

**Preliminary Project Feasibility Study (PPFS) for  
The Replacement of Mechanical  
and Electrical Equipment at  
Tsuen Wan No. 1 Pumping Station**

**Project Profile**

**Prepared in accordance with the  
Environmental Impact Assessment Ordinance (Cap 499)**

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**December 1999**

**Water Supplies Department  
Shatin Sub-office  
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Sha Tin  
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## **1. BASIC INFORMATION**

### **1.1 Project Title**

The title of this Project is:

**“The Replacement of Mechanical and Electrical Equipment at Tsuen Wan No.1 Pumping Station”.**

### **1.2 Purpose and Nature of the Project**

This Project is to rehabilitate the aged pumping facilities at Tsuen Wan No. 1 Pumping Station. The Project aims at enhancing plant efficiency, safety and reliability of Tsuen Wan No. 1 Pumping Station, which has been in operation since 1955.

The Project covers the replacement of the existing pumping facilities such as electrical motor driven and diesel engine driven pumpsets, electrical switchgears, piping and valving within the pumping station. The Project also involves the decommissioning of underground fuel tanks and minor civil construction works.

### **1.3 Name of the Project Proponent**

Water Supplies Department, the Government of the Hong Kong Special Administrative Region.

### **1.4 Location and Scale of the Project, and History of the Site**

Tsuen Wan No. 1 Pumping Station is situated at the south east corner of the intersection between Wai Tsuen Road and Miu Kong Street. The location of the site is shown in Figure 1. The output of the pumping station has been upgraded in phases since 1955 to the current capacity of 250 Mld.

The land use history of the site prior to 1955 will need to be ascertained during the Environmental Impact Assessment (EIA) Study.

## **1.5 Number and Type of Designated Project**

The following single element of the proposed Project constitutes a Designated Project as defined under the EIA Ordinance (Cap. 499):

The decommissioning at the pumping station of four underground diesel oil tanks each with a capacity of 64,000 litres.

As the total storage capacity of the four underground diesel oil tanks exceeds 200 tonnes, the Environmental Protection Department (EPD) confirmed, via Memo Ref (3) in EP2/N2/OTH/42 (please see Attachment 1), that the decommissioning of these tanks constitutes a Designated Project pursuant to Item 16 of Part II, Schedule 2 of the EIA Ordinance.

## **1.6 Name and Telephone Number of Contact Persons**

Chief Electrical & Mechanical Engineer/Projects  
Water Supplies Department  
The Government of the Hong Kong Special Administrative Region

## **2. OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME**

### **2.1 Responsibilities of Parties**

The Project Proponent has commissioned Consultants to carry out the feasibility study of this Project. The detailed planning and design of the Project will be performed by the Project Proponent's in-house resources. The implementation of the Project will be performed by Specialist Contractor(s) to be appointed by the Project Proponent.

## **2.2 Preliminary Project Time Table**

The Project is scheduled for funding application under the 2000 Resource Allocation Exercise.

The tentative programme for planning, design and implementation of the Project is as follows:

<b>Task No.</b>	<b>Task Title</b>	<b>Start Date</b>	<b>End Date</b>	<b>Duration (months)</b>
1	Design Phase	October 2000	September 2001	12
2	Tender Phase	October 2001	February 2002	5
3	Work Phase	March 2002	April 2007	62
				<b>Total 79</b>

The decommissioning, dismantling and removal of the underground fuel tanks will be conducted during the early stage of the Work Phase, over approximately a 6 to 9 month period.

## **2.3 Considerations on Programme Requirements and Interaction with Other Projects**

The Project involves mainly replacement of plant facilities within the existing station boundary, it is therefore unlikely that the Project will interface with any other infrastructure projects. Interaction with other projects is not considered to be a factor for project programming.

## **3. POSSIBLE IMPACT ON THE ENVIRONMENT AND ASSOCIATED ISSUES**

Potential environmental impact and issues may arise from both the engineering work and operational phases of the Project. The engineering work will involve the replacement in phases of mechanical and electrical equipment including pumpsets; minor civil construction; and the decommissioning, dismantling and removal of the underground fuel tanks. The operational phase will involve the operation and maintenance of the pumpsets and associated facilities.

Possible environmental impact and issues of this Project may be as follows:

### **3.1 Potential Impact and Issues Arising from Engineering Work Phase**

1. Solid waste would include construction and demolition debris and may also potentially include fuel contaminated soil below and around the underground fuel tanks. The layouts of the underground fuel tanks and the pumping station are shown in Figures 2, 3 and 4.

2. Water pollution due to site effluent including runoff, fuel contaminated fluids and toilets/washrooms discharges.
3. Noise from demolition, construction and installation activities.
4. Dust and gaseous emissions from demolition, construction and installation activities.
5. Visual effects from demolition, construction and installation activities.
6. As the pumping station is in close proximity to the former site of the Sam Tung Uk Hakka Walled Village, heritage resources may exist underground at the premises of the station.

### **3.2 Potential Impact and Issues Arising from Operational Phase**

1. Noise from the pumpsets, associated equipment, vehicles visiting the site and other activities including maintenance.
2. Gaseous emissions from vehicles visiting the site.

## **4. MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT**

### **4.1 Existing and Planned Sensitive Receivers**

Existing sensitive receivers in the vicinity of the site include the following:

- Luk Yeung Sun Chuen to the north west.
- Tin Hau Temple and Park adjacent to Luk Yeung Sun Chuen
- Sam Tung Uk Museum to the west.
- Indoor Sports Facilities to the north east.
- Caritas Social Centre to the south east.
- Fung Hon Chu Gifted Education Centre to the south.
- Garden opposite to Caritas Social Centre
- Mixed used commercial/residential buildings to the west and south west.
- Tsuen Wan Police Station and Police Quarters to the south and south east.

The locations of sensitive receivers, both existing and planned, will be identified and/or confirmed in the EIA Study.

#### **4.2 Surrounding Environment**

The surrounding environment around the existing pumping station is entirely urban. Apart from the two landscaped areas around Tin Hau Temple and Sam Tung Uk Museum, greenery is not abundant.

#### **4.3 Existing and Past Land Uses of the Project Site**

The existing Tsuen Wan No. 1 Pumping Station has been in operation since 1955. The land use history of this site prior to 1955 will need to be determined in the EIA.

### **5. ENVIRONMENTAL PROTECTION MEASURES TO BE IMPLEMENTED**

#### **5.1 Contamination Assessment Plan and Contamination Assessment Report**

During the EIA, land uses which have had the potential to cause contamination within the project area will need to be identified. This investigation will be carried out through a series of site surveys, review of past land use records kept by the District Land Office, study of aerial photographs and examination of borehole logs. The information collected will be used to formulate a Contamination Assessment Plan (CAP).

The CAP will identify 'hotspots' of potentially contaminated land and propose a series of tests to confirm the presence or absence of pollution. Soil samples will be collected based on a standard sampling procedure using a regular grid pattern. This will be supplemented with samples taken from specific 'hotspots'.

Following endorsement by the Environmental Protection Department (EPD) of the CAP and its sampling recommendations, a Contamination Assessment Report (CAR) will be compiled upon completion of the tests. If there is cause for cleanup, a Remediation Action Plan (RAP) will be prepared to propose measures for land cleanup to acceptable levels based on the Dutch list of soil and groundwater criteria.

The preliminary assessment recommended will be carried out with reference to the criteria listed in the EIA Ordinance, Annex 19 and following the guidelines for assessment of contaminated land laid out in the EPD ProPECC PN 3/94.



## **5.2 Management and Disposal of Contaminated Materials**

The management and disposal methods for any potential contaminated materials would depend on the findings of the Contamination Assessment Report, and the likely land remediation requirements identified. The management and disposal methods will therefore be identified at a later stage.

## **5.3 Waste Management Measures**

During the engineering work phase, any potentially contaminated sediments will have to be managed as described in Sections 5.1 and 5.2. The scrap metal from the dismantled pumpsets and pipework can be cleaned and recycled if possible. The concrete waste from the dismantled tanks may require decontamination before disposal at public fill area.

Given the intended use of the site during the operational phase, there will only be a small quantity of municipal waste that will need to be collected and transported to landfill. Sewage, and possibly a small quantity of lubricants and oils from regular maintenance will be generated during the operational phase. The management of these is discussed in Section 5.4.

## **5.4 Effluents and Runoff Management**

During the engineering work phase sediments from wheel wash effluent should be collected and disposed to public fill.

Sewage generated during the operational phase of the pumping station will be discharged to government sewers. The small quantity of oil and lubricants generated during maintenance should be soaked up with sand or other absorbent material for disposal to landfill.

## **5.5 Dust Mitigation Measures**

Wheel-washing facilities should be provided for construction vehicles. As no stockpile is envisaged, fugitive dust or other forms of air quality impacts may not be a major concern. In the long term the switch from diesel to electrical powered pumps will eliminate the generation of combustion products as well as the trace release of volatile organic compounds from the storage fuel.

## **5.6 Noise Mitigation Measures**

The level of construction noise will largely depend on the proposed construction method. The potential noise impact will need to be quantitatively assessed before suitable mitigation measures can be proposed. In general the number of construction equipment should be minimised and turned off when not in use.

For potential noise impact during operational phase, noise data and structural layout of the refurbished pumping station have to be obtained before the potential impact and or mitigation measures can be determined. In general, equipment of modern design would operate smoothly and produce lower noise. The abandonment of diesel engine driven pumpsets would lower the noise impact to the environment in the long run.

## **5.7 Heritage Resources**

The land use history of the site prior to 1955 will have to be determined during the EIA Study to ascertain whether the Sam Tung Uk Hakka Walled Village or any other cultural/heritage uses were on the site area.

During the engineering work phase, if antiquities or suspected antiquities are discovered, the stipulations of the Antiquities and Monuments Ordinance will be adhered to.

## **6. FURTHER ENVIRONMENTAL IMPLICATIONS**

### **6.1 Beneficial Effects**

This Project will eliminate the diesel engine driven pumpsets and the storage of diesel fuel from the site. This will have the benefits of eliminating combustion products, emission of trace volatile organic carbons from storage of fuel, and lowering of plant operating noise. Air quality in the immediate vicinity would be improved and the noise impact arisen from equipment reduced.

### **6.2 Severity of Adverse Effects**

Temporary noise and fugitive dust impact may be caused depending on the scale of engineering work required. These potential temporary impacts can be mitigated with appropriate measures. Also there is a possibility that the soil around the diesel tanks may be contaminated and will need to be removed. Runoff during construction could be contaminated with sediments and possibly concrete washings, requiring treatment before being discharged to storm drains.

**END OF TEXT**

**Attachment 1**

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**URGENT BY FAX AND DESPATCH**

(Fax No : 2824 0578)

**MEMO**

**From** Director of Environmental Protection  
**Ref** (3) in EP2/N2/OTH/42  
**Tel No.**  
**Fax No.**  
**Date** 12 February 1999

**To** CE/ Planning, WSD  
 (Attn : Mr Joseph KWOK)  
**Your Ref :** (28 & 29) in WSD 1600/2/1/99 Pt 1  
**Dated :** 29.1.99  
**Total No. of Page(s)** 1 (including this page)

Replacement of M&E Equipment and Improvement of Operation  
Facilities in Tsuen Wan No. 1 Pumping Satation  
Decommissioning of Existing Underground Diesel Oil Tanks

Thank you for your memo referenced above attaching the as-built drawings for your review.

2. We have considered the information provided and have determined that the captioned decommissioning project is a Designated Project as per 16 of Part II, Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO), to wit:

*"A store for oil with a storage capacity exceeding 200 tonnes."*

3. We note that there are four 64,000 litres underground diesel oil tanks are required to be decommissioned and removed in the subject site. The storage capacity of each oil tank is equivalent to 54 tonnes. Therefore, the total storage capacity of four oil tanks in the subject site is 216 tonnes.

4. Please be reminded that all Designated Projects, unless exempted under Section 9(2) of the EIAO, must follow the statutory process and require an Environmental Permit prior to their construction, operation and decommissioning. Therefore, you are advised to follow the application procedures under the EIAO and the Technical Memorandum on EIA Process, in submitting an application for an EIA Study Brief. I have attached the following documents (sent by despatch only) for your easy reference:

- (a) Environmental Impact Assessment Ordinance;
- (b) Technical Memorandum on Environmental Impact Assessment Process;
- (c) A Guide to the Environmental Impact Assessment Ordinance;
- (d) Form 1 Application for Environmental Impact Assessment Study Brief;
- (e) Guidance Note on Advertisement and Public Inspection of Documents; and
- (f) WBTC 19/98/ PELB 10/98 Procedures for Environmental Impact Assessment of Development Projects and Proposals.

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Received by Fax on .....

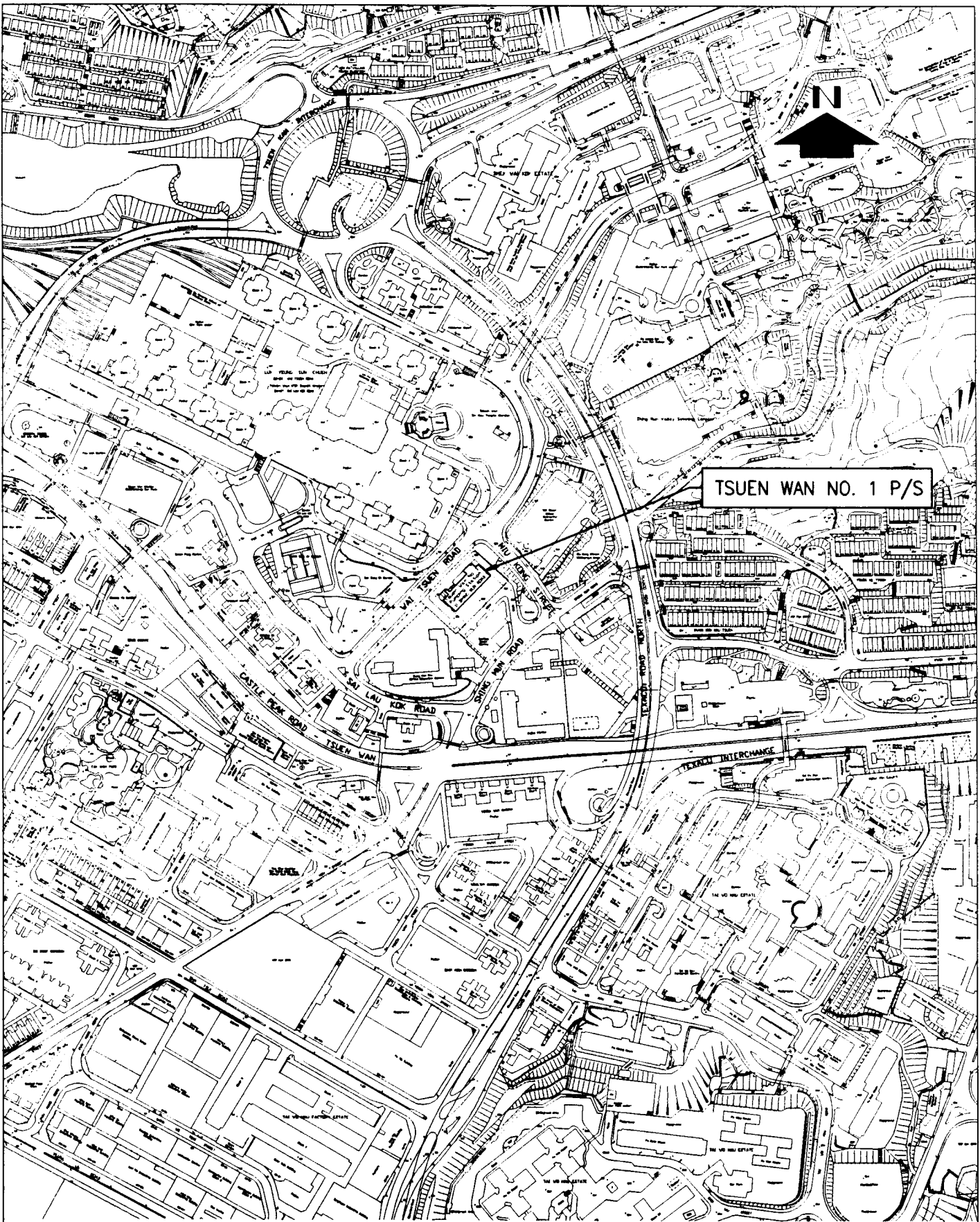
5. Please note that the above documents are available at the EIAO Register Office of EPD (27/F., Southorn Centre, 130 Hennessy Road, Wan Chai, Hong Kong; Fax : 2147 0894).

6. We are happy to review a draft application prior to your formal submission under the Ordinance and would be grateful if you could inform us of your tentative submission date.

Environmental Protection Officer  
for Director of Environmental Protection

c.c. - w/o encl.


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- DO/TW
- HyD
- TD
- TDD
- AFD
- DSD
- RSD



REF.	REVISION	SIGNATURE	DATE

**TITLE**

THE REPLACEMENT OF MECHANICAL AND ELECTRICAL EQUIPMENT AT TSUEN WAN NO. 1 PUMPING STATION LOCATION PLAN


**WATER SUPPLIES DEPARTMENT**

**APPROVED**  
 DATE / / K.C. TAM  
CEME/P (Ag.)

**SCALE :** 1 : 5000

**Figure 1**

**NOTES**

1. ALL DIMENSIONS IN MILLIMETRES.
2. ALL DIMENSIONS TO FACE UNLESS SPECIFIED OTHERWISE.
3. ALL WORKING TO BE DONE IN ACCORDANCE WITH DRAWING NO. W7990/5.
4. FOUNDATION WORK TO BE DONE IN ACCORDANCE WITH DRAWING NO. W7990/6.
5. ALL MATERIALS TO BE USED SHALL BE OF THE BEST QUALITY AVAILABLE.
6. ALL STRUCTURAL WORK TO BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STRUCTURAL CODE OF PRACTICE.
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**REFERENCE**

1. STRUCTURAL CODE OF PRACTICE.
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**REVISION**

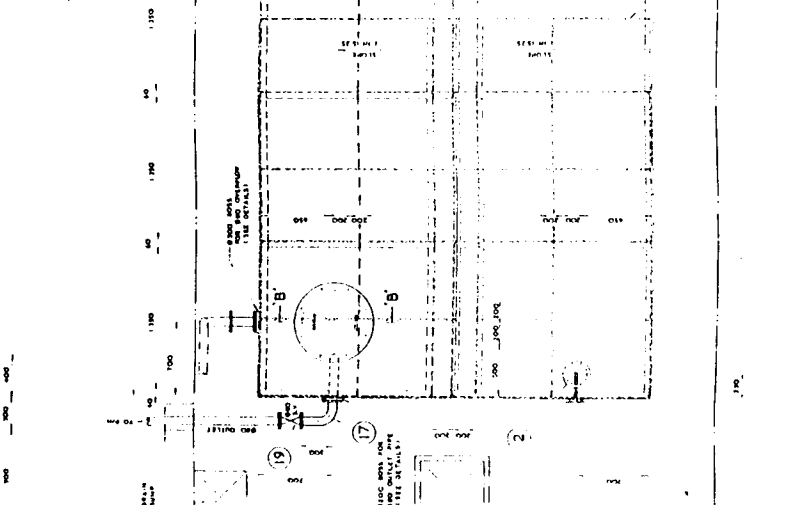
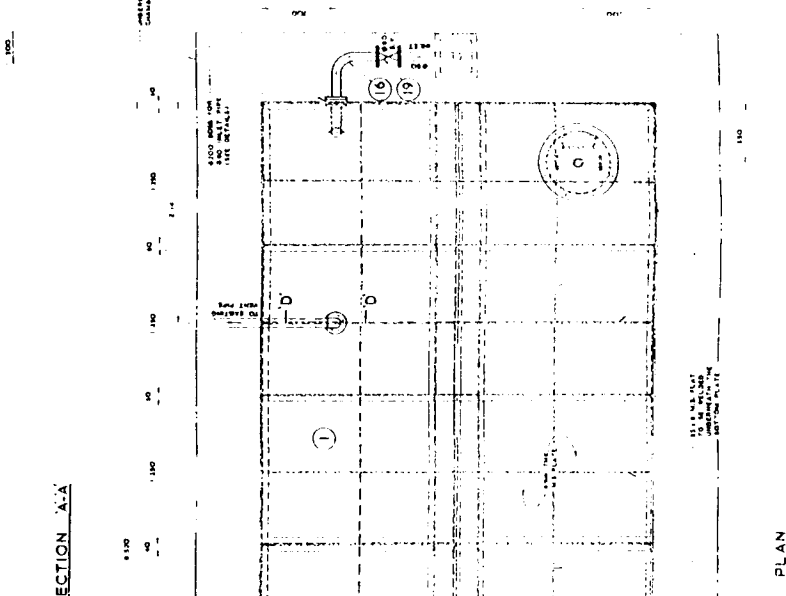
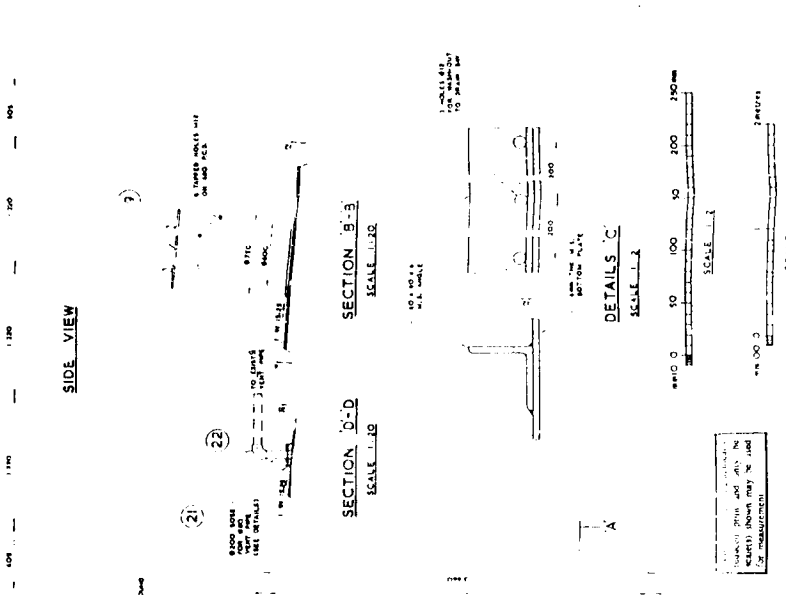
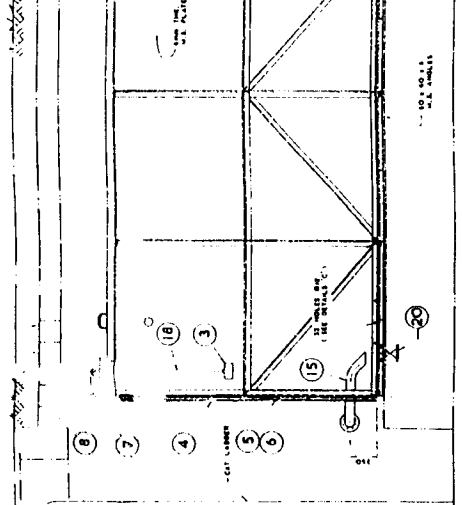
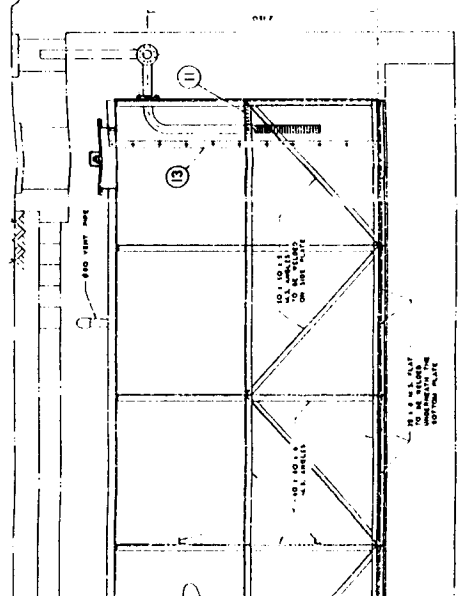
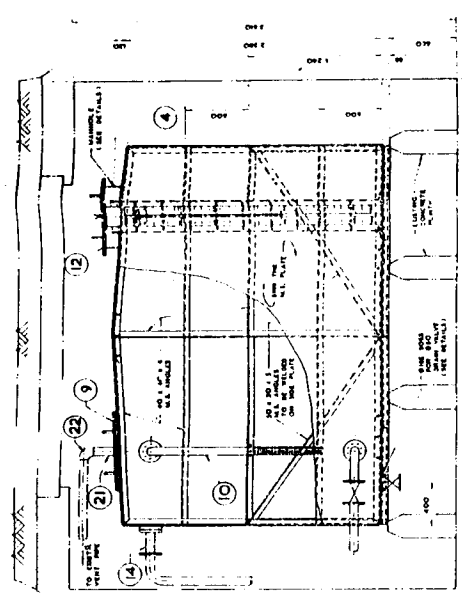
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NO. 3 AND NO. 4  
OIL FUEL STORAGE TANKS  
(CAPACITY 64,000 LITRES)**

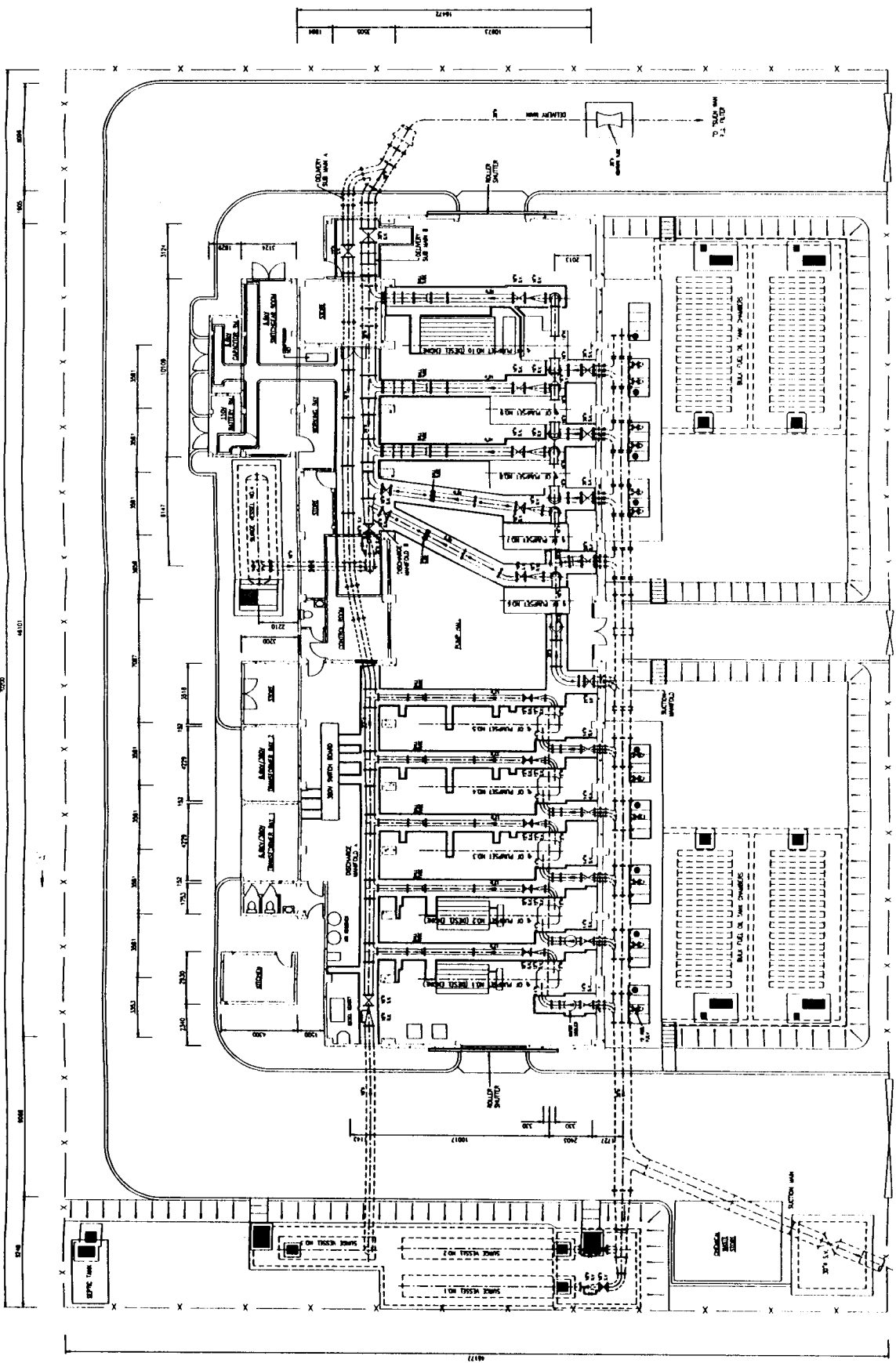
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**WATER SUPPLIES  
DEPARTMENT**

**Figure 2**



NOTES:  
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 2. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.



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Water Supplies Department  
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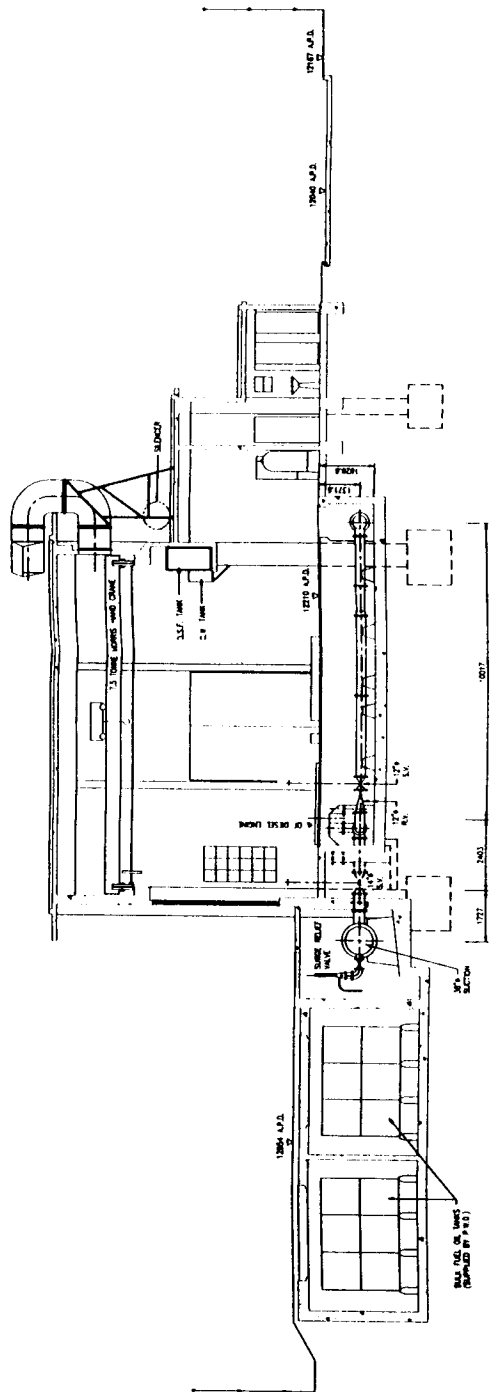
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NOTES:

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.



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3		APPROVED	
4		REVISION	
5		DATE	

drawing title  
 WATER SUPPLIES DEPARTMENT  
 (REPLACEMENT OF PUMP EQUIPMENT)  
 1270 A.P.A. (REPLACEMENT OF PUMP EQUIPMENT)  
 SHEET NO. 003

drawing no. S70058/003  
 scale 1:10



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 Figure 4

