

## **CAMP MANAGEMENT PROCEDURE**

**AGREEMENT NO. :** 09-5578-E-4

**PROJECT NAME :** Ruwais Refinery Expansion Project  
EPC-4: Tankage & Associated  
Interconnecting Piping





**COMPANY :** Abu Dhabi Oil Refining Company (TAKREER)

**PMC :** Mott MacDonald Ltd.

**CONTRACTOR :** Daewoo Engineering & Construction Co., Ltd.

<b>TAKREER</b>	<b>RUWAIS REFINERY EXPANSION PROJECT</b>	<b>DAEWOO E&amp;C</b>	
	<b>EPC-4 TANKAGE AND ASSOCIATED INTERCONNECTING PIPING</b>		
	<b>AGREEMENT No. 09-5578-E-4</b>		
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**NOTES:**

- (a) Revisions are denoted by a vertical line placed in the right-hand margin against the revised text.
- (b) PREP = Prepared by, CHKD = Checked by, REVD = Reviewed by, APP'D = Approved by.
- (c) In case of conflict between any requirements stipulated in this document with the contractual requirements, the contractual requirements shall prevail.

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**REVISION INDEX DETAILS**

Rev	Location of Change	Brief Description of Change
0	5.10	Hot and Cold food temperatures specified
0	Attachment 9.1	Quarterly inspection checklist updated with food temperatures.

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## 1. INTRODUCTION

### 1.1 Purpose

The purpose of this camp management plan is to support the site HSE procedure and to outline the health and safety measures that are to be put in place for the Daewoo E&C (DEC) as well as DEC subcontractor camp facilities on the Ruwais Refinery Expansion Project.

The purpose can be summarized as follows:

1. To identify areas within the camp area where there is a potential hazard to the health and safety of the camp occupants through a Hazard Identification.
2. All hazards should be recognized and the risks should be controlled up to ALARP level (As Low As Reasonably Practicable).
3. To outline the requirements for a structured Hazard Analysis and Critical Control Points (HACCP) program.
4. To provide a framework under which camp staff (Camp boss, Administration Manager, Environmental & Hygiene Supervisor etc.) can be trained on potential hazards elimination and avoidance.
5. To clearly define the facilities and arrangements in place for the effective management of HSE in the camps.
6. To provide input to the HSE training programs to ensure that each occupant of the camps are fully aware of the arrangements in place for health, safety and environment.
7. To inform camp residents of emergency evacuation procedures and steps to follow in case of emergency.
8. To support efforts to provide a conducive and harmonious living condition to all camp residents.

### 1.2 Scope

This camp management plan covers all the facilities and the arrangements in the camp area that will be established in Ruwais for the RRE Project including health, safety and environmental concerns such as waste management and disposal. It also includes all temporary- and outside camps that will be used from time to time especially during the initial stages of the project, and by some of the subcontractors. These include:

- (1) All accommodation areas
- (2) Administration buildings
- (3) Camp medical facilities
- (4) Kitchen and dining facilities
- (5) Accommodation utilities (i.e. Laundry)
- (6) Recreation facilities, etc.

It should be noted that it is not the intention of this plan to define in detail the emergency evacuation procedures. These are defined in separate documents under the site HSE plan. This camp management plan merely describes the responsibilities and summarizes the facilities and procedures in place for health, safety and security management and control.

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## 2. DEFINITIONS

AIMS	Action items management system. This is an electronic register where action items from incident investigations, observations, audits and inspections are captured, tracked and closed out.
ALARP	As Low As Reasonably Practicable (ALARP).
CCP	Critical Control Points; A CCP is a point, step, or procedure in a food manufacturing process at which control can be applied and, as a result, a food safety hazard can be prevented, eliminated, or reduced to an acceptable level.
DEC	Daewoo Engineering and Construction
DEC camp	Daewoo E & C residential and accommodation camp
HACCP	Hazard Analysis and Critical Control Points. HACCP is a systematic preventative approach to food safety that addresses physical, chemical and biological hazards as a proactive means of prevention rather than finished food inspection.
HAZID	Hazard Identifications
HSE	Health, Safety and Environment
MSDS	Material Safety Data Sheets
RRE	Ruwais Refinery Expansion

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### 3. RESPONSIBILITIES

#### 3.1 Project Manager

Shall ensure compliance with this procedure by all personnel on the project and all necessary resources are made available as required.

#### 3.2 HSES Manager

- Monitoring of performance of this camp management procedure.
- Providing health, safety and environmental support to the Administration Manager and Camp Boss as required.
- Support and review of the camp HSE arrangements.
- Designate competent persons to carry out periodic camp inspections.

#### 3.3 Administration Manager

The Administration Manager is responsible for the execution of the camp management plan. He is in charge of the functional management of the camp with the day to day responsibilities performed by the Camp Boss.

- Assists in the investigation of incidents as required.
- Gives instructions to camp personnel on implementation of HSE measures.
- Carry out and record personal safety awareness visits on a regular basis, but not less than once per month.
- Ensure appropriate emergency contingency plans are maintained and in place for the camp.
- Ensure adequate security arrangements are provided.
- Reinforce health, safety and environment behavior through "leading by example".

#### 3.4 Camp Boss

The Camp Boss is responsible for the day to day management of the camp including, but not limited to, accommodation, food, entertainment, safety, security, welfare, hygiene, waste management, maintenance, first aid, fire prevention and protection, camp administration etc. The Camp Boss has the following specific responsibilities in terms of this procedure;

- Responsible for the daily camp HSE and security supervision and monitoring.
- He reports any incident to HSES- and Administration Manager.
- Shall ensure that personnel are trained in actions to take in the event of a fire, chemical handling and food hygiene.
- Shall keep records of all personnel trained along with specific dates and times.
- Ensure that adequate fire prevention and protection measures are in place and maintained, and that monthly fire equipment inspections are carried out.
- He shall ensure that adequate medical facilities are in place and maintained. Such medical facilities shall also have adequate space for quarantine to prevent the spread of communicable diseases.
- Leads investigation of camp incidents.
- Formulation and implementation of safe work methods and procedures for specific activities.
- Gives instructions to camp staff on implementation of HSE measures, initially, and as follow-up.
- Ensure that Emergency contact numbers are displayed at the various locations in the camp.
- Ensure that the housekeeping crews are fully aware of the waste management practices.

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- Reinforce health, safety and environment behavior through “leading by example”.
- Shall ensure that the catering subcontractor strictly follows a structured HACCP program.
- Chair the monthly camp committee meetings and act on issues raised by the camp committee.

**3.5 Environmental & Hygiene Supervisor**

- He is responsible for the camp hygiene and environmental management
- Shall carry out weekly, monthly and quarterly inspections
- Ensure waste is removed on regular intervals, stored in designated areas and fly-nets cover any food skips.
- Shall support the camp boss in the execution of his duties and ensure that the catering subcontractor strictly follow their HACCP program.
- Will attend camp committee meetings and provide support and solutions to issues that are raised during such meetings.

**3.6 Camp Nurse**

- The camp nurse shall be responsible for first aid and medical care in the camp
- Ensure that the camp first aid centre is well stocked, and maintained
- Keep a record of all treatment given to personnel
- Immediately inform the HSES Manager and Camp boss of any medical treatment cases
- Monitor the cases that are presented and identify any possible patterns that may arise

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#### 4. RISK MANAGEMENT

This procedure covers all forms of camps that will be utilized during the project. This includes temporary camps, permanent camps and camps utilized by subcontractors that are not in the main camp area.

A HAZID will be carried out to identify the associated hazards and relevant control measures in place for the effective management of the associated risks in the camps. The HAZID shall address potential hazards arising from the activities of the camp and the potential hazards arising from the activities adjacent to the camp.

Apart from the HAZID that will be carried out a HACCP program should be developed and implemented by the catering subcontractor. The HACCP seven principles will be followed for development, implementation and maintenance of the program. The program requires formal approval and will be strictly monitored by the Contractor personnel.

##### 4.1 HACCP

HACCP is a systematic preventative approach to food safety that addresses physical, chemical and biological hazards as a proactive means of prevention rather than finished food inspection. The HACCP program is based on a seven principle system. The principles are;

- **Principle 1: Conduct a hazard analysis.**  
Plans determine the food safety hazards and identify the preventive measures the plan can apply to control these hazards. A food safety hazard is any biological, chemical, or physical property that may cause a food to be unsafe for human consumption.
- **Principle 2: Identify critical control points.**  
A Critical Control Point (CCP) is a point, step, or procedure in a food manufacturing process at which control can be applied and, as a result, a food safety hazard can be prevented, eliminated, or reduced to an acceptable level.
- **Principle 3: Establish critical limits for each critical control point.**  
A critical limit is the maximum or minimum value to which a physical, biological, or chemical hazard must be controlled at a critical control point to prevent, eliminate, or reduce to an acceptable level.
- **Principle 4: Establish critical control point monitoring requirements.**  
Monitoring activities are necessary to ensure that the process is under control at each critical control point. Each monitoring procedure and its frequency should be clearly listed in the HACCP plan, i.e. temperature measurements, sealed food samples etc.
- **Principle 5: Establish corrective actions.**  
These are actions to be taken when monitoring indicates a deviation from an established critical limit. The final rule requires the HACCP plan to identify the corrective actions to be taken if a critical limit is not met. Corrective actions are intended to ensure that no product injurious to health or otherwise adulterated as a result of the deviation enters commerce.

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- **Principle 6: Establish record keeping procedures.**  
The HACCP program requires that documents are maintained, including its hazard analysis and written HACCP plan, and records documenting the monitoring of critical control points, critical limits, verification activities, and the handling of processing deviations.
  
- **Principle 7: Establish procedures for ensuring the HACCP system is working as intended.**  
Validation ensures that the subcontractor follows the HACCP program as to ensure the production of safe product. Verification ensures the HACCP plan is adequate, that is, working as intended. Verification procedures may include such activities as review of HACCP plans, CCP records, critical limits and microbial sampling and analysis. Verification also includes 'validation' - the process of finding evidence for the accuracy of the HACCP system (e.g. scientific evidence for critical limitations).

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## 5. CAMP HSE FACILITIES

The following section provides details of the facilities that should be in place safe guard the camps.

### 5.1 Alarm System

The following general alarm requirements should be in place;

- Smoke detectors with alarms shall be installed in each room and monitored on a central control panel by Security personnel. All instances of fire should be immediately reported to the DEC HSES Manager.
- Manual fire alarm call points will be installed in the camp, to activate the fire alarm on visual discovery of a fire.
- The fire alarm system should be equipped with a backup power supply in case of power failure.
- Fire drills shall be carried out periodically.
- Camp personnel should be trained in basic fire fighting, as to respond to the incipient stage of a fire. The Camp Boss should ensure that the fire alarms are tested on a regular basis, and such tests should be recorded.

### 5.2 Security

Perimeter fences should be in place around the camps to ensure a safe and secure environment for camp occupants. A guard-house with office shall be installed to control access into the camp areas.

The following will apply to employees and visitors to camps;

- All personnel entering shall show their project ID badge to enter the camp. No exceptions will be made to this rule. Electronic access control systems may be considered to improve efficiency and to ensure accurate headcounts during emergency mustering, etc.
- All visitors to the camp will be required to sign in at the access point and be escorted into the camp by their host.
- A visitors ID will be issued after signing the visitor's logbook and handing over an ID such a driver license or passport.
- No property may be removed from the camp unless a material exit permit is issued by the the Administration Manager or Camp Boss.
- No visitors may stay overnight unless the stay has been arranged with the Administration Manager or Camp Boss.
- No alcohol or drugs will be allowed anywhere in the camp, rooms, etc., this offense shall be punishable by local law.
- Camp perimeter will be subjected to regular scheduled patrols. All result of patrols shall be logged.

The Administration Manager and Camp Boss will have the responsibility to ensure that these requirements are adhered to, with the support of the HSES Manager.

### 5.3 Vehicle Access

- No industrial vehicles will be allowed to park in the camp. Vehicles will be parked at the entrance to the camp only.
- Private vehicles may be parked in the camp, but only in designated areas. No vehicles may be parked in a way that prevents the free flow of traffic, and serves as obstruction to fire and emergency utilities.

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- Security guards shall have full authority to search all vehicles entering/exiting the camp.
- Pedestrian walk-ways will be created to avoid the possibility of contact with moving vehicles and equipment.
- Traffic control signage will be installed in the camp area such as speed limit, stop signs, warning signs, one ways, no parking etc. to inform drivers and camp traffic rules.

#### **5.4 Fire Protection and Prevention**

A fire protection and prevention system shall be installed in the camp to provide early detection of fire, the protection of people, property and equipment.

The fire protection and prevention system consists of the following:

- Smoke detectors
- Fire extinguishers
- Information campaign
- Fire hydrants and hoses
- Fire water tanks and pumps
- Training of camp fire fighting team
- Regular inspections of all firefighting equipment

The placement of firefighting equipment is critical to an effective fire fighting program. The following information is therefore considered when the locations for the firefighting equipment are identified:

- Activities (kitchen, car park, accommodation, fuel storage).
- Classes of fire.

The following general requirements have to be met;

- Fire extinguishers shall be placed in such a way that no person needs to run more than 15m to reach an extinguisher or fire hose reel.
- Fire detection and protection equipment shall be checked monthly, recorded, and serviced annually by a competent person.
- The batteries in the smoke detectors shall be replaced as per manufacturer's recommendation or power is discharged. A record of the battery change shall be kept.
- The Camp Boss has the responsibility to ensure that the fire detection and prevention equipment are maintained and serviced at the specified intervals.
- The camp boss is also responsible for ensuring that a fire drill is performed on regular intervals with the results recorded and lessons learned acted upon.

#### **5.5 Fuel Storage Facility**

The fuel storage area is designed and located with the intention of ensuring the safety of persons and vehicles while transferring fuel from the delivery truck to the storage tank, and from the storage tank to the generator set.

No fuel storage in the camp shall be allowed for the purpose of vehicle refueling. Vehicle refueling shall be arranged with a certified and designated refueling station only. Fuel storage facility in the camp is purely for power plant generators use, which are operational 24 hours a day.

The following shall be provided at the fuel storage area:

- A bund area capable of containing 110% of the maximum contents of the storage unit.

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- The correct type and quantity of fire extinguishers shall be located outside, not less than 7.5 meters or more than 22.5 meters from any fuel storage area.
- The project refueling/ decanting procedures will be strictly followed during refueling operations.
- “No smoking” and “No open flame” safety signs shall be placed at the storage area.
- A work platform with steel deck and safe access will be provided.
- Drip trays to prevent soil contamination and pollution shall be in place.

The Camp Boss will ensure that the above requirements are in place.

#### **5.6 Liquefied Petroleum Gas – LPG**

LPG will be used for cooking in the kitchens. The general requirements for LPG storage and handling in the camp are;

- All LPG installations shall be stored outside in a dedicated shaded area.
- Copper piping will be used for LPG installations where practical and painted yellow.
- All LPG cylinders shall be fitted with flash back arrestors.
- LPG storage tanks shall be cordoned off, and painted yellow.
- Warning signs shall be posted at all LPG storage areas.

#### **5.7 Medical Arrangements**

- Medical arrangements shall be made to provide medical treatment of its residents, personnel or employees with injuries, illness and the provision of first-aid and general medications.
- A full-time nurse/s will be on duty at the medical facility or first-aid station.
- Employees can visit the medical facility at any time for reasons including injuries, illnesses or any medical related query.
- The nurse in charge of the medical facility has the responsibility to ensure that the facility is kept to an acceptable standard regarding service, equipment, material and medications.
- The nurse shall provide the HSES Manager with a weekly report regarding stock levels.
- The HSES Manager shall arrange for the stock to be ordered through the Administration Manager.
- The nurse shall maintain a logbook of all treatment provided in the camp.
- The nurse shall monitor any trends that may arise in the camp and immediately inform the HSES Manager of the same.
- Proactive measures such as coaching, isolation and awareness will be taken to prevent, and/or reduce the spread of illnesses in the camp.
- The first aid clinic should be in an accessible area of the camp and a first aid flag should be hoisted at the clinic to indicate its location.
- The clinic should be equipped with a ramp for access of stretchers in case of medivac.

#### **5.8 Pest Control**

- Fumigation will be carried out on regular intervals to prevent or minimize the presence of mosquitoes, insects and rodents.
- Stagnant water shall not be allowed in Camp area. The Camp Boss will ensure that any water storing equipment is well covered.
- Waste management will be strictly controlled especially in the kitchen and accommodation areas.
- Nets will be placed at the bottom of camp cabins to prevent the accumulation of wastes underneath cabins.

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- Enclosed workplaces and accommodation will be constructed and maintained, as practical, to prevent the entrance or harborage of rodents, insects and other pests.
- Insect screens shall be installed in windows and electronic fly killers shall be provided in mess rooms.
- An effective extermination program will be instituted for prevention and where the presence of such pests is detected.
- All persons involved in the use and handling of pesticides must be trained in safe use and handling of pesticides.
- Extreme care shall be taken not to contaminate the soil with pesticides.

#### **5.9 Drinking Water**

- An adequate supply of drinking water will be provided in all camp areas..
- Only approved potable water systems will be used for the distribution of drinking water.
- Drinking water will be dispensed by means that prevent contamination between the consumer and source.
- Potable drinking water dispensers will be designed, constructed, and serviced to ensure sanitary conditions, capable of being closed and will have a tap.
- Use of a common cup (a cup shared by more than one worker) is prohibited without the cup being sanitized between uses.
- Employees will use cups when drinking from potable water coolers/containers.
- Unused disposable cups will be kept in sanitary containers and a waste receptacle will be provided for used cups.
- Quarterly water analysis will be carried out by an approved laboratory to ensure that potable water meets WHO guidelines for supply of drinking water. As a minimum such a test must be carried out on the initial occupation of a camp and after that on quarterly intervals.

#### **5.10 Kitchen and Food Hygiene**

The detailed requirements for kitchen and food hygiene shall be captured in the HACCP program. The following details some general requirements that have to be considered in this regard;

- Food shall be consumed in mess rooms only.
- No cooking shall be allowed in sleeping quarters.
- Canteen and related facilities on areas, projects or installations shall be established, operated, and maintained in compliance with the health and sanitation recommendation from local authorities and Company.
- Kitchen shall be constructed of proper materials, and due consideration shall be made for position and operability of kitchen equipment.
- Food items shall be stored in a well lighted and air-conditioned room.
- Food shall be stored in a way as to ensure good stock rotation (first in, first out).
- Cleaning chemicals, detergent, mops and brushes shall not be kept in food stores.
- No smoking in the kitchen will be allowed and sufficient fire extinguishers and fire blankets shall be located in kitchen and mess halls.
- The Administration Manager shall ensure that every catering employee possess a valid medical fitness certificate from local officials.
- All catering staff shall wear an appropriate plastic hats, plastic hand gloves, aprons and other clothing related to hygiene when dealing with food to avoid contamination.

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- Food samples will be stored, sealed and tested on a 24 hour basis.
- All food waste should be cleared regularly.
- A chopping boards and knives shall be used separately depending on the sorts of food like meat, fish and vegetables. Color coding should be applied to indicate the different uses of cutting boards.
- No wooden cutting boards are allowed under any circumstances.
- All meals served at eating times; breakfast, lunch and dinner will be served at the relevant required temperature.
- Temperature measurements will be taken and recorded from start to finish in the food chain to ensure that the hot and cold chain is maintained.
- Food temperatures shall be maintained at above 57° C for hot foods and below 5° C for cold foods (food is to be kept out of the danger zone 5° - 57° C).
- Only infra red thermometers are allowed, as to prevent any form of cross contamination.
- Adequate ventilation and air conditioning will be provided in the cooking areas to prevent build up of smoke as well as excessive temperatures for cooks preparing the food.

#### **5.11 Washing and Sanitary Arrangements**

- The sanitary units in the camp shall at all times be kept in a clean and healthy condition. It shall be cleaned on a daily basis and shall form part of the Camp Boss inspections.
- Routine maintenance in this area will be scheduled by the Camp Boss.
- The laundry facilities will be kept clean and tidy at all times.
- The Camp Boss will ensure that the necessary material safety data sheets are kept on file for every chemical used in the camp. The HSE department will assist on request.

#### **5.12 Chemical Usage**

- Material Safety Data Sheets (MSDS) for each chemical used on campsite will be kept on file in the camp boss's office. A copy of each MSDS will be placed in the medical facility in the camp and on site.
- Every worker working with chemicals will be trained in the safe use of the chemicals he is required to use, the dangers thereof, and what to do in case of ingestion, contact with skin or eyes.

#### **5.13 Waste Management**

- The waste management and disposal in the DEC camp will be controlled by the Camp Boss and will follow the guidelines of the waste management procedure.
- The management of the sewerage treatment plant in the camp will be controlled by the Camp Boss and will follow the guidelines of the waste management plan.
- The Environmental & Hygiene Supervisor will periodically inspect the camp area to ensure that the correct method of waste disposal is being exercised.
- The Environmental & Hygiene Supervisor will also act as a liaison with Abu Dhabi - Ruwais utilities services.
- Medical waste shall be handled properly as per the Waste Management Procedure.
- All used syringes and blood contaminated gauze pads shall be separated and will be disposed to an accredited waste disposal subcontractor.

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	<b>EPC-4 TANKAGE AND ASSOCIATED INTERCONNECTING PIPING</b>		
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## 6. EMERGENCY PROCEDURES

In case of an emergency, communication will be done via the public address system or hand held megaphones and will be managed by the emergency response team under the Camp Boss. Public address announcements will be used to assist personnel in their safe escape and evacuation. (See temporary facility emergency exit plans). It is important that emergency escape plans be drawn up for all camps that will be used and displayed prominently in the camp areas.

The Camp Boss has the responsibility to ensure that the address system is operational at all times. His mobile phone shall be used as a 24 hr. communication link for camp emergencies as well as for 24 hr. open line house calls. In the unlikely event of an emergency and the Camp Boss receives notification on his mobile phone, he shall immediately inform the HSES Manager of the occurrence, as well as medical/fire services if required.

For more details, refer to site HSE plan for the emergency evacuation procedure.

## 7. INSPECTIONS

Various inspections will be carried out in the camp area including inspections of the messing facilities, camp rooms, showers, laundry facilities fire protection and prevention equipment and waste management facilities.

The Environmental and Hygiene supervisor for the camp will however carry out a formal inspection on a monthly basis and a more detailed formal inspection on a quarterly basis of all camps utilized on the project. The findings of the inspections will be captured in a report and all action items will be transferred to the AIMS register.

## 8. COMMUNICATION

Communication is an essential part of camp management. The camp staff will communicate with the camp occupants through notices, flyers and letters.

It is extremely important however that there are vehicles in place where camp occupants can raise concerns, and these concerns can be addressed. For this purpose suggestion boxes will be put up at the camp office and in the mess hall. A camp committee will also be established, from nominated camp occupants. The committee should be a representation of the camp residents and shall meet on a monthly basis to discuss issues and concerns with the Camp management.

The minutes of the meeting will be captured and a copy will also be provided to Company. The status of the action items will be tracked in the camp meeting itself. The chairperson for this meeting will be the Camp Boss and the secretary will be the Environmental and Hygiene supervisor.

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**9. ATTACHMENTS**

9.1 Inspection checklists

- 9.1.1 Monthly inspection checklist
- 9.1.2 Quarterly inspection checklist

9.2 Main camp drawings

- 9.2.1 Temporary facility building layout plan
- 9.2.2 Temporary facility water supply system layout plan
- 9.2.3 Temporary facility fire fighting system layout plan
- 9.2.4 Water supply and drainage system layout plan
- 9.2.5 Temporary facility main power distribution layout plan
- 9.2.6 Temporary facility telecommunication system layout plan
- 9.2.7 Temporary facility emergency exit layout plan

<b>TAKREER</b>	<b>RUWAIS REFINERY EXPANSION PROJECT</b>	<b>DAEWOO E&amp;C</b>	
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### MONTHLY INSPECTION CHECKLIST

No	DESCRIPTION	RATING	COMMENTS
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#### 1. SHOWERS AND TOILETTES

1.1	Floors clean		
1.2	Lavatories and mirrors clean		
1.3	Shower and curtain clean		
1.4	Soap furnished and soap dishes clean		
1.5	Toilette bowl clean and disinfectant used		
1.6	Lights and fans are working and clean		
1.7	Toilette paper stocked		
1.8	Towels provided and clean		
1.9	Disinfectant utilized		
1.10	Waste bins emptied and clean		
1.11	No water leaks		

#### 2. HALLWAYS

2.1	Floors clean		
2.2	No trip hazards		
2.3	Walls clean		
2.4	Lights and exit signs installed		
2.5	Emergency lighting and escape luminaries provided		
2.6	Doors open out with push bar		
2.7	Disinfectant utilized		
2.8	MSDS available and requirements met		

#### 3. OUTSIDE AREAS

3.1	No trip hazards on side walks		
3.2	Adequate lighting provided and in working condition		
3.3	Outside areas clean		

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3.4	Adequate trash cans provided		
3.5	Designated smoking areas provided		

<b>4. LIVING AREAS AND BEDROOMS</b>			
4.1	Floors and walls clean		
4.2	Chairs and tables clean		
4.3	Waste bins emptied and clean		
4.4	Refrigerator working and clean with bottled water provided		
4.5	Doors and locks working		
4.6	Clean sheets, blankets and pillows available		
4.7	Windows clean		
4.8	Lights working inside and outside		
4.9	AC working and filters clean		
4.10	Records available of monthly AC inspection		
4.11	Disinfectant utilized		
4.12	Furniture condition		

<b>5. FIRE EXTINGUISHERS AND SMOKE DETECTORS</b>			
5.1	Fire extinguishers and smoke detectors provided		
5.2	Monthly inspection carried out on detectors and extinguishers		
5.3	Are ground fault circuit interrupters (GFCI's) provided for rooms.		
5.4	Any cooking devices in rooms		
5.5	Smoke detectors unobstructed and in good working condition		

<b>6. LAUNDRY FACILITIES</b>			
6.1	Washing machines and dryers clean and in good working condition		
6.2	Are GFCI's provided		
6.3	Dryers filters clean and free from build up		

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6.4	Clean folding area		
6.5	Detergents stored properly and MSDS sheets available		
6.6	Floor, walls and windows clean		
6.7	Sufficient fire extinguishers available		
6.8	General housekeeping		

Camp Owner:		Date of inspection:	
Camp Occupant(s):		Inspected by:	
Location:		Signature:	

**RATING SYSTEM:** 1: Poor; - 2: Fair; - 3: Good; 4 – Very Good; 5 – Excellent

<b>TAKREER</b>	<b>RUWAIS REFINERY EXPANSION PROJECT</b>	<b>DAEWOO E&amp;C</b>	
	<b>EPC-4 TANKAGE AND ASSOCIATED INTERCONNECTING PIPING</b>	<b>AGREEMENT No. 09-5578-E-4</b>	
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## QUARTERLY INSPECTION CHECKLIST

No	DESCRIPTION	RATING	COMMENTS
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### 1. ALARM SYSTEM

1.1	Fire alarm control panel in place and functional		
1.2	Fire detectors in rooms functional and unobstructed		
1.3	Manual alarm call points clearly identified and accessible		
1.4	Trained camp personnel for first response		
1.5	Records of fire drills, fire alarms activation and fire alarm tests available		

### 2. SECURITY

2.1	Access control, i.e. ID verification, boom gates etc. in place		
2.2	Occurrence book available and up to date at gate house		
2.3	Visitors log book available at gate house, and being used		
2.4	Records available of material exit passes		
2.5	Records available of camp perimeter fence patrol		

### 3. VEHICLE ACCESS

3.1	No industrial vehicles parked inside camp		
3.2	Light vehicles parked in designated areas in the camp		
3.3	Vehicle searches being performed at access points		
3.4	Vehicles and pedestrians clearly separated		
3.5	Traffic signage installed as required		

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#### 4. FIRE PROTECTION AND PREVENTION

4.1	Records available of inspections of all camp fire protection and detection equipment		
4.2	Fire extinguisher spacing in occupied areas does not exceed 15m		
4.3	Record of battery change for smoke detectors available		
4.4	Records available of maintenance of all camp fire protection and detection equipment		
4.5	Fire drill carried out at regular intervals		

#### 5. FUEL STORAGE

5.1	Bunded area capable of containing 110% of the maximum contents of the storage unit		
5.2	Correct type and quantity of fire extinguishers is located at the fuel storage area		
5.3	Fire extinguishers are not less than 7.5m or more than 22.5m away from fuel storage area		
5.4	“No Smoking” and “No Open Flame” signs clearly posted at fuel storage area		
5.5	A safe work platform is provided for the fuel storage tank		

#### 6. LPG

6.1	LPG storage is outside, and in shaded areas		
6.2	Copper piping used for LPG use where practical and painted yellow		
6.3	All LPG cylinders shall be fitted with flash back arrestors		
6.4	LPG storage tanks are cordoned off and painted yellow		
6.5	Warning signs are posted at all LPG storage areas		

#### 7. MEDICAL ARRANGEMENTS

7.1	A full time nurse is available at the first aid clinic		
7.2	First aid clinic well stocked and maintained		

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7.3	Logbook available in clinic and up to date of all treatment provided		
7.4	First aid clinic in accessible area with first aid flag indicating location		
7.5	Quarantine area available inside first aid clinic for communicable diseases		

### 8. PEST CONTROL

8.1	Records of fumigation on regular intervals available		
8.2	No stagnant water in camp		
8.3	Waste management strictly controlled in accommodation and kitchen areas		
8.4	Nets installed at bottom of cabins to prevent ingress of wastes		
8.5	Insect screens installed on windows and electric fly-killers in mess halls		

### 9. DRINKING WATER

9.1	Adequate supply of drinking water is available in camp areas		
9.2	Use of common cups are not practiced		
9.3	Water dispensers are in good working conditions		
9.4	The areas at water dispensers are kept clean and free from wastes		
9.5	Records available of quarterly potable water analysis		

### 10. KITCHEN AND FOOD HYGIENE

10.1	Food only consumed inside mess halls		
10.2	No eating or preparation of food inside rooms		
10.3	Approved HACCP program in place		
10.4	Operability of kitchen equipment was considered during installation		
10.5	Food items are stored in a well lighted, ventilated room		
10.6	FIFO principle is being applied for food stock		

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10.7	Cleaning agents and equipment are kept separate from food		
10.8	Sufficient fire extinguishers and blankets are installed in the kitchen		
10.9	All catering staff have valid medical fitness certificates		
10.10	All catering staff wear appropriate PPE		
10.11	Food samples are being stored in sealed containers for 24 hours		
10.12	Food wastes are cleaned regularly		
10.13	Records available of food temperature measurements		
10.14	Hot food temperatures are maintained above 57° C?		
10.15	Cold food temperatures are maintained below 5° C?		
10.16	Infra red thermometers used to measure food temperatures		
10.17	Adequate ventilation and air conditioning provided in cooking areas		

### 11. WASHING AND SANITARY ARRANGEMENTS

11.1	Toilettes are kept clean, and in good working condition		
11.2	Showers are kept clean, curtains in place and shower heads installed		
11.3	Adequate warm water is available		
11.4	Cleaning schedule available in sanitary facilities		
11.5	Laundry facilities are kept clean, and in good working conditions		

### 12. CHEMICAL USEAGE

12.1	MSDS file available in camp office for every chemical being used in camp		
12.2	Copy of MSDS file available in camp clinic		
12.3	Every worker dealing with chemicals have been trained on the safe use thereof and what to do in case of emergency (records available)		

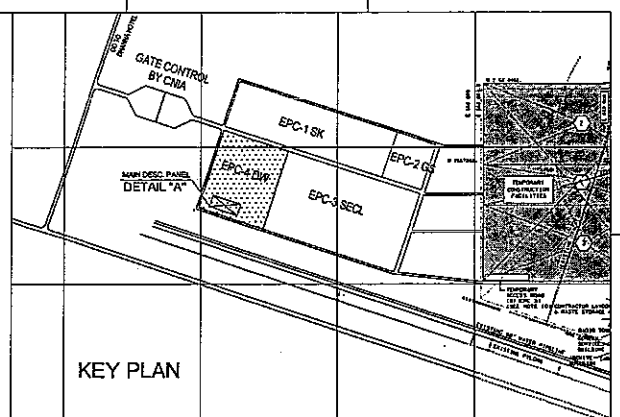
<b>TAKREER</b>	<b>RUWAIS REFINERY EXPANSION PROJECT</b>	<b>DAEWOO E&amp;C</b>	
	<b>EPC-4 TANKAGE AND ASSOCIATED INTERCONNECTING PIPING</b>		
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### 13. WASTE MANAGEMENT

13.1	Correct method of waste collection, segregation and disposal is applied		
13.2	Medical waste are stored in bio-waste containers and disposed of by an approved company		
13.3	Waste removed on regular intervals, and no backlog of waste removal evident		
13.4	Food waste skips covered with fly nets		

Camp Owner:		Date of inspection:	
Camp Occupant(s):		Inspected by:	
Location:		Signature:	

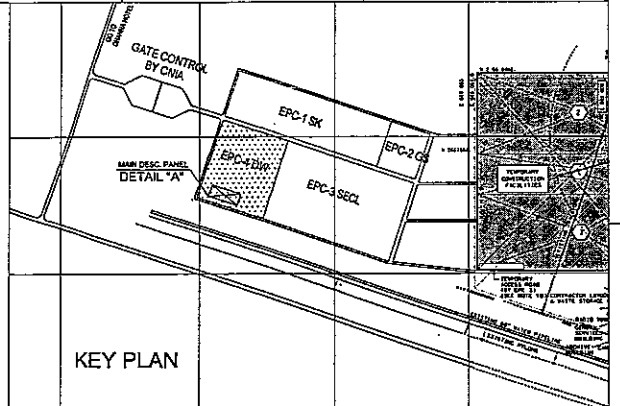
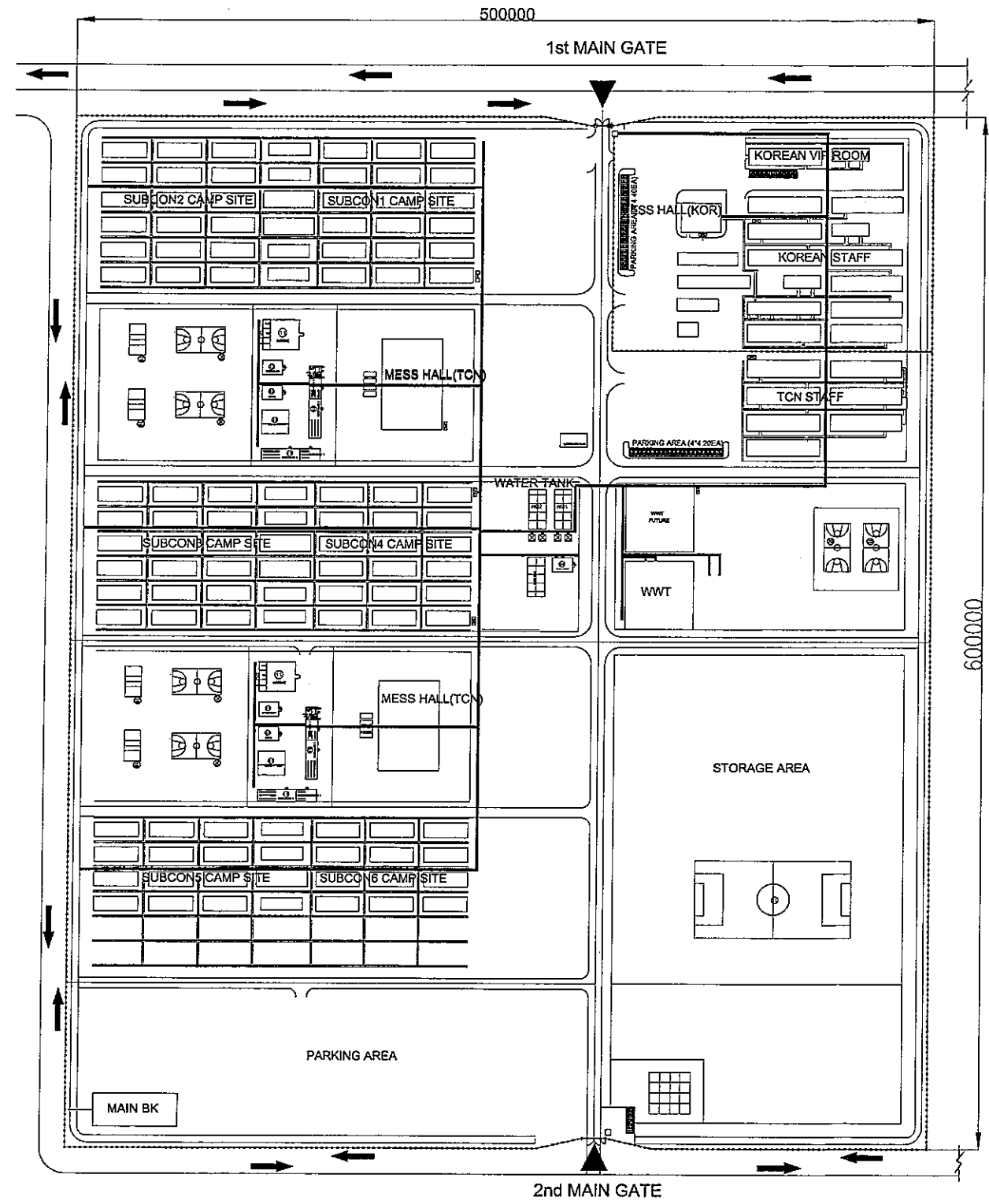
**RATING SYSTEM:** 1: Poor; - 2: Fair; - 3: Good; 4 – Very Good; 5 – Excellent



NO	DESCRIPTION	QTY (NO)	OCCUPANT(PERSON)	AREA(M <sup>2</sup> )	SP#
1	LIVING QUARTER FOR KOR STAFF(SM, MANAGER, VP)	1	12	412	1
2	LIVING QUARTER FOR KOR STAFF(LDR, MANAGER)	7	133	578	2
3	LIVING QUARTER FOR KOR LABOR	2	32	44	3
4	LIVING QUARTER FOR TCN STAFF(ENGINEER)	2	22	44	4
5	LIVING QUARTER FOR TCN STAFF	5	44	220	5
6	LIVING QUARTER FOR TCN LABOR	98	43	4604	6
7	RECREATION ROOM FOR KOR STAFF(LDR, MANAGER)	1			7
8	CAMP WAREHOUSE FOR KOR STAFF / LABOR	1			8
9	RECREATION ROOM FOR KOR STAFF(LDR, MANAGER)	1			9
10	RECREATION SHOP, CLOTHING LAUNDRY ROOM FOR KOR STAFF/LABOR	2			10
11	TOILET/SHOWER FOR TCN STAFF, RECREATION ROOM FOR TCN STAFF/LABOR	1			11
12	TOILET/SHOWER FOR TCN LABOR, RECREATION ROOM FOR TCN STAFF/LABOR	12			12
13	CAMP OFFICE, BARBERSHOP FOR TCN STAFF/LABOR	2			13
14	CAMP WAREHOUSE FOR TCN STAFF/LABOR	4			14
15	BEDDING/LAUNDRY ROOM FOR KOR STAFF/LABOR	1			15
16	MESS HALL FOR KOR STAFF/LABOR	1			16
17	MESS HALL FOR TCN STAFF/LABOR	2			17
18	CLUB FOR KOR/TCN STAFF/LABOR	1			18
19	GUARDHOUSE	2			19
20	VOLLEYBALL COURT(15M X 30M)	2			20
21	BASKETBALL COURT(15M X 15M)	2			21
22	SOCCER FIELD(45M X 90M)	1			22
23	UTILITIES	1			23
TOTAL (BUILDING)			5,081		


ORDER	KOREAN		TCN (LABOR)		MANPOWER (PERSON)	REQUEST (PERSON)
	DESCRIPTION	Q/D	PERSON	PERSON		
1ST	SUPER/VP	1	12	STAFF	2	44
	STAFF	7	133	LABOR	5	220
	SUPERVISOR	2	44	LABOR	95	4,500
	SUB-TOTAL		189	SUB-TOTAL	4,872	5,081

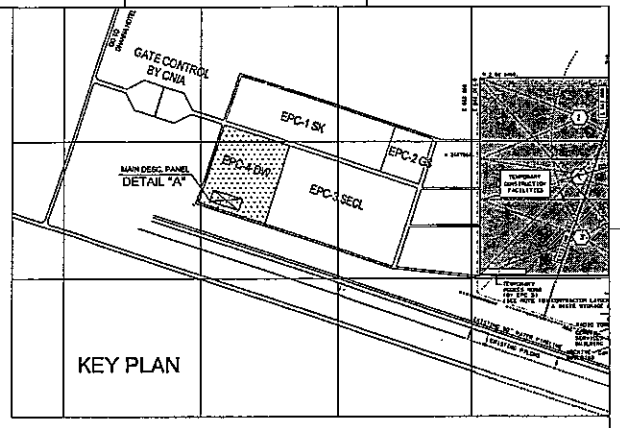
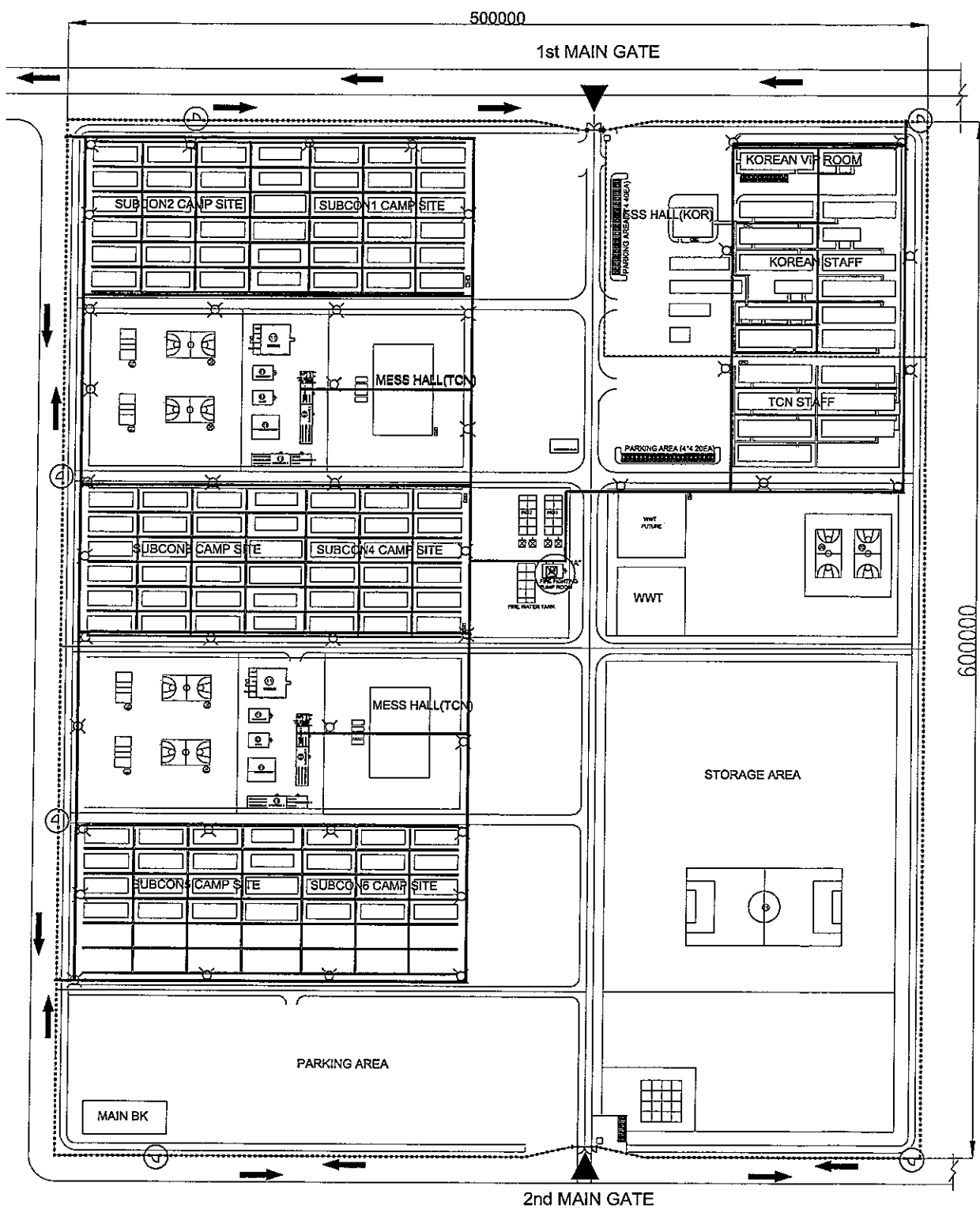
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DRAWN: KIM, J.S		CHECKED:	SCALE: 1 : 2500				
		شركة أبوظبي للتكرير والمنتجات البترولية ABU DHABI OIL REFINING COMPANY					
شركة دايوو الهندسة والبناء We Refine Right		DAEWOO ENGINEERING & CONSTRUCTION					
DAEWOO E&C JOB No. : AE02			PROJECT No. : 5578 AGREEMENT NO. : 09-5578-E-4				
PROJECT TITLE RUWAI'S REFINERY EXPANSION PROJECT PACKAGE #4 TANKAGE & ASSOCIATED INTERCONNECTING PIPING							
DRAWING TITLE TEMPORARY FACILITY BUILDING LAYOUT LAYOUT PLAN							
DRAWING NO. OMSTFT-RRE-TF-LAYOUT-BD001		SHEET NO. 1		REVISION 1		SHEET SIZE A2	



**WATER TANK CAPACITY**

NO	TANK	CAPACITY(LITTER)
1	GROUND TANK	800,000
	O/HEAD TANK	20,000
2	GROUND TANK	800,000
	O/HEAD TANK	20,000

REV.	DATE	DESCRIPTION	PREP	CHKD	REVO	APPR'D	COMPANY
2	23.04.2010	ISSUE FOR REFERENCE				OKM	
DRAWN: Km.H.S		CHECKED:	SCALE: 1 : 2500				
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DAEWOO E&C JOB No. : AE02				PROJECT No. : 5578 AGREEMENT NO. : 09-5578-E-4			
PROJECT TITLE RUWAIIS REFINERY EXPANSION PROJECT PACKAGE #4 TANKAGE & ASSOCIATED INTERCONNECTING PIPING							
DRAWING TITLE TEMPORARY FACILITY WATER SUPPLY SYSTEM LAYOUT PLAN							
DRAWING NO. OMSTFT-RRE-TF-LAYOUT-PW001		SHEET NO. 1 OF		REVISION 1 SHEET SIZE A2			



NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

FIRE HOSE CABINET  
SUB-CON WILL DEVELOP THE DETAIL LOCATION LATER.

LEGENDS

- ⊗ : HYDRANT
- ⊠ : PUMP STATION  
(ELECTRICAL PUMP : 1)  
(DIESELL PUMP : 1)

REV.	DATE	DESCRIPTION	PREP	CHKD	REV'D	APPR'D	COMPANY
2	23.04.2010	ISSUE FOR REFERENCE				CHOM	

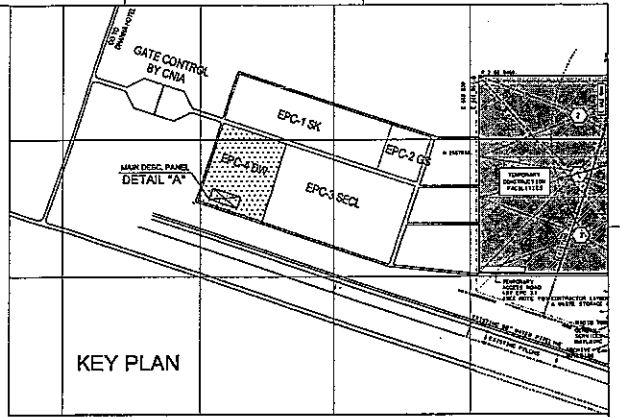
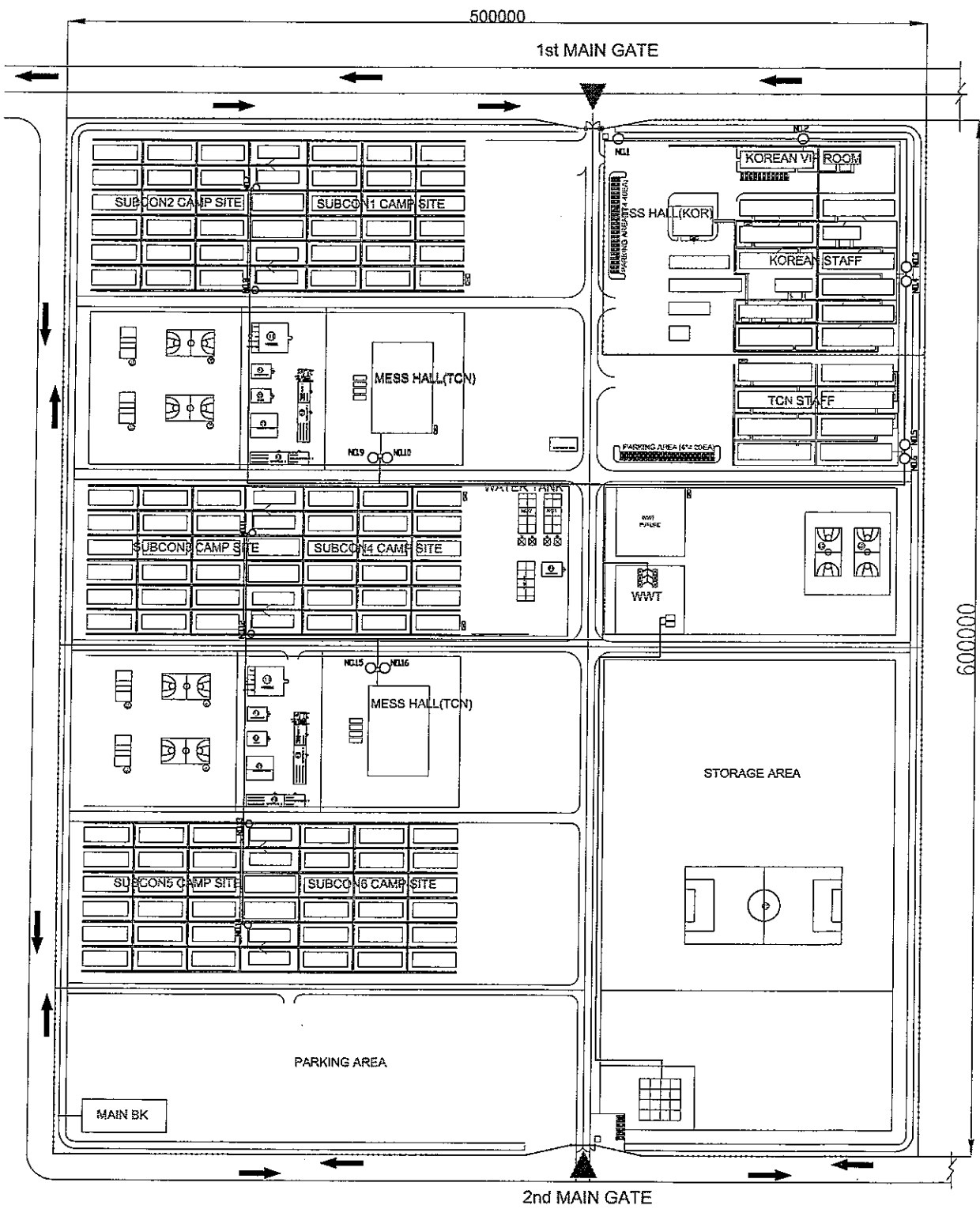
شركة أبوظبي للتكرير  
**ABU DHABI OIL REFINING COMPANY**  
 شركة أبوظبي للتكرير  
**DAEWOO ENGINEERING & CONSTRUCTION**

DAEWOO E&C JOB No. : AE02      PROJECT No. : 5578  
 AGREEMENT NO. : 09-5578-E-4

PROJECT TITLE  
 RUWAI'S REFINERY EXPANSION PROJECT  
 PACKAGE #4 TANKAGE & ASSOCIATED INTERCONNECTING PIPING

DRAWING TITLE  
 TEMPORARY FACILITY FIRE FIGHTING SYSTEM  
 LAYOUT PLAN

DRAWING NO.	QMSTFT-PRE-TF-LAYOUT-FF001	SHEET NO.	1	REVISION	1
		OF	1	SHEET SIZE	A2



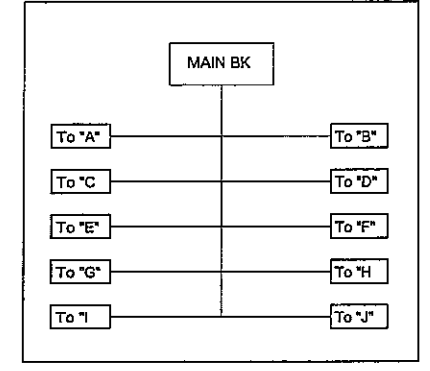
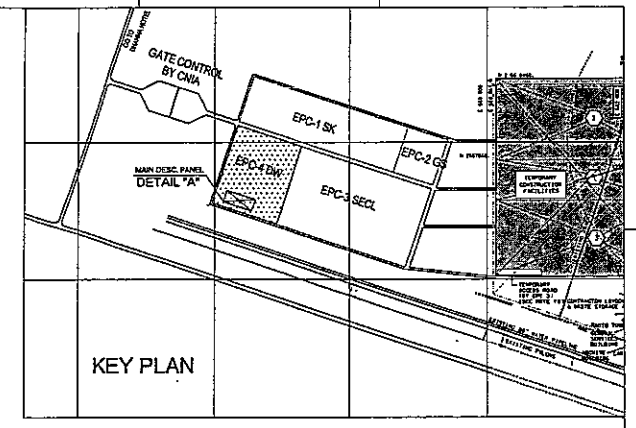
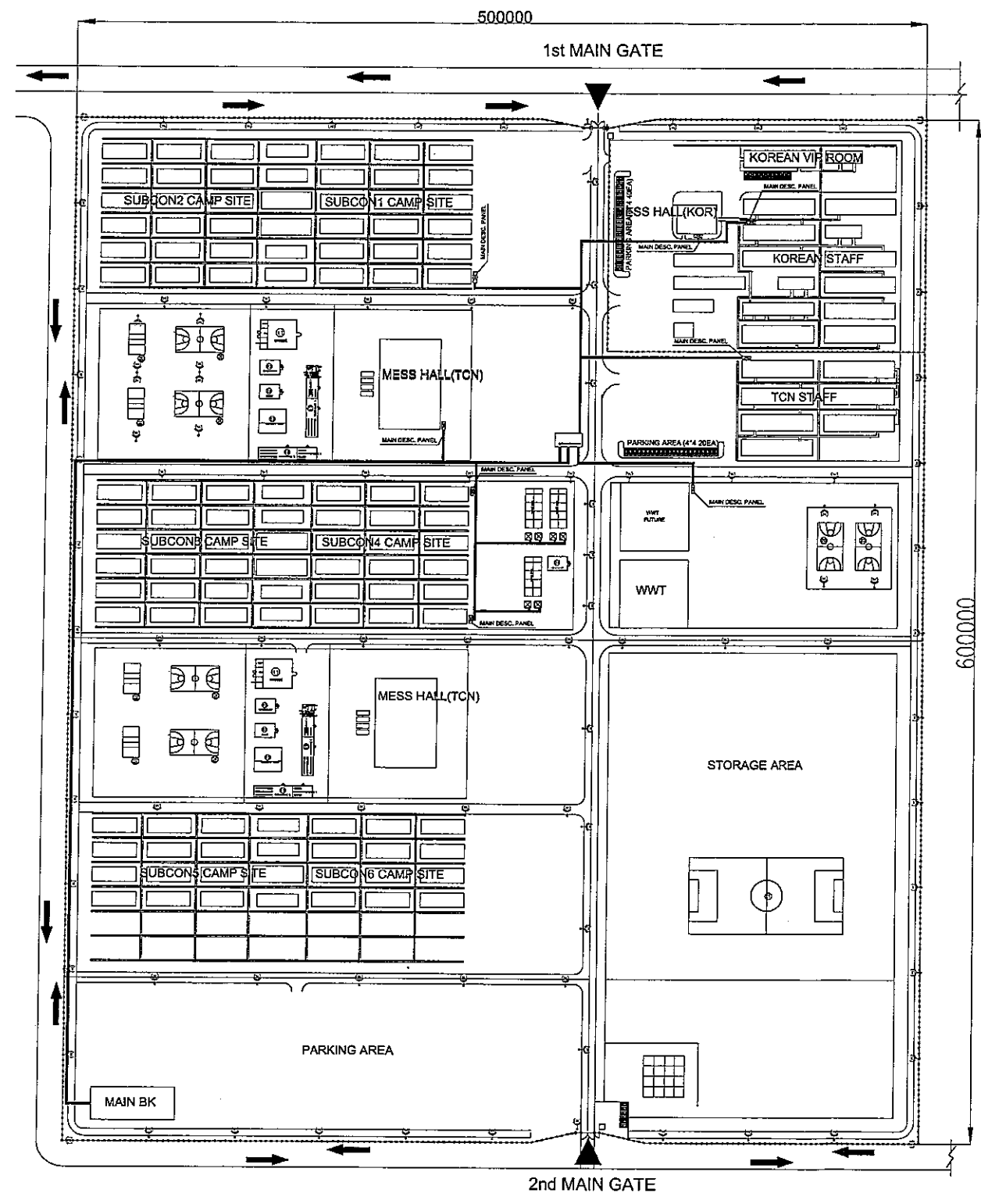
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

○ SEPTIC TANK

SEPTIC TANK CAPACITY	
TANK NO.	CAPACITY(LITER)
1	10,000
2	35,000
3	35,000
4	35,000
5	35,000
6	35,000
7	35,000
8	35,000
9	70,350
10	70,350
11	35,000
12	35,000
13	35,000
14	35,000
15	70,350
16	70,350

2	23.04.2010	ISSUE FOR REFERENCE	PREP	CHKD	REV'D	APPR'D	COMPANY
REV.	DATE	DESCRIPTION	PREP	CHKD	REV'D	APPR'D	COMPANY
DRAWN:	KPH/MS	CHECKED:	SCALE: 1 : 2500				
		شركة أبوظبي للتكرير <b>ABU DHABI OIL REFINING COMPANY</b> شركة أبوظبي للتكرير <b>DAEWOO ENGINEERING &amp; CONSTRUCTION</b>					
DAEWOO E&C JOB No. : AE02		PROJECT No. : 5578 AGREEMENT NO. : 09-5578-E-4					
PROJECT TITLE RUWAIIS REFINERY EXPANSION PROJECT PACKAGE #4 TANKAGE & ASSOCIATED INTERCONNECTING PIPING							
DRAWING TITLE WATER SUPPLY&DRAINAGE SYSTEM LAYOUT PLAN							
DRAWING NO.	OMSTFT-RRE-TF-LAYOUT-WW001					SHEET NO.	REVISION
						OF	1 A2



- NOTES**
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
  - RELATED DRAWINGS
 

VIP	7161-PKG4-T5001
MANAGER	7161-PKG4-T5002
STAFF	7161-PKG4-T5003
RECREATION-1	7161-PKG4-T5004
RECREATION-2	7161-PKG4-T5005
MESS HALL-1	7161-PKG4-T5006
MESS HALL-2	7161-PKG4-T5007
MESS HALL-3	7161-PKG4-T5007
RECREATION-3	7161-PKG4-T5008
RECREATION-4	7161-PKG4-T5009
RECREATION-5	7161-PKG4-T5010
JUNIOR STAFF	7161-PKG4-T5011
LABOR CAMP	7161-PKG4-T5012
LABOR CAMP-1	7161-PKG4-T5013
TOILET/SHOWER	7161-PKG4-T5014
  - SYMBOL & LEGEND
    - LOCAL POWER DISTRIBUTION PANEL
    - STREET LIGHTING, 6M POLE  
HPS 400W, 230V, 50HZ
    - FLOOD LIGHTING, 9M POLE  
HPS 2\*1000W, 230V, 50HZ

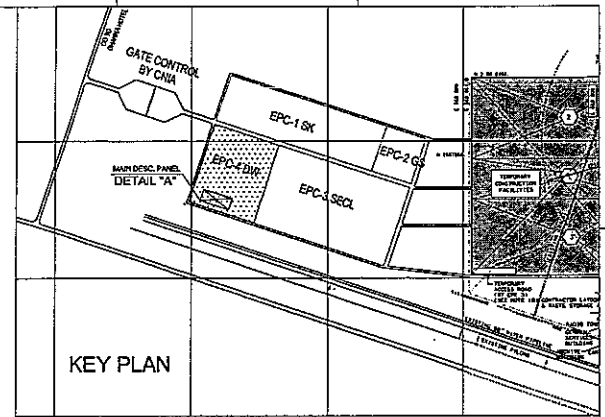
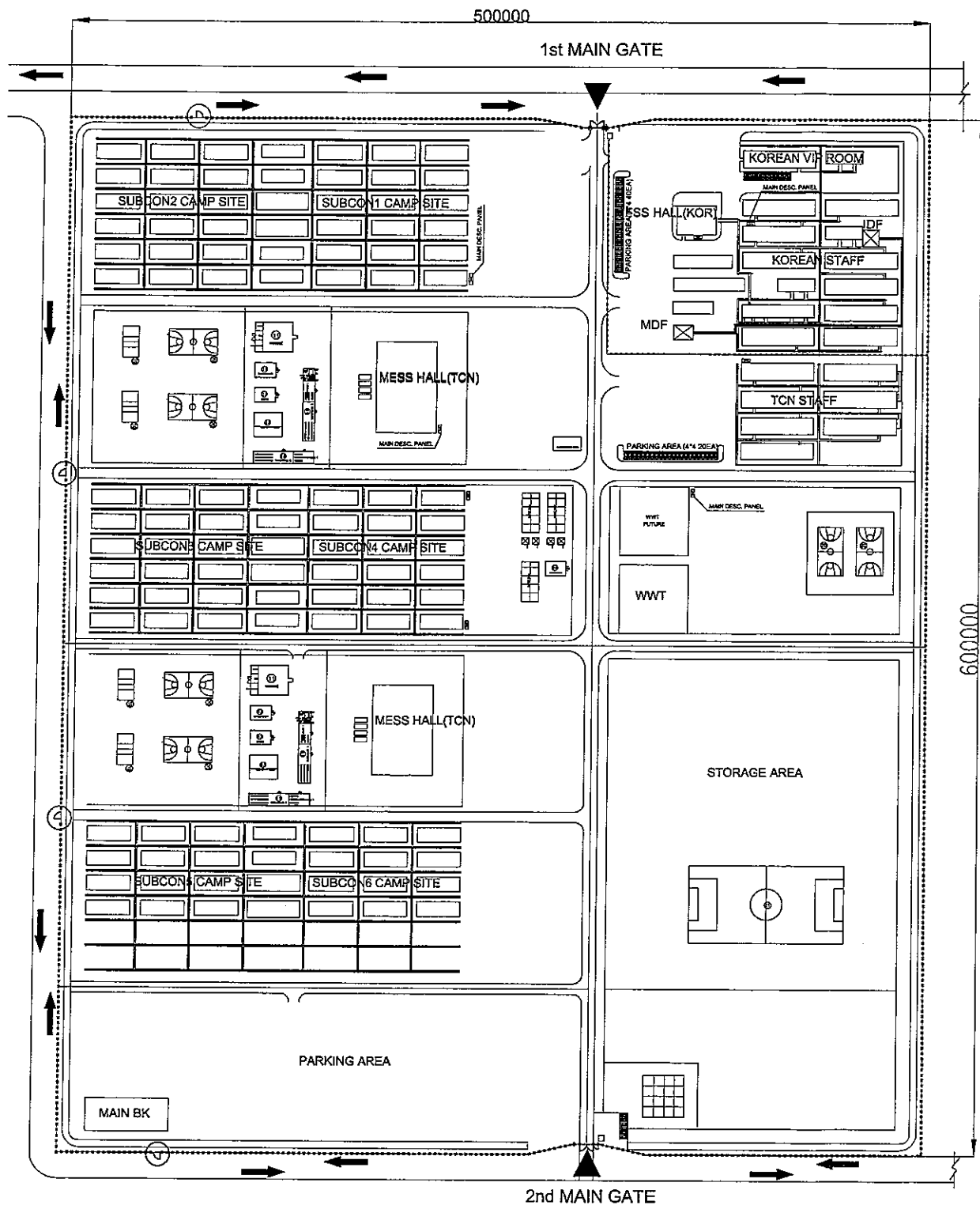
2	23.04.2010	ISSUE FOR REFERENCE					
REV.	DATE	DESCRIPTION	PREP	CHKD	REV'D	APPR'D	COMPANY
DRAWN:	Km.H.S	CHECKED:				SCALE:	1 : 2500

**ABU DHABI OIL REFINING COMPANY**  
**DAEWOO ENGINEERING & CONSTRUCTION**

DAEWOO E&C JOB No. : AE02 PROJECT No. : 5578  
 AGREEMENT NO. : 09-5578-E-4

PROJECT TITLE: RUWAI'S REFINERY EXPANSION PROJECT  
 PACKAGE #4 TANKAGE & ASSOCIATED INTERCONNECTING PIPING  
 DRAWING TITLE: TEMPORARY FACILITY MAIN POWER DISTRIBUTION LAYOUT PLAN

DRAWING NO.	OMS1FT-RRE-TF-LAYOUT-EL001	SHEET NO.	1	REVISION	
		OF	1	SHEET SIZE	A2

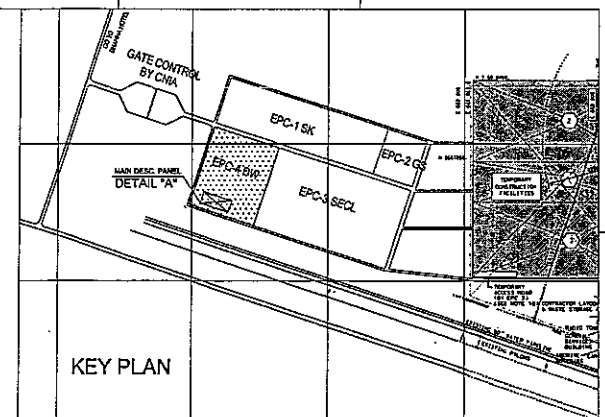
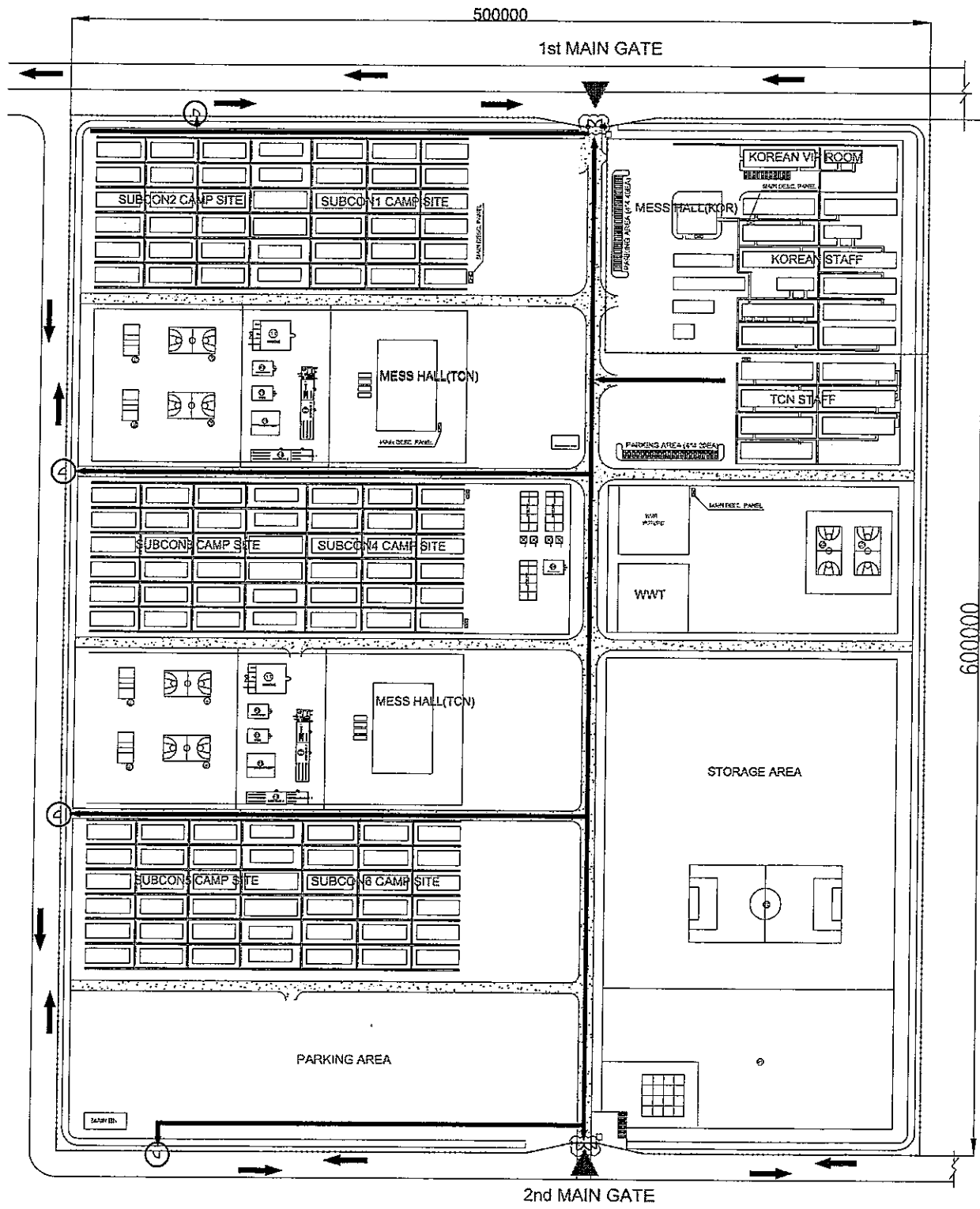


NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. RELATED DRAWINGS
 

VIP	7T61-PKG4-T5001
MANAGER	7T61-PKG4-T5002
STAFF	7T61-PKG4-T5003
RECREATION-1	7T61-PKG4-T5004
RECREATION-2	7T61-PKG4-T5005
MESS HALL-1	7T61-PKG4-T5006
MESS HALL-2	7T61-PKG4-T5007
MESS HALL-3	7T61-PKG4-T5007
RECREATION-3	7T61-PKG4-T5008
RECREATION-4	7T61-PKG4-T5009
RECREATION-5	7T61-PKG4-T5010
JUNIOR STAFF	7T61-PKG4-T5011
LABOR CAMP	7T61-PKG4-T5012
LABOR CAMP-1	7T61-PKG4-T5013
TOILET/SHOWER	7T61-PKG4-T5014
3. TELECOMMUNICATION FACILITIES SHALL BE DESIGNED, SUPPLIED AND INSTALLED BY SUBCONTRACTOR, AS FOLLOWS;
  - 1) TELEPHONE SYSTEM (INCLUDING CABLE WORK)
  - 2) NETWORK AND INTERNET SYSTEM (ONLY CABLING AND INSTALLING OUTLET)
  - 3) WIRELESS ANTENNA FOR INTERNET
  - 4) INTERPHONE FUNCTION SHALL BE INCLUDED IN THE TELEPHONE SYSTEM

REV.	DATE	DESCRIPTION	PREP	CHKD	REVD	APPRD	COMPANY
2	23.04.2010	ISSUE FOR REFERENCE					CHGM
DRAWN: Kim.M.S		CHECKED:	SCALE: 1 : 2500				
شركة أبوظبي للتكرير والقطر We Refine Right		شركة أبوظبي للتكرير والقطر ABU DHABI OIL REFINING COMPANY DAEWOO E&C DAEWOO ENGINEERING & CONSTRUCTION					
DAEWOO E&C JOB No. : AE02				PROJECT No. : 5578 AGREEMENT NO. : 09-5578-E-4			
PROJECT TITLE RUWAI'S REFINERY EXPANSION PROJECT PACKAGE #4 TANKAGE & ASSOCIATED INTERCONNECTING PIPING							
DRAWING TITLE TEMPORARY FACILITY TELECOMMUNICATION SYSTEM LAYOUT PLAN							
DRAWING NO.		OMSTFT-RRE-TF-LAYOUT-TL001		SHEET NO.		REVISION	
				OF		1 SHEET SIZE A2	



- NOTES**
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
  - RELATED DRAWINGS
 

VIP	7T61-PKG4-T5001
MANAGER	7T61-PKG4-T5002
STAFF	7T61-PKG4-T5003
RECREATION-1	7T61-PKG4-T5004
RECREATION-2	7T61-PKG4-T5005
MESS HALL-1	7T61-PKG4-T5006
MESS HALL-2	7T61-PKG4-T5007
MESS HALL-3	7T61-PKG4-T5007
RECREATION-3	7T61-PKG4-T5008
RECREATION-4	7T61-PKG4-T5009
RECREATION-5	7T61-PKG4-T5010
JUNIOR STAFF	7T61-PKG4-T5011
LABOR CAMP	7T61-PKG4-T5012
LABOR CAMP-1	7T61-PKG4-T5013
TOILET/SHOWER	7T61-PKG4-T5014
  - GATES
    - W=DOUBLE SWING 6M+SINGLE 1.5M
  - BASIS OF AREA
    - AREA : 300,000 M2
    - NO. OF PEOPLE IN CAMP : 5,000
    - AREA PER PEOPLE : 60M2
  - LIST OF WELFARE BUILDING
    - RECREATION - 1
    - RECREATION - 2
    - RECREATION - 3
    - RECREATION - 4
    - RECREATION - 5
  - EMERGENCY EXIT :
  - EVACUATION ROUTE & VEHICLE MOVEMENT :
  - PARKING CAPACITY : 44NO.
  - INTERNAL ROAD :
  - CLINIC & BARBER SHOP : TO BE LOCATED IN RECREATION-1 BUILDING
  - LIST OF CANTEEN
    - MESS HALL - 1
    - MESS HALL - 2
    - MESS HALL - 3

REV.	DATE	DESCRIPTION	PREP	CHKD	REVO	APPRD	COMPANY
2	23.04.2010	ISSUE FOR REFERENCE					CH2M
DRAWN: K.H.M.S		CHECKED:	SCALE: 1 : 2500				
 شركة التطوير والتدريب TAKREER شركة التطوير والتدريب We Refine Right		شركة أبوظبي للتكرير النفط ABU DHABI OIL REFINING COMPANY DAEWOO ENGINEERING & CONSTRUCTION DAEWOO E&C JOB No. : AE02 PROJECT No. : 5578 AGREEMENT NO. : 09-5578-E-4					
PROJECT TITLE RUWAI'S REFINERY EXPANSION PROJECT PACKAGE #4 TANKAGE & ASSOCIATED INTERCONNECTING PIPING							
DRAWING TITLE TEMPORARY FACILITY EMERGENCY EXIT LAYOUT PLAN							
DRAWING NO.		OMSTFT-RRE-TF-LAYOUT-EM001		SHEET NO.		REVISION	
				OF		1	
				SHEET SIZE		A2	