENERAL

Costs for this 113 hectare leasable Export Processing Zone are formulated in the following section. This cost breakdown anticipates an accelerated concept over a 30 month period. Approximately 24 months of this construction period is necessary for the one and a half meters of fill in the reclaimed land portion of this development. It has been assumed in this estimate that the engineering and construction work will proceed without undue delay. For delays in excess of 12 months, add an approximate escalation factor of at least 10% per annum.

4.1.1 OFF-SITE FACILITIES COSTS

The costs for development off-site facilities such as the railroad extension into the port area are not included in this section. Some of the costs may be found in other portions of the report. A major off-site cost item that is considered essential to the development of the Export Processing Zone is the widening of LTL-15 and the Tan Thuan Bridge. This estimate has not been made. It would be highly desirable to include this work in the south loop road expansion as discussed in Section 3.3.2.

4.1.2 LOCAL PIASTRE COSTS

Piastre costs are for the estimated funding needed for labor, locally procured materials and equipment rentals. Table 4-1 shows the estimated design and construction costs in both local currency and U. S. dollars. (The U.S. dollar equivalent total at the right side of the table uses a 650 :1 exchange rate.) Costs for construction materials or equipment to be procured in areas other than Vietnam are shown in U.S. dollars.

4.1.3 CONSTRUCTION QUANTITIES

Construction quantities for individual line items summarized in Table 4-1 are further detailed in the Implementation Plan, Section 5. The construction schedule (Exhibit CS-1) portrays these building units over a 30-month period. No phasing as such is anticipated in the construction.

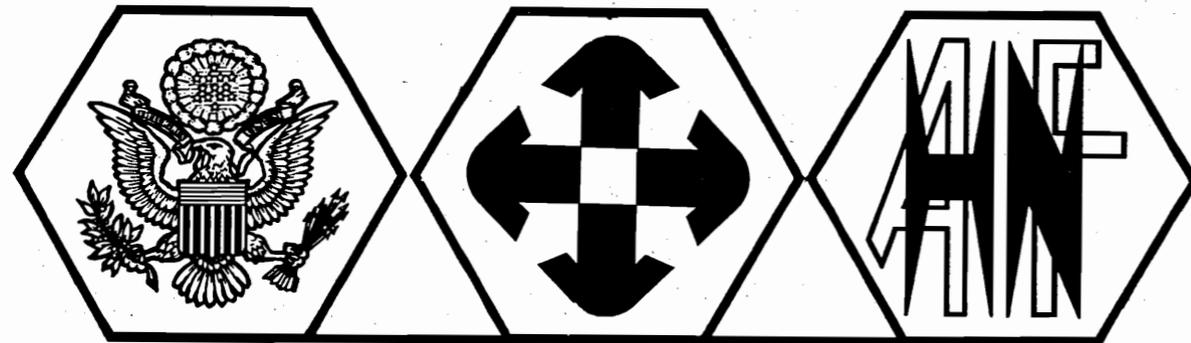
4.1.4 OPERATIONAL COSTS

Costs for the operation of this facility which also include the capital investment for equipment necessary for this EPZ are not included in the scope of this project. It is understood that the operation and management of this proposed Export Processing Zone will be the subject of a separate contract to be accomplished by a Republic of China EPZ study team.

TABLE 4-1
DESIGN AND CONSTRUCTION COST SUMMARY

ITEM	VN \$ (000)	US \$	TOTAL US \$ VN \$ IN EQUIVALENT US \$
FENCING WORK	152,750	5,000	240,000
GRADING WORK	1,623,050	-	2,497,000
SHORE PROTECTION	227,500	330,000	680,000
ROAD AND HIGHWAY BRIDGE	357,500	420,000	970,000
STORM DRAINAGE	110,500	164,000	334,000
SANITARY WORK	154,700	205,000	443,000
WATER DISTRIBUTION	84,500	270,000	400,000
ELECTRICAL WORK	69,550	220,000	327,000
BUILDINGS	291,850	450,000	899,000
LANDSCAPING	13,000	-	20,000
DESIGN AND SUPERVISION	32,500	700,000	750,000
TOTAL PROJECT	3,117,400	2,764,000	7,560,000

NOTE : RATE OF EXCHANGE USED IS VN \$ 650 TO US \$ 1.00



5. IMPLEMENTATION PLAN

5.1 GENERAL

The purpose of the implementation plan is to prescribe a method by which accelerated improvements can be accomplished for the Saigon Export Processing Zone, while allowing operation at the earliest time possible. The Master Plan has been formulated to allow for a simultaneous execution of work; that of initiating basic development in the 38 parcel former Camp Davies facility at the same time that the remaining 84 lots are being extended.

Of primary importance to successful implementation of any project is a sound economic and financial plan and a systematic approach for design and construction along with the execution of the proposed management plan. The operational and management plans will be the subject of a report to be completed by the Republic of China (ROC) study team. The financial plan will be completed at a later period. Implementation of this project deals with aspects of design, specifications, contracting procedures, the construction phase and the establishment of maintenance and operation (M & O) functions for the proposed Saigon Export Processing Zone.

5.2 DESIGN

As soon as the project funding can be arranged, final design work should be implemented. Design work must be detailed to include all aspects of elements to be constructed and should be an extension of the preliminary concepts presented in Section 3 of this report. Criteria for the design of an Export Processing Zone should be based on the actual requirements of candidate industries. While the types of industries that will locate in the EPZ are unknown at this time, utility requirements have been estimated based on similar EPZs constructed in areas that utilize labor intensive methods. Direct consultation was accomplished with the ROC study team for this purpose and advantage was taken of similar zones constructed in the Republic of Korea. Preliminary site plans have been completed with the desired layout for drainage, parking facilities, utilities, access roads, communications and support activities. This design should be completed and constructed drawings prepared. It is important to initiate the design work as early as possible, to eliminate additional costs due to inflation, to provide sufficient lead time for materials and equipment that must be imported, and to provide employment at a time when construction of military and civil projects are at a minimum. This Export Processing Zone anticipates ultimate employment for 45,000 personnel.

5.3 SPECIFICATIONS

Consistent Vietnam governmental specifications are not available at this time. The following general specifications and other codes will be applicable for the design and construction of this project:

Concrete Work: - American Concrete Institute Code (ACI)

Steel Fabrications: - American Institute of Steel Construction (AISC)

Timber Construction: - American Institute of Timber Construction (AITC)

Fire Protection: - National Fire Underwriters Association (NFUA)

Reinforcing Steel: - Concrete Reinforcing Steel Institute (CRSI)

Road Work: - American Association State Highway Officials (AASHO)

Testing: - American Society of Testing Materials (ASTM)

Electrical: - National Electrical Code (NEC)

Other: Other U.S. codes and specifications will be utilized as designs dictate on a case-by-case basis.

The end result of this effort will be a complete set of construction drawings, technical specifications, and bidding documents that will allow SEPZA to advertise for fixed-price construction.

5.4 ADVANCE PROCUREMENT

When design and specifications are sufficiently completed, off-shore procurement should be initiated. This is necessary to provide as much lead-time as possible to obtain specialized items such as electrical and mechanical materials. It is anticipated that 3 to 6 months may be necessary to obtain this equipment and advance procurement may save several months in construction lead-time.

5.5 CONSTRUCTION PACKAGE

The construction package will consist of the approved construction drawings, specifications, procurement items and bidding documents. These items will be submitted to USAID/SEPZA for review and approval and for bid advertisement purposes.

5.6 CONTRACTING PROCEDURES

5.6.1 GENERAL

The data on contracting procedures was compiled from discussions with other agency formats in current use at this time.

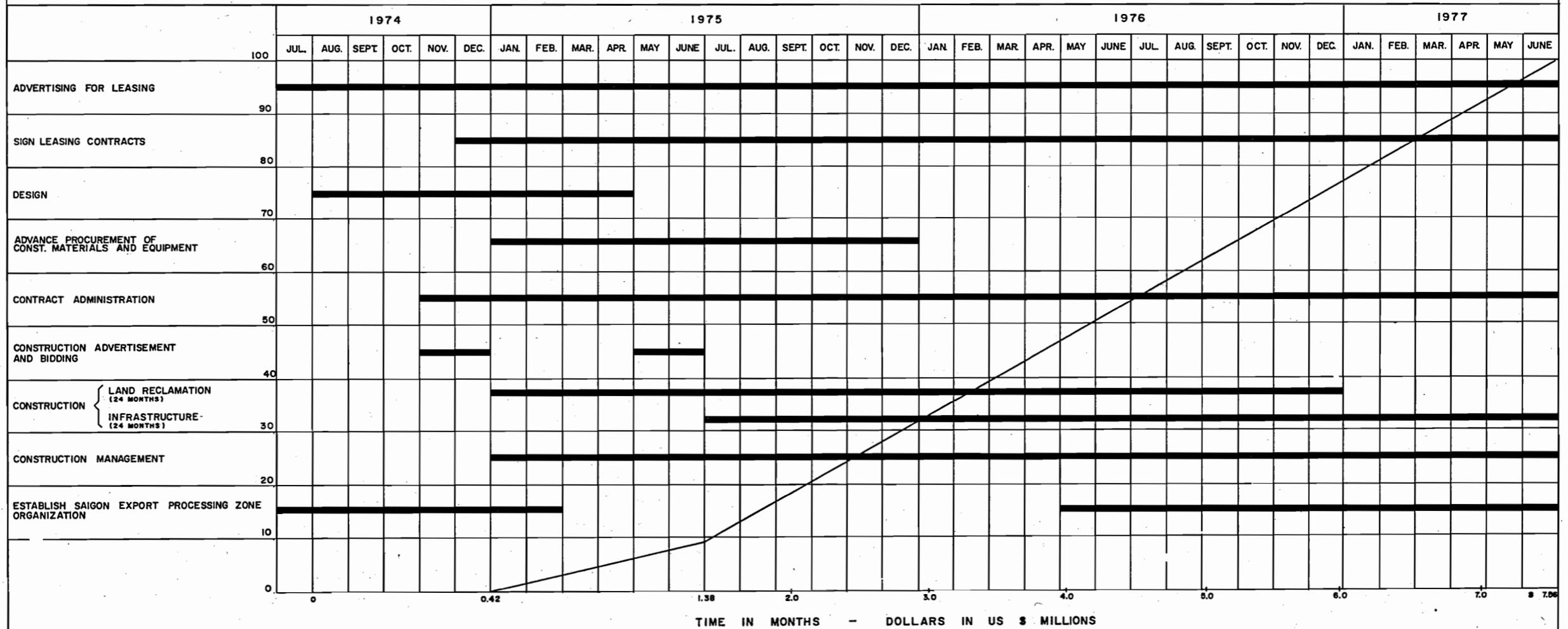
Two procedures are generally acceptable; they are public, and limited or negotiated bidding. Public bidding procedures will be discussed in the following sections since they are used almost exclusively by Vietnamese Governmental Agencies. Limited or negotiated bidding is a rarity and can only be used if the project is less than VN\$200,000; or if the project is urgent, unique or difficult in its construction. In the limited case, the number of eligible contractors are few and bids are requested for a specialized project.

5.6.2 PUBLIC BID PACKAGE

A package is developed for public bidding and generally consists of construction plans, specifications, special conditions and an overall lump sum cost in round numbers (i. e. VN\$50 million). It is possible to

SAIGON EXPORT PROCESSING ZONE

IMPLEMENTATION PLAN



ACCELERATED CONSTRUCTION BASIS

PERCENT OF CONSTRUCTION COMPLETED VERSUS COST IN MILLIONS OF U.S. DOLLARS (ACCELERATED)

EXHIBIT IP-1

request bids on specific units of work (unit price method) but generally contracts that are based on one total lump sum are requested. Generally unit price costs for various increments of construction are based on the Bureau of Public Works recommended prices published in 1971 to which at least 30 percent is added to reflect present day costs.

5.6.3 CERTIFICATION OF BIDDERS

Bidders are pre-qualified by requiring that they be a licenced contractor, that they have adequate financing to start the project, they have a plan of execution, they are certified as having accomplished similar contracts and that their work was satisfactory. They also must provide 10 percent of the bid price as a guarantee (bond) that they will satisfactorily complete the project, provide certification that they have paid all government taxes, have a workmen's compensation certificate, that an authorized representative will be on site during working hours and will provide a list of tools, equipment and materials they intend to use to accomplish the project.

5.6.4 PUBLIC ADVERTISEMENT

Government agencies are required to advertise for bids in at least three newspapers for at least three days. (Public Works requires at least 15 days but not over 30 days). If less than three bids are received it is required that the project again be advertised. If no additional bids are received, the bids may then be opened.

5.6.5 PUBLIC BID OPENINGS AND REVIEWS

Public bid openings are held three weeks after final newspaper advertisements are made although this time may be increased for large or unique projects. The bureau chief, the designers and other engineers as well as the bidders are present at bid openings.

The lowest bid price is selected in all cases unless some unique qualification is made by the eligible contractor.

5.6.6 NOTICE TO PROCEED

It sometimes takes as long as 45 days before a notice to proceed is issued depending on the release of funds, delays in contractor registration, payment of tax and stamp duties and to establish payment

procedures. After these items are accomplished a contract is signed and a notice to proceed is issued.

5.6.7 PROGRESS AND PAYMENTS

The construction or engineering section certifies the percentage of contract completion based on periodic inspections. Payment is made by a check issued against the GVN treasury based on the progress percentage less 10% withholding. This 10% is held for one year after project completion. A final inspection is held and the contractor corrects any deficiencies that may have developed during the year period. In the event the contractor fails to correct deficiencies after being given three notices, the using agency completes the work and refunds any balance.

5.6.8 PENALTIES AND CHANGES

Most contracts are written with a penalty clause of 1/5,000 or 1/10,000 amount of the total contract price for each days delay in completing the work. There is no bonus clause for early completion.

The Bureau Chief has authorization to change a contract up to 25% of the total contracted price. Additional funds however must be approved by higher authority.

5.7 CONSTRUCTION

5.7.1 GENERAL

Two concepts may be employed for the implementation of this project. The first concept is based on an accelerated construction format whereby the entire facility is developed prior to occupancy. The second concept allows for move in procedures while providing basic infrastructure and improvements necessary to activate the EZP concept. This would provide an operational atmosphere for labor intensive businesses and make available facilities that could be rented or purchased by industry.

In addition the means of doing the work, assurance of quality control and the construction schedule are also discussed.

5.7.2 SITE DEVELOPMENT

5.7.2.1 ACCELERATED IMPROVEMENTS: The accelerated concept provides a rapid placement of complete infrastructure for industrial use in the shortest possible time frame. The availability of this infrastructure will invite industry to settle at this location since their utility needs are met in advance of plant construction. Accelerated infrastructure and plant construction generate certain savings in mobilization-demobilization costs, more economical material purchases due to larger quantities and generally less work interruptions from industrial traffic in the area. Exhibit CS-1 indicates a format for the proposed accelerated construction of infrastructure. A critical path can be developed from this format after consultation with the various contractors on their methods of accomplishing the work.

5.7.2.2 MOVE IN PROCEDURES: Improvements made on an immediate basis, while having some of the disadvantages noted above, allows initial EPZ construction needs to be met in making the site operational. These activities are limited due to the phasing in period and include the administrative support, operational and governmental functions outlined in Section 3.10.2.2. Fundamental to these activities is the infrastructure required to house both services and industry on

an immediate move in basis. The first priority for implementation of this project will be to provide space on a temporary basis so that EPZ activities can commence immediately. Exhibits WES-1 and WES-2 are intended to aid in this move in concept. It is recommended that design be initiated for these procedures as soon as operational funding can be arranged.

5.7.2.3 METHODS OF IMPROVEMENTS: A project of this magnitude may be accomplished by two acceptable methods. One method is by use of a general contractor who in turn hires specialized subcontractors to do various types of work such as electrical distribution, plumbing contractors for water supply and sanitary distribution, a building contractor and a general grading contractor. It is also common for a public utility section such as the Saigon Metropolitan Water Office or the Vietnam Power Company to contract and/or supervise the construction since ultimate maintenance will be their responsibility. In this method the Architect and Engineer (A & E) inspects all facets of the construction for quality workmanship and acts for SEPZA in certifying quantity or progress payments to the general contractor. In many cases the A & E as a special service may be required to arbitrate payments by the general contractor to his subcontractors.

Another method is for the A & E to act as the contracts administrator for SEPZA to coordinate various phases of work with several specialized contractors. In this method the A & E manages the entire project and performs inspections as an arm for SEPZA. A critical path format is mandatory in this method to ascertain that all contractors are performing satisfactorily. This prevents any contractor from unreasonably delaying the work of another.

The latter method is considered more accelerated and is recommended since separate specialized contractors are usually more efficient and bid lower than the one general contractor concept.

5.7.3 CONSTRUCTION MANAGEMENT

Whichever construction concept is selected it is necessary that a construction management team be located on site to assure quality control, to maintain reports on construction progress, and to generally coordinate the work.

SEPZA will have problems which should be considered normal under the conditions now existing in Vietnam. First and foremost is the

demand by governmental agencies for competent employees. As SEPZA expands, the present qualified staff becomes overextended. SEPZA is also in the process of staff organization as well as buildup. At a time when industrial growth is being accentuated, the dangers of inadequate management are obvious.

It is essential that SEPZA be provided with a consultant staff to monitor and advise in the construction management at the Saigon Export Processing Zone project.

5.7.4 CONSTRUCTION SCHEDULE

The construction schedule shown in Exhibit CS-1 extends over a 30 month period for the accelerated concept. A major portion of the time, 24 months, is directly attributed to the land reclamation project located in the 89 hectares East of the Nuoc Mang Canal. Infrastructure in this area cannot be placed until this land fill is accomplished.

The immediate or move in phase of this project is not considered a part of the accelerated concept since this period deals primarily with

CONSTRUCTION SCHEDULE

PROJECT: SAIGON EXPORT PROCESSING ZONE

ITEM NO.	DESCRIPTION OF WORK	DETAILS OF CONSTRUCTION	CONTINUOUS CONSTRUCTION SUPERVISION																																		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30					
1	EARTHWORK & GRADING	CLEAR SITE SURVEY & ALIGN EQUIPMENT	STAKE OUT FILLS & CUTS																																		
		PROCURE & DISTRIBUTE FILL MATERIAL	BORROW 2,093,850 CUBIC METERS (CM)																																		
		GRADE & CLEAN UP	CUT 77,750 CM															FILL 2,171,400 CM																			
2	SHORE PROTECTION	REQUISITION MATERIALS MANUFACTURE PILES & ANCHORS	FOR 1,700 LINEAR METERS (LM) BULKHEAD															PRECAST REINFORCED CONCRETE (RC) PILES & ANCHORS																			
		DRIVE SHEET PILES	4,250 - 0.20 x 0.40 x 10.00M LONG PILES																																		
		PLACE PILE CAP INSTALL PILE ANCHORS	153CM CONTINUOUS RC CAP																																		
		CLEAN UP																CLEAN UP																			
3	ROAD & HIGHWAY BRIDGE CONSTRUCTION/ IMPROVEMENT	REQUISITION MATERIALS - LEAD TIME SURVEY & DELIVERY	FOR 8,440 LM ROADS, 22,700 SM APRON & HIGHWAY BRIDGE																																		
		CONSTRUCT TEMPORARY CROSSING COMPLETE	TIMBER CONSTRUCTION																																		
		MANUFACTURE BRIDGE COMPONENTS CONSTRUCT BRIDGE SUBSTRUCTURE	RC PILES, PRESTRESSED RC STRINGERS & RC RAILING 2- RC ABUTMENTS & 2- RC PIERS																																		
		BACKFILL ABUTMENTS, PLACE BRIDGE DECK & APPROACH SLAB	12.04M WIDE x 3- SPANS @ 24.69M = 74.07M DECK @ 6.10M LONG EACH APPROACH SLAB																																		
		PLACE BRIDGE SIDEWALK, RAILING & WEARING SURFACE	1.02M WIDE RC SIDEWALKS, PRECAST RC RAILING & AC WEARING COURSE																																		
		EXCAVATE & PLACE UTILITIES AT ROAD CROSSINGS	AT APPROXIMATELY 100 PLACES																																		
		STOCKPILE, PLACE & COMPACT BASE COURSE	18,030 CM CRUSHED ROCK BASE COURSE																																		
		CLEAN & SHAPE SURFACES TO RECEIVE OVERLAY - PRIME COAT	2,660 SQUARE METERS (SM) OVERLAY SURFACES - PRIME COAT 93,000 SM																																		
		PLACE ASPHALT CONCRETE (AC) PAVING - CLEAN UP																										21,160 METRIC TONS AC PAVING					CLEAN UP				
		4	STORM DRAINAGE	REQ'N MATERIALS - MANUFACTURE & INSTALL PIPE CULVERTS	FOR ALL ITEMS																																
EXCAVATE, FORM & PLACE CONC. FOR DROP INLETS & ENDWALLS	36 DROP INLETS - 1 ENDWALL															27 DROP INLETS - 9 ENDWALLS																					
SHAPE SWALES - EXCAVATE FOR DITCHES	14,715 LM ROADSIDE SWALES																																				
CONSTRUCT DITCHES & BACKFILL	1,483 LM RC															820 LM RC																					
PLACE DITCH COVERS	1,315 LM PRECAST RC															820 LM PRECAST RC																					
CLEAN UP	CLEAN UP																																				
5	SANITARY COLLECTION & TREATMENT SYSTEM	REQ'N MATERIALS - MANUFACTURE & INSTALL SEWER PIPES	ALL ITEMS																																		
		CONSTRUCT MANHOLES	10,400 LM CONCRETE PIPE AND 2,280 LM CAST IRON PIPE VARIOUS SIZES															46 MANHOLES																			
		CONSTRUCT LAGOONS COMPLETE	76 MANHOLES															APPROXIMATELY 9.2 HECTARES LAGOONS NO.1 & NO.2																			
		FABRICATE, FORM & INSTALL APPURTENANT LAGOON STRUCTURES	2 EACH - BAR SCREEN, PARSHALL FLUME, GRIT CHAMBER & GREASE TANK																																		
		CONSTRUCT EFFLUENT TREATMENT STRUCTURES	8 GREASE TANK AND 1 RECIRCULATION PUMP STATION																																		
		INSTALL RECIRCULATION PUMPS & INSTALL CHLORINE EQUIPMENT	OUTLET GATES & CHLORINE CONTACT CHAMBER															5 PUMPS V-NOTCH CHLORINATOR																			
		CONSTRUCT LIFT STATIONS & INSTALL PUMPS	RC LIFT STATIONS NO.1 & NO.2															6 PUMPS																			
		TEST SYSTEMS, BACKFILL & CLEAN UP	RC LIFT STATIONS NO.2 & NO.4															8 PUMPS																			
6	WATER SUPPLY DISTRIBUTION SYSTEM	REQUISITION MATERIALS - LEAD TIME DELIVERY	ALL ITEMS																																		
		EXCAVATE TRENCH - INSTALL PIPES & FITTINGS	5,380 LM 300mm @ 2,750 LM 200mm @ ASBESTOS CEMENT PIPE - 1,130 LM 400mm @ 100 LM 200mm @ CAST IRON PIPE																																		
		INSTALL THRUST BLOCKS & PARTIALLY BACKFILL	AT DIRECTIONAL CHANGES																																		
		INSTALL FIRE HYDRANTS	27 HYDRANTS															42 HYDRANTS																			
		CONSTRUCT STORAGE TANK COMPLETE	3,800 CM RC GROUND STORAGE TANK WITH 4 PUMPS																																		
7	ELECTRICAL DISTRIBUTION SYSTEM	REQUISITION MATERIALS - LEAD TIME SURVEY & DELIVERY	ALL ITEMS																																		
		NEW DISTRIBUTION - UPGRADE EXISTING INSTALL SWITCHING STATION	NEW DISTRIBUTION 10,430 LM															UPGRADE EXISTING 910 LM																			
		TEST SYSTEMS & CLEAN UP	ENTIRE SYSTEM																																		
8	BUILDINGS	REQUISITION MATERIALS - LEAD TIME SURVEY & DELIVERY	FOR 10 RC BUILDINGS, 4 GATEHOUSES & 13 SECURITY POSTS																																		
		EXCAVATE, FABRICATE FORMS & REBAR - PLACE FOUNDATIONS	FOR ABOVE STRUCTURES																																		
		CONSTRUCT FRAME WALLS, ROOF & EXTERIOR WORK	FOR ABOVE STRUCTURES																																		
		INTERIOR FINISH	FOR ABOVE STRUCTURES																																		
9	LANDSCAPING & BEAUTIFICATION WORK	SOD & SEED FOR SLOPE PROTECTION	SOD & SEED															REFERENCE EXHIBITS: MP-1 MASTER PLAN R-1 PROPOSED ROAD NETWORK AND SECTIONS D-1 PROPOSED DRAINAGE PLAN AND DETAILS S-1 PROPOSED SANITARY COLLECTION SYSTEM W-1 PROPOSED WATER DISTRIBUTION SYSTEM E-1 PROPOSED POWER DISTRIBUTION SYSTEM LB-1 BUILDINGS AND LOT AREAS																			
		PLANT TREES & REVIEW EROSION CONTROL	PLANT TREES																																		
10	SECURITY FENCING	CLEAN UP	CLEAN UP																																		
		REQUISITION MATERIALS - LEAD TIME SURVEY & DELIVERY	FOR 7,935 LM FENCE @ 4 GATES																																		
		MANUFACTURE POSTS & PANELS	PRECAST RC POSTS & PANELS																																		
		PLACE POSTS & PANELS	7,935 LM RC CONSTRUCTION																																		
		ASSEMBLE & INSTALL GATES	2 VEHICLE GATES															2 SETS PEDESTRIAN GATES																			
		CLEAN UP	INSPECT & CLEAN UP																																		

PREPARE AND SUBMIT FINAL REPORT AND AS-BUILT PLANS FOR EACH PHASE OF CONSTRUCTION TO USAID/SEFZA WITH FINAL ACCEPTANCE BY USING AGENCY

HOLMES & NARVER, INC. INDUSTRIAL PLANNING & ENGINEERING AND ASIAPAC - FARGO, INC. ARCHITECTS, ENGINEERS, PLANNERS	U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT REPUBLIC OF VIETNAM SAIGON EXPORT PROCESSING ZONE	CONSTRUCTION SCHEDULE EXHIBIT CS-1
DESIGNED: <i>CATERA</i> DRAWN: <i>ha</i> CHECKED: <i>V.M. Hooley</i> SUBMITTED BY: <i>George L. Stone</i> DATE: 6-15-74 MANAGER		CONTRACT NUMBER: AID 730-3602 SHEET OF:

rehabilitations of buildings and utilities necessary to provide an operational capability for the Export Processing Zone. Some of the rehabilitated work will be replaced with permanent structures.

The schedule shows the major construction milestones to be accomplished for this project. While new sanitary infrastructure, electrical work and water distribution predominate this development, more than half of the entire construction effort is considered labor intensive in reclamation of land, shore protection and road improvements. It may be advantageous for the Vietnamese Government to initiate the land fill phase of this project well in advance of the other work since it is expected to take the majority of time to complete. Close coordinations should be maintained with the Vietnam Dredging Agency to benefit by any possible surpluses of fill materials that can be used on the peninsula project.

The cost breakdown for the overall construction requirement is shown in Table 4-1.

5.8 START UP OPERATIONS

5.8.1 GENERAL

Advance planning for a project of this magnitude must include the follow on functions of maintenance and operation (M & O). The purpose of this discussion in the project implementation section is to outline a procedure to provide for an uninterrupted transition from the construction phase to the operation and maintenance phase. Certain additional coordinations will be required to define Saigon City areas of responsibility in relation to the internal workings of the EPZ. It may be desirable for example to turn over the complete maintenance responsibility of the water and electrical systems to the agencies providing these services.

5.8.2 FUNCTIONS AND PROCEDURES

In order to begin the day-to-day functions for an Export Processing Zone operation, essential items of internal transportation, operational equipment, and furniture must be purchased. Office space must be allotted in accordance with staff needs. This phasing in period should be accomplished prior to the end of construction to minimize lost effort in making the facility operational.

The hiring of an additional labor force would require indoctrination and training prior to assuming job responsibilities. Administrative procedures would require job descriptions to be written and areas of responsibility and authority defined. Specific functions and procedures will require an overall general operational plan.

5.8.3 PROGRAMMED MAINTENANCE SYSTEMS

A programmed maintenance system performed on a regular schedule basis is necessary to prevent equipment problems before they arise. This program envisages inspection of facilities and equipment on a regular scheduled basis to minimize downtime resulting from equipment/facility failures.

Facilities inspection is accomplished by preventive maintenance teams of skilled craftsmen who maintain facility and equipment items on a regularly scheduled basis. Major maintenance requirements will be referred to the engineering section for design, procurement and / or additional funding.

It is recommended that the Saigon Export Zone Authority be provided with a qualified advisory engineering staff to assist in training, procurement and in establishing maintenance and operational programs.

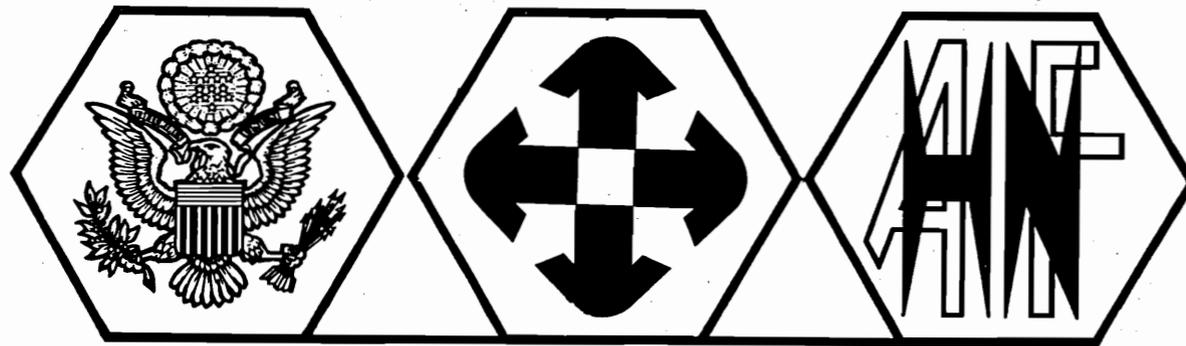
6. LEASABLE PROPERTY

6.1 LEASABLE LAND AREAS

The intention of SEPZA is to start up the Export Processing Zone operation as soon as practicable. A natural dividing line exists at the Nuoc Mang Canal between the former U.S. facility at Camp Davies and the land mass to be reclaimed in the peninsula area.

Table 6-1 is a detailed listing of leasable land areas in each section. A summary is as follows:

Camp Davies area	36 leasable parcels	24.33 hectares
Reclaimed land area	84 leasable parcels	89.24 hectares
Leasable Land Grand Total		: 113.57 hectares



6.2 EXISTING LEASABLE BUILDINGS

Existing buildings are shown on the Master Plan (MP-1) and are described in detail in Section 3.10. A summary of leasable space by lot numbers is as follows:

Lot 2

<u>Bldg.</u>	<u>Type</u>	<u>Size (meters)</u>	<u>Area (S.M.)</u>
1	Former general purpose warehouse	59.1 x 70.1	4145

Lot 10

2 thru 8	Former general purpose warehouse	15.2 x 42.7 x 7	4552
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Lot 13

9	Former power plant	15.2 x 19.8	302
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Summary of Leasable Buildings: 8999 S.M

It is possible that other buildings shown as existing in Exhibit WES-1 and described in Section 3.10.1.2 and 3.10.1.3 may be leasable during the initial phase of development. These structures will be replaced with permanent facilities and therefore are not be considered as income producing property.

TABLE 6-1

SUMMARY OF LEASABLE AREAS

SECTION I 36 leasable lots, total area = 24.33 Ha.

<u>Lot No.</u>	<u>Area (Ha)</u>	<u>Lot No.</u>	<u>Area (Ha)</u>	<u>Lot No.</u>	<u>Area (Ha)</u>
1	0.31	13	0.56	26	0.30
2	0.62	14	0.23	27	0.33
3	(0.39)	15	0.30	28	0.41
4	(0.37)	16	0.32	29	0.39
5	0.54	17	3.18	30	0.88
6	0.25	18	2.23	31	0.48
7	0.36	19	0.45	32	0.33
8	0.38	20	0.42	33	0.52
9	1.44	21	0.57	34	0.40
10	1.08	22	0.31	35	1.06
11	0.30	23	0.33	36	0.75
12	0.29	24	0.37	37	0.40
		25	0.43	38	2.81

() indicates lot not leasable

120 leasable lots (Sections I & II), Total area = 113.57 hectares.

SECTION II

84 leasable lots, total area = 89.24 Ha.

<u>Lot No.</u>	<u>Area (Ha)</u>	<u>Lot No.</u>	<u>Area (Ha)</u>	<u>Lot No.</u>	<u>Area (Ha)</u>
39	4.48	68	0.61	97	0.76
40	6.36	69	0.45	98	0.76
41	3.80	70	1.11	99	0.46
42	2.00	71	0.53	100	0.44
43	0.29	72	0.63	101	0.72
44	0.29	73	0.65	102	0.72
45	2.13	74	0.87	103	0.72
46	1.09	75	1.95	104	0.72
47	0.60	76	1.87	105	1.41
48	0.60	77	0.92	106	1.40
49	1.08	78	0.74	107	0.75
50	0.92	79	0.61	108	0.76
51	0.69	80	0.54	109	0.75
52	0.69	81	0.98	110	0.74
53	1.07	82	1.22	111	0.44
54	1.06	83	0.71	112	1.08
55	0.78	84	0.71	113	0.50
56	0.78	85	0.73	114	0.87
57	0.77	86	0.73	115	0.65
58	1.22	87	1.46	116	0.76
59	0.83	88	1.61	117	1.67
60	0.83	89	0.76	118	1.62
61	0.85	90	0.76	119	0.66
62	(2.87)	91	0.75	120	0.55
63	1.01	92	0.75	121	0.51
64	1.12	93	1.36	122	1.73
65	2.32	94	1.53	123	1.31
66	0.58	95	0.75		
67	0.50	96	0.75		