

CADANGAN KERJA-KERJA PENGOPERASIAN, SERVIS BERJADUAL DAN PENYELENGGARAAN KE ATAS SISTEM LOJI RAWATAN KUMBAHAN UNTUK TEMPOH SATU (1) TAHUN DI UNIVERSITI TEKNOLOGI MARA (UiTM) CAWANGAN SELANGOR, KAMPUS PUNCAK ALAM & PUNCAK PERDANA, SELANGOR DARUL EHSAN

SCOPE OF SERVICES

1. Identification of Facilities

The treatment plants and sewage facilities, identified in **INVENTORY LIST** of Wastewater and Water Treatment Facilities, constitutes those facilities subject to this Contract.

2. Operational Requirements

Operational requirements are as follows:

- a) Provide only experienced personnel necessary to satisfactorily operate the UiTM's sewerage treatment plants and sewage facilities. The labor shall include competent operators, engineer, technicians and mechanics required for complete normal and emergency staffing of the plants. Vehicles must be available for employees as needed.
- b) Supervise the operation and control of treatment plants and sewage treatment facilities. Provide the services of a competent operator or operators, as required by the relevant Authorities Department (**Suruhanjaya Perkhidmatan Air Negara/SPAN and Jabatan Alam Sekitar/JAS**), under whose license and supervision the facilities will operate. The Contractor's Supervisor shall be properly qualified with the relevant Authorities Department pursuant to the Wastewater Operators Licensing Act as a Wastewater and Water Treatment operator, and shall possess appropriate valid classification as required by law.

The Supervisor shall have the following competency from IWK Training Centre or any recognized agency to operate the wastewater treatment plants and sewage treatment facilities. The Contractor shall obtain SPAN license/approval to operate all the UiTM's facilities.

The plants shall be staffed full time at UiTM during office hour including emergency responses after office hour. In this regard, emergency telephone numbers shall be provided to the UiTM.

- c) Be responsible for the selection, employment and termination of employment, supervision, direction, training and assignment of duties of a superintendent and of all employees engaged by the Contractor

for operation of the wastewater treatment plants and sewage treatment facilities. The specific terms of employment including, but not limited to, the rates of compensation, other remuneration and benefits of such employees shall be determined by the Contractor.

- d) Operate the water supply and treatment plants and sewage treatment facilities continuously during the term of this Contract. In the event of a labor stoppage or job action, the Contractor shall operate on a best efforts basis to fulfill its obligations under this Contract. Best efforts shall consist at a minimum, that supervisory personnel operate the plants.
- e) Schedule the operation of the facilities in such a manner as to maximize the efficiency and minimize the total cost of operation of each of the respective units to include, but not be limited to, the cost of electricity, fuel, oil, chemicals, laboratory supplies and long-term maintenance needs.
- f) Perform all service and maintenance, testing and reports required by the UiTM as identified in TABLE "2", Testing and Reports as required by the Federal Environmental Protection Agency (DOE) and Municipal/County Utility and Sewage Authorities or as required by State and Federal laws and regulations in effect as of the date of the contract and as amended.
- g) At the commencement of the term of the contract, conduct an **inventory and condition audit** of all UiTM-owned tools and equipment at each of the treatment plants and sewage facilities. The UiTM shall approve the inventory. Any UiTM-owned tools or equipment made unusable, lost or broken during the term of the contract shall be replaced at the expense of the Contractor, notwithstanding normal wear and tear.
- h) Maintain a daily/monthly operations log that shall include, but not necessarily be limited to, the following:
 - i) Daily and monthly total water usage and sewage flow (if applicable).
 - ii) Operating conditions, process controls and laboratory analyses.
 - iii) Type and amount of chemicals used.
 - iv) Repairs and maintenance completed.
 - v) Other matters as required by State and Federal laws or regulations.
- i) Be responsible for operating the sewage treatment facilities in compliance with discharge permit requirements issued pursuant to JPP/JAS. The Contractor shall provide in a timely fashion to the UiTM

Facility Management Office, all necessary periodic reports as required by State and Federal laws and regulations. The Contractor shall also submit a report to the UiTM within seven (7) days of any violation explaining the cause of the violation and the corrective action being taken to avoid a recurrence.

- j) Operate all equipment in accordance with manufacturers' recommendations (OMM) and promptly notify, the UiTM in the event of a breakdown. Furnish all materials and supplies required to maintain and operate the treatment plants and sewage treatment facilities. Materials and supplies to be provided by the UiTM are: electricity and water from outside sources for water treatment plants. The Contractor shall provide: personal clothing items, cleaning supplies, towels/paper products, office supplies, non-inventoried tools and equipment, chemicals (including but not limited to Chlorine and Sodium Hypochlorite & Bioxide, Soda Ash, Potassium Permanganate) and garbage disposal. Any required items not delineated above shall be the Contractor's responsibility.

3. Preventive Maintenance

The Preventive Maintenance should focus on cleaning, lubrication, and correcting deficiencies found through testing and inspections. When there is a need to adjust or replace components, it should be done by highly trained competent and motivated professionals. Predetermined parts replacement should be minimal and done only where statistical evidence clearly indicates wear-out characteristics. In the absence of data to support component replacement, an age exploration program or the collection of data for statistical analysis to determine when to replace components should be initiated. Lubrication points should be clearly marked with bright red circles to ensure that lubrication tasks are not missed. Cleaning should be carried out to remove dust, dirt, and grime because these things mask defects that can cause unplanned maintenance outages.

Motivating Preventive Maintenance Workers: A quality preventive maintenance program requires a highly motivated preventive maintenance crew. To provide proper motivation, the following activities are suggested:

- Establish inspection and preventive maintenance as a recognized, important part of the overall maintenance program.
- Assign competent, responsible people to the preventive maintenance program.
- Provide training in precision maintenance practices and training in the right techniques and procedures for preventive maintenance on specific equipment.

4. Schedule Maintenance of Plants

The Contractor shall be required, at a minimum, to:

- a) Maintain the physical facilities and grounds at treatment plants and sewage treatment facilities on a year-round basis including, but not necessarily limited to, cleaning of floors, walls, ceilings, windows, restrooms and litter control.
- b) Provide grounds keeping for treatment plants and sewage treatment facilities, including grass cutting.
- c) Maintain a current inventory of all spare parts, maintenance supplies and chemicals in sufficient quantities to insure the uninterrupted operations of the facilities.
- c) Perform and/or arrange for the performance of preventive maintenance, and calibration of flow meters (if provided) at UiTM treatment plants and sewage treatment facilities as outlined in the operation and maintenance manuals provided by the equipment suppliers a minimum once per year.

Maintenance shall consist of regular, routine recurring work necessary to keep equipment and plant structures in a condition that ensures proper functioning, at designed capacity and efficiency, for their intended use. Maintenance on equipment shall be recorded in a maintenance log-book, with references. Routine painting of interior and exterior equipment surfaces shall be performed by Contractor personnel; including hand scraping and wire brushing surface preparation.

- e) Provide all necessary tools and equipment to accomplish the above in accordance with the equipment supplier's operational and maintenance manuals and in strict compliance with the equipment manufacturer's requirements for their use. Where maintenance standards differ, the Contractor shall be held to the higher standard.

Cost of all routine maintenance work shall be included in the compensation under the Contract. The Contractor shall provide labor for all routine repair work with the cost of parts and materials paid for by the UiTM. The UiTM shall have the option of performing emergency, major, extraordinary and unusual repairs. Major repairs would include structural, electrical or mechanical repairs to the treatment equipment, pumps, piping and buildings or the cost of filter media replacement. The Contractor shall promptly notify the UiTM when the need arises for performing emergency, major, extraordinary and unusual. Equipment to be maintained in this Contract consists of

all flow meters, water and sewage processing and pumping equipment, as well as ventilation, lighting, electrical, plumbing, pipes, meters, and appurtenances. Maintenance of roads, buildings and fences is considered the responsibility of the UiTM), cooperate with outside contractors retained by the UiTM to complete repair work and supervise work performed by subcontractors or others in connection with the treatment plants and sewage treatment facilities. The Contractor may be required to work in conjunction with the UiTM's General Environmental Contractor. Should this work not be covered in the scope of work as outlined herein, the cost will be borne by the UiTM.

- g) Supply a repair/replace analysis upon request for major equipment items.
- h) Regularly review the equipment's operation and maintenance manuals and periodically make written recommendations to the UiTM for the better use of personnel and maintenance of equipment in accordance with applicable manufacturer's standards.

5. Administrative Services

The Contractor shall be required to:

- a) Provide the necessary professional and technical assistance and support to enable its employees to efficiently and economically operate and maintain the treatment plants and sewage treatment facilities. Supervisory personnel shall make periodic visits and maintain regular telephone communications between its personnel at the plants and the Contractor's headquarters.
- b) Provide assistance and information to the UiTM as may be necessary for the development of the utility budget.
- c) Provide the necessary training to enable its staff to efficiently and economically operate and maintain the water supply and treatment plants and sewage treatment facilities.

The Contractor, shall bare the cost to provide package of Technical Training Courses to his employee including two (2) persons of UiTM Facility Management Office staffs at IWK Training Centre (or any recognized agency) consist of the following competency:

- * Introduction to Sewage Treatment
- * Preliminary Treatment and On-Site System
- * Secondary Treatment
- * Solids Handling, Treatment and Disposal

- * Sewer Network Maintenance
- * Sampling Techniques and records
- * On-Site Measurement & Testing of Process Control Parameters
- * Basic maintenance of Pumps
- * Basic Maintenance of Blowers
- * Fundamentals of Electrical Control panel and Maintenance
- * Basic Maintenance of Screens
- * Basic Maintenance of Surface Aerators
- * Basic maintenance of Sequential Batch Reactor
- * Sludge Conditioning Process

6. Submittals

The Contractor shall provide:

- a) Written monthly reports to the UiTM summarizing and describing the operations of the water treatment plants and sewage treatment facilities including flow rates. The reports shall include a copy of all reports and analysis submitted to the IWK and/or DOE (if requested). The reports shall also note any deficiencies in the operation of the facilities and/or their equipment and recommendations for correction thereof. It will also include totals of processing chemicals used or additions to water and sewage treatment systems.
- b) Special reports required by the IWK and/or DOE, Municipal/County Utility Authorities in accordance with all applicable laws and regulations. All reports shall be prepared and submitted to the UiTM in sufficient time to meet statutory or regulatory deadlines. Review by the UiTM prior to submission is required.

Failure by the Contractor to submit any report at the time it is due shall be sufficient basis for the UiTM to withhold monthly payment until the reports are submitted.

- c) Immediate notification of any emergent condition shall be made to the UiTM's representative. The Contractor shall be prepared and provide prompt emergency service at any time in connection with the work required under this Contract.

Emergency repairs and/or service shall be coordinated with the UiTM on a best effort basis to alleviate the emergent condition as soon as possible.

- d) The quality and quantity of the influent the water treatment plants shall not be the responsibility of the Contractor. The existing treatment facilities were designed and constructed to provide treatment for the wastewater. The existing systems have been

identified by the UiTM as capable of treating the wastewater to potable wastewater standards as defined by the relevant authority.

The Contractor shall provide supervision of its forces to insure that the wastewater treatment plants are operating at all times to peak efficiency. The UiTM shall be responsible for all alterations and additions to the facilities. Septage, sludge and service area grease trap pumpage will be disposed of by the Contractor.

7. Compensation

The Contractor shall provide daily (including weekends and holidays if necessary) operating personnel as required to operate and maintain the facilities in accordance with "Scope of Service". The Contractor shall provide all services and expendable supplies and monthly operational reports required for routine maintenance and repair work as described herein for the whole Contract period. This aggregate annual cost will be invoiced monthly as services are provided.

The cost of non-routine repairs (i.e., structural repairs or new system replacement and installation) to the operation of the plants, as well as the cost of water and electricity, road and fence maintenance are beyond the scope of the yearly compensation and will be provided for or undertaken by the UiTM by either utilizing UiTM personnel and equipment, outside contractors or additional compensation to the Contractor. Prior written authorization will be required from the UiTM for each non-routine work item.

8. Change in Scope of Services

Both the UiTM and the Contractor agree to consider changes in the "Scope of Services" of the contract with the understanding that the changes in the Scope of Services are for the purpose of detailing services that are required for the proper operation of the facilities that have here tofore not been included under the Scope of Services. Any changes in the scope of services and/or compensation necessitated by a change in scope shall be an amendment to the Contract.

9. Notification

All notices and non-routine work estimates and/or requests shall be submitted in writing with detailed scope of work and cost estimate breakdown delivered either in person or by express mail or other expedited means to:

Director/Head
Facility Management Office
Universiti Teknologi MARA

Prior to commencement of work, the UiTM must authorize all non-routine work estimates and/or requests, in writing.