Project Profile

for

Yuen Long South Sewage Pumping Station

under

PWP Item No. 4157DS
Yuen Long and Kam Tin Sewerage, Stage II, Phase 2
- Yuen Long South Pumping Station, Rising Main
to Castle Peak Road and Sewers

Drainage Services Department
Government of the Hong Kong Special Administrative Region

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1. Basic Information

1.1 Project title

The Yuen Long South Sewage Pumping Station (as a part of the PWP Item No. 4157DS – Yuen Long and Kam Tin Sewerage Stage II Phase 2 – Yuen Long South Pumping Station, Rising Main to Castle Peak Road and Sewers)

1.2 Purpose and nature of the project

Sewerage works under PWP Item No. 4157DS comprise the construction of 640m gravity sewers, 1550m twin rising mains and the proposed Yuen Long South sewage pumping station at a position near to the junction between Kung Um Road and Yuen Long Highway. The project, Yuen Long South sewage pumping station, will serve to convey sewage generated from Au Tau, Yuen Long South and part of Yuen Long Area 13 to the sewerage network leading to San Wai Sewage Treatment Works for treatment before discharging to Urmston Road.

1.3 Name of project proponent

Drainage Services Department is the works department and Environmental Protection Department is the client department.

1.4 Number and type of designated project

The proposed pumping station constitutes a Designated Project of type F.3(b) in Schedule 2 of the EIA Ordinance. The rising mains and the gravity sewers are not designated projects and therefore will not be included in this project profile.

1.5 Location and scale of the designated project

A copy each of the location plans numbered DDN/157DS/001 and 002 showing the location of the pumping station and its relationship with other phases of the sewerage works in Yuen Long is attached in Appendix 1. The average dry weather flow of the pumping station is 36,900 cu.m/day. Three duty pumps and one standby pump will be installed in the pumping station at a depth of 10m approximately below ground. The pumping station will be fully enclosed by a superstructure.

App. 1

1.6 Contact person

Engineer, Sewerage Projects Division, Drainage Services Department

2. Outline of Planning and Implementation Programme

2.1 The Sewerage Projects Division and the Electrical and Mechanical Projects Division of Drainage Services Department will carry out design of the sewage pumping station. They will also supervise the construction of the sewage pumping station by qualified contractors. The Sewage Treatment 1 Division of Drainage Services Department will operate and maintain the new pumping station.

2.2 Design of the project is in progress. The tentative milestone dates of the implementation programme are as follows :

Design:	09/98 – 11/02
Tender:	12/02 – 05/03
Construction:	06/03 – 02/05
Commissioning & Operation:	03/05

App. 2 A copy of the detailed implementation programme is attached in Appendix 2.

2.3 The first project profile for this project was submitted to EPD via CE/SP, DSD's memo ref. SW/8/4157DS/S2P2 dated 15 December 1995. DEP confirmed that there was no need to conduct EIA via his memo ref. Annex 2 to EP2/N6/41 dated 9 February 1996. A copy of the previously submitted project profile together with DEP's reply memo is App. 3 attached in Appendix 3. However, due to the relocation of the proposed pumping station, this revised project profile is submitted.

2.4 The general layout drawings of this project had been circulated to relevant Government Departments and utility undertakings for comments and no major objection has been received. A copy of the relevant memo ref. (32) in SP/8/4157DS/S2P2II dated 27 July 1999 and letter ref. SP/8/4157DS/S2P2/77 dated 5 August 1999 circulating the drawings App. 4 to the Government Departments and utility undertakings is attached in Appendix 4.

3. Possible Impacts on the Environment

3.1 During construction stage

(a) Dust

Dust may be generated from the construction activities, mainly earthworks. The quantity of earthworks is 2,200 cu.m approximately.

(b) Noise

The construction activities will generate some noise through the use of conventional construction plants and equipment.

(c) Water

During the course of construction, muddy underground water, if any, will be pumped away from the excavation pit into a silt removal facility before discharging into the nearby stormwater drains.

3.2 During operation stage

(a) Odour

The wet well of the proposed pumping station and the inlet chamber could be sources of odour nuisance if not enclosed.

(b) Water quality

The proposed pumping station is an integral part of the Yuen Long and Kam Tin sewerage works, which are aimed at collecting sewage generated from households in the unsewered areas to the sewage treatment works for treatment before discharging to Urmston Road. Implementation of the pumping station will enhance the water quality of the surrounding environment, and will not cause any adverse impact except if sewage is bypassed. In such case, it will be discharged into the nearby Yuen Long Nullah. However, with the implementation of preventive measures described in paragraph 5.2(b) below, the probability of bypass will be extremely remote.

(c) Noise

The pumps and the extraction fans of the de-odorizer are potential noise sources during operation of the proposed pumping station.

(d) Waste

One duty and one standby mechanically raked bar screens will be installed at the inlet chamber to prevent the large solid materials in sewage from entering the pumps and causing damage. A small quantity of screenings will thus be generated.

(e) Aesthetics

In order to minimize visual impact of the proposed pumping station, aesthetics will be a key factor to be considered.

4. Major Elements of the Surrounding Environment

4.1 The sensitive receivers in the vicinity of the pumping station are the nearby existing village houses and the Yuen Long Nullah. The nearest distance between the pumping station and the village houses will be 75m. With the implementation of proper mitigation measures and for such long distance, the pumping station will have insignificant effect on the nearby villages. The effect on the Yuen Long Nullah will be also negligible as pointed out in Paragraph 3.2(b) that the probability of emergency bypass is extremely remote. DPO/TMYL has confirmed that the project would not encroach upon any country park, special area, conservation area, marine park or marine reserve, site of cultural heritage and site of specific scientific interest. The pumping station will be located within a green belt zone. Planning application will be submitted to the Town Planning Board for approval. A copy each of the extracts from Outline Zoning Plan Nos. S/YL-TYST/2 & S/YL/6 and the confirmation memo from DPO/TMYL is attached in Appendix 5. It should be noted that tree felling is not required for the construction of the pumping station.

App. 5

5. Environmental Protection Measures to be Incorporated in the Design and Further Environmental Implications

5.1 During construction stage

(a) Dust

The effect of dust generation from the construction works is expected to be insignificant with the implementation of proper mitigation measures. The impact will be minimized by the adoption of proper working methods such as regular water spraying and providing wheel-washing facilities. Relevant clauses will be incorporated into the contract documents in this regard.

(b) Noise

The construction activities involved in the project will include earthworks and general concrete building works. Common construction plant including backhoe, concrete mixer, vibratory poker, pneumatic breaker and the like will be used. It is anticipated that minor noise impacts will be generated. Notwithstanding this, clauses will be incorporated into the construction contract to limit the noise generated to within acceptable levels, by stipulating compliance by the contractor with the Noise Control Ordinance and the provisions of the Technical Memorandum of the Environmental Impact Assessment Ordinance (EIAO).

(c) Water

It is anticipated that minor water quality impact will be generated during excavation works. The contractor will be required to provide, where necessary, a silt removal facility on site so as to remove the silt before discharging into the nearby stormwater drains. Such a silt removal facility will be provided by the contractor on site before commencement of the excavation. If the underground water is found to be contaminated, the Contractor will be required under appropriate contractual provisions to dispose of the contaminated underground water at an appropriate site.

5.2 During operation stage

(a) Odour

To minimize odour impacts, both the inlet chamber and the wet well of the proposed pumping station will be located underground and enclosed by air-tight covers. A forced ventilation system will be installed whereby air is extracted from these two spaces and passed through a de-odorizer for cleansing before being discharged into open air. A reinforced concrete building will be constructed to house all the above facilities. With these measures in place any possible odour impacts can be mitigated.

(b) Water quality

To minimize water quality impacts arising from the bypass of sewage, a standby pump will be provided to cater for periods of equipment breakdown and maintenance, i.e. sewage bypass will not occur under such situations. A transformer will be installed by the power supply company, CLP Power Co. Ltd. for power supply which will be obtained from a ring circuit. Should this not be adopted, a standby generator will be installed to provide back-up power supply. A telemetry system will also be provided in order to send signals showing irregularity or any operation problem of the pumping station to the existing Yuen Long Sewage Treatment Works such that immediate actions could be taken in case of emergency. In addition, the rising mains are designed as twin so as to facilitate inspection,

maintenance and pipe replacement works by closing one main and operating the other. With these measures in place the need to bypass sewage during emergency is anticipated to be extremely remote.

(c) Noise

To minimize any noise impact from operating pumps, all the pumps will be located inside underground substructure of the pumping station. The extraction fans of the de-odorizer will also be located within the building. Furthermore, all equipment will be designed for compliance with the Technical Memorandum of the EIAO at the sensitive receivers in the vicinity of the pumping station. A noise forecast for the proposed pumping station is attached in Appendix 6. The noise impact of the pumping station on the nearest noise sensitive receiver is negligible.

App. 6

(d) Waste

The screenings of the sewage will be enclosed in plastic bags within the pumping station building before being transported to landfill.

(e) Visual impacts

Aesthetics will be a major consideration in the design of the project. Architectural finishes will be provided on the external surface of the pumping station building. Moreover the building will be surrounded by a planting strip to enhance its appearance. Photographs showing the location and the visual outlook of the pumping station are attached in Appendix 7.

App. 7

5.3 *Summary of potential environmental impacts and mitigation measures*

The above potential impacts and proposed mitigation measures are summarized in the following Table 1:

Table 1

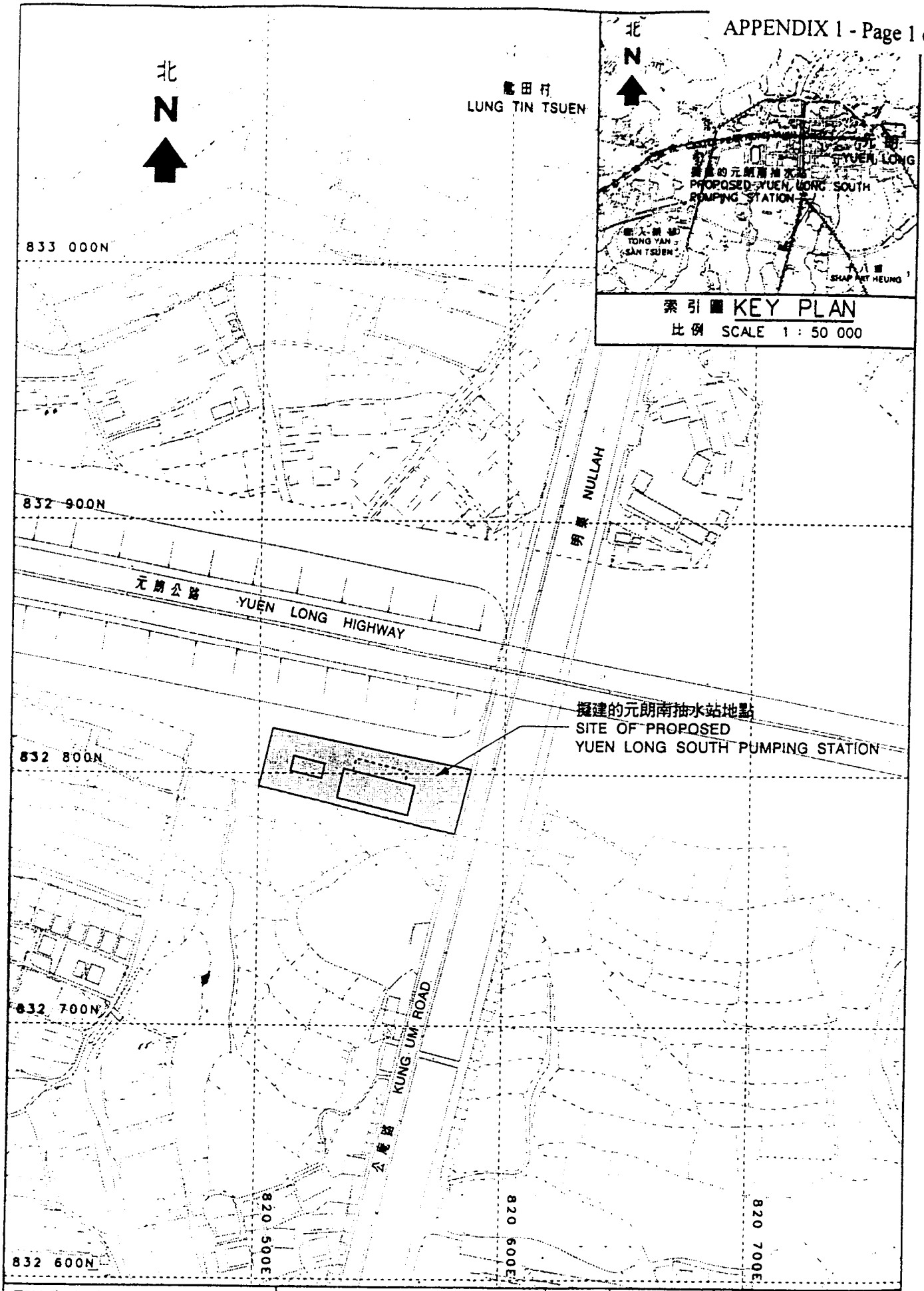
Project Stage	***Potential Environmental Impact***	***Mitigation Measures***	***Relevant Section in the Project Profile***
Construction	Minor dust nuisance	Control by contract specification	5.1(a)
	Minor noise impact	Control by contract specification	5.1(b)
	Minor water impact	Control by contract specification	5.1(c)

Operation	Odour nuisance	1. Housing the odour source 2. A de-odorizer will be installed to remove odour from the air	5.2(a)
	Water quality impact from emergency sewage bypass	1. A standby pump will be provided. 2. Power supply will be obtained from a ring circuit. 3. A telemetry system will be provided to send signals showing irregularity or any operation problem from the pumping station to the existing Yuen Long Sewage Treatment Works. 4. The rising mains are designed as twin so as to facilitate maintenance and repair by closing one main and operating the other.	5.2(b)
	Minor noise impact	Housing the equipment	5.2(c)
	Generation of screenings	1. Containment 2. Proper disposal	5.2(d)
	Visual impacts	1. Provision of architectural finishes 2. Peripheral planting	5.2(e)

The proposed sewage pumping station will cause little, if any, additional environmental impacts on the surrounding environment. This is particularly true in view of the currently enhanced design standards for pumping stations. Letting alone this, the above preventive and mitigation measures are considered sufficient measures to mitigate the possible environmental impacts that may arise from the project.

-END-

APPENDIX 1



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	批核 approved K. WONG	日期 date 8/99		
	部門 office 污水工程部 SEWERAGE PROJECTS DIVISION		香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION	

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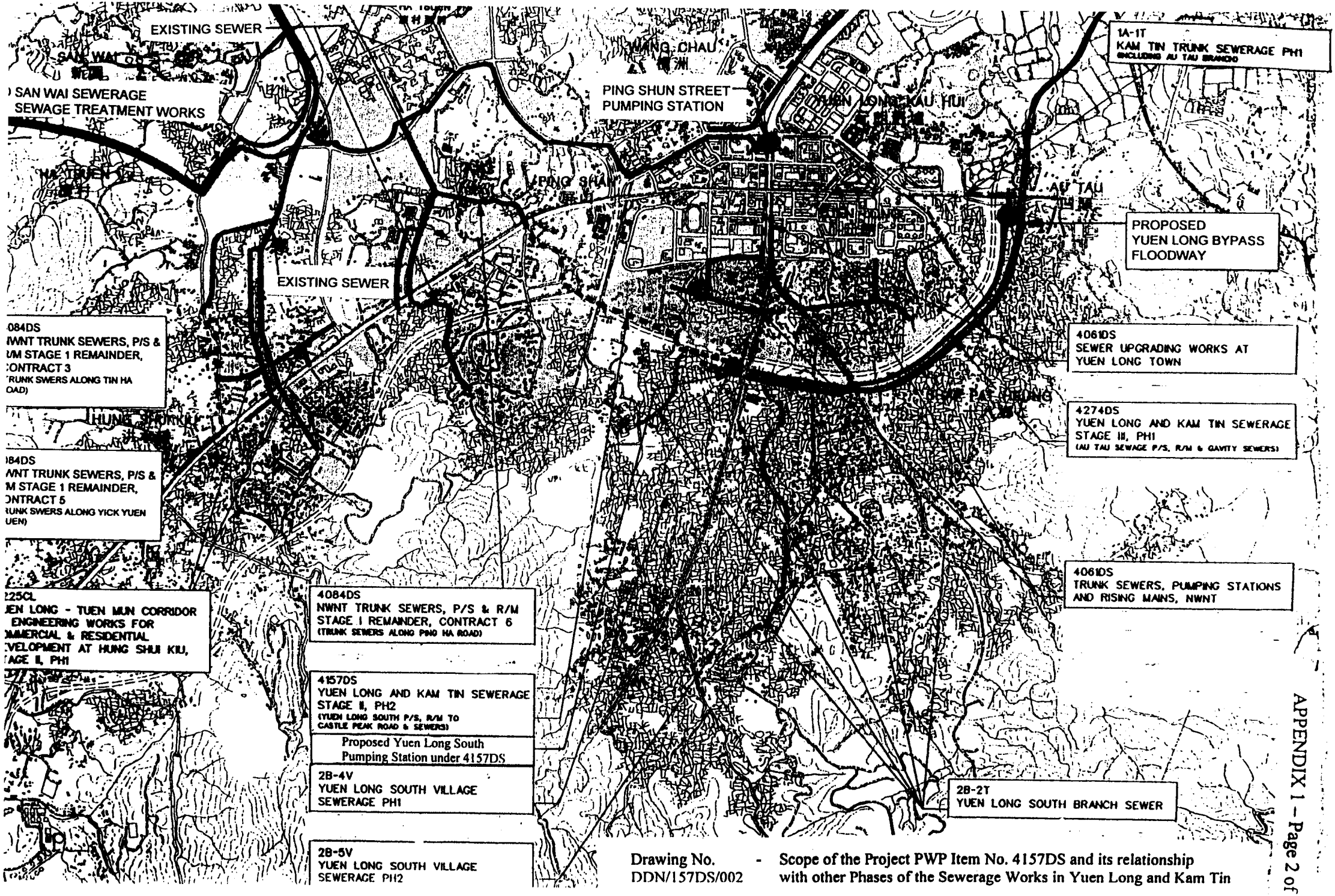
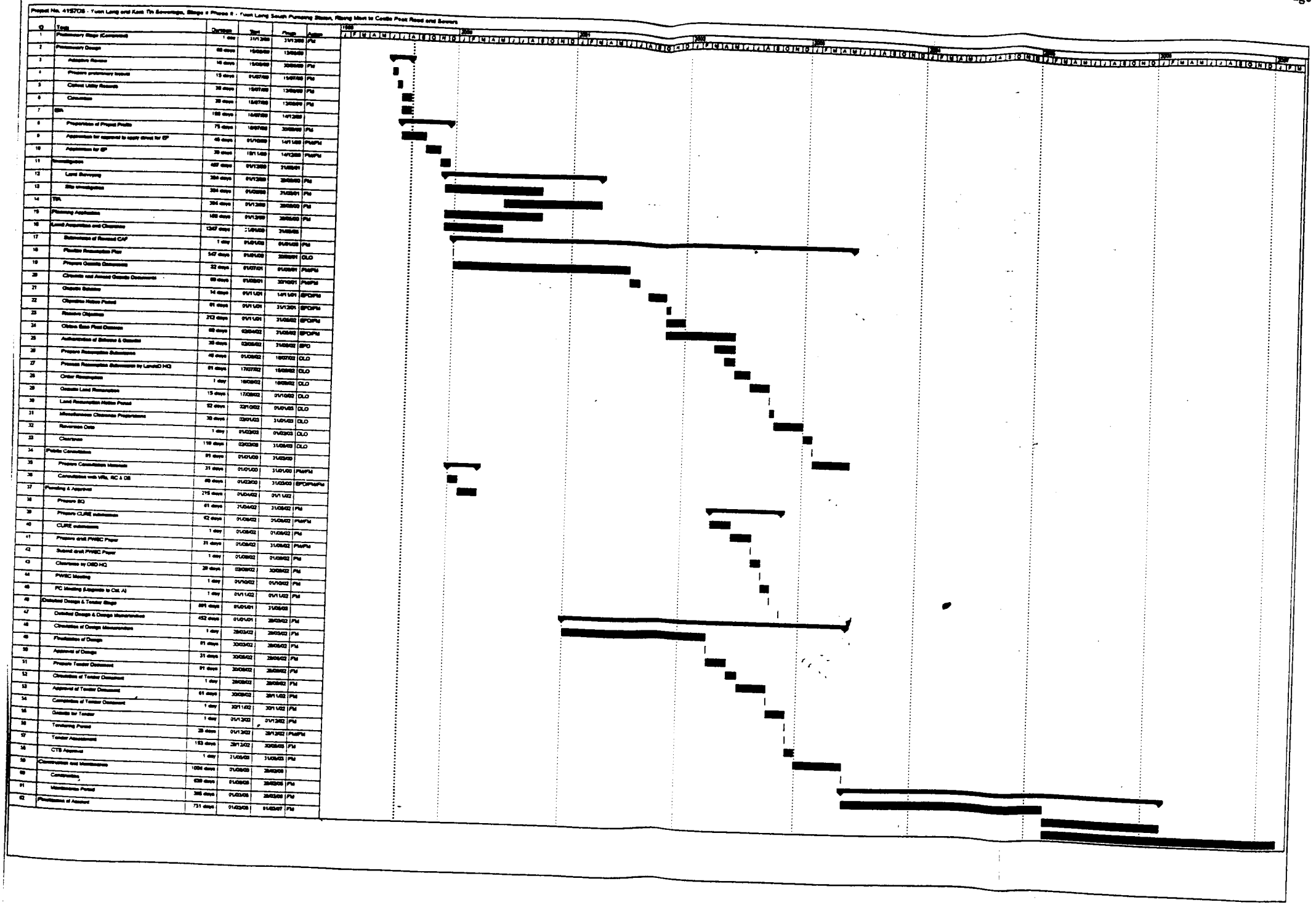


Drawing No. DDN/157DS/002 - Scope of the Project PWP Item No. 4157DS and its relationship with other Phases of the Sewerage Works in Yuen Long and Kam Tin

APPENDIX 2


Project No. 4152708 - Yuen Long and Kam Tin Sewerage, Stage 4 Phase II - Yuen Long South Pumping Station, Rising Main to Castle Peak Road and Sewers
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APPENDIX 3

MEMO

From : Chief Engineer/Sewerage Projects, Drainage Services Department

To : Director of Environmental Protection

Ref : ( ) in SW/8/4157DS/S2P2

Tel : 2594 7451 Fax : 2827 8700

Your Ref :

Date : 15 December 1995

Dated :

157 DS
Yuen Long and Kam Tin Sewerage, Stage 2, Phase 2
Yuen Long South Sewage Pumping Station,
Rising Mains and Gravity Sewers

Enviromental Review

I enclose the project profile of the above project for your enviromental review.

2. Please note that the position of the pumping station and the alignment of the rising mains and gravity sewers are basically in accordance with the recommendation of Yuen Long and Kam Tin Sewerage Master plan study.

3. If you need futher information, please contact the undersigned.

(S.S. TAI)
for Chief Engineer/Sewerage Projects
Drainage Services Department

Encl.

c.c. CE/PM w/e

SST/ck

DRAINAGE PROJECTS
SEWERAGE PROJECTS
DIVISION, D.S.D.
18 DEC 1995
DESPATCHED

PWP Item 157DS - Yuen Long and Kam Tin Sewerage Stage II

Phase 2: Yuen Long South Sewage Pumping Station, Rising Mains and Gravity Sewers

PROJECT PROFILE

PROJECT DESCRIPTION

1. Project Title

157DS - Yuen Long and Kam Tin Sewerage Stage II
Phase 2: Yuen Long South Sewage Pumping Station, Rising Mains and Gravity Sewers

2. Purpose and Nature of Project

(a) The project Yuen Long South Sewage Pumping Station, Rising Mains and Gravity Sewers is part of the stage III works recommended under the Yuen Long and Kam Tin Sewerage Master Plan Study Report prepared by EPD's consultancy. However, due to the advance of Housing Development Programme in Planning Area 13, the project is rescheduled as stage II works.

(b) Under this project, sewage system will be provided to convey the waste water generated from the Yuen Long Fringe Areas and Kam Tin Areas to the sewer network leading to San Wai Sewage Treatment Works for treatment before discharging to Urmston Road.

(c) The proposed sewage system will include one pumping station and about 650m long of 700m and 900mm diameter twin rising mains and 1850m of 1200mm diameter gravity sewers as shown on the attached drawing no. DDN/157DS/5801 to DDN/157DS/5804.

3. Nature of the Project Proponent

Drainage Services Department is the works department and Environmental Protection Department is the client department.

4. Location of the Project

The proposed Yuen Long South Sewage Pumping Station is located near the junction of Shan Ha Road and Yuen Long Southern Bypass while the proposed gravity sewers and rising mains are to be installed along the Yuen Long Southern Bypass and Ma Fung Ling Road respectively. The detailed layout of the sewage system is shown on the above attached drawings.

5.Project Budget

HK$ 91 millions

6.Name and Telephone of Contact Person

Mr. S.S. Tai
Engineer, Drainage Services Department
Tel. No. 25947451
Fax. No. 28278700

7.Programme of Implementation

The project will be implemented in-house by Drainage Services Department in accordance with the following programme :

Design:	08/95 - 09/98
Tender:	10/98 - 02/99
Construction	03/99 - 10/01

POSSIBLE IMPACTS ON THE ENVIRONMENT

8.Environmental Improvement

After completing the project, the sewage system will convey the sewage to be collected from the currently unsewered areas in Yuen Long Fringe and Kam Tin to the sewer network leading to San Wai Sewage Treatment Works for treatment before discharging to Urmston Road. Thus, the pressing pollution to the waters of Shan Pui River and Deep Bay will be reduced.

9.Environmental Impact during Construction and Operation Phase

(a) **Rising Mains and Gravity Sewers**

Construction Phase

Traditional open-cut method will be employed to lay the rising mains/gravity sewers along the roads/footpaths while Trenchless Method will be used to install those across the main carriageways. For open-cut method, the potential environmental impacts, namely noise, dust and visual, will not be significant during construction because of the excavation is relatively small in scale. Moreover, the sewers will be constructed in stages with a view to maintaining adequate traffic flow during partial closure of roads. For sewers crossing the main carriageways, trenchless method will be adopted

to avoid causing any disturbance to the existing traffic flow. This method would further minimize the noise, dust and visual impacts.

Operation Phase

After completion, the maintenance of the sewers, i.e. regular cleansing and repair, will be carried out by this department. It is expected that the environmental impacts would be insignificant.

(b) **Pumping Station**

Construction Phase

(i) The proposed Yuen Long South Sewage Pumping Station will be located near the junction of Sha Ha Road and Yuen Long Southern Bypass. These roads form a natural barrier separating the sensitive receivers at the southern and western sides from the proposed pumping station. According to the Yuen Long - Outline Zoning Plan "S/YL/2", the scheduled land use of the adjacent land at the East and North is residential development. The immediate sensitive receivers at this area will be the residents.

(ii) The major construction activities in the construction of the proposed pumping station are foundation works, excavation, erection of formwork, steel fixing and concreting. It is expected that adverse environmental effects during construction, i.e. noise, vibration and dust, are within acceptable level. Subsequent installation of electrical and mechanical facilities will have negligible effect on the surrounding environment.

Operation Phase

(i) The two major activities taking place in the proposed pumping station are removal of coarse materials from the raw sewage and onward transportation of the sewage for further treatment before disposal. The potential environmental impacts are noise, odour and visual.

(ii) The proposed pumping station will be designed in the form of wet well - dry well structure. Four (3 duty + 1 standby) centrifugal pumps will be installed in the underground wet well to handle an design flow of about 1300 l/s. The wet well will be equipped with ventilation/deodorisation system and air-tight covers at the openings. In addition, a pump house will be constructed above the wet well . It will house all plant units and will provide an enclosed environment for handling the screenings before being ~~tracked~~ tricked away for disposal at landfill. The pump house will not only effectively mitigate the noise and odour pollution, but also will minimize the visual impacts. Furthermore, appropriate choice of architecture and colour scheme will be adopted to harmonise the appearance of the pumping station with its surroundings.

(iii) Provision of an emergency by-pass is one of the pumping station operation requirements. The emergency by-pass will divert the incoming sewage to the nearby storm drains in the event of emergency such as power failure and major overhaul which requires the total shut down of the pumping station. It is expected the chance of using the by-pass is very rare. However, to further reduce its possibility, we will liaise with the power supply company to provide dual independent electricity supply systems for the pumping station. In addition, we will provide a standby pump to ensure normal operation at all time even one of 3 duty pumps is out of order.

MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

10. The most immediate sensitive receivers are the future user of the residential development at R(B) zone which is adjacent to the North and East boundary of the proposed pumping station. However, the environmental impacts to them is expected to be very limited as we will take various measures to mitigate the environmental impacts to the adjacent areas during both the construction and operation phases of pumping station. In addition, it is envisaged that the environmental impacts produced by the pumping station will be insignificant in comparison with the impacts created by the Yuen Long Southern Bypass and the future residential development at R(B) zone will not need to take additional measures to cater for impacts from the pumping station.

ENVIRONMENTAL PROTECTION MEASURES TO BE INCORPORATED IN THE DESIGN AND CONSTRUCTION

11. During the construction stage, the nearby residents may be affected by the construction activities with respect to air quality and noise. However, all these potential environmental impacts identified above will be kept to minimum by incorporating appropriate specification in the contract documents to ensure the contractor to take necessary mitigation measures.

12. During the operation of the pumping station, the impacts of noise and odour would be effectively mitigated by incorporating appropriated measures such as an enclosed system and deodorizing system for the pumping station. Therefore, we consider that the potential impacts are insignificant.

MEMO

Ans. to
Ans. by

From Director of Environmental Protection	To CE/SP, DSD (Attn: Mr. S.S. TAI)
Ref Annex (2) to EP 2/N6/41	
Tel No. 28351106 (FAX : 2591-0558)	Your Ref ( ) in SW/8/4157DS/S2P2
Date 9 February 1996	Dated 15.12.95

157 DS
Yuen Long and Kam Tin Sewerage, Stage 2, Phase 2
Yuen Long South Sewage Pumping Station
Rising Mains and Gravity Sewers
Environmental Review

I refer to your memo under reference.

2. It is not envisaged that there would be long term environmental impact for the Rising Mains and Gravity Sewers at the operation stage.

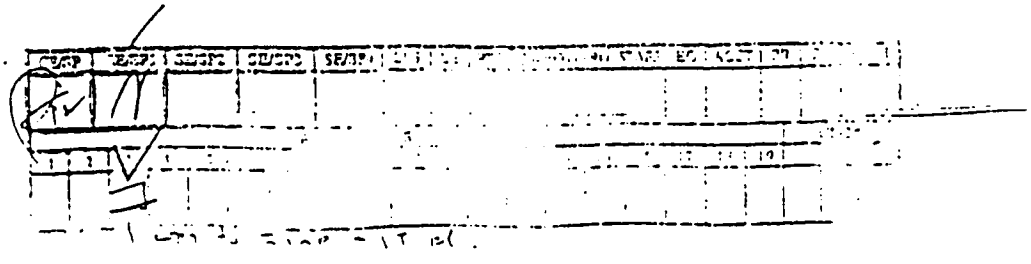
3. Regarding the proposed pumping station, we have concerns on the potential odour impact on the nearby residents if the impact is not mitigated. Based on the submitted project profile, a ventilation /deodorization system and air-tight covers at the openings would be installed to alleviate the potential odour impact. If the deodorization system is adequately desinged to properly remove the odour from the pumping station, it is not anticipated to cause odour impact on the nearby residents. As such, no EIA is considered necessary.

4. However, you are advised to take all necessary measures during maintenance and transportation of odorous materials in order to avoid nuisance to the nearby sensitive receivers.

5. For short term impacts, please incorporate in the relevant contracts the appropriate pollution control clauses (a copy of the recommended pollution control clauses is attached herewith for your reference) to control noise, dust, and site run-off nuisance during construction to within established guidelines/standards.

(David Cox)
Senior Environmental Protection Officer
for Director of Environmental Protection

I.D. NO. MEMO9-2



RECOMMENDED POLLUTION CONTROL CLAUSES for CONSTRUCTION CONTRACTS

The Recommended Pollution Control Clauses (RPCC) are generally good engineering practice to minimize inconvenience and environmental nuisance to nearby residents and other sensitive receivers. Some modifications may be necessary to suit specific site conditions.

1. AVOIDANCE OF NUISANCE

(a) All works are to be carried out in such a manner as to cause as little inconvenience as possible to nearby residents, property and to the public in general; and the Contractor shall be held responsible for any claims which may arise from such inconvenience.

(b) The Contractor shall be responsible for the adequate maintenance and clearance of channels, gullies etc. and shall also provide and maintain such pedestrian and vehicular access as shall be directed within the works site.

(c) Water shall be used to prevent dust rising and the Contractor shall take every precaution to prevent the excavated materials from entering into the public drainage system.

(d) The Contractor shall carry out the Works in such a manner as to minimize adverse impacts on the environment during execution of the Works.

2. NOISE POLLUTION CONTROL

Clauses that should be included in the contract

To comply with Environmental Protection Legislation

(a) The Contractor shall comply with and observe the Noise Control Ordinance and its subsidiary regulations in force in Hong Kong.

To provide sound level meter

(b) The Contractor shall provide an approved integrating sound level meter to IEC 651 : 1979 (Type 1) and 804 : 1985 (Type 1) and the manufacturer's recommended sound level calibrator for the exclusive use of the Engineer at all times. The Contractor shall maintain the equipment in proper working order and provide a substitute when the equipment are out of order or otherwise not available.

The sound level meter including the sound level calibrator shall be verified by the manufacturers every two years to ensure they perform the same levels of accuracies as stated in the manufacturer's specifications. That is to say at the time of measurements, the equipment shall have been verified within the last two years.

Non-statutory noise control

(c) In addition to the requirements imposed by the Noise Control Ordinance, to control noise generated from equipment and activities for the purpose of carrying out any construction work other than percussive piling during the time period from 0700 to 1900 hours on any day not being a general holiday (including Sundays), the following requirements shall also be complied with:

(i) The noise level measured at 1m from the most affected external facade of the nearby noise sensitive receivers from the construction work alone during any 30 minute period shall not exceed an equivalent sound level (Leq) of 75 dB(A).

(ii) The noise level measured at 1m from the most affected external facade of the nearby schools from the construction work alone during any 30 minute period shall not exceed an equivalent sound level (Leq) of 70 dB(A) [65 dB(A) during school examination periods].

The Contractor shall liaise with the schools and the Examination Authority to ascertain the exact dates and times of all examination periods during the course of the contract.

(Guidance note :-

Sub-clause (c) (ii) can be deleted if the schools are either :-

1) more than 800m away from the Construction Site with no obstructions in between.

2) more than 300m away from the Construction Site with obstructions in between that can effectively screen off the construction noise.)

(iii) Should the limits stated in the above sub-clauses (i) and (ii) be exceeded, the construction shall stop and shall not recommence until appropriate measures acceptable to the Engineer that are necessary for compliance have been implemented.

Any stoppage or reduction in output resulting from compliance with this clause shall not entitle the Contractor to any extension of time for completion or to any additional costs whatsoever.

Housekeeping clauses to promote noise consciousness at site

(d) Before the commencement of any work, the Engineer may require the methods of working, equipment and sound-reducing measures intended to be used on the Site to be made available for inspection and approval to ensure that they are suitable for the project.

(e) The Contractor shall devise, arrange methods of working and carry out the Works in such a manner so as to minimise noise impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented.

(Guidance note:-

The noise reduction methods include scheduling of works; Siting of facilities; Selection of quiet equipment; and Use of purpose-built acoustic panels and enclosures.)

(f) The Contractor shall ensure that all plant and equipment to be used on site are properly maintained in good operating condition and noisy construction activities shall be effectively sound-reduced by means of silencers, mufflers, acoustic linings or shields, acoustic sheds or screens or other means to avoid disturbance to any nearby noise sensitive receivers.

(g) Notwithstanding the requirements and limitations set out in clause (c) above and subject to compliance with clauses (e) and (f) above, the Engineer may upon application in writing by the Contractor, allow the use of any equipment and the carrying out of any construction activities for any duration provided that he is satisfied with the application which, in his opinion, to be of absolute necessity and adequate noise insulation has been provided to the educational institutions to be affected, or of emergency nature, and not in contravention with the Noise Control Ordinance in any respect.

<u>Contract clauses to be considered when the construction site is not far away from noise sensitive receivers</u>

(h) No excavator mounted breaker shall be used within 125m from any nearby noise sensitive receivers. The Contractor shall use hydraulic concrete crusher whenever applicable.

(Guidance note :-

This should be encouraged for demolition contracts where the site is less than 125m from nearby noise sensitive receivers. Quieter hydraulic concrete crushers will be expected to meet the relevant noise limits in the contracts.)

(i) The only equipment that shall be allowed on the Site for rock drilling works will be quiet drilling rigs with a sound power level not exceeding 110 dB(A). Conventional pneumatically driven drilling rigs are specifically prohibited.

(Guidance note :-

This should be encouraged for site formation contracts where the site is less than 250m from nearby noise sensitive receivers. The 110 dB(A) sound power level specified for the drilling rigs may be relaxed if the site is more than 141m from nearby noise sensitive receivers.)

(j) Do not operate the _____ during the period from _____ to _____ in locations _____.

(Guidance notes :-

1) Whatever equipment or processes to be inserted in the first blank shall be determined by the Engineer who is aware of the constraints involved in the site conditions and the specific method of construction.

2) This clause will be particularly useful in situations where there are many schools around the site.)

(k) Provide air-conditioners to _____.

(Guidance notes :-

1) The blank is there for specific premises identified for each site. It is very likely that educational institutes will be considered most often.

2) A judgement need to be made having regards to the cost of providing air-conditioning and the delay to the project that would have otherwise resulted due to the imposition of other controls. It is therefore appropriate that this clause be used in conjunction with clause (h).)

(l) For the purposes of the above clauses, any domestic premises, hotels, hostel, temporary housing accommodation, hospital, medical clinic, educational institution, place of public worship, library, court of law, performing arts centre or office building shall be considered a noise sensitive receiver.

Other useful contract clauses related to noise control

(m) The Contractor shall, when necessary, apply as soon as possible for a construction noise permit in accordance with the Noise Control (General) Regulations, display the permit as required and copy to the Engineer.

(Guidance note :-

This clause is suitable where percussive piling or nightwork is anticipated.)

** Note:*

Clauses (a), (b), (c)(i), (c)(iii), (d) to (g) and (m) should be incorporated. The remaining ones should be incorporated where appropriate.

3. DUST SUPPRESSION MEASURES

(a) The Contractor shall undertake at all times to prevent dust nuisance as a result of his activities. The air pollution control system installed shall be operated whenever the plant is in operation.

(b) The Contractor shall at his own cost, and to the satisfaction of the Engineer, install effective dust suppression equipment and take such other measures as may be necessary to ensure that at the Site boundary and any nearby sensitive receiver the concentration of air-borne dust shall not exceed 0.5 milligrams per cubic meter, at standard temperature (25°C) and pressure (1.0 bar) averaged over one hour, and 0.26 milligrams per cubic metre, at standard temperature (25°C) and pressure (1.0 bar) averaged over 24 hours.

(c) In the process of material handling, any material which has the potential to create dust shall be treated with water or sprayed with wetting agent.

(d) Where dusty materials are being discharged to vehicle from a conveying system at a fixed transfer point, a three-sided roofed enclosure with a flexible curtain across the entry shall be provided. Exhaust should be provided for this enclosure and vented to a fabric filter system.

(e) Any vehicle with an open load carrying area used for moving materials which have the potential to create dust shall have properly fitting side and tail boards. Materials having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. The tarpaulin shall be properly secured and shall extend at least 300mm over the edges of the side and tail boards.

(f) Stockpiles of sand and aggregate greater than $20m^3$ shall be enclosed on three sides, with walls extending above the pile and 2 meters beyond the front of the pile. In addition, water sprays shall be provided and used both to dampen stored materials and when receiving raw material.

(g) The Contractor shall frequently clean and water the site to minimize the fugitive dust emissions.

(h) The Contractor shall restrict all motorized vehicles to a maximum speed of 8 km per hour and confine haulage and delivery vehicles to designated roadways inside the site. Areas of roadway longer than 100m where movement of motorized vehicles exceeds 100 vehicular movements/day or as directed by the Engineer shall be furnished with a flexible pavement surfacing.

(i) Wheel washing facilities shall be installed and used by all vehicles leaving the site. No earth, mud, debris, dust and the like shall be deposited on public roads. Water in the wheel cleaning facility shall be changed at frequent intervals and sediments shall be removed regularly. The Contractor shall submit details of proposals for the wheel cleaning facilities to the Engineer prior to construction of the facility. Such wheel washing facility shall be usable prior to any earthworks excavation activity on the Site. The Contractor shall also provide a hard-surfaced road between washing facility and the public road.

(j) Conveyor belts shall be fitted with windboards, and conveyor transfer points and hopper discharge areas shall be enclosed to minimize emission of dust. All conveyors carrying materials which have the potential to create dust shall be totally enclosed and fitted with belt cleaners.

(k) Cement or pulverised fuel ash delivered in bulk shall be stored in closed silos fitted with high level alarm indicator. The high level alarm indicators shall be interlocked with the filling line such that in the event of the hopper approaching an overfull condition, an audible alarm will operate, and after 1 minute the pneumatic line to the filling tanker will close.

(l) All air vents on cement silos shall be fitted with fabric filters provided with either shaking or pulse-air cleaning mechanisms. The fabric filter area shall be determined using the air to cloth ratio (0.01 - 0.03 m/s) or the filtering velocity.

(m) Weigh hoppers shall be vented to suitable filter.

(n) The filter bags in the cement silo dust collector must be thoroughly shaken after cement is blown into the silo to ensure adequate dust collection for subsequent loading.

(o) For dry mix batching, the process should be done in total enclosure with exhaust to fabric filter.

(p) All cement and concrete trucks are to be effectively washed down after loading and prior to leaving the works.

(q) The Contractor shall provide and operate two high volume air samplers and associated equipment and shelters in accordance with the USA standard Title 40, Code of Federal Regulations, Chapter 1 (Part 50) Appendix B. Sampling shall be carried out 1 day in every 6 days at 10 No. sampling points on the Site boundary for such periods and in a manner as instructed by the Engineer. The samplers, equipment and shelters shall be constructed so as to be transferable between sampling points to enable monitoring of "dust in air" levels at any sampling point required by the Engineer. The Contractor shall provide all necessary protection fences and the like at sampling points. Testing and analysis of sampled materials shall be carried out by a laboratory approved by the Engineer.

NOTES :

1) Discretion should be exercised to select the appropriate clauses from above for different situations. The following are some suggestion :

i)	*Construction sites without concrete batching*	*delete 3(k) to 3(q)*
ii)	*Small works area and storage of material*	*delete 3(h) to 3(q)*
iii)	*Very simple case*	*delete 3(b) to 3(q)*

2) Item 3(c) is not applicable to the handling of cement and the like.

3) Item 3(q) should only be used in cases where there is likely to be dust impact for a considerable period of time e.g. reclamation, borrowing activities etc.

4) *The Contractor should note that concrete batching in the main urban area is not normally allowed.*

4. CONSENT TO EQUIPMENT AND PROCESSES

(a) The Contractor shall not install any furnace, boiler or other plant or equipment or use any fuel that might in any circumstance produce smoke or any other air pollutions without the prior consent of the Engineer. Unless specifically instructed by the Engineer, the Contractor shall not light fires on site for the burning of debris or any other matter.

(b) The Contractor's attention is drawn to the Air Pollution Control Ordinance and its subsidiary legislation, particularly the Air Pollution (Furnaces, Ovens and Chimneys) (Installation and Alteration) Regulations and the Air Pollution Control (Smoke) Regulations.

5. REMOVAL OF WASTE MATERIAL

(a) The Contractor shall not permit any sewage, waste water or effluent containing sand, cement, silt or any other suspended or dissolved material to flow from the site onto any adjoining land or allow any waste mater or refuse to be deposited anywhere within the site or onto any adjoining land and shall have all such matter removed from the site.

(b) The Contractor shall be liable for any damages caused to adjoining land through his failure to comply with clause 5(a).

(c) The Contractor shall be responsible for temporary training, diverting or conducting of open streams or drains intercepted by any works and for reinstating these to their original courses on completion of the Works.

(d) The Contractor shall be responsible for adequately maintaining any existing site drainage system at all times including removal of solids in sand traps, manholes and stream beds.

(e) Any proposed stream course and nullah temporary diversions shall be submitted to the Engineer for agreement one month prior to such diversion works being commenced. Diversions shall be constructed to allow the water flow to discharge without overflow, erosion or washout. The area through which the temporary diversion runs is to be reinstated to its original condition or as agreed by the Engineer after the permanent drainage system has been completed.

(f) The Contractor shall furnish, for the Engineer's information, particulars of the Contractor's arrangements for ensuring that material from any earthworks does not wash into the drainage system. If at any time such arrangements prove to be ineffective the Contractor shall take such additional measures as the Engineer shall deem necessary and shall remove all silt which may have accumulated in the drainage system whether within the Site or not.

(g) The Contractor shall segregate all inert construction waste material suitable for reclamation or land formation and shall dispose of such material at such public dumping area(s) as may be specified from time to time by the Director of Civil Engineering Services.

(h) All non-inert construction waste material deemed unsuitable for reclamation or land formation and all other waste material shall be disposal of at a public landfill.

(i) The Contractor's attention is drawn to the Waste Disposal Ordinance, the Public Health the Municipal Services Ordinance and the Water Pollution Control Ordinance.

Any dredged material shall be disposed of at an approved marine dumping ground. One of the approved marine dumping grounds is the Gazetted Marine Dumping Ground at the _____. The Contractor shall apply to relevant authorities under the Dumping at Sea Act for a marine dumping licence.

6. DISCHARGE INTO SEWERS AND DRAINS

(a) The Contractor shall not discharge directly or indirectly (by runoff) or cause or permit or suffer to be discharged into any public sewer, storm-water drain, channel, stream-course or sea any effluent or foul or contaminated water or cooling or hot water without the prior consent of the Engineer who may require the Contractor to provide, operate and maintain at the Contractor's own expense, within the premises or otherwise, suitable works for the treatment and disposal of such effluent or foul or contaminated or cooling or hot water. The design of such treatment works shall be submitted to the Engineer for approval not less than one month prior to the commencement of construction or as agreed by the Engineer.

(b) If any office, site canteen or toilet facilities is erected, foul water effluent shall be directed to a foul sewer or to a sewage treatment facility either directly or indirectly by means of pumping or other means approved by the Engineer.

(c) The Contractor's attention is drawn to the Buildings Ordinance and to the Water Pollution Control Ordinance.

7. GENERAL PROCEDURES FOR THE AVOIDANCE OF POLLUTION DURING DREDGING, TRANSPORTING AND DUMPING

(a) All Contractor's equipment shall be designed and maintained to minimise the risk of silt and other contaminants being released into the water column or deposited in other than designated locations.

(b) Pollution avoidance measures shall include but not be limited to the following :

(i) Mechanical grabs shall be designed and maintained to avoid spillage and seal tightly while being lifted;

(ii) Cutterheads of suction dredgers shall be suitable for the material being excavated and designed to minimise overbreak and sedimentation around the cutter;

(iii) Where trailing suction hopper dredgers for dredging of marine mud are in use, overflow from the dredger and the operation of lean mixture overboard systems shall not be permitted, unless expressly approved by the Engineer in consultation with Environmental Protection Department;

(iv) All vessels shall be sized such that adequate clearance is maintained between vessels and the seabed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;

(v) All pipe leakages are to be repaired promptly and plant is not to be operated with leaking pipes;

(vi) Marine works shall cause no visible foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds;

(vii) Barges and hopper dredgers shall be fitted with tight-fitting seals to their bottom openings to prevent leakage of material;

(viii) Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;

(ix) Loading of barges and hoppers shall be controlled to prevent splashing of dredged material into the surrounding water, and barges or hoppers shall not be filled to a level that will cause overflowing of material or polluted water during loading or transportation; and

(x) Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action.

(8) <u>SPECIAL PROCEDURES FOR THE AVOIDANCE OF POLLUTION DURING DREDGING, TRANSPORTATION AND DISPOSAL OF DESIGNATED CONTAMINATED MARINE MUD)</u>

(a) Uncontaminated mud shall not be dumped other than in dumping grounds as may be approved for the purpose by the Director of Environmental Protection and in accordance with the Dumping at Sea Act (Overseas Territories) Order 1975. Contaminated mud shall not be dumped in gazetted dumping grounds. If it cannot be left in situ, it should be disposed of by specific methods as directed by the Director of Environmental Protection. The Contractor shall be responsible for obtaining all necessary licences for these operations.

Notes : The Engineer shall ensure that the Contractor has access to Works Branch Technical Circular No. 22/92 "Marine Disposal of Dredged Mud"; EPD Technical Circular No. 1.1.92 "Classification of Dredged Sediments for Marine Disposal"; and Fill Management Committee Paper FMC/58 (6.10.92) "General Allocation Conditions for Marine Borrow Areas and Mud Disposal Sites".

(b) When dredging, transporting and disposing of designated contaminated marine mud, the Contractor shall implement additional special procedures for the avoidance of pollution which shall include but not be limited to be following :

(i) Dredging of designated contaminated marine mud shall only be undertaken by a suitable grab dredger using a closed watertight grab; and

(ii) Transport of designated contaminated marine mud shall be by split barge of not less than 750 m^2 capacity well maintained and capable of rapid opening and discharge at the disposal site.

(iii) Discharge from split barges shall be placed in the designated special dumping pit by bottom dumping, at a location within the pit to be specified, from time to time, by the Secretary of the Fill Management Committee (FMC) and Geotechnical Engineering Office of Civil Engineering Department;

(iv) The dumping vessel shall be stationary throughout the dumping operation, discharges shall be undertaken rapidly, and the hoppers shall then immediately be closed; any material adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge next returns to the disposal site;

(v) Any substance which is found dumped by the Contractor outside the designated dumping ground shall be removed.; and

(vi) providing and maintaining functional marker buoys at the corners of the pit.

(c) Silt Curtains

(i) The Contractor will be responsible for designing, agreeing with the Engineer, and installing silt curtains where required to achieve the water quality requirements and the protection of water quality at any water intakes;

(ii) Silt curtains shall be formed from tough, abrasion-resistant permeable membranes suitable for the purpose, supported on floating booms in such a way as to ensure that the ingress of turbid waters to the enclosed water shall be restricted;

(iii) The boom of the curtain shall be formed and installed in such a way that tidal rise and fall are accommodated and that the ingress of turbid waters is limited. The removal and reinstallation of such curtains during typhoon conditions shall be as agreed with the Director of Marine; and

(iv) The Contractor shall regularly inspect the silt curtains and shall ensure that they are adequately moored and marked to avoid danger to marine traffic.

9. PREVENTION OF EROSION

Sections of permanent cut slope excavation at final cut face grade larger than 100 sq.m. shall be hydroseeded within one week of completion or as agreed by the Engineer.

APPENDIX 4

(Ans. b)

MEMO

From Chief Engineer/Sewerage Projects	*To* Distribution
Ref. (32) *in* SP/8/4157DS/S2P2 II	
*Tel. No.*25947450 *Fax No.* 28278700	*Your Ref.* (---) *in*
Date 27 July 1999	*Dated*

4157DS – Yuen Long and Kam Tin Sewerage, Stage 2, Phase 2
Yuen Long South Pumping Station Rising Main to Castle Peak Road and Sewers
Circulation of Revised General Layout Drawings

I refer to my previous memo ref. (47) in SP8/4157DS/S2P2 dated 25 June 1996 circulating the General Layout (Drawings No. DDN/157DS/5801A to DDN/157DS/5804A) of the proposed sewerage under the above project which will serve Yuen Long South and part of Yuen Long Area 13, and form part of the sewerage system for conveying sewage generated from Au Tau leading to Ping Shan.

2. Enclosed please find the revised General Layout (Drawings No. DDN/157DS/5808B, 5809A and 5810A) for your comments and information.

3. As compared with the previous circulation, the General Layout of the proposed sewerage works has the following major revisions:

(a) The proposed Yuen Long South Pumping Station is relocated from Ping Shan to a position near to the junction between Kung Um Road and Yuen Long Highway. Under the original design, laying 1km long deep gravity sewers in a depth of 7m to 9m below ground between Kung Um Road and Shan Ha Road is required. By relocating the pumping station, the deep sewers can be replaced by 2m to 3m deep rising main. This will entail substantial savings in construction time and cost. In addition, it can facilitate future maintenance of the sewers.

(b) As a result of (a), it is necessary to lay an additional gravity sewer of 600mm in diameter and 300m in length from Lam Hau Tsuen to Kung Um Road as shown on Drawing No. DDN/157DS/5808B in order to collect the sewage flows generated from the Yuen Long South catchment area.

...../2

In future, sewage generated from area A1 of the Yuen Long South catchment as shown on the attached Sketch No. 1 will be collected by a pumping station to be constructed under PWP Item No. 4215DS and then pumped to the manhole MB1 as shown on Drawing No. DDN/157DS/5808B, leading to the Yuen Long South Pumping Station. These works under PWP Item No. 4215DS are outside the scope of the captioned project and are not included in this circulation.

(c) A section (about 580m) of sewer near to Shan Chung Tsuen and Shung Ching San Tsuen previously shown on Drawings No. DDN/157DS/5801A and 5802A has been deleted from the works under PWP Item No. 4157DS and included in PWP Item No. 4274DS.

(d) The grave(s) at burial area YL/49 will be affected by the proposed sewerage. Resumption of the land is necessary where the grave(s) is situated. Site inspection revealed that the minimum width of the footpath where the rising main will be laid is 1.8m. Space is insufficient to accommodate the rising main with the associated bends and thrust blocks. As such, resumption of the land is unavoidable.

(e) An additional gravity sewer of 110m length is added at Kung Um Road as a tapping point to receive the sewage flows generated from Yuen Long Area 13 developments.

4. In order to avoid disruption of traffic, 2 sections of gravity sewer and 2 sections of rising main will be laid by pipe jacking at the following locations (shaded on the drawings) :

(a) gravity sewer across Kung Um Road and the adjoining nullah as shown on Drawing No. DDN/157DS/5808B

(b) gravity sewer along Kung Um Road between manholes MA1 and MA2 as shown on Drawing No. DDN/157DS/5808B

(c) rising main across Yuen Long Highway as shown on Drawing No. DDN/157DS/5808B

(d) rising main across Long Tin Road and Shan Ha Road as shown on Drawing No. DDN/157DS/5810A

...../3

5. Since the last circulation, comments have been received from the concerned parties. A summary tabulating the comments and the responses is attached in Appendix A.

6. Please note that the project is scheduled to start in August 2002 and for completion in February 2005. In view of the tight implementation programme, your reply on or before 13 August 1999 will be appreciated. A nil return is required please.

7. In particular, by distribution of this memo,

(a) would PM/NTN, TDD please note that (i) a pipe bridge will be constructed across the Ma Tin Tsuen Drainage Channel near to AVC1 as shown on Drawing No. DDN/157DS/5808B; and (ii) a tapping point (MA1) will be provided at Kung Um Road to receive sewage flow generated from Yuen Long Area 13 developments as shown on the same drawing. Please confirm whether the location of the tapping point is acceptable to you.

(b) would DLO/YL please note that no additional land resumption is required as compared with the previous circulation according to the latest land status plans except the grave area as shown on Drawing No. DDN/157DS/5809A. Your memo (39) in DLOYL 500/YRN/60AII dated 9 July 1999 refers.

(c) would DO/YL please note that another round of public consultation will be conducted in due course.

(d) would D of A&F, DPO/TMYL and ES(AM), HAB please advise whether the above sewerage works will encroach upon any existing or gazetted proposed country park or special area, conservation area, existing or gazetted proposed marine park or marine reserve, site of cultural heritage, or site of special scientific interest specified under Section Q.1, Part 1, Schedule 2 of the Environmental Impact Assessment Ordinance (Cap 499).

(e) would CE/MNW, WSD please mark and return to me one set of drawings showing your proposed and existing water works in the vicinity.

...../4

(f) would CE/MN, DSD please mark and return to me one set of drawings showing your proposed and existing drainage works in the vicinity.

(g) would CE/ST and CE/E&MP, DSD please advise whether a telemetry system will need to be provided for the Yuen Long South Pumping Station as shown on Drawing No. DDN/157DS/5808B so as to send signals to the existing Yuen Long Sewage Treatment Works.

(h) would DEP please note that a Project Profile will be submitted for works under this circulation in accordance with the Environmental Impact Assessment Ordinance (Cap 499). Another Project Profile will be submitted for works under PWP Item No. 4274DS Yuen Long and Kam Tin Sewerage, Stage III Phase 1A, Shap Pat Heung Rising Mains and Gravity Sewers and Phase 1B, Au Tau Sewage Pumping Station and Ancillary Works.

8. Should you have any queries, please do not hesitate to contact the undersigned.

(K. WONG)
for Chief Engineer/Sewerage Projects
Drainage Services Department

Encl.
Drawings No. DDN/157DS/5808B, 5809A and 5810A
Sketch No. 1
Appendix A

...../5

Distribution: (-w/e)

CE/PM, DSD
CE/DP, DSD
CE/MN, DSD
CE/E&MP, DSD
CE/ST, DSD
RHE/NT, HyD
CHE(NT/W), HyD
CE/Lighting, HyD
CHE/Str, HyD
CE/R, HyD
CE/WR, HyD
PM/NTN, TDD
CGE/Mainland West, GEO, CED
CE/MNW, WSD
DLO/YL, Lands D
CE/MW1-2, HyD

ES(AM), HAB
D Arch S
DSO/YL, Lands D
DPO/TMYL, Plan D
DO/YL, HAD
CE/RPIS, HAD
AC for T/NT
C of P (CSP Traffic), HKPF
D of H
D of A&F
DEMS
D of FS
DRS
DEP, EPD (SIPG)
DEP, EPD (LCO(TW))

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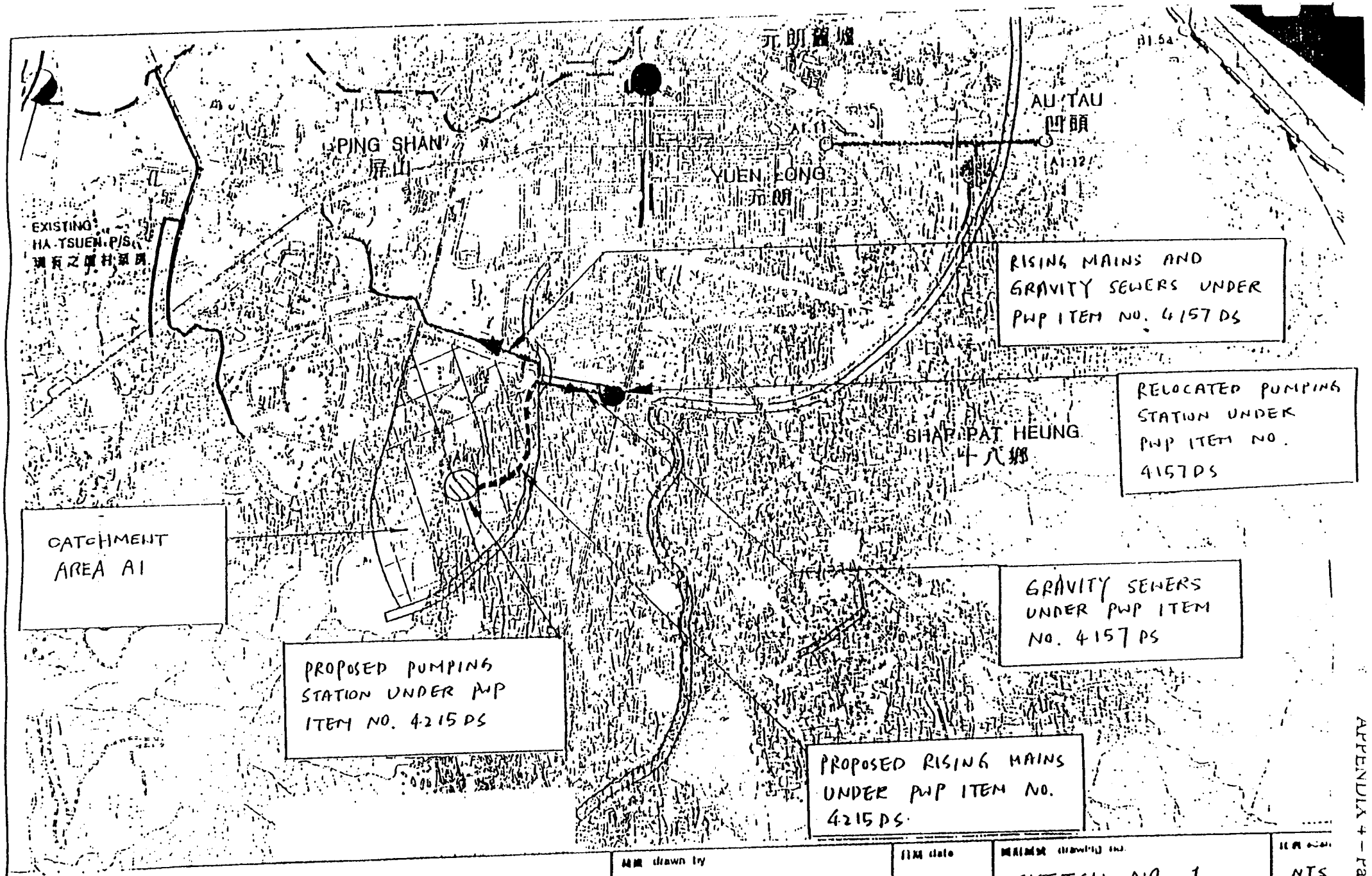


drawing title

工務計劃項目編4157DS號 - 元朗及錦田污水隧道總綱二期發展二期工程

4157DS - YUEN LONG AND KAM TIN SEWERAGE STAGE II PHASE 2

drawn by

approval

drawing no.

SKETCH NO. 1

N.T.S.

污水工程部

DRAINAGE SERVICES DEPARTMENT
GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATION REGION

Appendix A

Project: 4157DS/B - Yuen Long and Kam Tin Sewerage Stage 2 Phase 2

Circulation of General Layout Drawings vice CE/SP's memo ref. (47) in SP/8/4157DS/S2P2 dated 25.6.96
Summary of Responses to Comments from various Government Departments

Date	From	Ref.	Comments	Responses
1.7.96	CE/DP, DSD	( ) in DP/12/YL	Nil	Noted
2.7.96	CHE/NT, HyD	( ) in HNT 712/YL/50(4)	Use trenchless method for the section of sewer across Long Tin Road and Yuen Long Highway.	Noted & will be incorporated into the design.
2.7.96	CE/MN, DSD	( ) in MN8/157DS	1. Maintenance access should be fenced off properly & used exclusively by CE/MN, DSD. 2. The DI pipes adopted for the rising mains should have labels which could differentiate from the water mains. 3. Allow some spare parts of the fitting of the DI pipes for future maintenance use. 4. Details of washouts & airvalves should be given to CE/MN, DSD. 5. No public sewer available in the vicinity for the disposal of the sewage resulting from the cleaning process. 6. Detailed drawings should be given to CE/MN, DSD.	1. Due to the limited space, the maintenance access will be open to public. 2. Noted and will be incorporated into the design. 3. Noted & will be incorporated into the contract. 4. Noted & will be submitted when the details are finalized. 5. Noted. 6. Drawings will be submitted when the details are finalized.

Date	From	Ref.	Comments	Responses
3.7.96	TE/NTW, TD	( ) in NR 183/161/PWP157DS	1. No further comments on the revised layout. 2. The possible access to the pumping station should be Road L13 as shown on Layout Plan No. Y/YL-TN/2.	1. Noted. 2. Noted.
6.7.96	CE/R, HyD	(5) in RD7/5/6 Pt.1	No specific comments.	Noted.
8.7.96	CP (CSP Traffic)	(72) in CP/T/TMB 216/280Pt.62	No comments.	Noted.
9.7.96	CHE/Str, HyD	(92) in 5/31/8(4)	1. The rising mains between M12 and M13 appear to have conflicts with the culvert under Yuen Long Highway. 2. The rising mains between M22 & cutline 3-3 may affect the existing footbridge.	1. The rising main is realigned and will be laid underneath the Ma Tin Tsuen Drainage Channel. Pipe jacking will be deployed to lay the section of sewer across Yuen Long Highway. 2. The alignment of the rising main is revised so that the footbridge will not be affected.
9.7.96	DPO/TMYL, PD	( ) in PDYL 2/10/56	Planning permission is required for the pumping station.	The Yuen Long South Pumping Station has been relocated. Please advise whether planning permission is required for the newly proposed pumping station.
12.7.96	DEMS	(29) in 30/65/47II	No further comments.	Noted.
12.7.96	CE/MNW, WSD	(26) in WWO/M1319/1744/94	No comments.	Noted.
12.7.96	CE/North Lantau, WSD	(62) in WWO4740/R/301/10	The proposed DN1400 water mains under the Project No. B270WF are in close proximity to the pumping station and the rising mains.	The alignment of the rising main has been revised. Conflicts between the DN 1400 water mains and the rising main can be avoided.

Date	From	Ref.	Comments	Responses
15.7.96	DEP	( ) in EP20/08/64	No comments.	Noted.
15.7.96	DRS	(19) in RSD 2/HQ752/95(9)	No further comments.	Noted.
17.7.96	PM/NTN	( ) in NTN RU 2/10/88(III)	1. Proposed trunk sewer may affect the projects 22CD - 'Main Drainage Channels for Yuen Long Kam Tin Remainder' Phase 4 and 70CD - 'Yuen Long Bypass Floodway'. 2. Section of sewer between M1 and M6 would pose constraint to 70CD & therefore details of the section are required. 3. Details of sewer arrangement at box culvert near M6 are also needed. 4. The improvement works along Long Tin Road may be required for Tin Shui Wai further development. The works may affect the proposed pumping station site.	1. The concerned section of sewer is now under PWP Item No. 4274DS. Construction work for the sewer will be carried out in connection with the "Yuen Long Bypass Floodway". 2. Ditto. 3. Ditto. 4. As the proposed pumping station is relocated upstream to a location near Long Tin Road as shown on Drawing No. DDSS/19/108/ S8000, the improvement works along Long Tin Road should have no effect on the pumping station.
17.7.96	CE/E&MP, DSD	(17) in DSD EM/8/4157DS	No comments.	Noted.
22.7.96	DFS	(13) in FSD14/7596/92III	No further comments.	Noted.
24.7.96	CE/ST, DSD	( ) in DSD/ST/7/1/66	No comments.	Noted.
8.8.96	DLO, YL	(20) in DLOYL500/YRN/60A	1. With a copy of Land Status Plans for area from M1 to M3 and area from MA1 to MA6. 2. Further land status checking by DSO/YL is in progress.	1. Noted. 2. Noted.

Drainage Services Department
Sewerage Projects Division
44th floor, Revenue Tower, 5 Gloucester Road,
Wan Chai, Hong Kong.

香港灣仔告士打道5號
稅務大樓44樓

本署檔號 Our Ref : ( ) in SP/8/4157DS/S2P2/77
來函檔號 Your Ref :
電 話 Telephone : (852) 2594 7450
圖文傳真 Fax : (852) 2827 8700

5 August 1999

To Distribution

Dear Sirs,

4157DS – Yuen Long and Kam Tin Sewerage, Stage 2, Phase 2
Yuen Long South Pumping Station Rising Main to Castle Peak Road and Sewers
Circulation of Revised General Layout Drawings

I refer to my previous letter ref. (6) in SP8/4157DS/S2P2/77 dated 9 July 1996 circulating the General Layout (Drawings No. DDN/157DS/5801A to DDN/157DS/5804A) of the proposed sewerage under the above project which will serve Yuen Long South and part of Yuen Long Area 13, and form part of the sewerage system for conveying sewage generated from Au Tau leading to Ping Shan.

Enclosed please find the revised General Layout (Drawings No. DDN/157DS/5808B, 5809A and 5810A) for your information.

As compared with the previous circulation, the General Layout of the proposed sewerage works has the following major revisions:

(a) The proposed Yuen Long South Pumping Station is relocated from Ping Shan to a position near to the junction between Kung Um Road and Yuen Long Highway.

(b) As a result of (a), it is necessary to lay an additional gravity sewer of 450mm in diameter and 300m in length from Lam Hau Tsuen to Kung Um Road as shown on Drawing No. DDN/157DS/5808B in order to collect the sewage flows generated from the Yuen Long South catchment area.

(c) A section (about 580m) of sewer near to Shan Chung Tsuen and Shung Ching San Tsuen previously shown on Drawings No. DDN/157DS/5801A and 5802A has been deleted from the works under PWP Item No. 4157DS and included in PWP Item No. 4274DS.

(d) An additional gravity sewer of 110m length is added at Kung Um Road as a tapping point to receive the sewage flows generated from Yuen Long Area 13 developments.

In order to avoid disruption of traffic, 2 sections of gravity sewer and 2 sections of rising main will be laid by pipe jacking at the following locations (shaded on the drawings):

(a) gravity sewer across Kung Um Road and the adjoining nullah as shown on Drawing No. DDN/157DS/5808B
(b) gravity sewer along Kung Um Road between manholes MA1 and MA2 as shown on Drawing No. DDN/157DS/5808B
(c) rising main across Yuen Long Highway as shown on Drawing No. DDN/157DS/5808B
(d) rising main across Long Tin Road and Shan Ha Road as shown on Drawing No. DDN/157DS/5810A

Since the last circulation, comments have been received from the concerned parties. A summary tabulating the comments and the responses is attached in Appendix A.

In order to facilitate our planning and design work, please mark and return to me one copy of the drawings showing your proposed and existing utilities/services, if any, in the vicinity.

Please note that the project is scheduled to start in August 2002 and for completion in February 2005. In view of the tight implementation programme, your reply on or before 20 August 1999 will be appreciated. A nil return is required please.

Should you have any queries, please do not hesitate to contact the undersigned.

Yours faithfully,

(K. WONG)
for Chief Engineer/Sewerage Projects
Drainage Services Department

Encl.

Drawings No. DDN/157DS/5808B, 5809A and 5810A

Distribution: (-w/e)

The Headquarters, PLA Forces Hong Kong
China Light & Power Co. Ltd.
Cable & Wireless HKT
Hong Kong and China Gas Co. Ltd.
Rediffusion (Hong Kong) Ltd.
Wharf Cable TV Ltd.
Cable & Wireless Ltd.
New T & T Hong Kong Ltd.
New World Telephone Co. Ltd.
Hutchison Communication Ltd.
Networks Communication
Electricity Advisory Services Ltd.
CLP Engineering
Citybus Ltd.
Kowloon Canton Railway Corporation
Kowloon Motor Bus Co. Ltd.

c.c. CE/PM, DSD (Attn: Mr. W.K. FONG) - w/o

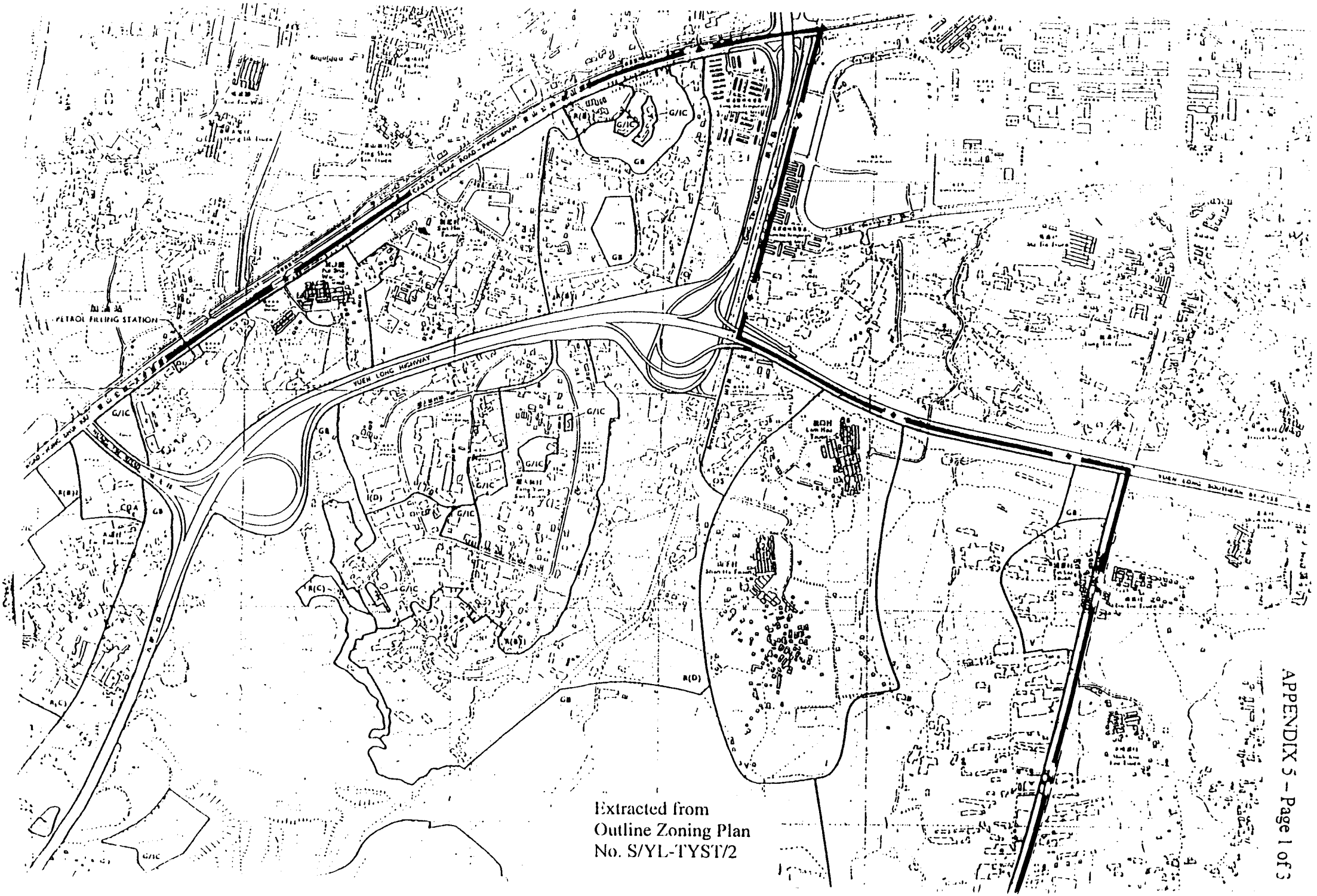
Appendix A

Project: 4157DS/B - Yuen Long and Kam Tin Sewerage Stage 2 Phase 2

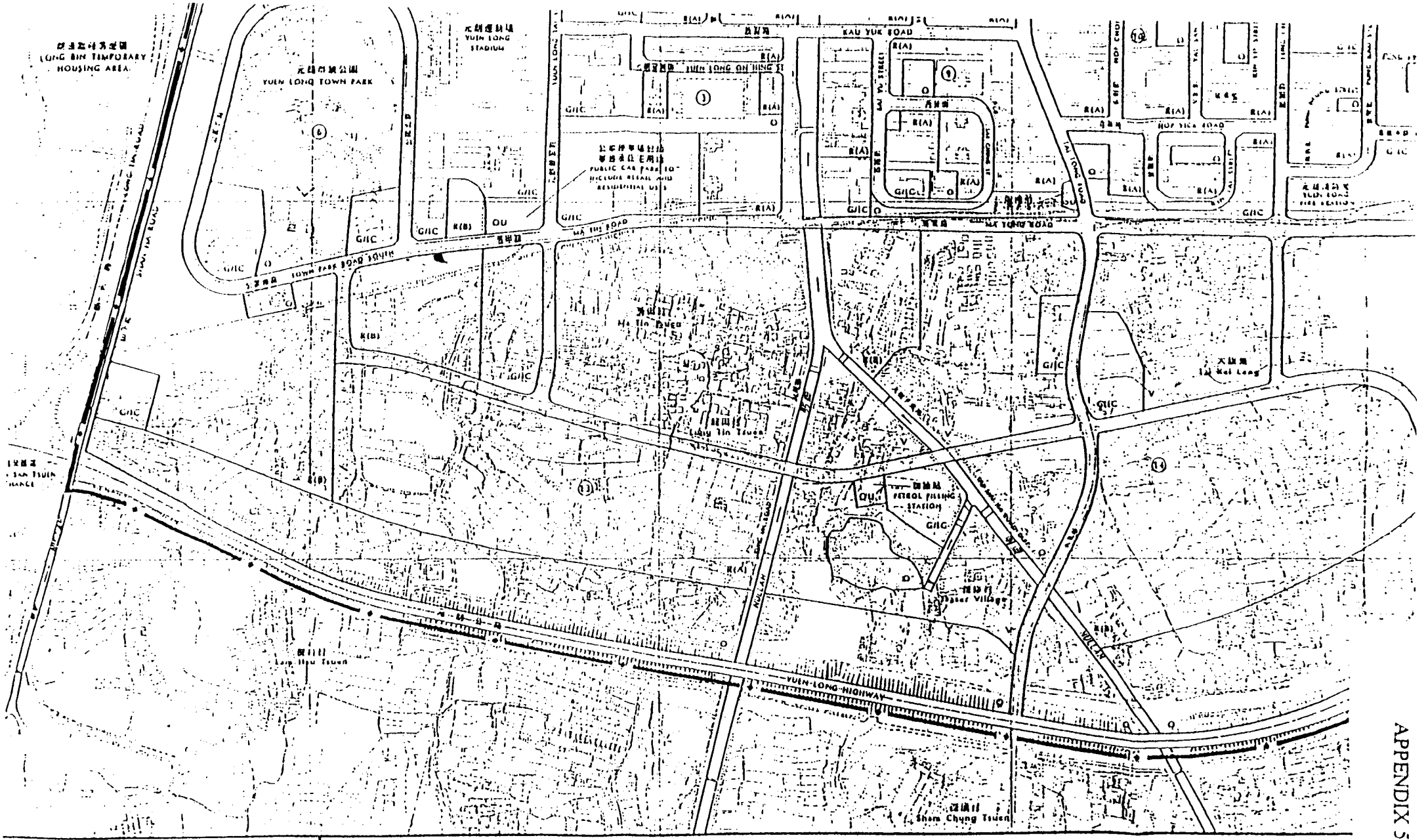
Circulation of Revised General Layout Drawings vice CE/SP's letter ref. (6) in SP/8/4157DS/S2P2/77 dated 9.7.96
Summary of Responses to Comments from various Utility Companies

Date	From	Ref.	Comments	Responses
30.7.96	HK Telecom International Co.	EP/NTPD/RW/YLG821M/96/HYY	With a copy of location plans of existing and proposed plants	Existing services/utilities noted
7.8.96	HK & China Gas Co. Ltd.	TM/O&M/1002A/880/96/1653 (KCO)	With a copy of location plans of existing and proposed plants	Existing services/utilities noted
7.8.96	China Light & Power Co. Ltd.	N250-76/L7096/96/MP/ML(163774)	With a copy of location plans of underground cables/overhead lines	Existing services/utilities noted

APPENDIX 5



Extracted from
Outline Zoning Plan
No. S/YL-TYST/2



APPENDIX 5 – Page 2 of 3

Extracted from
Outline Zoning Plan
No. S/YL/6

香港城市規劃委員會依據城市規劃條例
TOWN PLANNING ORDINANCE, HONG K
YUEN LONG - OUTLINE

S/YL/5

IS TO DRAFT PLAN No S/YL/5
UNDER SECTION 7 OF THE TOWN PLANNING
ON 21 MAY 1999.

P. C. Chan

BY FAX # 2827 8700

MEMO

From :	DPO/TMYL, Planning Department	*To :*	Chief Engineer/Sewerage Projects, Drainage Services Department (Attn : Mr. K. Wong)
Ref. :	( ) in PDYL 2/10/56	*Your Ref. :*	(32) in SP/8/4157DS/S2P2 II
Tel. No. :	2410 8209 *(Fax. No. :)* 2489 9711	*Date :*	27.7.1999
Date :	16 August 1999		

4157DS – Yuen Long and Kam Tin Sewerage, Stage 2, Phase 2
Yuen Long South Pumping Station Rising Main to Castle Peak Road and Sewers
Circulation of Revised General Layout Drawings

I refer to your memo under reference and the General Layout (Drawings No. DDN/157DS/5808B, 5809A and 5810A) of the proposed sewerage system enclosed therein.

2. The proposed sewerage system runs through a number of land-use zones on the draft Tong Yan San Tsuen Outline Zoning Plan (OZP) No. S/YL-TYST/3 within which sewage works carried out by Government departments is permitted as of right. It also encroaches onto an area zoned "Open Space" on the draft Yuen Long OZP No. S/YL/6 where public utility pipeline reserve is always permitted.

3. However, the proposed Yuen Long South Pumping Station and its ancillary transformer room have been relocated to an area within the "Green Belt" zone west of Kung Um Road and south of Yuen Long Highway in Tong Yan San Tsuen area. According to the Notes of the draft Tong Yan San Tsuen OZP, sewage pumping station is a kind of "public utility installation" which requires planning permission from the Town Planning Board (the Board).

4. I have no objection to the proposed sewerage system except that the proposed Yuen Long South Pumping Station is subject to the approval of the Board.

5. In connection with the above, I understand from our (Wong/Lai) telephone conversation today that you are not going to develop the Yuen Long South Pumping Station at the original site west of Long Tin Road, though the Board had already approved the development under planning application No. A/YL-TYST/43 on 14.8.1998.

6. I am not aware that the works limit of the subject sewerage project would encroach upon any country park, special area, conservation area, marine park or marine reserve, site of cultural heritage and site of specific scientific interest. I trust the Ex. Secy. of Antiquities and Monuments Office, D of A&F and HAB would provide their input in this regard.

7. I reserve my comment on the proposed pumping station and rising mains under PWP Item No. 4215DS as shown on Sketch No. 1 of your memo until more detailed information on the location and alignments are provided in future.

(Ms. Irene Lai)
for District Planning Officer/TMYL
Planning Department

IL/GC

APPENDIX 6

NOISE ASSESSMENT FOR THE PROPOSED YUEN LONG SOUTH PUMPING STATION
Under PWP Item No. 4157DS – Yuen Long and Kam Tin Sewerage, Stage II, Phase 2, Yuen Long South Pumping Station, Rising Main to Castle Peak Road and Sewers

1. General Introduction to the Procedures

This noise assessment for the proposed Yuen Long South Pumping Station is carried out in accordance with the "Technical Memorandum for the Assessment of Noise From Places other than Domestic Premises, Public Places or Construction Sites" and the "Technical Memorandum on Environmental Impact Assessment Process" published by EPD. The procedures are as follows :

(i) determine the appropriate Acceptable Noise Level for the Noise Sensitive Receiver in question
(ii) conduct measurements to obtain the Corrected Noise Level of the noise of a similar pumping station
(iii) compare the Corrected Noise Level with the Acceptable Noise Level to determine if the noise of the proposed pumping station is acceptable.

2. Determination of the Acceptable Noise Levels

Two Noise Sensitive Receivers (NSR 1& 2) are identified for the determination of the Acceptable Noise Levels.

The nearest Noise Sensitive Receiver (NSR 1) in accordance with the Technical Memorandum (TM) is a domestic premises along Kung Um Road. The location of the NSR 1 is shown on the attached Drawing No.1. It is in a low density residential area consisting of low-rise developments. The NSR 1 is at such a location that the dominant feature of the noise climate is the traffic noise from the nearby Kung Um Road and Yuen Long Highway. In other words, the NSR 1 will be indirectly affected by the proposed pumping station. According to Table 1, the Area Sensitivity Rating should be "B". The Acceptable Noise Level according to Table 2 should be 65 dB(A) from 0700 to 2300 hours and 55 dB(A) from 2300 to 0700 hours.

The location of NSR 2 is also shown on Drawing No. 1. It is also a low density residential area consisting of low-rise developments. The NSR 2 is at such a location that noise generated by the proposed pumping station is not noticeable. According to Table 1, the Area Sensitivity Rating should be "A". The Acceptable Noise Level according to Table 2 should be 60 dB(A) from 0700 to 2300 hours and 50 dB(A) from 2300 to 0700 hours.

3. Background Noise Monitoring

3.1 NSR 1

In order to determine the background noise, measurements were conducted at the nearest noise sensitive receiver (NSR 1) on 10 November 1999. The location selected for the noise measurements is shown on the attached Drawing No. 1. The measurement point is at a position 1m from the exterior boundary wall of a domestic premises by the side of Kung Um Road. The distance between the center location of pumps in the proposed pumping station and 1m from the facade of the nearest NSR is 84m. The weather was fine during the measurements.

Average A-weighted noise levels, Leq, over a 30-minute period were taken at the monitoring point. The noise results are summarized as follows :

Time	Leq(30), dB(A)
6:30-7:00	68.9
7:00-7:30	69.8
7:30-8:00	69.5
8:00-8:30	71.1
9:00-9:30	70.8
9:30-10:00	71.5
10:30-11:00	70.7
11:00-11:30	70.5
11:30-12:00	71.2
12:00-12:30	71.5
12:30-13:00	71.8
13:00-13:30	70.9
14:30-15:00	69.7
15:00-15:30	69.3
15:30-16:00	71.1
16:00-16:30	70.7
16:30-17:00	71.5
17:00-17:30	70.9

It should be noted that the background noise came mainly from the nearby Kung Um Road and Yuen Long Highway.

3.2 NSR 2

Noise measurements were conducted at NSR 2 on 16 November 1999. The location selected for the noise measurements is also shown on the attached Drawing No.1. The measurement point is at a position 1m from the exterior boundary wall of a domestic premises. The distance between the center location of pumps in the proposed pumping station and 1m from the façade of the NSR 2 is 120m. The weather was fine during the measurements.

Average A-weighted noise levels, Leq, over a 30-minute period were taken at the monitoring point. The noise results are summarized as follows :

Time	Leq(30), dB(A)
14:00-14:30	57.9
14:30-15:00	59.3
15:00-15:30	58.7
15:30-16:00	58.2
16:30-17:00	58.9
17:00-17:30	60.2

It should be noted that the background noise came mainly from the Yuen Long Highway.

4. Noise Forecast of the proposed Pumping Station

In order to determine the noise impact of the proposed Yuen Long South Pumping Station, noise measurements were conducted at a similar pumping station, namely, the Ping Shun Street Pumping Station in Yuen Long. The average dry weather flow of the Ping Shun Street Pumping Station is 45,792 cu.m/day which is larger than 36,900 cu.m/day of the proposed pumping station. This noise forecast based on the noise of the Ping Shun Street Pumping Station therefore will be on the conservative side. The noise monitoring was carried out on 30 September 1999 and 8 October 1999 when the pumping station was operational. The locations selected for the noise measurements are shown on Drawing No. 2. The weather was fine during the measurements.

The detailed layout of the Yuen Long South Pumping Station is being designed. However, it can be confirmed at this stage that the pumps and their installations (3 duty and 1 standby) are similar to that of the Ping Shun Street Pumping Station. The pumps will be situated underground in the dry well, which will be enclosed inside the pumping station building. The extraction fans of the de-odorizer will also be located within the building. Noise of the E&M equipment will be largely enclosed within the pumping station.

Average A-weighted noise levels, Leq, over a 30-minute period were taken at the monitoring points. The noise results are summarized as follows :

Date	Time	Location	Distance from Pumps	Leq(30), dB(A)
30.9.99	8:40-9:10	C	20m	60.9
	10:30-11:00	C	20m	59.6
	12:45-13:15	C	20m	59.5
	14:45-15:15	C	20m	58.9
	15:20-15:50	E	27m	59.9
	17:30-18:00	C	20m	60.5

It is noted that the noise level at location E is worse than that at location C because there is a open door facing location E. The orientation of the proposed Yuen Long South pumping station will be roughly the same as the Ping Shun Street pumping station. There will be no open door or extraction fan facing the NSRs.

Date	Time	Location	Distance from Pumps	Leq(30), dB(A)
8.10.99	9:24-9:54	P	2m	74.7
	9:55-10:25	A	7m	74.5
	10:25-10:55	B	9m	61.3
	10:56-11:26	C	20m	59.2
	11:27-11:57	D	32m	58.6

It should be noted from the results that the noise of the pump was reduced significantly by the concrete superstructure of the pumping station.

All the above noise level figures were measured when only one pump operated. The noise level at location C is used to predict the noise level at the NSR. From the measured figures, the maximum noise level at this location is 60.9dB(A).

In order to measure the background noise of the Ping Shun Street Pumping Station, a measurement was taken at location C on 16.11.99 at 11:30am-12:00pm when there was no pumps running. The measured noise level was 58.4 dB(A).

The Measured Noise Level (MNL) for only one pump running adjusted by the background noise therefore is :

$60.9 \text{ dB(A)} = 10 \log (10^{0.1 \times \text{MNL}} + 10^{0.1 \times 58.4}) \text{ dB(A)}$

MNL= 57.3 dB(A)

If three duty pumps operate together, the total noise level = $10 \log (10^{0.1 \times 57.3} \times 3)$
= 62.1 dB(A)

To allow for facade effect, the total noise level should be 62.1dB(A) + 3dB(A)
=65.1 dB(A)

5. Predicted Noise Level at the Noise Sensitive Receivers (NSR 1 & 2)

5.1 NSR 1

According to general acoustic principle, correction for distance from measured noise level should be 20 log (distance ratio)

= 20 log (84 / 20)

= 12.5 dB(A)

The noise level taking into account of distance therefore is

65.1 dB(A) – 12.5 dB(A) = 52.6 dB(A)

In accordance with Paragraph 3.3.5 of the TM, the Corrected Noise Level (CNL)

= MNL + c_{tone} + c_{imp} + c_{int} dB(A)

Since all the pumps will be properly maintained, the tonality factor f_{tone} is considered to be less than 3 dB. According to Table 3, the tonality correction is equal to zero.

As the pumps will run constantly and continuously, the noise is not impulsive in character. The correction for impulsiveness c_{imp} therefore can be ignored.

Furthermore, the A-weighted sound pressure level of the noise under investigation is not subject to rapid changes in level of 5 dB(A) or more within the sample time period, the correction for intermittency therefore can be ignored.

The Corrected Noise Level CNL = 52.6 dB(A)

The Corrected Noise Level of 52.6dB(A) is lower than the Acceptable Noise Level of 65dB(A) during the day and evening period. During the night time period, only one pump will be operated occasionally. The noise level should be within the allowable limit.

The noise level of the proposed pumping station, being more than 5dB(A) below the appropriate Acceptable Noise Level, also satisfies Table 1A, "Noise Standards for Planning Purposes" of the Technical Memorandum on Environmental Impact Assessment Process.

The noise impact due to the proposed pumping station is negligible in comparison with the traffic noise.

5.2 NSR 2

According to general acoustic principle, correction for distance from measured noise level should be 20 log (distance ratio)
= 20 log (120/20)
= 15.6 dB(A)
The noise level taking into account of distance therefore is
65.1 dB(A) – 15.6 dB(A) = 49.5 dB(A)

In accordance with Paragraph 3.3.5 of the TM, the Corrected Noise Level (CNL)
= MNL + c_{tone} + c_{imp} + c_{int} dB(A)

Similar to NSR 1, c_{tone} , c_{imp} and c_{int} can be ignored.

The Corrected Noise Level CNL = 49.5 dB(A)

The Corrected Noise Level of 49.5 dB(A) is lower than the Acceptable Noise Level of 60dB(A) during the day and evening period. During the night time period, only one pump will be operated occasionally. The noise level should be within the allowable limit.

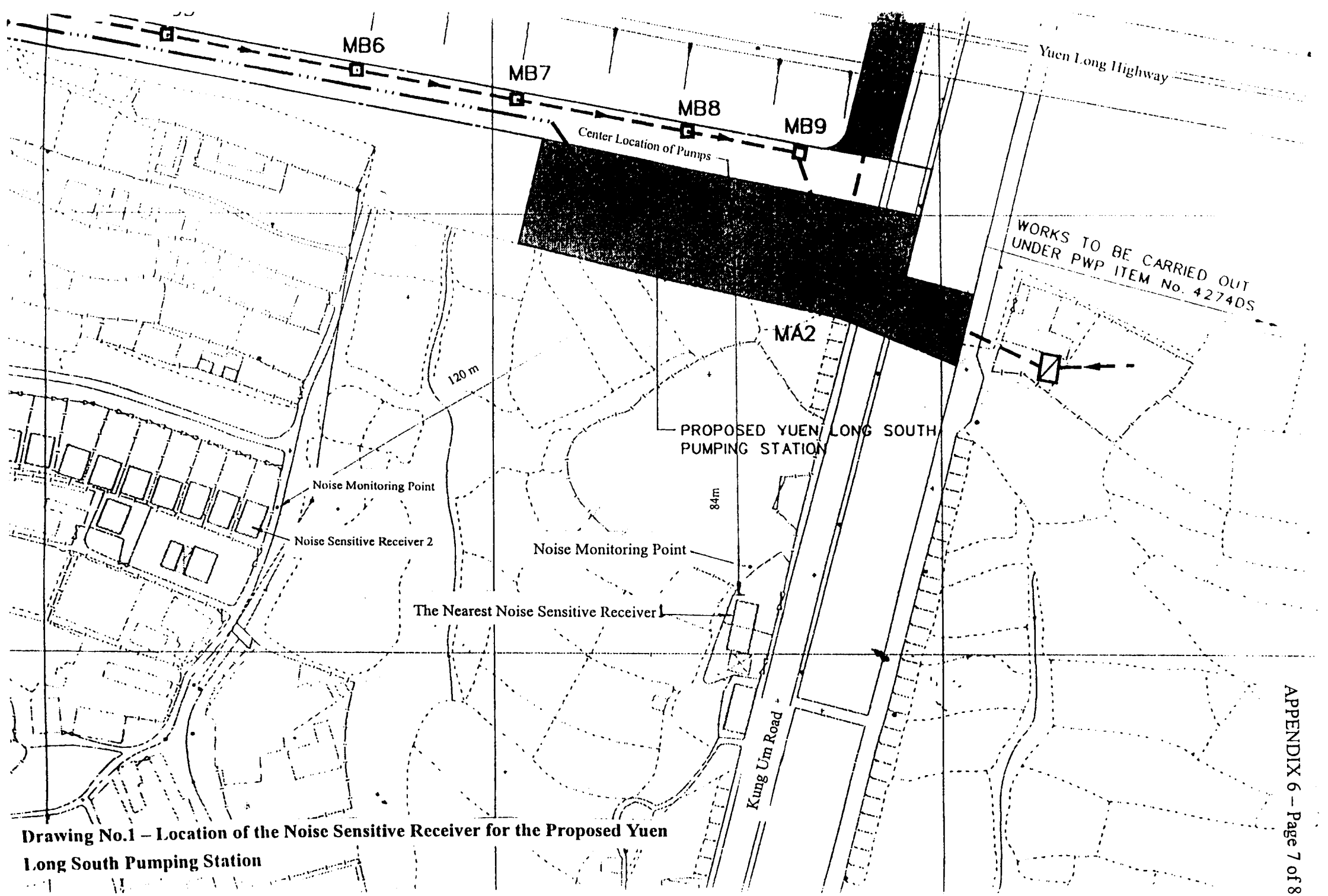
The noise level of the proposed pumping station, being more than 5dB(A) below the appropriate Acceptable Noise Level, also satisfies Table 1A, "Noise Standards for Planning Purposes" of the Technical Memorandum on Environmental Impact Assessment Process.

The noise impact due to the proposed pumping station is negligible in comparison with the traffic noise.

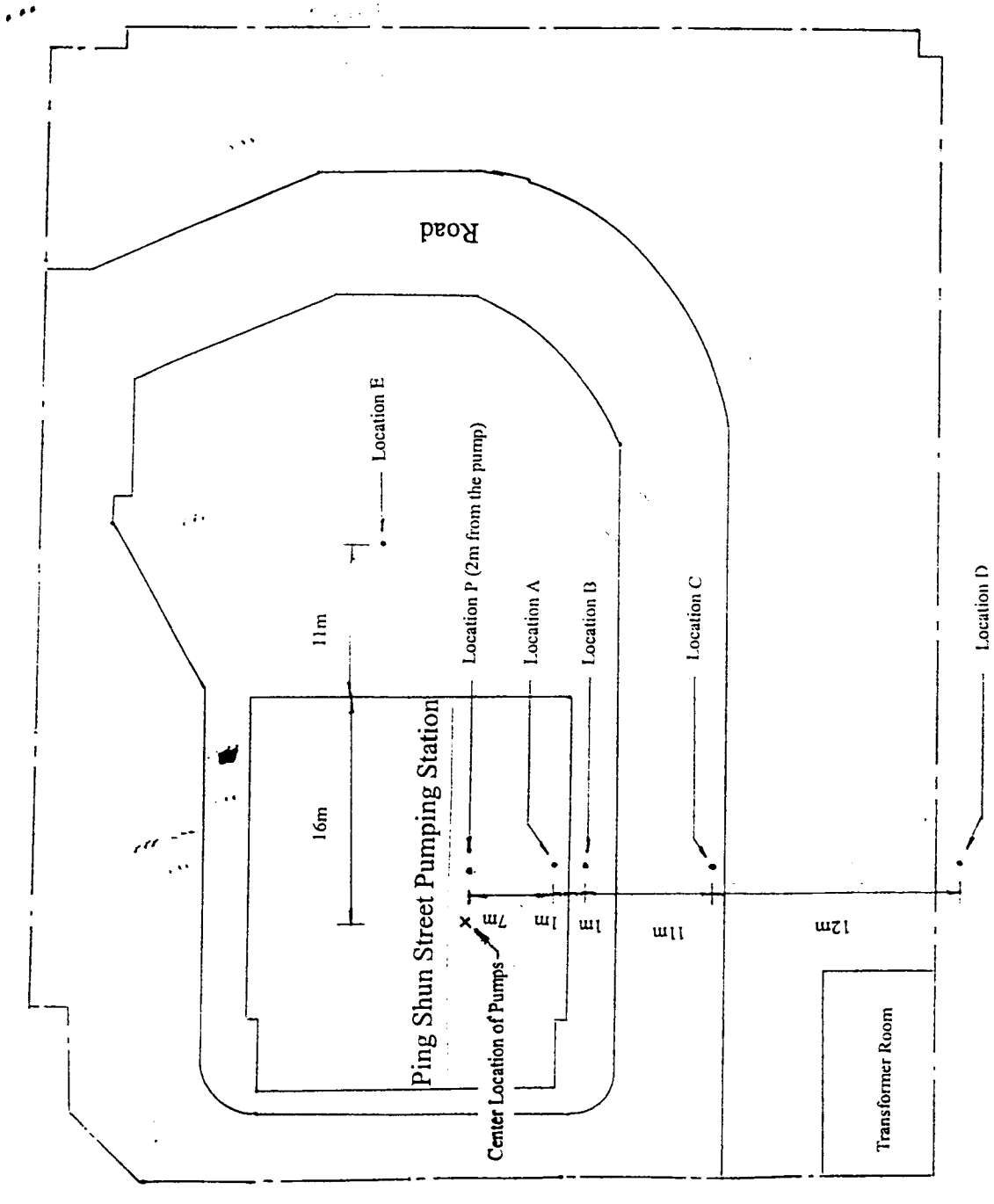
4. Conclusion

Noise measurements were conducted for the background and a similar pumping station at Ping Shun Street, Yuen Long. The noise impact of the proposed pumping station is within the allowable limits set in the Technical Memoranda published by EPD. The impact of noise on the nearby noise sensitive receivers is negligible.

END

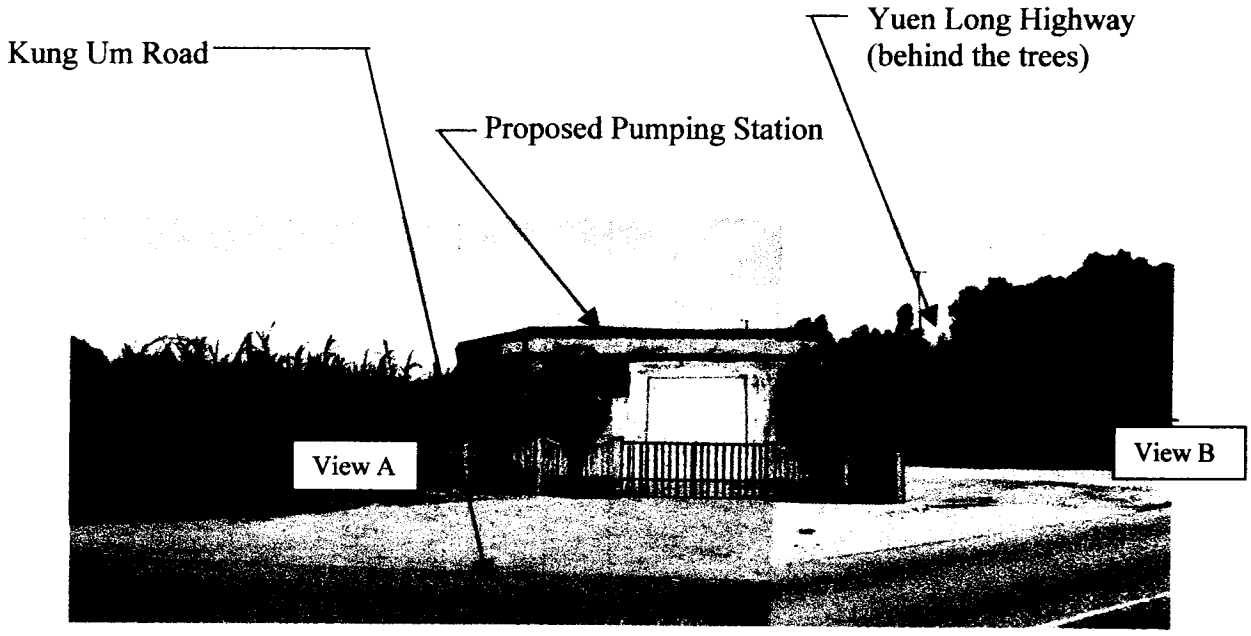


Drawing No.1 – Location of the Noise Sensitive Receiver for the Proposed Yuen Long South Pumping Station



Drawing No. 2 – Location of the Noise Monitoring Points for the Ping Shun Street Pumping Station in Yuen Long

APPENDIX 7



View A
(Without pumping station)

View B
(Without pumping station)

Proposed Location for Yuen Long South Pumping Station